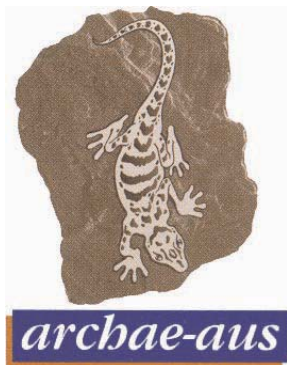




Technical Appendix E1

Cultural Heritage Assessment and
Management Plan – Proposed Gorgon
Development, Pilbara, North-Western Australia

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**Cultural Heritage Assessment &
Management Plan - Proposed Gorgon
Development, Pilbara, North Western
Australia**

April 2004

For
Environmental Resources Management
Australia Pty Ltd & ChevronTexaco
Australia Pty Ltd

By
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DISCLAIMER

The authors are not accountable for omissions and inconsistencies that may result from information which may come to light in the future but which was not forthcoming at the time of this research.

ABSTRACT

This document details the results of detailed cultural heritage desktop research conducted for the proposed Gorgon Development on the Pilbara Coast and Barrow Island. An assessment of Indigenous, historic and maritime cultural heritage research is made and a description of preliminary field investigations in March 2004 on Barrow Island is also included in Appendix 2.

It is clear from the assessment that Barrow Island holds an unusual place in the pre-history and history of Western Australia. While some cultural heritage assessments have occurred on the island and mainland pipeline route it is concluded that they are insufficient for ChevronTexaco Australia's (CTA) proposal. There remains the high probability that unidentified cultural heritage is within the proposed Gorgon Development area. The major conclusions of the report are:

1. The three Indigenous communities (Yabburara/Mardudhunera, Kurama Marthudunera and Thanlanyji) who have expressed an interest need to be consulted in relation to cultural heritage management within the proposed Gorgon Development. This consultation may include physical inspection of the proposed development on Barrow Island and on the mainland.
2. That at present:
 - a) Two identified cultural heritage sites may be impacted on Barrow Island by the Flacourt Bay Gas Feed Pipeline option.
 - b) Four identified cultural heritage sites may be impacted on the mainland.
3. Owing to the low level of formal investigation, prior to construction all proposed ground disturbance areas, including the seabed, should be systematically surveyed for Indigenous, historical and maritime cultural heritage.
4. Proposed construction should be monitored in areas of high potential for sub-surface cultural material.

This document also contains a detailed cultural heritage management plan (CHMP) for the proposed development.

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1 INTRODUCTION

This document details the results of cultural heritage desktop research conducted for the proposed Gorgon Development on the Pilbara Coast, Western Australia, including Barrow Island. The assessment includes three components; Indigenous anthropology and archaeology, historical archaeology and maritime archaeology. Appendix 2 details the results of a preliminary archaeological field investigation conducted on Barrow Island. Its aim was to visit a number of previously recorded sites that may be impacted by the Gorgon Development and inspect areas within the development that have the high potential for cultural material. In addition the document contains a detailed cultural heritage management plan (CHMP) for the proposed development.

1.1 PERSONNEL

The following people participated in the compilation of the report:

Name	Qualifications	Organisation & Project Experience
Fiona Hook	BA(Hons)	<i>Archae-aus Pty Ltd</i> Archaeologist – Indigenous; 10 years – Indigenous archaeological assessments; 8 years -management of cultural heritage projects.
Eddie McDonald	PhD	<i>Ethnoscience</i> Anthropologist – Indigenous; 27 years – Indigenous anthropological assessments and management of cultural heritage projects in WA.
Alistair Paterson	PhD	<i>Eureka, University of Western Australia</i> Archaeologist – Historical; 10 years – Historical archaeological assessments and management of research grants. Currently a lecturer in Archaeology.
Corioli Souter	BA, Post Grad Dip	<i>Department of Maritime Archaeology, Western Australian Maritime Museum</i> Archaeologist – Maritime; 6 years – Maritime archaeological assessments and management of research grants. Currently an assistant curator.
Bruce Veitch	PhD	<i>Archae-aus Pty Ltd</i> Archaeologist – Indigenous; 15 years - Indigenous archaeological assessments; 12 years - management of cultural heritage projects.

Each component was completed by the following people:

Heritage Component	Desktop Research & Report Writing	Barrow Island Site Visit (March 2004)	Management Plan
Indigenous Anthropology & Indigenous Community Consultation	Eddie McDonald		Eddie McDonald
Indigenous Archaeology	Fiona Hook Bruce Veitch	Bruce Veitch	Fiona Hook Bruce Veitch
Historical Archaeology	Alistair Paterson	Alistair Paterson	Alistair Paterson
Maritime Archaeology	Corioli Souter	Corioli Souter	Corioli Souter
Project Management & Report coordination	Fiona Hook		

1.2 METHODOLOGY

The project brief requested that Archae-aus “assess and report on the potential Cultural Heritage impacts (indigenous and non-indigenous) and recommend a plan (Cultural Heritage Plan) to avoid, mitigate and manage activities that may have the potential to impact Cultural Heritage Sites” for the proposed Gorgon Development. To achieve this, research involved the following components:

1. Desktop research.

This component involved the authors utilising resources held by the following organisations:

- a) Battye Library.
- b) ChevronTexaco Library.
- c) Department of Indigenous Affairs (DIA).
- d) Heritage Commission.
- e) Western Australian Museum.
- f) Western Australian Maritime Museum.
- g) University of Western Australia Library.

In addition the authors spoke to the following people regarding cultural heritage:

- a) Dr Ken Aplin – palaeontologist at CSIRO.
- b) Harry Butler– consultant to ChevronTexaco.
- c) Dr Alan Dench – linguist at UWA.
- d) Dr Michael McCarthy – maritime archaeologist with WA Maritime Museum.
- e) Jo Pritchard – historian with Local History Office, Shire of Roebourne.
- f) Peter Randolph – heritage officer in DIA.
- g) Dr Peter Veth – Deputy Director of Research at AIATSIS.
- h) Anna Vitenbergs - historian with Local History Office, Shire of Roebourne.

2. Indigenous Community Consultations.

The consultations for this study aimed at ascertaining if Indigenous people wished to be consulted regarding cultural heritage within the Gorgon Development. At the time of the consultations no discussion had occurred between CTA and Indigenous groups. Discussions via telephone and email were held with the following groups:

- a) Thanlanyji were contacted through Ms Glenys Hayes (Coordinator of the Buurabalayji Thalanyji Association Inc.). In addition the anthropologist held brief discussions with a number of elders in Onslow.
- b) Kurama Marthudunera were contacted through Robin Stevens (Acting Heritage Manager for Pilbara Native Title Service).
- c) Yabburara/Mardudhunera were contacted through their heritage advisor Ron Parker (Consultant Anthropologist).

3. Preliminary Fieldwork.

- a) In March 2004 a preliminary investigation of the proposed development on Barrow Island was conducted by archaeologists Alistair Paterson, Corioli Souter and Bruce Veitch. The aim of this was twofold: firstly, to relocate

previously recorded cultural heritage sites within and adjacent to the Gorgon Development; and secondly to inspected the proposed development area in preliminary detail, with spot checks undertaken at areas of high archaeological potential such as coastal areas and claypans. The results of this assessment are detailed in Appendix 2.

4. Preparation of desktop assessment and Cultural Heritage Management Plan.

1.3 GLOSSARY

This glossary list refers to technical terms in used in this report.

Adze – stone tool designed for working the surface of wooden objects (Horton 1994:36; McCarthy 1976:29-34).

Artefact scatter - locations where a range of activities has occurred such as the manufacture and maintenance of tools and the processing of foods. In the context of Indigenous archaeological sites, flaked and ground stone artefacts are the most common artefact type.

Backed artefact - a thin flake with steep, bipolar retouch on one lateral margin and a sharp edge on the opposite margin.

Barracoon - a rough barrack, set of sheds, or enclosure, in which Black slaves (originally), convicts, etc., are temporarily detained (Simpson & Weiner 1989).

Cutter – a ship with one mast rig with gaff mainsail, stay foresail, jib and topsail, and running or reefing bowsprit (de Kerchove 1961).

Eloura - large backed artefact (McCarthy 1976:29).

Flaked Artefact – stone, glass or porcelain artefacts that possess one or more of the following characteristics: a positive or negative ring crack; a distinct negative or positive bulb of percussion or force; a definite erailure scar beneath a striking platform; and definite remnants of flake scars (e.g. dorsal scars and ridges) (Andrefsky 1998: xxi-xxxvii; Hiscock 1984: 128).

Ground Artefact – usually hard wearing stone such as granite, basalt or ironstone with clear evidence of polishing on one or more surfaces. A number of different types occur in Australia including mullers and millstones used for flat grinding of seeds, ochre; and mortars and pestles for pounding ochre, bones and plant material (Smith 1986:33).

Holocene - the most recent geologic era; from about 10,000 years ago to the present.

Last Glacial Maximum - the period of time, approximately 18,000-22,000 years ago, during the last great ice age when glaciers, ice sheets and sea ice reached their maximum thickness and aerial extent.

Lock Hospital - a hospital for the treatment of venereal diseases (Simpson & Weiner 1989).

Lugger – see pearling lugger.

Midden, Shell – scatter, pile or mound of the remains of one or thousands of shellfish meals (Horton 1991:982).

Pearling Lugger – a local name given in North West Australia to small ketch rigged boats employed in pearl fisheries. Usually planked in Australian Jarrah, copper fastened and copper sheathed. A fast sailer which is sometimes fitted with an auxiliary engine (de Kerchove 1961).

Pedestrian Survey – archaeological survey technique involving the visual inspection of the ground surface while walking across the landscape (Banning 2002:40).

Pleistocene - the glacial epoch preceding the Holocene, extending back from 10,000 years ago to about 1.8 million years ago. The Pleistocene and Holocene epochs comprise the Quaternary period (Horton 1994:876)

Reduction Area - a cluster of flaked stone artefacts which represent the remains of the flaking of a core. Artefacts within a reduction area can usually be conjoined and represent a single flaking event.

Retouched Artefact – where the artefact exhibits flake scars extending onto the ventral surface and/or deriving from the ventral surface. These flake scars may form during use or treadage, as well as during knapping.

Rock-shelter - overhang, cave or cliff face that contains evidence of human occupation in the form of stone artefacts, economic shell species, charcoal, faunal material or rock art.

Shell Scatter – see midden above.

Stratified cultural deposit –cultural material and sediment layered in a way that mimics rock layers in geology. The lower levels of the deposit are older than the levels above if no disturbance has occurred.

Systematic Survey – assessment of a given area by spacing survey team at an equal distance with each team member responsible for inspecting along linear / zigzag transect (Banning 2002:41).

Vehicle Survey – assessment of a given area by inspecting the ground surface from a slow moving vehicle (Banning 2002:40).

Windscreen Survey (see Vehicle Survey).

2 GORGON DEVELOPMENT

The development is described in detail in the 2003 EIS/ERMP (Gorgon Australian Gas 2003). In summary, the proposed Gorgon Development comprises the following components:

1. Sub-sea gathering infrastructure at the Gorgon gas fields.
2. 70 km long feed gas pipeline to bring gas/well stream fluids to Barrow Island from the Gorgon gas field. There are currently two options, one landing at Flacourt Bay and the second at White's Beach.
3. Gas processing facility on the east coast of Barrow Island.
4. Port facilities on the east coast of Barrow Island.

5. CO₂ pipeline and sequestration system from the gas processing facility. In its current form this pipeline is approximately 5 km long and extends north from the proposed gas processing facility.
6. 80 km long domestic gas (DOMGAS) infrastructure piping gas from Barrow Island to the mainland. It is proposed to run the DOMGAS pipeline parallel with the pre-existing Apache gas pipeline and join the Dampier-Bunbury Natural Gas Pipeline at Compressor Station 1.

3 LEGISLATION

3.1 INDIGENOUS HERITAGE

All Indigenous heritage sites and objects are protected under Western Australia's *Aboriginal Heritage Act 1972 (AHA)*. Section 17 of the *AHA* states that it is an offence to -

1. alter an Indigenous site in any way, including collecting artefacts;
2. conceal a site or artefact; or
3. excavate, destroy or damage in any way an Indigenous site or artefact;

without the authorisation of the Registrar of Aboriginal Sites under Section 16 or the Minister of Indigenous Affairs under Section 18 of the *AHA*.

The *AHA* protects sites and objects that are significant to living Indigenous people as well as Indigenous sites of historical, anthropological, archaeological and ethnographic significance. The *AHA* is currently administered by the Department of Indigenous Affairs (DIA).

Indigenous heritage sites are also protected under the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (HPA)*. The *HPA* complements state/territory legislation and is intended to be used only as a 'last resort' where state/territory laws and processes prove ineffective. Under the *HPA* the responsible Minister can make temporary or long-term declarations to protect areas and objects of significance under threat of injury or desecration. The *HPA* also encourages heritage protection through mediated negotiation and agreement between land users, developers and Indigenous people.

Indigenous human remains are protected under the *AHA* and the *HPA*. In addition the discovery of human remains requires that the following people are informed: the State Coroner or local Police under Section 17 of the *Coroners Act 1996*; the State Registrar of Aboriginal Sites under Section 15 of the *AHA*; and the Federal Minister for Indigenous Affairs under Section 20 of the *HPA*.

A recent document finalised by the Environmental Protection Authority (2004:4) states that Indigenous heritage will be assessed as a *relevant environmental factor* during formal EIA assessments by the EPA.

3.2 HISTORIC HERITAGE

Indigenous archaeological sites created following European exploration and settlement in the 1800s are protected under Western Australia's *Aboriginal Heritage Act 1972* (see Section 3.1).

The Heritage Council is Western Australia's advisory body on heritage matters and focuses on places, buildings and sites under the *Heritage of Western Australia Act 1990 (HWAA)*. The Heritage Council's mission is to provide for and encourage the conservation of places significant to the cultural heritage of WA, and would thus have an interest in historic sites on Barrow Island. It should be stated however, that the Heritage Council has largely been unconcerned with the archaeological resource, focusing instead on historic standing buildings.

Barrow Island is included on the state register as: 'Place No: 14365 Name: Barrow Island Marine Area – part'. We presume this is solely on the basis of its environmental value although no boundaries or locations for this listing are provided in the register. It should be noted that:

The Heritage of Western Australia Act 1990 requires Local Government Authorities and State Government Agencies to seek the advice of the Heritage Council if they are considering development of a place that is entered in the Register of Heritage Places. Work may not proceed before advice has been received and the work must comply with the advice (Electronic Document, accessed 1 April 2004, http://www.heritage.wa.gov.au/b_development_referrals.html)

Although CTA is not a Local Government Authority/Government Agency, the Heritage Council should be informed of the results of any archaeological surveys if historic finds are identified on the island. It would appear the listing on the State Register of Historic Places is one by default following the creation of a Marine Park on the Register of the National Estate (Place 17417) for environmental value. For that nomination there was no study of heritage value, although the potential was recognised: "It is possible that cultural values, both indigenous and non-indigenous, of National Estate significance may exist in this place".

Any historical archaeological material at Barrow Island would derive from seafaring contexts as all visitors would have arrived in boats. As such there is potential for archaeological sites and isolated artefacts to be subject to the Western Australian *Maritime Archaeology Act 1973* (see Section 3.3).

3.3 MARITIME HERITAGE

The State *Maritime Archaeology Act 1973 (MAA)* protects the remains of ships lost before 1900 and any associated relics. Section 4 of the *MAA* defines what constitutes a maritime archaeological site: and includes remains of an historic ship; an area where any relic is known to be located; any structure, campsite, fortification or other location of historic interest associated with an historic ship. A maritime archaeological site may be below the low water mark, between the tide marks or on land. This section of the *MAA* specifically relates to material from and including the remains of an "historic ship", which is defined as any ship that before the year 1900 was lost, wrecked or abandoned, or was stranded, on or off the coast of Western Australia. The term "relic" is any thing of historic interest that appears to have formed part of, or to have been carried by or derived from or associated with any historic ship, and any thing to which the provisions of Section 6(3) of the *MAA* apply. The same legislation includes protection of material derived from or associated with any ship, regardless of whether it is "historic". Section 6(3) vests in the Western

Australian Museum, on behalf of the Crown, property in and the right to possession of any object, which in the opinion of the Director of the Museum, was abandoned in the State before 1900 and was derived from or associated with any ship and which, immediately prior to 1973, was not in the lawful possession of any person (Crown Law advice 18/02/98, MA27/80).

The *Historic Shipwrecks Act 1976 (HSA)* is Federal legislation which protects all shipwrecks in Commonwealth waters and associated relics which are more than 75 years old. Shipwrecks which have not been located are still protected under the *HSA*.

4 CULTURAL HERITAGE ASSESSMENT

The Gorgon Development has been assessed for Indigenous anthropology and archaeology as well as historical and maritime cultural heritage with an emphasis on archaeological sites. The results of the assessment are detailed below.

4.1 INDIGENOUS HERITAGE

4.1.1 Indigenous Anthropology

4.1.1.1 Language Groups

Tindale (1974) identifies three tribal or language group territories on the Northwest coast that are of relevance to the Gorgon Development. These “tribes” are from north to south:

1. Mardudunera [Martuthunira]
2. Noala [Nhuwala]
3. Talandji [Thalanyji]

Tindale (1974:248) describes the location of the Mardudunera as follows:

Coastal plain north of the Fortescue River; north to visited islands of the Dampier Archipelago on log rafts; inland only to the foot of the ranges. These are perhaps the people described by King, (1827:i.38) as tide riding on logs near Lewis Island.

Noala country is described by Tindale (1974:254) as follows:

Coastal plain from about Cape Preston near the mouth of the Fortescue River southwest in a strip about 40 miles (65 km.) wide to a line running south from Onslow, but not extending to the Ashburton River, which is held by the Talandji. They kept near the seashore and went out to Barrow and Monte Bellow Islands using a form of wooden “canoe”... Inland areas, away from creeks, could only be visited after rain when the claypans were filled. Most of their livings came from tidal inlet fish traps.

Tindale (1974:256) describes Talandji country as follows:

Along the Ashburton River from the coast to Nanutarra, Boolaloo, and the lower Henry River. .. Their extension to the coast at Exmouth Gulf coast is

probably due to late migration, offshore fresh water spring or springs at [‘Pi:ltan] (now within Onslow township) was an ultimate water supply base.

Other research has raised issues about Tindale’s descriptions of the country of various groups in the west Pilbara area. For example, Dench (1987:5), following extensive linguistic fieldwork in the area, argues that Martuthunira country is more extensive than described by Tindale and notes that:

On the west coast, the grass plains and mudflats between the Robe River and the Cane River were shared with the Nhuwala. Warrambo Creek (Wartampu) is described as the boundary though the Nhuwala foraged as far north to the northeast as the Robe River.

Of the groups referred to by Tindale (1974) few people now identify as Nhuwala and they tend to be considered as part of the Thalanyji community resident in Onslow and other Northwest towns (Dench 1987). The last Martuthunira speaker died some years ago, however, a number of people claim interests in Martuthunira country and these claims are symbolised in the names of their native title claims.

There are three Registered Native Title Claims encompassing the people from the language groups in the area and with registered interests in the sea and offshore islands:

1. Yabburara/Mardudhunera (WC96_089)
2. Kurama Marthudunera (WC99_012)
3. Thanlanyji (WC99_045)

Wong-Goo-Tt-Oo (WC98_040) claim is located further to the east and encompasses the sea and offshore islands in the vicinity of the Cape Preston. However, none of the active native title claims encompasses Barrow Island, though a representative of the Thalanyji group noted that it was their original intention to extend their claim to cover the island.

4.1.1.2 Ethnographic Evidence for Indigenous Offshore Island Use

Tindale (1974:254) mentions the use of offshore islands by two of the three groups mentioned above, namely the Mardudunera [Martuthunira] and Noala [Nhuwala] and specifically mentions the Noala visiting “Barrow and Monte Bellow Islands using a form of wooden ‘canoe’”. However, it is not clear what sort of craft and what type of usage of the islands he is referring to¹.

Though not referring to the use of the islands by the Thalanyji, there is no reason to believe that the Thalanyji, like their coastal neighbours, did not have water craft and

¹ It has not been possible to inspect Tindale’s field journals as the Archives in the South Australian Museum have closed for two to three months because of staffing problems. Copies of the journals are held by the Family History Unit of the Department of Indigenous Affairs. However, access to the journals is restricted to members of the Aboriginal families mentioned in the journals or those with written permission from these families. The officer in charge of the unit has reported that she can find no reference to “canoes” in Tindale’s journal entries for the Noala [Nhuwala].

visit the offshore islands. Indeed, Bates (1985:257-258) notes the exploitation of offshore islands by Aboriginal people:

Along the Northwest coast there is [sic] a number of small islands which the natives of the Roebourne district are able to reach ... In the early days the natives transported themselves to the various islands by means of logs of mangrove wood, two of these being joined neatly together end to end ... while a third and shorter piece formed a primitive stern.

Bates (1985:258) goes on to mention that coastal Indigenous people of the Ashburton and Northwest Cape also used a type of raft, similar to those used in the Roebourne area, though these were made from corkwood rather than mangrove trees. Bates (1985:258) also mentions that the last of the traditional log rafts were seen in operation at Lewis Island in 1883 and that “present day” (c. 1909) Aborigines use “white man’s boats” for sea excursions.

The implications from Tindale and Bates’ research is that Northwest coastal Indigenous people used traditional watercraft to visit offshore islands, including Barrow and the Montebello Islands and that by the turn of the Nineteenth Century Indigenous people were using non- Indigenous boats to continue their sea based activities, possibly including visits to Barrow Island. There are also recorded visits to the island by Indigenous people in circumstances controlled by European Australians, including forced involvement with the pearling industry (see Section 4.2, below). A representative of Thalanyji community reports that elders recall at least one of the now deceased members of the community visiting the island in the company of non-Indigenous people on a regular basis when they were young.

4.1.1.3 Mythological Connections

In addition to the foraging on Barrow and other offshore island reported by Tindale (1974) one ostensible mythological connection to Barrow has been mentioned. Dench (pers. comm.) recalled that during his Martuthunira field work in the 1980s his informants had recounted the mythology relating to the origins of Pannawonica Hill [*Parlapuni*]. Basically the narrative relates how the hill had its origins in the sea to the west and was carried to its present location on the head of a spirit bird:

.. the mark of this hill, dragged from near Mardie Station, from the ocean, has left a big flat, where Pannawonica went across. We all know, the old fells know that – you can still see it, the main highway goes across it. It’s come from west to east, where he travelled in the valley there. And in the hills where he came through, he made a V mark – you can see like that for a long distance, about ten of twelve mile, where that fells went in there. He went straight for Pannawonica ... (related by the late Gordon Lockyer in Brehaut & Vitenbergs 2001:35-36).

Dench (pers. comm.) recalls that in one version of the myth *Parlapuni* was reported to have come from Barrow Island. Other versions, however, point more northwest towards the Dampier Archipelago for the origins of Pannawonica Hill. However, both versions of the mythological narrative may be equally valid within the Guruma [Kurrama] and Martuthunira communities.

4.1.1.4 Known Indigenous Groups and Cultural Heritage Sites

4.1.1.4.1 Barrow Island

A search of the Register of Aboriginal Sites held by the DIA reveals that no ethnographic sites are listed on Barrow Island. This absence of listed ethnographic sites may reflect the more recent historical attenuation of links with the island. However, representatives of all the groups consulted indicated that they did have an interest in cultural heritage on Barrow Island.

1. A spokesman for the Yabburara/Mardudhunera claimants reports that:

They have expressed the view that the Island was once part of their area and that they have concerns regarding the new development there as far as heritage sites are concerned.
2. The Pilbara Native Title Service (PNTS) Acting Manager of Heritage has noted that a number of people in the Kurama Marthudunera group have expressed an interest in the island's heritage.
3. A Thalanyji representative reports that the group's elders say that the Thalanyji people, including people of Nhuwala descent, have interests in the Island's heritage.

Clearly, Indigenous people have an interest in the proposed Gorgon Development on Barrow Island and clearly wish to be consulted. This consultation may include physical inspection of the proposed development on Barrow Island.

4.1.1.4.2 Mainland

The planned onshore pipeline on the mainland is within Martuthunira country (Murphy & McDonald 1990). The area is within both Martuthunira Native Title claim areas: Yabburara/Mardudhunera (WC96_089) and Kurama Marthudunera (WC99_012).

A search of the Register of Aboriginal Sites held by the DIA reveals that two ethnographic sites, both associated with Peters Creek, are located close to the proposed DOMGAS pipeline on the mainland (Map 4-2). First, Peters Creek is a Named Place: *Nyungarrarra* (Site ID 17429) (McDonald, Hales & Associates 1994) and second, Warlu Waterhole: (Site ID 17004), situated in the Creek, is listed as a mythological site with an associated artefact scatter (McDonald Hales and Associates 2001; Stevens 1998) (Appendix 1). In addition a 'waterhole' known to Martuthunira informants was identified along the Apache/Hudson pipeline (Murphy & McDonald 1990), which has not been registered with the DIA (Appendix 1). This site is associated with an archaeological site, which is discussed in Section 4.1.2.1.2, below).

These two Indigenous groups need to be consulted in relation to cultural heritage management within the proposed Gorgon Development on the mainland. The Indigenous groups may request a physical inspection of the proposed development.

4.1.2 Indigenous Archaeology

4.1.2.1 Barrow Island

Barrow Island occupies a potentially important position in the Indigenous archaeology of north-western and continental Australia. Barrow Island has remained an under researched area of the Pilbara coast with only two Indigenous archaeological surface surveys conducted on the Island (Quartermaine Consultants 1994; Quartermaine 1997).

When Indigenous people first arrived on the Australian continent approximately 45,000 BP² (Bowdler 1990; Roberts *et al.* 1990a; 1990b), Barrow Island was a dissected limestone hill on a large coastal sand plain with the coast 10 km to the west (Figure 4-1) (Veth 1994; Veth *et al.* in press). The first Indigenous occupation evidence for the immediate area dates to circa 32,000 years ago at Cape Range and circa 30,000 years ago on the Montebello Islands (Morse 1993a; Przywolnik 2002; Veth 1994; Veth *et al.* in press:13). At the height of glacial maximum, about 18,000 BP, the coastline moved 50 km west from Barrow Island (Figure 4-1). During this period Indigenous occupation patterns appear to have been very different from those of more recent millennia. The removal of so much water from the water cycle, of which a lowering of sea levels by 130 m was symptomatic, resulted in marked reconfigurations of Indigenous populations in many parts of Australia, especially arid areas such as Barrow Island. Indigenous populations appear to have concentrated around identified refuge and corridor areas that offered greater resource reliability, such as the arid Pilbara coast (Morse 1993c:277, 290; Veth *et al.* in press:75; Veth 1993). During the glacial maximum Barrow Island, the Montebello Islands and the Cape Range areas would have been in the hinterland of the coastal plain with perhaps reduced though still highly detectable archaeological evidence remaining from such use (eg. Morse 1993c; Przywolnik 2002; Veth 1994; Veth *et al.* in press).

As the climate ameliorated the sea level rose with Barrow and Montebello Islands cut off from the mainland around 8,000 BP (Figure 4-1) (Veth 1994). Indigenous people lived on the Montebello Islands during this period and it is most likely that they also utilised the greater Barrow/Montebello land mass. The sea reached its current level circa 7,500 BP. At 7,000 BP the Montebello Islands were abandoned by Indigenous people most likely owing to the scarcity of potable water and perhaps moving to the larger Barrow Island or to the mainland (Veth *et al.* in press:5). As no detailed archaeological excavations have occurred on Barrow Island it cannot be determined whether Indigenous people occupied the island after 7,000 BP. As sea levels rose the perched freshwater on the Montebellos was contaminated by sea water. Owing to its greater height above sea level fresh water on Barrow would not have been contaminated (Veth *et al.* in press:32). Lack of occupation evidence from the Montebello Islands and the fact that from the mainland to Barrow Island was a 60 km

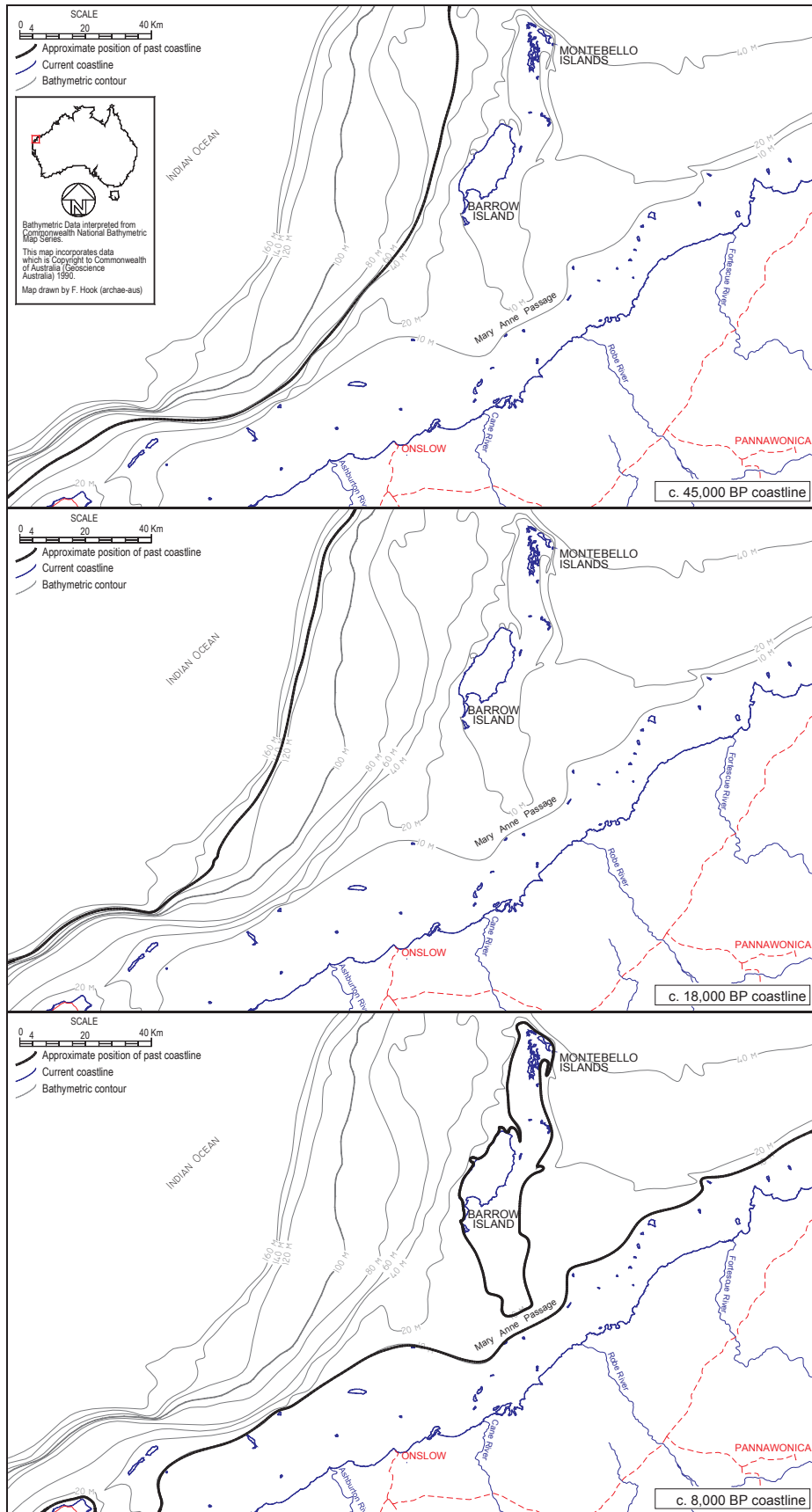
² Years Before Present (1950).

journey by sea from circa 6,000 BP suggests that Barrow would not have been revisited by Indigenous people during the mid or late Holocene (Crawford 1986 cited in Veth *et al.* in press:2, see also 70). However, the evidence of possible canoe use by Indigenous people on the Pilbara coast (Bates 1985:257-258; Tindale 1974:254) and in particular reference by Tindale (1974:254) to the Noala accessing Barrow and the Montebello Islands by a type of canoe raises the possibility of Holocene use of the island.

Furthermore, Quartermaine Consultants (1994) recorded two adze slugs and an *elouera* on the Barrow Island. The first adzes appear in the archaeological record in Australia by the mid-late Holocene after the Barrow / Montebello Islands were abandoned (Hiscock 1994; Hiscock & Veth 1991:342; Jones 1985; White & O'Connell 1982:106-133). Although some backed artefact forms may have occurred earlier in eastern Australia, convincing evidence is not found beyond the eastern seaboard (Bowdler & O'Connor 1991; Hiscock & Attenbrow 1998). Indeed adzes are seen to be confined to the mid-Holocene even by some of those who propose earlier dates for backed artefacts (Jones 1985). If the identification of adzes on Barrow is correct it suggests that the island was occupied after insulation and visited from the mainland after 7,000 BP. Alternatively, the adzes may have been made by Indigenous people visiting the island during historic times (see section 4.2). Adzes, however, were used to make objects from hardwood, of which there is very little on Barrow Island today. During the March 2004 visit to the island, the “adze slug” noted in site 883/FS01 (Quartermaine Consultants 1994:15) was seen (Appendix 3). This object, in the opinion of Bruce Veitch, is not an adze slug but a retouched flake. These three artefacts therefore need further inspection and an accurate typological identification. In addition, the dating of stratified sub-surface cultural deposits on Barrow Island would be desirable to resolve when / if the island was abandoned by Indigenous people.

During the historical period Indigenous people were present on the island, and historical sources describe them being brought to Barrow Island by Europeans. The evidence of their presence on the island is quite marked (see descriptions of flaked glass & porcelain artefacts in Quartermaine Consultants 1994:15-22, Fig 15 & 16). This aspect of the island’s history is discussed in more detail in Section 4.2.

Figure 4-1. Sea levels at 45,000 BP, 18,000 BP and 8,000 BP (Chappell & Shackleton 1986; Chappell & Thom 1977:281; Veth 1994).



Barrow Island therefore has the potential to contain material evidence directly relevant to “a number of fundamental and critical research questions related to the history of coastal exploitation in Australian archaeology” (Veth *et al.* in press:3). These questions revolve around the following points.

1. Barrow Island lies between Cape Range Peninsula and the Montebello Islands which were initially occupied by Indigenous people at 34,200±1050 years BP and 27,220±650 years BP respectively (Morse 1988; 1993d; Przywolnik 2002; Veth 1994; Veth *et al.* in press). The presence of two areas with such long occupation records either side of Barrow Island strongly suggests that the island will also contain Indigenous archaeological material of great antiquity in both rock shelter (Quartermaine Consultants 1994:22) and possibly stratified sites in sand dunes (Bowdler 1999; Morse 1988; 1993b; Przywolnik 2002; Veitch & Warren 1992).
2. Barrow Island has a limestone geological base offering potentially very good preservation conditions in stratified cultural deposits which is unusual for the Pilbara and arid Australia. As a consequence of both its limestone base geology and the potential to contain stratified material, Barrow Island may contain well preserved organic remains, offering possibly unique insights into past subsistence strategies and the use and manufacture of organic items (eg. Morse 1993b; Wallis & O'Connor 1998). Of note is the fact that shell beads were recovered from the Cape Range peninsula, being among the oldest jewellery known to humanity (Morse 1993b).
3. Barrow Island may contain material relevant to investigating human responses to sea level changes and other environmental changes during strategic periods of the Pleistocene and later Holocene, especially during and immediately after marine transgressive phases (Beaton 1985; 1995; Bowdler 1999:82; Veth *et al.* in press:3-4). Indeed it is still unknown whether Indigenous people remained on Barrow Island after insulation around 7,000 years ago, and if so, for how long (Dortch & Morse 1984; Quartermaine Consultants 1994; Veth *et al.* in press:5).
4. The presence of artefactual material made of volcanic, metamorphic or siliceous sedimentary stone on Barrow Island would inform on patterns of “contact and/or mobility strategies” over time given the absence of these raw materials (excluding limestone) on Barrow Island (Veth *et al.* in press:5). Other raw material types, such as ironstone, quartz and chert, that have been used to manufacture flaked and ground stone artefacts have come from elsewhere most likely the mainland.

To date documented Indigenous archaeological research on Barrow Island comprises two surveys concentrating on surface archaeology with 12 archaeological sites recorded and registered with the DIA (Quartermaine Consultants 1994; Quartermaine 1997). In addition, collected artefactual material from Indigenous sites is held by the Western Australian Museum (WAM) and by WAPET/ChevronTexaco on Barrow Island. Previous surveys, recorded Indigenous sites and the collected artefacts are discussed further below.

4.1.2.1.1 Previous Surveys

The initial survey conducted by Quartermaine Consultants (1994:11) covered 10% of the island using pedestrian and vehicular transects. In addition to the 1994 survey, a proposed Plant and Associated Facilities area measuring 4.2 km² on the north-eastern

tip of the island was sample surveyed (Quartermaine 1997). Very little of the Gorgon Development has been systematically inspected for Indigenous archaeological sites. Specifically, 2.2% of the proposed Gas Processing and Port Facility (1550 ha, see Gorgon Australian Gas 2004:10, Figure 2) has been thus assessed (calculated from Quartermaine Consultants 1994:11, Figure 2). While the coverage of the proposed pipelines appears relatively high (approximately 85% of the Flacourt Bay Feed Gas Pipeline Option, 75% of the White's Beach Feed Gas Pipeline Option and approximately 71% of the CO₂ Pipeline), most of this was covered from a slow moving vehicle, with only 1.3% of the CO₂ Pipeline surveyed on foot. Windscreen surveys (from a slow moving vehicle) are usually used for preliminary inspections rather than a survey method prior to development (Banning 2002:40; Collins & Molyneaux 2003:43, 52-63).

Older archaeological surveys typically entailed searching visually for archaeological remains ... from a motor vehicle (so-called "windscreen surveys") ... Although such surveys continue, at least for preliminary reconnaissance, it is now much more common for visual inspection of the surface to be accomplished through pedestrian surveys (Banning 2002:40).

Compounding the difficulty in identifying artefactual material on the ground from a slowly moving vehicle is the fact that Barrow Island has not had any major fires for the last 30 to 40 years (Quartermaine Consultants 1994:12), rendering ground visibility very low. Furthermore during the March 2004 Barrow Island visit it was observed that a number of the sites recorded by Quartermaine Consultants (1994) have been affected by cyclonic activity (see Appendix 2 for a discussion for these changes). This suggests that additional cultural material may have been exposed since the 1994 and 1997 surveys (Quartermaine Consultants 1994; Quartermaine 1997).

In light of the above, to assess adequately the possible impact of the proposed development on Indigenous cultural heritage, additional systematic pedestrian sample surveys will be required of the proposed disturbance areas. A number of areas of high archaeological potential exist on the island some of which were identified by Quartermaine Consultants (1994:5) and include claypans, drainage lines and coastal dunes (Map 4-3). Claypans and coastal dunes in particular have the potential for the presence of sub-surface cultural material. During construction of the Gorgon Development these areas must be monitored by qualified Indigenous archaeologists for this potential.

4.1.2.1.2 Sites

The Register of Aboriginal Sites maintained by the DIA has records of 13 Indigenous archaeological sites on Barrow Island (see Appendix 1), 12 of which were identified during the survey conducted by Quartermaine Consultants (1994). One of the 13 sites (8951) comprises six flaked stone artefacts donated to the Western Australian Museum that were collected in the 1960s by WAPET employees (Dortch & Morse 1984). This area has been assessed by the DIA as "Not a Site" because no information was provided regarding artefact provenance. The remaining 12 sites comprise surface artefact scatters with artefacts manufactured from volcanic, metamorphic and siliceous sedimentary stone as well as glass and porcelain (Quartermaine Consultants 1994). Five of the sites were assessed as of low archaeological significance, six as

moderate and one as having high archaeological significance. Six of these surface sites may have sub-surface cultural material, owing to their position in claypans.

In addition to the 12 artefact scatters, four rock shelters / caves with the potential for sub-surface cultural material were recorded on the west coast of the island (Quartermaine Consultants 1994:22, 25). Evidence from these sites in particular has the potential to address some of the research issues outlined above. Of note here is the fact that none of the rock shelter / caves identified by Quartermaine Consultants (1994) and the March 2004 field trip appeared to contain surface artefacts. This is consistent with the suggestion that these sites have not been used for several millennia.

Quartermaine Consultants (1994) also recorded a number of sites that contained historical material (called Pearling Camps), including flaked glass and porcelain artefacts. These sites are discussed in more detail in Section 4.2

Of the 13 DIA registered Indigenous archaeological sites, two are either very close to or may be impacted by the proposed development (Map 4-1). Site 888 (FS06 Area C) is in the path of the proposed CO₂ Pipeline (Quartermaine Consultants 1994:33). Site 887 (FS05) appears to be located immediately north of the CO₂ Sequestration System. A site recorded during the March 2004 Field Trip (GD04-01) is located adjacent to the Flacourt Bay Feed Gas Pipeline (Map 4-1). The White's Beach Feed Gas Pipeline also passes close to a recorded freshwater soak.

Site 887 (FS05) was recorded as a sparse scatter of flaked and ground stone artefacts in the base of a deflated dune at Cape Dupuy (Quartermaine Consultants 1994:17, 39). A total of four artefacts were recorded and the site was assessed as having low archaeological significance. The site is at the northern end of the CO₂ Sequestration System and it does not appear that the site will be impacted (Map 4-1). During the March 2004 field trip Veitch, Paterson and Souter visited this site and assessed that the site had been affected by cyclonic activity. The number of artefacts present in this area was possibly up to 500 and an *in situ* flaked stone reduction area was noted. If this site is to be disturbed additional site recording and test excavation will be required.

Site 888 (FS06) is an scatter of flaked stone, glass and porcelain artefacts spread out over a series of claypans (Quartermaine Consultants 1994:17-18, 40). Artefacts occur in six areas and the proposed CO₂ Pipeline passes through Area C (Map 4-1). A total of six artefacts were recorded from Area C and this site was assessed as having moderate archaeological significance. Quartermaine Consultants (1994:18) recommend that prior to any disturbance the site be test excavated to determine the potential for stratified cultural material. During the March 2004 fieldtrip Veitch, Paterson and Souter visited this site. Some parts of the site were found to have similar numbers of flaked stone artefacts to those noted in 1994 while others such as Area C were found to be less. Area C was found to contain only one ironstone flake fragment. This result raises the possibility of movement and burial of artefacts in claypans thereby forming stratified deposits and is consistent with Quartermaine Consultants (1994) findings. This site will need to be test excavated to determine the presence/absence of sub-surface cultural material prior to any proposed disturbance by CTA.

A rock shelter with potential for sub-surface cultural material was identified in Flacourt Bay (GD04-01) during the March 2004 site visit (Appendix 1 and 2). No artefactual material was on the surface, however, and due to safety requirements the survey team did not enter the rock shelter beyond the drip-line. This site is 90 m north-east of the Flacourt Bay Pipeline option centreline and will not be impacted by the Gorgon Development.

4.1.2.1.3 *Collected Artefacts*

The Western Australian Museum has in its collection a total of 18 artefacts from Barrow Island. They were collected by WAPET employees in the 1960s and WAM staff in the 1980s. The artefacts include flakes, debris, a possible baler shell water carrier (*Melo* spp.), baler shell fragments and three possible artefacts (weathered limestone and ironstone) (see Dortch & Morse 1984 for a description of six artefacts). The flaked stone artefacts are manufactured from ironstone, quartz, limestone and chert. The possible baler shell water carrier was collected from a dune blow-out 0.5 km east of Cape Dupuy. This blow-out location fits that of site 887 (FS05) recorded by Quartermaine Consultants (1994:17). The remaining 17 artefacts have no provenance recorded.

A large number of collected artefacts are housed in the Barrow Island Environment Laboratory. These artefacts have been collected by WAPET staff and heritage consultants since the 1960s. In excess of 150 Indigenous artefacts are in the collection, including flaked and ground stone artefacts and flaked/retouched glass artefacts. These need to be recorded and catalogued to ascertain if they were collected from areas within the Gorgon Development. The vast majority, however, have no provenance recorded.

4.1.2.2 **Mainland**

This general area of the Pilbara coastline contains a range of archaeological sites that include shell scatters and middens, artefact scatters near claypans and Indigenous burials in dunes (Lantzke 1999; Murphy & McDonald 1990; Przywolnik 2002; Veitch 1993; Veitch & Hook 1993; Veitch & Warren 1992). These sites generally date to the last 7,000 years when the coastline approximated its current position (Figure 4-1).

4.1.2.2.1 *Previous Surveys*

A number of Indigenous archaeological assessments have been conducted in the area surrounding the proposed DOMGAS pipeline. The existing Apache/Hadson pipeline was surveyed for Indigenous archaeological sites by Murphy and McDonald (1990). Four Indigenous archaeological sites were identified, but the report has not been lodged with the DIA and the sites have not been registered. The sites comprise two flaked stone artefact scatters and two shell middens (see Appendix 1). Three sites were close the Apache/Hadson pipeline route which was moved to avoid them. The fourth site is 7 km south-west of the Apache/Hadson pipeline. Three of these sites may be impacted by the proposed DOMGAS pipeline (Map 4-2).

In addition a series of proposed drilling sites were surveyed for Indigenous sites in the vicinity of the Apache/Hadson pipeline (Lantzke 1999). Two sites were identified,

one (DIA 17833) of which is located 5 km south-west of the DOMGAS pipeline and will not be impacted (Map 4-2).

While surveys for Indigenous archaeological sites have occurred in the vicinity of the proposed DOMGAS pipeline, it is not possible to state categorically that all Indigenous archaeological sites have been identified. To assess adequately the possible impact of the proposed development on Indigenous cultural heritage, systematic pedestrian sample surveys will be required prior to construction. Section 5 discusses procedures for the discovery, reporting and management of archaeological resources.

4.1.2.2.2 Sites

Currently there are eight Indigenous sites recorded in the general vicinity of the DOMGAS pipeline (see Appendix 1 for a complete list). Of these four may be impacted; Hadson 1, Hadson Midden 1, Hadson Midden 2 and Macey Wreck.

Hadson 1 is a scatter of flaked and ground stone artefacts in a claypan. Nine artefacts were recorded in a 2 m² sample square and the scatter was estimated as measuring 500 m by 500 m in area (Murphy & McDonald 1990). The Hadson pipeline was altered to avoid this site. The proposed DOMGAS pipeline may impact this site, which should therefore be relocated to determine its position in relation to the proposed pipeline. If the site is to be impacted then additional recording will be required.

Hadson Midden 1 is a scatter of flaked stone artefacts and some shell. No site size is provided, although four artefacts were recorded in a 2 m² sample square. Economic shell species identified in the site include: *Saccostrea* spp., *Terebralia* spp., *Anadara* spp. and *Melo* spp. Given the presence of coral blocks and mangrove branches amongst the economic shell, Murphy and McDonald (1990) couldn't rule out the possibility that this site may be natural; created by storm surges during cyclones. The proposed DOMGAS pipeline may impact this site, and it should be relocated to determine its position in relation to the proposed pipeline. If the site is to be impacted then additional recording will be required. Depending on the site recording it may also need to be test excavated to determine the potential for stratified cultural material.

Hadson Midden 2 is a scatter of two flakes and one muller immediately behind the coastal mangroves (Murphy & McDonald 1990). Economic shell species were identified at the site including: *Anadara* spp., *Terebralia* spp., *Melo* spp., *Syrinx* spp. and *Tectus* spp. Murphy & McDonald (1990) concluded that "at such close proximity to the shoreline, much of this shell could have been deposited through wave action, but the artefacts indicate that some were probably the result of gathering activities". DOMGAS pipeline may impact this site, which should therefore be relocated to determine its position in relation to the proposed pipeline. If the site is to be impacted then additional recording will be required. Depending on the site recording it may also need to be test excavated to determine the potential for stratified cultural material. It is noted, however, that penetrometer tests along the Apache/Hadson pipeline indicate that beneath a thin crust the mangrove mud is semi-liquid (Murphy & McDonald 1990) and that test excavation may be pointless. This geomorphological factor requires further investigation before test excavations are conducted.

Possible retouched glass artefacts were identified on the Macey's Shipwreck site near the Apache pipeline during a maritime archaeology survey (McCarthy 1991). This site may be impacted by one of the proposed DOMGAS pipeline, even though the location of the shipwreck is uncertain. The identification of these artefacts is yet to be determined by an Indigenous archaeologist. This site needs to be relocated to determine its position in relation to the proposed pipeline. If the site is to be impacted then additional recording will be required including the identification of the retouched glass artefacts.

4.2 HISTORIC HERITAGE

4.2.1 Barrow Island

Barrow Island is potentially significant for the historical archaeology of north Western and continental Australia. The reasons are as follows.

1. Remoteness and potential for preservation (as demonstrated for Dampier Islands).
2. Types of sites (rarity).
3. Significance of association with historical activities (regional, state, national and international).

The following list summarises the historical activities reported in historical sources. The list does not contain any references, however, Appendix 3 contains an annotated summary of sources used to compile the list.

1. Explorers
 - a) 1840: H.M.S. *Beagle* visited Barrow Island.
 - b) 1846: J. Lort Stokes visited Barrow Island.
 - c) 1864: Captain Jarman exploration of island (20 December 1864). Probably camped at Whitlock Cove.
 - d) 1900: J.T. Tunney visit for two months.
 - e) 1917, 1918: Naturalist F. Lawson Whitlock (1917, unknown time; 1918, two weeks). Camp based at Whitlock Cove and exploration of neighbouring coastal zone from Surf Point to Dove Point and Double Island.
2. Whaling
 - a) Whalers were probably present in these waters from 1800 onwards, with records from the 1840s. Two reported whalers at Barrow Island were:
 - i) 1842, 21 June, 4 August: *Stephania*.
 - ii) 1864, 22 July: *Canton*.
3. Pearl shell industries
 - a) The foundation for the pearling industry closely followed exploration and settlement for pastoralism. Exploration to Nickol Bay by AC Gregory in 1861 marks the inception of the industry with the collection of several tonnes of mother-of-pearl and pearls (Moore 1994). Pearl shell industries operated with varying degrees of success from this period up until the 1930's, especially on the Montebello Islands.

- b) It would appear that the colonial government was not aware of how many pearling camps operated from Barrow Island. The reporting of the measles epidemic in 1885 by Blair E Mayne to the Legislative Council would indicate that some knew of the pearling operations.
 - c) In 1926 one pastoral lessee applicant reported that the island was used by pearlery.
4. Quarantine station
- a) September 1884: measles epidemic. Barrow Island was converted into a quarantine station for Aboriginal people with measles, apparently those from the pearl shell industries, brought from mainland. Location unknown, but would be sheltered anchorage. Schooner *Amy* as medical ship, with no description of accommodation on Barrow Island for the ill. The numbers of people involved in the epidemic is no known nor is the number who died.
5. Lock Hospital
- a) 1908, Barrow Island Lock Hospital, presumably for venereal diseases. Requisition for blankets in 1908 granted. Location not yet known nor relationship with Nature Reserve created in 1908.
6. Aboriginal uses
- a) Pre-European use (see Section 4.1 above).
 - b) 1884: Quarantine Station (see above).
 - c) 19th century: Aboriginal slave markets (reports related to 1870s), see point 7 below.
 - d) 1908: Barrow Island Lock Hospital (probably abandoned in favour of Bernier and Dorre Islands by 1909).
 - e) 1908: Aboriginal Reserve (for Lock Hospital).
7. Barracoon and slave market
- a) There are references to Aboriginal people being taken from the Ashburton region to Barrow Island to be sold, presumably to pearlery, in the later 19th century. In 1880 the police found 22 Aboriginal people who had been marooned on Barrow Island, a crime for which a pearler was fined.
 - b) Specifically, during the first half of the 1870s, Captain Cadell, an infamous Scottish adventurer, reportedly established slave markets for pearl shell operators on Barrow Island (also Delambre and Enderby islands), both of female and male Aboriginals.
8. Pastoral industry
- a) 1873: application by F. McRae and Co. (Cossack, Roebourne) for a pastoral, turtle shell and fish oil lease. (In 1880 F. McRae signed for 22 Aboriginal men who were then marooned on Barrow Island by a third party).
 - b) 1874, August: lease for turtle and general fishing for James Grimmond Anderson, and for pastoralism.
 - c) 1897: leased by William MacNean (Roebourne) for pastoral purposes (transferred to Cooke).
 - d) 1880, August: Messrs. Henry J. Cooke and James Morrell, sheep station lease. They were reportedly not satisfied some months later and were considering

abandoning the lease. It was reportedly for sale on 24 January 1882 along with 600 sheep.

- e) 1892: Leased to James Archibald Haste (Carnarvon), although lease lapsed in 1893.
- f) 1897, July: Application by James Clarke and Co. for pastoral lease for Barrow Island. (Probably not taken up).
- g) 1900, February: Application by John Hurst for pastoral lease for Barrow Island.
- h) 1902, January: Application by James Waterhouse King for pastoral lease for Barrow Island.
- i) 1904, August: Application by Alexander Stevens (Onslow pearler) for pastoral lease for Barrow Island. (Lease forfeited in 1907).

9. Turtle fishing

- a) 1871, 1872: descriptions related to establishment of turtle fishing industry on Barrow and Delambre islands by C. Lambert Smith.
- b) 1873: application by F. McRae and Co. (Cossack, Roebourne) for a pastoral, turtle shell and fish oil lease. (In 1880 he signed for 22 Aboriginal men who were then marooned on Barrow Island by a third party).
- c) 1874, August: lease for turtle and general fishing for James Grimmond Anderson, and for pastoralism.
- d) 1900, November: application for turtle fishing lease by Emmeline Collier Clark (100 acres).

10. Phosphate extraction

- a) 1883: Possible extraction of guano had begun as a ship visited expecting to collect a cargo of guano.
- b) 1907, August: Application by F.C. Broadhurst for 50,000 acres of land (Barrow Island) for phosphate extraction (presumably following his successful guano extraction industry in the Abrolhos Islands).
- c) 1923: Licence for removal of guano and phosphates for A.G. Kidson-Hunter.

11. Nature Reserve

- a) 1907, August: declared a reserve for native game under the Game Act.
- b) 1910, February: declared Class A Nature Reserve. Soon after this classification visits by naturalists such as L. Whitlock occurred.

12. Oil extraction

- a) 1964: oil discovered at Rough Range. Exploration extended to include Barrow Island.
- b) 1964: first oil well drilled.
- c) 1967: commercial production began with over 800 well and production peaking in 1971 with 50,000 barrels per day.
- d) 2000: Chevron took over management of assets. Today approximately 455 wells are producing oil and people working and living on the Island number from 150-200 and rotate in two-week shifts.

It is difficult to determine whether all of these activities occurred, and some indeed may merely reflect 19th century speculation. This is most pertinent for the pastoral leases described above: there is no evidence for sheep pastoralism having occurred at this place. However, it is reasonable to suspect that many such activities did in fact take place; their absence from historical annals being common to records of much of colonial Australia.

It would appear that the island was used by pearlers for a long period of time, and had several other historical functions. A recent survey by Paterson and Souter of historical sites on islands in the nearby Dampier Archipelago found archaeological evidence for many similar activities despite a paucity of historical reports. This was a remote and poorly serviced frontier of colonial Australia, and many of the actions were intended to be conducted beyond the gaze of officialdom; accordingly the paucity of comprehensive historical accounts is not surprising.

The types of historical archaeological material that could be expected to occur on Barrow Island includes: artefact scatters, foundations, burials. There are numerous drownings reported in the waters around the island, although the bodies were not necessarily recovered. There are also murders reported for the Barracoon in the 19th century. The following are five reported burials; however, given the evidence from similar islands in the Dampier Islands, other burials would be expected along the coast of Barrow Island:

1. 1872, European man;
2. 1887, Malay seaman;
3. 1904, Malay pearler;
4. 1904, Chilean sail maker;
5. 1885: there were Aboriginal deaths at the measles quarantine station.

4.2.1.1 Previous Surveys

While the Quartermaine Consultants (1994) survey was for Indigenous archaeological sites, the report does contain information relating to historical sites. A total of five locations with historical material were recorded (labelled Pearling Camps). Three sites were recorded with flaked/retouched glass artefacts made by Indigenous people most likely brought to the island by Europeans. Modified glass artefacts have been found in Aboriginal contexts across Australia, and are essentially unknown for European contexts (cf. Wilkie 1996). If the artefacts are found to be made in ways consistent with Aboriginal tool manufacture then it is widely assumed that they are Aboriginal (Allen & Jones 1980; Cooper & Bowdler 1998; Freeman 1993; Harrison 1996; 2000). In addition historical material was noted at South End, Bandicoot Bay and Square Bay (Quartermaine Consultants 1994:19-20, 22, 25). The material identified includes limestone foundations, boat parts, bottles, brass studs and buttons most likely associated with pearling camps.

The site descriptions by Quartermaine Consultants (1994) and observations made during the visit to Barrow Island in 2004 (see Appendix 2) suggest that:

1. Where possible the beach pipeline landing sites of Whites Beach, Flacourt Bay and the area south of Town Point should be surveyed for historical sites. These

areas were surveyed briefly in March 2004 and there are no surface archaeological sites other than site GD04-02, which is a small scatter of late 19th century olive bottle glass at Flacourt Bay (see Section 4.2.1.2, below). The area at the Town Point landing was visited briefly on a medium tide and material related to the WAPET landing was present on the coast. None appeared to be older material, although a more comprehensive survey would be required to support this position.

2. The area to be developed at Cape Dupoy should be surveyed. This area was visited but no proper survey was conducted.

The historical uses of the island tend to be coastal as all visitors required access to the island by the coast. Accordingly sheltered beaches and the neighbouring islands should be considered areas of high potential for historical archaeological sites. Section 5 discusses procedures for the discovery, reporting and management of archaeological resources.

4.2.1.2 Sites

Two sites with historical material may be affected by the proposed Gorgon Development; site 888 (FS06) and GD04-02.

Flaked glass and porcelain was identified at site 888 (FS06) in Area A (Quartermaine Consultants 1994:17-18, Appendix 3). Area C may be impacted by the proposed CO₂ Pipeline and while no historical material was identified at this part of the site, there is potential for sub-surface cultural material. This site is discussed in more detail in Section 4.1.2.1.2, above (see also Appendix 1 and 2). An historical archaeologist should participate in any test excavation of this site.

Site GD04-02 was identified during the March 2004 field visit (see Appendix 1 and 2). This glass artefact scatter is in Flacourt Bay and may be impacted by the proposed Feed Gas Pipeline. The scatter comprises glass fragments from a single light olive glass bottle or a champagne beer bottle common in the late 1800s and early 1900s. While rare on Barrow Island, elsewhere along the Australian coast this is a common artefact, and could be collected prior to the site being disturbed. There may however be buried archaeological material at this site and the procedures for site disturbance detailed in Section 5 should be followed.

While not within the Gorgon Development, the most significant historical site identified to date is a pearlers' camp at Bandicoot Bay [DIA site 891 (FS09)], which is of national, state and regional significance. Of great interest are the flaked/retouched glass artefacts identified by Quartermaine Consultants (1994:19-10, Figure 15) as Kimberley points (Figure 4-2). If this identification is correct this is an extremely rare site which may indicate the presence of Indigenous people from areas beyond the Pilbara. This is not recorded in documentary sources and thus the archaeological record is the primary data set. Artefactual material has been collected from this site in the past and it must be protected from future visitation from current and future workers on Barrow Island.

4.2.1.3 Collected Artefacts

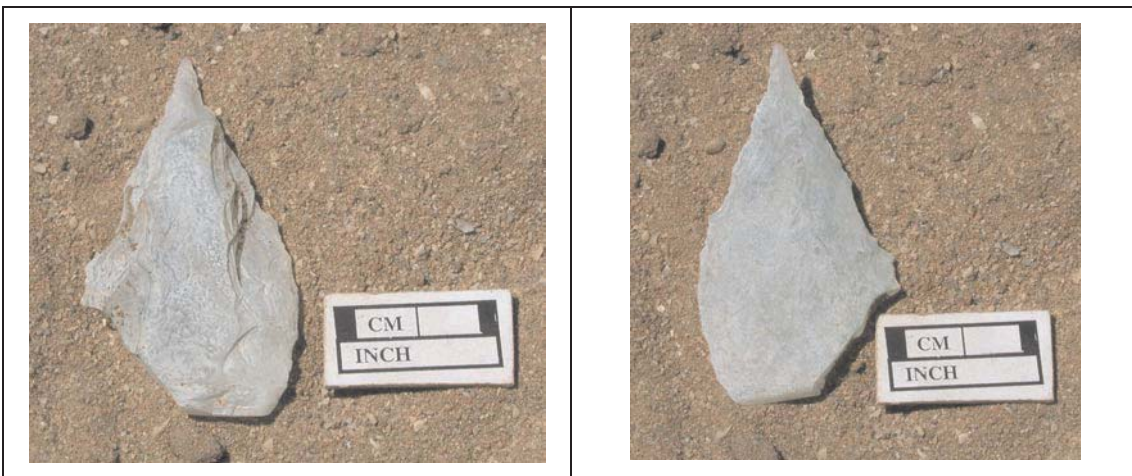
A large number of collected artefacts are housed in the Barrow Island Environment Laboratory. These artefacts have been collected by WAPET staff and consultants

since the 1960s. In excess of 200 historical artefacts are in the collection, including Indigenous flaked/retouched glass artefacts, bottles, nails, buttons and shells. They have not been catalogued and no provenance is recorded for the majority of the artefacts.

Also included are historical artefacts from previously recorded site 891 (FS09) which were displayed on a foam ‘museum-type’ display in the past by WAPET employees. The artefacts included metal clothing items, fasteners, glass artefacts, ship parts and a clay pipe. Some of these items have been affixed with solvent fixatives (glue) to a backing board. The fixture of these items may have affected them and thus require attention by a curator qualified to stabilise historical artefacts subjected to damage of this type.

Other artefacts of unknown provenance are included in the collection; unfortunately these are of little scientific value outside of their archaeological context. They do however indicate quite a rich historical and maritime history of the island and should be recorded and catalogued to ascertain if they were collected from areas within the Gorgon Development.

Figure 4-2. Retouched glass artefact - Bandicoot Bay Pearling Camp (891/FS09)



4.2.2 Mainland

On the mainland the DOMGAS pipeline may impact on a maritime site. This shipwreck site contains possible historical flaked glass artefacts and is discussed in more detail in the Maritime Archaeology Section 4.3.1. No formal historical cultural heritage studies have taken place along the DOMGAS pipeline. To assess adequately the possible impact of the proposed development on historic/maritime cultural heritage, systematic pedestrian sample surveys will be required prior to construction.

4.3 MARITIME HERITAGE

An archival search has been undertaken to identify potential maritime archaeological sites, namely shipwrecks, in the study area. There are no known shipwreck sites on the proposed Gorgon pipeline routes although archival sources suggest that a number of significant vessels have been lost in the Onslow/Barrow Island region. The vessels identified have not been located post-wrecking and the exact position of sites is not known. Utilising Government archives from the Department of Customs, Harbour and Lights; and Police as well as newspaper reportage, research has been undertaken in an attempt to identify what vessels were lost in the vicinity of Barrow Island and to give an approximate location of the wreck sites. An assessment of the following shipping registers was also carried out to locate potential sites in the region:

1. *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth. (Transcribed by McKenna, R., 1967).
2. *Ships Registered in Western Australia* National Archives. Perth (Transcribed by Dickson, R. Report–Department of Maritime Archaeology, WA Maritime Museum No.80.).
3. *Register of Wrecks and Casualties in Western Australia 1897-1942, Her Majesty's Customs* Department of Marine and Harbours. (Transcribed by Dickson, R. Report–Department of Maritime Archaeology, WA Maritime Museum No. 56).
4. *Register of Accidents and Incidents from 1916-1972*. Department of Marine and Harbours. (Transcribed by Dickson, R., Report–Department of Maritime Archaeology, WA Maritime Museum No. 56).
5. *Register of Shipping Arrivals and Departures at the Port of Fremantle* (Battye Acc No. 1076).

The majority of shipwrecks recorded, occurred during cyclonic activity in the summer months in the Onslow region. It is important to note that a number of vessels engaged in pearling operations in the North West were unregistered pearling luggers. Consequently there is little archival evidence relating to the types and actual numbers of vessels working and/or lost in the region. The potential for lugger shipwreck sites to occur in the vicinity of Barrow Island must therefore be considered given the proximity of the island to 19th century pearling grounds and shipping routes related to that industry. Whether there is any residual wreckage, which would constitute an archaeological site, can only be determined on discovery. The Fugro video survey of one proposed track for the pipeline does not reveal any immediate cultural material although at particular points on the route the surveyor reported marginal visibility (Jeremy Fitzpatrick, BBG pers. comm. 25/02/04). Although shipwreck sites most often occur in shallow reef areas, the possibility of sites in deep water also needs to be acknowledged. Based on the recent inspection by the WA Maritime Museum, Department of Maritime Archaeology, of a lugger site off Port Hedland (Gainsford & Kimpton 2003), it should be noted that the potential exists for wreck sites to occur in deeper water, from vessels foundering during cyclonic conditions.

The pearl shell fishery established in Western Australia in the nineteenth century was first centred in Nickol Bay, near Karratha around 1864 and later Broome in the

Kimberley circa 1880³. The story of the pearling industry unfolds in contemporary accounts in the local press and in various diaries and reminiscences such as those of R.J. and T.C. Sholl, A.R. Richardson, L.C. Burges, Charles Harper, the McCrae brothers and others. Streeter's (1886) account of 'Pearls and Pearling Life' gives a first hand and most useful coverage of many aspects of the industry. The subject has also been covered in recent times by de La Rue (1979), Albertus Bain (1982) and in numerous unpublished accounts.

The cyclones which resulted in major losses to the pearling fleets and other craft in the pearling grounds between and including Exmouth Gulf and Broome are as follows:

1. 1881/01/07 Five identified luggers wrecked. At least six other pearling vessels, reportedly damaged or stranded, survived on this occasion, some to be victims of similar weather patterns in later years.
2. 1882/03/06 One identified lugger lost.
3. 1905/02/08 Two identified luggers lost.
4. 1909/04/06 Four identified luggers and 24 lives lost. The luggers are unregistered but two have been identified as the *Elsie* and *Penguin*.
5. 1911/02/06 Two identified luggers lost.

The archival research undertaken to identify potential maritime archaeological sites, focuses on the area from West Tryal Rocks gas field to Barrow Island. Even though a number of potential sites have been identified in this report relating to the proposed pipeline route to the mainland, this information should be considered as preliminary only, as the mainland DOMGAS pipeline has not been surveyed. The research thus far suggests there are expected to be a number of sites in the Mary Ann Passage and Yammadery Creek areas. Appendix 4 gives a comprehensive list of 13 projected sites in the region. Four of these are considered most likely to be in the Barrow Island area:

1. *Wild Wave* (1873).
2. *Ruby* (1882).
3. *Marietta* (1905).
4. *Curlew* (1911).

Acoustic characteristics and seabed interpretation by Fugro along parts of the proposed Flacourt Bay Pipeline option and the proposed Port Facility were inspected as part of this assessment (Fugro 2003). Fugro grouped 10 bottom types along the route (A-J) ranging from uniform low acoustic reflectivity (sand), grading to higher acoustic reflectivity (sand-rock/reef with vegetation). The seabed along the majority of the Feed Pipeline is smooth with the exception of areas of moderate to high relief rock outcrop [KP 10.8 (40 m depth) and KP 12.38 (43 m depth); KP24.9 (53 m depth) to KP 27.26 (55 m depth)]. The Fugro recommendation that a block survey be carried out in the anticipated areas of very uneven seabed to choose an optimum route is also

³ The exact number of vessels operating in this industry is unclear in the archival sources as many of the vessels were unregistered. Furthermore owing to the frontier nature of the North-West colonial government controls and inspections were very limited.

supported as these locations have the highest probability for wreck sites. Any further sub-sea acoustic and/or video image of the proposed development should be made available to a maritime archaeologist for assessment.

Figure 4-3. Pearling luggers, North-west coast Western Australia (Copyright McKenna Collection, WA Maritime Museum)



Other WA Museum records relating to maritime archaeological sites mentions two on Barrow Island:

1. A whaling harpoon was discovered in 6 feet of water by Mr Charlie Alt while skin diving in 1969 at Cape Poivre on the West Coast of Barrow Island (MA 439/71).
2. A 'man-made rock ring wall' which is described as '10ft and almost circular with only two sections visible'. A small hole was dug by WAPET employees again in 1969 approximately 2x2 ft but there was 'nothing apparent'. This site was assessed as a 'maritime' structure and referred to the Department of Maritime Archaeology in 1985. McCarthy in his visits to the Montebellos in 1985 mentions seeing similar sites on Hermite Island which fit this description which he identified as wells or shafts (McCarthy, 1985. MA 439/71).

These sites were not investigated during the March 2004 preliminary survey as they are located outside the proposed Gorgon Development.

4.3.1 Mainland

On the mainland the DOMGAS pipeline may impact on a maritime site, but no formal maritime cultural heritage studies have taken place. There is a reported shipwreck close to Varanus gas pipeline located below high water mark. This site was examined in 1991 when identified in a preliminary survey for the Apache/Hadsen Gas pipeline (McCarthy 1991). The wreck appears to be that of a small unidentified late nineteenth-early twentieth century wooden sailing vessel of approximately 20 m in length that was engaged in the Northwest coastal pearling trade (McCarthy 1991:6). Although heavily salvaged, the wreck still possesses some cultural significance as one

of the few tangible remains of the late nineteenth century pearling industry. The suggestion of Indigenous associations was made with the discovery of ‘worked’ nineteenth century bottle glass in association with the site. The wreck cannot be accurately dated though it is felt that it may pre-date 1900 and could therefore be protected under the *Maritime Archaeology Act 1973* (McCarthy 1991:8). In light of the above, to assess adequately the possible impact of the proposed development on historic/maritime cultural heritage, systematic pedestrian sample surveys will be required prior to construction.

4.4 CONCLUSIONS

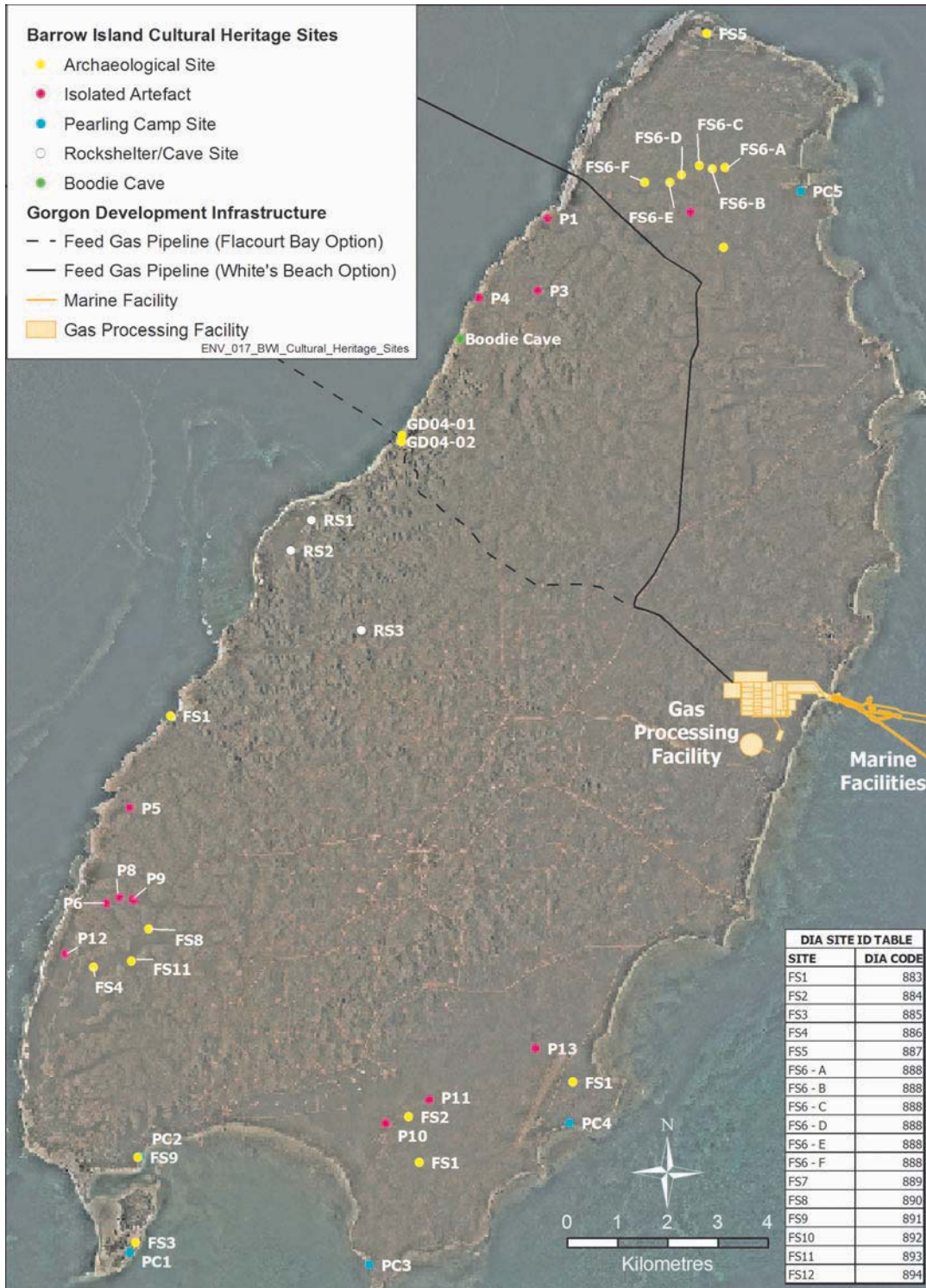
It is clear from the above assessment that Barrow Island and other islands in the immediate region like the Montebello’s and Lowendal’s hold an unusual place in the pre-history and history of Western Australia. While some cultural heritage assessments have been undertaken on Barrow Island and mainland pipeline route it is concluded that additional site specific cultural heritage studies are required to identify cultural heritage sites that may exist within the development.

The major conclusions of the assessment are:

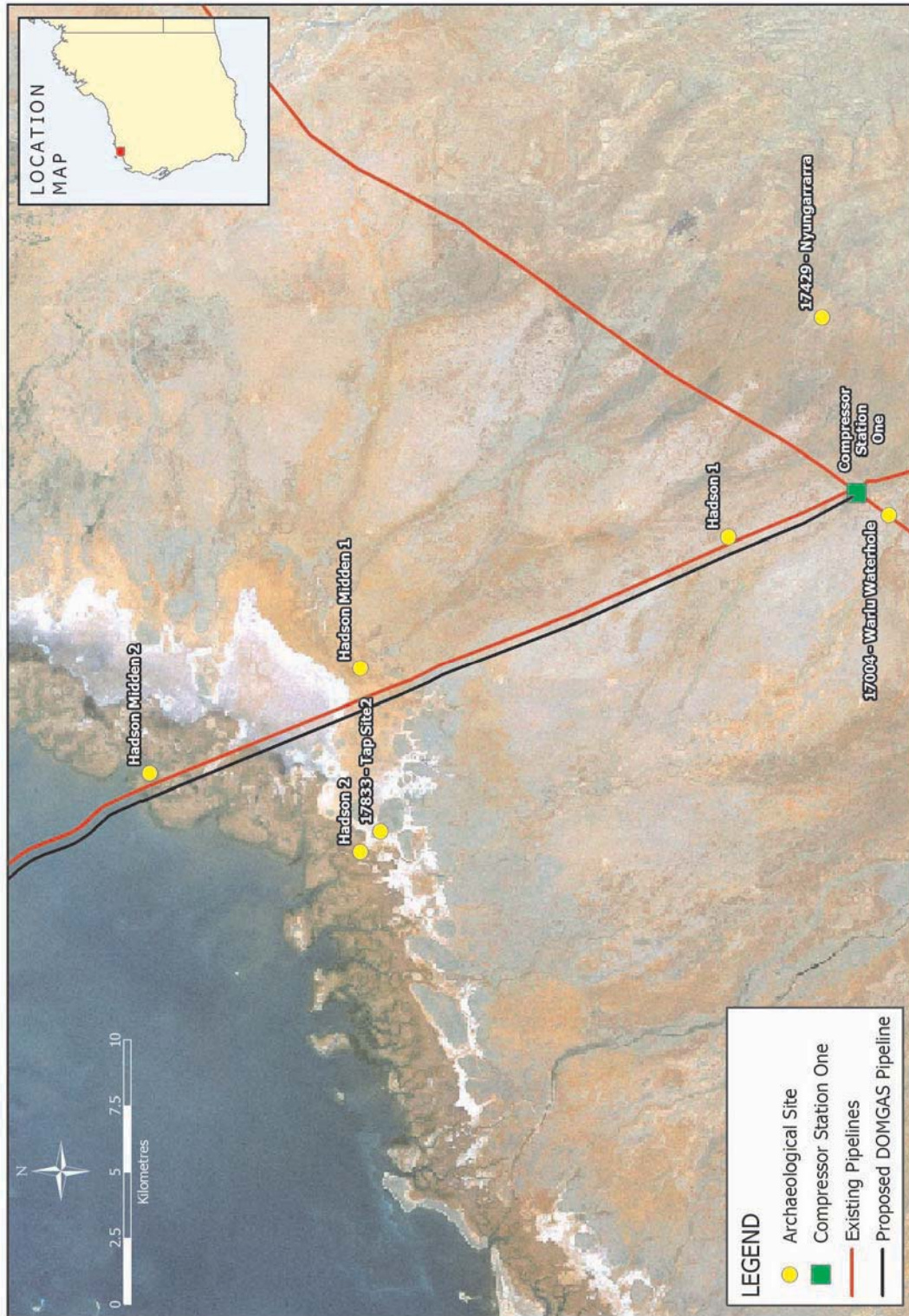
1. Three Indigenous communities (Yabburara/Mardudhunera, Kurama Marthudunera and Thanlanyji) have expressed an interest and need to be consulted in relation to cultural heritage management within the proposed Gorgon Development. This consultation may include inspection of the proposed development on Barrow Island and on the mainland.
2. That at present:
 - a) Two identified cultural heritage sites may be impacted on Barrow Island by the proposed Flacourt Bay Feed Gas Pipeline Option (see Map 4-1).
 - b) Four identified cultural heritage sites may be impacted on the mainland (see Map 4-1).
3. Owing to the low level of formal investigation, prior to construction all proposed ground disturbance areas including the seabed should be systematically surveyed for Indigenous, historical and maritime cultural heritage.
4. Proposed construction should be monitored in areas of high potential for sub-surface cultural material. Areas of high potential have been identified as occurring in the following topographic features; claypans, coastal dunes and adjacent to drainage lines (Map 4-3).

In accordance with the brief from CTA a draft Cultural Heritage Management Plan (CHMP) has been prepared for the development (see Section 5). This CHMP contains recommendations regarding how CTA can manage known and unidentified cultural heritage within the Gorgon Development.

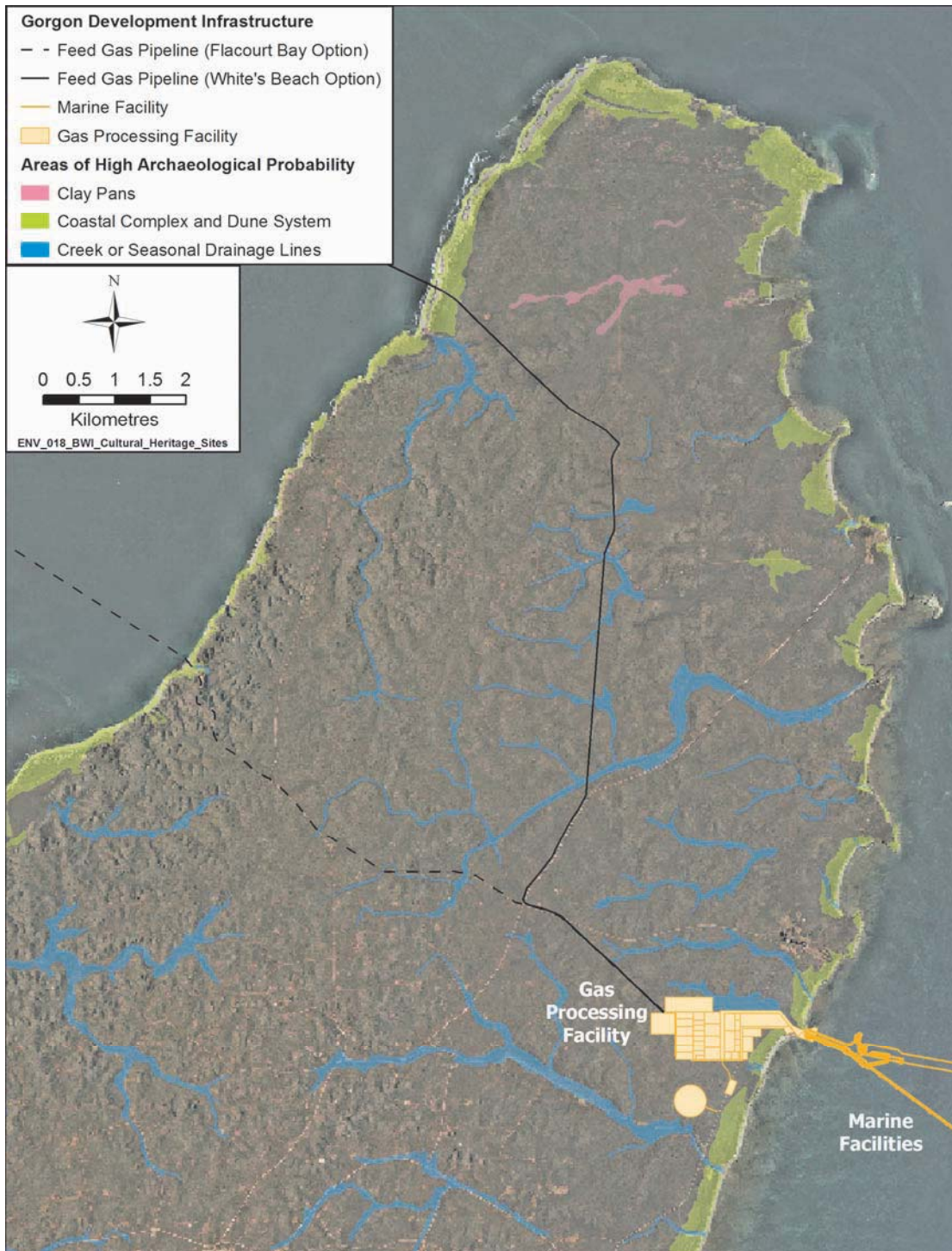
Map 4-1. Gorgon Development- location of cultural heritage sites on Barrow Island



Map 4-2. Gorgon Development- location of cultural heritage sites on Mainland



Map 4-3. Barrow Island high archaeological potential areas



5 DRAFT CULTURAL HERITAGE MANAGEMENT PLAN

5.1 CULTURAL HERITAGE PRINCIPALS

Cultural heritage is an important resource to all Australians. To protect this resource, the following principles and procedures are recommended:

1. Prior to construction all proposed ground disturbance areas should be inspected/surveyed by qualified Indigenous, historical and maritime cultural resource management (CRM) practitioners.
 - a) At least 50% of the Gorgon Development should be systematically surveyed for Indigenous and historical/maritime terrestrial archaeological sites.
2. Indigenous people should be consulted and given the opportunity to inspect the proposed development on Barrow Island and the mainland with a qualified anthropologist.
3. In areas with the high potential for sub-surface cultural material (such as claypans, coastal dunes and adjacent to drainage lines), any proposed ground disturbance should be monitored by qualified CRM practitioners.
4. All reasonable precautions are to be taken to protect cultural places from damage caused by construction and associated activities.
5. To facilitate an awareness of cultural heritage, a suitable induction program should be included for all personnel associated with and involved in the construction of the Gorgon Development.
6. A Cultural Heritage Officer should be employed during the construction phase to provide on the ground advice. This cultural heritage officer should have experience in both Indigenous and historical CRM.
7. When appropriate, additional professional expertise should be sought on archaeological matters, such as advice from a physical anthropologist if human skeletal material is identified.
8. Surveying, monitoring and management of Indigenous sites should involve Indigenous people.
 - a) During the ethnographic survey the anthropologist should determine the level and detail of the Indigenous community's involvement in the monitoring and management of Indigenous sites that will be impacted by the Gorgon Development.
 - b) Respect for Indigenous culture by all parties is fundamental to effective Indigenous cultural heritage management.
 - c) Indigenous people's beliefs and cultural knowledge remain their property.

5.2 CHMP RESPONSIBILITIES

1. CTA and its contractors should meet all its obligations with respect to the CHMP.
2. CTA should ensure that the appropriate permits governing cultural heritage management are in place before the commencement of construction. This could include but is not restricted to:

- a) Permission under Section 18 of the *Aboriginal Heritage Act 1972* from the Minister of Indigenous Affairs to disturb Indigenous cultural heritage sites that will be impacted by the proposed development.
 - b) Section 16 permit from the Registrar of Aboriginal Sites under the *Aboriginal Heritage Act 1972* to excavate for archaeological investigation purposes any Indigenous archaeological sites with the potential for sub-surface cultural material that will be impacted by the development.
 - c) The Heritage Council of Western Australia should be advised of and, if required, consulted regarding historical sites given that the island is listed on the State Register of Historic Places.
 - d) The Director of the WA Maritime Museum and the Director of the Western Australian Museum should be advised, in writing, regarding the discovery of all maritime archaeological sites.
3. CTA should ensure that all areas likely to be impacted are assessed for cultural heritage by qualified CRM practitioners and Indigenous people before commencement of ground disturbance.
 4. CTA should ensure that its staff and contractors are aware of their responsibilities under the CHMP to protect cultural heritage sites within and adjacent to the Gorgon Development. CTA should ensure that all personnel on site attend an induction course covering:
 - a) Relevant cultural heritage legislation.
 - b) Obligations under the CHMP, specifically their responsibilities regarding the protection and management of cultural heritage.
 - c) Types of cultural heritage sites and guides on how to identify them.
 - d) Procedures for reporting new cultural heritage sites and objects.

5.2.1 Notification and Reporting

1. The Cultural Heritage Officer, Government departments, Indigenous organisations and CTA should provide each other with all necessary information to carry out the CHMP and this information should be provided in a timely manner.
2. CTA and its contractors should endeavour to provide the Cultural Heritage Officer with daily briefings of work schedules at least two days prior to the implementation of the work schedule to allow coordination of any monitoring arrangements. (It is expected that the necessity for these briefings will reduce as construction on site becomes established).
3. The Cultural Heritage Officer should be informed of any substantial alterations to the work schedule as soon as is practicable and in sufficient time to allow the arrangement of the presence of the required monitors.
4. In the event of wet weather, industrial action, equipment unavailability or other factors halting construction, the Project Manager or other designated person shall notify the Cultural Heritage Officer without delay that work is to be suspended and when resumption is expected.
5. The Cultural Heritage Officer should maintain the following records:
 - a) Daily work reports for Cultural Heritage Officer and monitors.

- b) Site inspection reports, including reports on discovery and disposition of material during monitoring.
- c) Incident reports relating to any breach of the CHMP.
- 6. Reports on fieldwork during construction should be prepared on a weekly basis by the Cultural Heritage Officer. Copies should be forwarded to CTA, the Indigenous people, the DIA, the Maritime Museum and the Heritage Council.
- 7. Incident reports relating to any breach of the CHMP shall be forwarded to CTA, the relevant cultural heritage authority and the Indigenous people as soon as practicable after the event.

5.2.2 Review Process

- 1. There should be periodic reviews (frequency to be determined by the review committee listed below) of the implementation of the CHMP. The review committee should consist of:
 - a) Cultural Heritage Officer.
 - b) An appointed representative of each of the Indigenous groups.
 - c) Nominated authority for the DIA.
 - d) Nominated authority for the Heritage Council.
 - e) Nominated authority for the Maritime Museum.
 - f) CTA Environmental Officer.
 - g) CTA Project Manager.
- 2. The committee should examine all aspects of the implementation of the CHMP and prepare a report.
 - a) The Cultural Heritage Officer should coordinate the report production and forward to all members of the review committee.
 - b) All parties should consider in good faith all recommendations of the review committee and implement them as part of the CHMP.

5.3 PROTECTION OF CULTURAL HERITAGE SITES

- 1. Prior to the commencement of ground disturbance activities CTA should ensure that the proposed development is surveyed for cultural heritage sites. Specifically:
 - a) Indigenous Heritage
 - i) Inspection of proposed disturbance areas by Indigenous people and a qualified anthropologist.
 - ii) Sample survey by qualified archaeologists of not less than 50% of proposed disturbance areas.
 - b) Historical Heritage
 - i) Sample survey by suitably qualified archaeologists of not less than 50% of proposed disturbance areas.
 - c) Maritime Heritage
 - i) Sample survey by suitably qualified archaeologists of not less than 50% of proposed disturbance areas in terrestrial contexts (above the low water mark).

- ii) In relation to the underwater development areas, detailed acoustic and/or video imaging should be carried out prior to disturbance to ensure there is no maritime cultural material, shipwreck or otherwise.
2. That ground disturbance in areas with high potential for sub-surface cultural material (coast and claypans) should be monitored by the Cultural Heritage Officer and Indigenous people.
3. All known site details are listed in Appendix 1. Each site location should be assessed by CTA to determine its position in relation to the proposed development. Some sites might be found to occur outside the proposed disturbance areas.

5.3.1 Known Cultural Heritage Sites

1. Management practices should follow the recommendations for each site as detailed in Table 5-1 and Appendix 1.
2. Known cultural heritage sites should be recorded on all work plans and maps.
3. Before any activities begin near a recorded cultural heritage site, the site should be identified and flagged by the Cultural Heritage Officer.
4. Protection of the site may include the erection of temporary barriers or fences on advice from the Cultural Heritage Officer.
5. Access to cultural heritage sites should be restricted to essential personnel and contractors should adjust activities to ensure avoidance of any culturally significant sites during their activities.

5.3.2 Inadvertent Discovery

Places and items of cultural significance may be uncovered during the construction phase, particularly on coastal and claypan areas. These could include:

1. Burials (particularly within coastal dunes).
2. Indigenous artefacts.
3. Historical / maritime artefacts, structures or shipwrecks (particularly within 200 m of the high-tide mark).

5.3.2.1 Burials

As discussed in Sections 4.2 and 4.2.2, there is the potential for burials on Barrow Island. The discovery of human remains⁴ brings into play the following legislation:

1. *Coroners Act 1996* – all human remains.
2. *Aboriginal Heritage Act 1972* – Indigenous burials.
3. *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984* - Indigenous burials.
4. *Maritime Archaeology Act 1973* and the *Federal Historic Shipwrecks Act 1976* - burials associated with “historical ships”.

⁴ The term ‘human remains’ is used as a generic term, no disrespect to Indigenous people, their relatives or other people of Aboriginal or Torres Strait Islander descent is intended or implied in its use.

Should human remains be found during construction, the following procedure should be adopted.

1. On discovery of skeletal material:
 - a) All work should cease at the location and the Cultural Heritage Officer should be notified, if not already present at the location.
 - b) Reasonable efforts to protect the remains shall be made. Note that the material should not be removed or disturbed further but buffer zones or temporary barriers may be appropriate.
 - c) Construction workers and operational personnel should comply with the instructions of the Cultural Heritage Officer. Construction may continue at an agreed distance away from the site.
 - d) All personnel and contractors on site should be advised that it is an offence under the *Coroners Act 1996* and the relevant heritage legislation to interfere with the remains.
 - e) The Works Manager or Supervisor and the CTA Project Manager should be notified.
 - f) Under Section 17 of the *Coroners Act 1996* the local Police / Coroners office must be notified. Direction in the first instance should be taken from the Police. However, given the potential significance of any burials, an archaeologist/physical anthropologist with demonstrable experience in excavating Indigenous and historical burials should supervise the removal of the human remains, as the skills required for this form of excavation are beyond that of police forensic teams.
 - g) If human remains are suspected to be Indigenous then the Registrar of Aboriginal Sites at the DIA must be informed. In addition the Federal Minister for Indigenous Affairs needs to be informed.
 - h) At the same time as other individuals and agencies are contacted, the Cultural Heritage Officer should notify Indigenous people of the discovery, the steps which have been taken and make appropriate arrangement for nominated Indigenous people to attend the site, if not already present.
 - i) Indigenous people should be consulted as to the management of the material once Indigenous origin has been determined.
 - j) No further work at the locations should be undertaken until all parties have been consulted and agreement has been reached.
 - k) The location of the burial should be recorded in sufficient detail for its future protection.
2. In consultation with the Police/Coroner and DIA staff steps need to be taken to identify the skeletal material. A physical anthropologist should be engaged to complete this task on site.
3. Any remedial works should be undertaken in consultation with the Cultural Heritage Officer, the DIA and Indigenous people.
4. If the human skeletal remains are Indigenous or unknown, and all parties agree to the relocation of the material:

- a) Section 18 approval to disturb and a Section 16 permit to excavate for archaeological purposes under the *Aboriginal Heritage Act 1972* should be obtained to conduct this work.
 - b) A data recovery programme, planned in consultation with the Indigenous people, a qualified physical anthropologist and the DIA, should be developed and implemented. This should include recording of the location of the burial and other features as required by the Indigenous people.
 - c) Representatives of the Indigenous people should be present during the recovery phase.
 - d) A suitable keeping place or re-interment location should be negotiated between CTA, the Indigenous people and the DIA.
5. If the human skeletal remains are non-Indigenous and of a historical nature and cannot be avoided:
- a) The Heritage Commission and the Maritime Museum should be consulted regarding the proposed disturbance
 - b) A data recovery programme, planned in consultation with the Heritage Commission / Maritime Museum and a qualified historical archaeologist / physical anthropologist, should be developed and implemented.
 - c) An historical archaeologist / physical anthropologist with demonstrable experience in excavating burials should supervise the removal of the grave contents.
 - d) The curation / collection of any excavated materials should be negotiated between CTA and the Heritage Commission / Maritime Museum.

5.3.2.2 Indigenous Archaeological Sites

1. The potential for surface and buried cultural deposits is potentially high in coastal areas and claypans. If surface or buried material is uncovered during construction, the following procedures should be undertaken:
 - a) All work in the immediate vicinity of the find must cease and reasonable efforts to secure the discovery should be made. Work can continue at an agreed upon distance from the site. Note that the material should not be removed or disturbed further but barriers or temporary fences may be erected as a buffer around the remains if required.
 - b) The Cultural Heritage Officer, if not already present, and appropriate CTA managers should be notified.
 - c) DIA should be contacted and advised of the situation.
 - d) The Cultural Heritage Officer should create accurate records, including map references and photographs of the material and an *in situ* evaluation of the find.
 - e) A written statement of the Cultural Heritage Officer findings and recommendations should be provided to the DIA and the Indigenous people for their consideration.
 - f) Based on the recommendations of the Cultural Heritage Officer, decisions regarding the treatment of the find shall be made in consultation with the Indigenous people and the DIA.

2. If the find cannot be evaluated without further archaeological work, then the following procedure should be undertaken:
 - a) Section 18 approval to disturb and a Section 16 permit to excavate for archaeological purposes under the *Aboriginal Heritage Act 1972* should be obtained to conduct this work.
 - b) A data recovery program planned in consultation with the Indigenous people, a qualified archaeologist and the DIA should be developed and implemented.
 - c) Representatives of the Indigenous people should be present during the data recovery phase.
 - d) Based on the results of the data recovery program the find shall be evaluated in consultation with the Indigenous people, the archaeologist and the DIA.
 - e) Should burials be located, refer to burials policy procedure in Section 5.3.2.1.

5.3.2.3 Historical Archaeological Sites

Management of historical sites in Western Australia is controlled primarily under *Heritage of Western Australia Act 1990* which follows the *Burra Charter* (www.icomos.org/australia/burra.html) which in turn provides guidelines for the management of historic sites.

1. The potential for surface and buried cultural deposits is potentially high in coastal areas. If surface or buried material is uncovered during construction, the following procedures should be undertaken:
 - a) All work in the immediate vicinity of the find must cease and reasonable efforts to secure the discovery should be made. Work can continue at an agreed upon distance from the site. Note that the material should not be removed or disturbed further but barriers or temporary fences may be erected as a buffer around the remains if required.
 - b) The Cultural Heritage Officer, if not already present, and appropriate CTA managers should be notified.
 - c) The Heritage Council should be contacted and advised of the situation.
 - d) If Indigenous cultural material is also identified refer to procedures in Section 5.3.2.2.
 - e) If maritime cultural material is also identified refer to procedures in Section 5.3.2.4.
 - f) The Cultural Heritage Officer should create accurate records, including map references and photographs of the material and an *in situ* evaluation of the find.
 - g) A written statement of the Cultural Heritage Officer findings and recommendations should be provided to the Heritage Council for their consideration.
 - h) Based on the recommendations from the Cultural Heritage Officer, decisions regarding the treatment of the find shall be made in consultation with the Heritage Council.
2. If the find cannot be avoided and evaluated without further archaeological work, then the following procedure should be undertaken:

- a) A data recovery program planned in consultation with a qualified historical archaeologist and the Heritage Council should be developed and implemented.
- b) Based on the results of the data recovery program the find shall be evaluated in consultation with the Heritage Council.
- c) Should burials be located, refer to burials procedure in Section 5.3.2.1.

5.3.2.4 Terrestrial Maritime Archaeological Sites

1. Maritime archaeological sites located above the high water mark may be protected by the State *Maritime Archaeology Act 1973*. In the discovery of material the procedures followed should be the same as that for historical archaeological sites (see Section 5.3.2.3 above).
2. Written notice of discoveries should be given to the Director of the WA Maritime Museum.
3. Decisions regarding the treatment of the find shall be made in consultation with the Director of the WA Maritime Museum or his delegated representative and the Heritage Council.
4. If the site also contains Indigenous material consultation should be extended to include Indigenous people, and the DIA.

5.3.2.5 Underwater Maritime Archaeological Sites

1. Maritime archaeological sites located below the high water mark are protected by the Federal *Historic Shipwrecks Act 1976*. If identified the following should occur:
 - a) All work in the immediate vicinity of the find must cease and reasonable efforts to secure the discovery should be made. Work can continue at an agreed upon distance from the site. Note that the material should not be removed or disturbed further.
 - b) The Cultural Heritage Officer, if not already present, and appropriate CTA managers should be notified.
 - c) The WA Maritime Museum should be contacted and advised of the situation.
 - d) The Cultural Heritage Officer should create accurate records, including GPS positions and photographs of the material (if possible).
 - e) Decisions regarding the treatment of the find shall be made in consultation with the Director of the WA Maritime Museum or his delegated representative who may then recommend an *in situ* evaluation of the find by a qualified maritime archaeologist.

Table 5-1. Gorgon Development – Cultural Heritage Management Issues and Strategies

COMPONENT	CURRENT SITUATION	DESIRED OUTCOMES	STRATEGIES & RECOMMENDATIONS
Indigenous Heritage - Anthropology	<p>Barrow Island No ethnographic surveys have occurred. Indigenous people associated with the Yabburara/Mardudhunera, Kurama Marthudunera and Thanlanji Indigenous groups have expressed an interest in being consulted regarding Indigenous heritage issues on Barrow Island.</p> <p>Mainland No ethnographic surveys have occurred. Two ethnographic sites identified close to Apache/Hadson pipeline. Indigenous people associated with the Yabburara/Mardudhunera, and Kurama Marthudunera Indigenous groups have expressed an interest in being consulted regarding Indigenous heritage issues on the mainland.</p>	<p>Involvement of Indigenous people in the management of cultural heritage on the island well in advance of construction.</p> <p>Involvement of Indigenous people in the management of cultural heritage on the mainland well in advance of construction.</p>	<p>The Yabburara/Mardudhunera, Kurama Marthudunera and Thanlanji Indigenous communities need to be consulted and physical inspection of the proposed development on Barrow Island with a qualified anthropologist and selected members of the Indigenous communities may be required.</p> <p>The Yabburara/Mardudhunera, and Kurama Marthudunera Indigenous communities need to be consulted and physical inspection of the proposed development on the mainland with a qualified anthropologist and selected members of the Indigenous communities may be required.</p>
Indigenous Heritage - Archaeology	<p>Barrow Island Limited Indigenous archaeological assessment has occurred.</p> <p>Potential for sub-surface cultural material on the coast and in claypans.</p> <p>At present one known Indigenous site may be impacted by the Flaccourt Bay Pipeline Option (see Appendix 1). Until the development footprint is finalised by CTA and those proposed disturbance areas are inspected the possibility exists that additional Indigenous archaeological sites are present.</p>	<p>Identification of all Indigenous archaeological sites within/adjacent to proposed development well in advance of construction.</p> <p>Management of potential sub-surface cultural material during construction.</p> <p>Avoid if possible. If cannot be avoided then suitable recording work will be required and the appropriate permits obtained to disturb the sites.</p>	<p>Detailed pedestrian sample survey conducted by qualified archaeologists of the proposed disturbance areas. Survey should cover at least 50% of the proposed disturbance areas.</p> <p>Engagement of Cultural Heritage Officer during ground disturbance activities.</p> <p>Test-excavation of potential locations if warranted.</p> <p>Monitoring of construction in coastal and claypan areas by qualified archaeologist and Indigenous people.</p> <p>Ensure sites are protected from inadvertent damage. To facilitate this CTA should:</p> <ol style="list-style-type: none"> Engage a Cultural Heritage Officer. Ensure that all construction personnel participate in a Cultural Heritage Induction. <p>If Indigenous sites cannot be avoided then:</p> <ol style="list-style-type: none"> An application should be made under Section 18 of the <i>Aboriginal Heritage Act 1972</i> to disturb the required sites. Detailed recording of sites will be required by qualified archaeologists. If the potential for sub-surface cultural material is identified the site must be test-excavated to determine this potential. A Section 16 permit (<i>Aboriginal Heritage Act 1972</i>) will need to be obtained from the DIA to conduct this work.

COMPONENT	CURRENT SITUATION	DESIRED OUTCOMES	STRATEGIES & RECOMMENDATIONS
			<p>4. Indigenous people will have to be consulted regarding the proposed site disturbance.</p>
	<p>Mainland No archaeological assessment has occurred on the mainland infrastructure. The Apache/Hadsen pipeline was surveyed for Indigenous sites; however, no details are available. There is the potential for sub-surface cultural material on the coast and in claypans.</p>	<p>Identification of Indigenous archaeological sites within/adjacent to proposed development well in advance of construction. Management of potential sub-surface cultural material during construction.</p>	<p>Detailed pedestrian transects of mainland infrastructure conducted by qualified archaeologists. Survey should be at least a 50% sample. Engagement of Cultural Heritage Officer during ground disturbance activities. Test-excavation of potential locations if warranted. Monitoring of construction in coastal and claypan areas by qualified archaeologist and Indigenous people.</p>
	<p>Three known Indigenous archaeological sites are in the vicinity of the DOMGAS Pipeline (see Appendix 1). Until the footprint is finalised by CTA and those proposed disturbance areas are inspected the possibility exists that additional Indigenous archaeological sites are present within the proposed development.</p>	<p>Avoid if possible. If cannot be avoided then additional recording work will be required and the appropriate permits obtained to disturb the sites.</p>	<p>Ensure sites are protected from inadvertent damage. To facilitate this CTA should: <ol style="list-style-type: none"> 1. Engage a Cultural Heritage Officer. 2. Ensure that all construction personnel participate in a Cultural Heritage Induction. <p>If Indigenous sites cannot be avoided then: <ol style="list-style-type: none"> 1. An application should be made under Section 18 of the <i>Aboriginal Heritage Act 1972</i> to disturb the required sites. 2. Detailed recording of sites will be required by qualified archaeologists. 3. If the potential for sub-surface cultural material is identified the site must be test-excavated to determine this potential. A Section 16 permit (<i>Aboriginal Heritage Act 1972</i>) will need to be obtained from the DIA to conduct this work. 4. Indigenous people will have to be consulted regarding the proposed site disturbance and the ethnographic significance of the sites. </p> </p>
<p>Historical & Maritime Heritage – terrestrial</p>	<p>Barrow Island Limited historical archaeological assessment has occurred. There is a strong potential for sites to be found, particularly in the near coastal zone. Potential for sub-surface cultural material on the coast, especially burials.</p>	<p>Identification of historical archaeological sites within / adjacent to proposed development well in advance of construction. Management of potential sub-surface cultural material during construction.</p>	<p>Detailed pedestrian sample survey conducted by qualified archaeologists of the proposed disturbance areas. Survey should cover at least a 50% of the proposed disturbance areas, with emphasis on coastal zones. Engagement of Cultural Heritage Officer during ground disturbance activities. Test-excavation of potential locations if warranted. Monitoring of construction in coastal areas by Cultural Heritage</p>

COMPONENT	CURRENT SITUATION	DESIRED OUTCOMES	STRATEGIES & RECOMMENDATIONS
	<p>At present one known historical site may be impacted by the development (see Appendix 1). Until the development footprint is finalised by CTA and those proposed disturbance areas are inspected the possibility exists that additional historical archaeological sites are present.</p>	<p>Avoid if possible. If cannot be avoided then suitable recording work will be required and the appropriate permits obtained to disturb the sites.</p>	<p>Officer. Ensure sites are protected from inadvertent damage. To facilitate this CTA should:</p> <ol style="list-style-type: none"> 1. Engage a Cultural Heritage Officer. 2. Ensure that all construction personnel participate in a Cultural Heritage Induction. <p>If historical sites cannot be avoided then:</p> <ol style="list-style-type: none"> 1. Detailed recording of sites will be required by qualified archaeologists. 2. If the potential for sub-surface cultural material is identified the site must be test-excavated to determine this potential: <ol style="list-style-type: none"> a) The Heritage Council must be informed and give their approval. b) If the site contains Indigenous or maritime components refer to relevant procedures above and below.
	<p>Mainland No historical archaeological assessment has occurred. There is a strong potential for sites to be found, particularly in the near coastal zone.</p>	<p>Identification of all historical archaeological sites within/adjacent to proposed development well in advance of construction.</p>	<p>Detailed pedestrian sample survey conducted by qualified archaeologists of the proposed disturbance areas. Survey should cover at least 50% of the proposed disturbance areas, with emphasis on coastal zones.</p>
	<p>Potential for sub-surface cultural material on the coast, especially burials.</p>	<p>Management of potential sub-surface cultural material during construction.</p>	<p>Engagement of Cultural Heritage Officer for life of construction. Test-excavation of potential locations if warranted. Monitoring of construction in coastal areas by qualified historical archaeologist.</p>
	<p>At present one known historical/maritime site may be impacted by the Flacourt Bay Pipeline Option (see Appendix 1). Until the development footprint is finalised by CTA and those proposed disturbance areas are inspected the possibility exists that additional historical archaeological sites are present.</p>	<p>Avoid if possible. If cannot be avoided then suitable recording work will be required and the appropriate permits obtained to disturb the sites.</p>	<p>Ensure sites are protected from inadvertent damage. To facilitate this CTA should:</p> <ol style="list-style-type: none"> 1. Engage a Cultural Heritage Officer. 2. Ensure that all construction personnel participate in a Cultural Heritage Induction. <p>If historical sites cannot be avoided then:</p> <ol style="list-style-type: none"> 1. Detailed recording of sites will be required by qualified archaeologists. 2. If the potential for sub-surface cultural material is identified the site must be test-excavated to determine this potential: <ol style="list-style-type: none"> a) The Heritage Council must be informed and give its approval. b) If the site contains Indigenous or maritime components refer to relevant procedures above and below.

COMPONENT	CURRENT SITUATION	DESIRED OUTCOMES	STRATEGIES & RECOMMENDATIONS
<p>Maritime Heritage - underwater</p>	<p>Barrow Island There has been no physical archaeological assessment of the underwater area designated for the proposed pipelines. Until the development footprint is finalised by CTA and those proposed disturbance areas are inspected the possibility exists that shipwreck sites are present.</p>	<p>Identification of shipwreck sites within/adjacent to proposed development well in advance of construction.</p>	<p>Detailed acoustic and/or video imaging should be carried out along proposed disturbance areas, similar to that already conducted by Fugro for sections of pipeline and port facility. As recommended by Fugro (2003), additional detailed video/sonar survey work should be carried out in areas of moderate to high relief rock outcrop only. The Fugro recommendation that a block survey is carried out in the anticipated areas of very uneven seabed to choose an optimum route is also supported. This material should be made available to a maritime archaeologist to determine whether maritime cultural material, shipwreck or otherwise is present. Depending on the results of the above physical inspection by maritime archaeologists of potential areas may be required. Ensure sites are protected from inadvertent damage. To facilitate this CTA should:</p> <ol style="list-style-type: none"> 1. Ensure that all construction personnel participate in a Cultural Heritage Induction. <p>If shipwreck sites cannot be avoided then:</p> <ol style="list-style-type: none"> 1. Decisions regarding the treatment of the find shall be made in consultation with the Director of the WA Maritime Museum or his delegated representative. 2. Recommendations may include: <ol style="list-style-type: none"> a) An <i>in situ</i> evaluation of the find. b) Detailed excavation and recording. c) Removal of cultural material and curation in the WA Maritime Museum.
	<p>At present no shipwreck sites have been identified within the proposed development.</p>	<p>If shipwreck sites are identified avoid if possible If cannot be avoided then suitable recording work will be required and the appropriate permits obtained to disturb the sites.</p>	

6 REFERENCES CITED

- Allen, J. & R. Jones. 1980. Oyster Cove: archaeological traces of the last Tasmanians and notes on the criteria for the authentication of flaked glass artefacts. *Papers and Proceedings of the Royal Society of Tasmania* **114**, 225-33.
- Andrefsky, W. 1998. *Lithics: macroscopic approaches to analysis* (Cambridge Manuals in Archaeology. Cambridge: Cambridge University Press.
- Bain, M.A. 1982. *Full Fathom Five*. Perth: Artlook Books.
- Banning, E.B. 2002. *Archaeological Survey* (Manuals in Archaeological Method, Theory, and Technique. New York: Kluwer Academic/Plenum Publishers.
- Bates, D. 1985. *The Native Tribes of Western Australia*. Canberra: National Library of Australia.
- Beaton, J.M. 1985. Evidence for coastal occupation time-lag at Princess Charlotte Bay (North Queensland) and implications for coastal colonization and population growth theories for Aboriginal Australia. *Archaeology in Oceania* **20**, 1-20.
- . 1995. The transition on the coastal fringe of greater Australia. *Antiquity* **69**, 798-806.
- Bowdler, S. 1990. 50,000 year old site in Australia - is it really that old? *Australian Archaeology* **31**, 93.
- . 1999. Research at Shark Bay, WA, and the nature of coastal adaptations in Australia. In *Australian Coastal Archaeology* (eds) J. Hall & I.J. McNiven. Canberra: ANH Publications, Research papers in Archaeology and Natural History.
- Bowdler, S. & S. O'Connor. 1991. The dating of the Australian small tool tradition, with new evidence from the Kimberley, WA. *Australian Aboriginal Studies* **1**, 53-62.
- Brehaut, L. & A. Vitenbergs (eds) 2001. *The Guruma Story: told by Guruma Elders led by Peter Stevens*. Alice Springs: Jukurrpa Books.
- Chappell, J. & N.J. Shackleton. 1986. Oxygen isotopes and sea level. *Nature* **324**, 137-140.
- Chappell, J. & B.G. Thom. 1977. Sea levels and coasts. In *Sunda and Sahul: Prehistoric Studies in southeast Asia, Melanesia and Australia* (eds) J. Allen, J. Golson & R. Jones. London: Academic Press.
- Collins, J.M. & B.L. Molyneaux. 2003. *Archaeological Survey* (Archaeologist's Toolkit **2**). Walnut Creek: AltaMira Press.
- Cooper, Z. & S. Bowdler. 1998. Flaked glass tools from the Andaman Islands and Australia. *Asian Perspectives* **37**, 74-83.
- de Kerchove, R. 1961. *International Maritime Dictionary*. Princeton, New Jersey: D. van Nostrand Company Inc.
- de La Rue, K. 1979. *Pearl Shell and Pastures*. Roebourne: Cossack Project Committee.
- Dench, A. 1987. Martuthunira: A Language of the Pilbara Region of Western Australia. PhD: Australian National University.
- Dortch, C.E. & K. Morse. 1984. Prehistoric stone artefacts on some offshore islands in Western Australia. *Australian Archaeology* **19**, 31-47.
- Environmental Protection Authority. 2004. Guidance Statement for the Assessment of Aboriginal Heritage. Environmental Protection Authority Final Guidance Statement.
- Freeman, S. 1993. A Preliminary Analysis of the Glass Artefacts Found on the Onkaparinga River Estuary. Graduate Diploma in Archaeology: Flinders University.

- Fugro. 2003. Downstream Marine Facilities Survey, Gorgon Field Development, Barrow Island. Fugro Unpublished report.
- Gainsford, M. & G. Kimpton. 2003. Interim Wreck Inspection Report: 19 Mile Broome Unidentified. Department of Maritime Archaeology Western Australian Maritime Museum No. 177 Report.
- Gorgon Australian Gas. 2003. Environmental, Social and Economic Review of Gorgon Gas Development on Barrow Island. ChevronTexaco Australia Pty Ltd.
- . 2004. Guidelines for an Environmental Impact Statement and Environmental Scoping Document for an Environmental Review and Management Programme. ChevronTexaco Australia Pty Ltd Draft Scoping Document.
- Harrison, R. 1996. Its the Way it Shatters that Matters: An Analysis of the Technology and Variability of Aboriginal Glass Artefacts in The Shark Bay and Swan Regions of Western Australia. BA(Hons): University of Western Australia.
- . 2000. 'Nowadays with glass': regional variation in Aboriginal bottle glass artefacts from Western Australia. *Archaeology in Oceania* **35**, 34-47.
- Henderson, G. 1988. *Unfinished Voyages: Western Australian Shipwrecks 1851-1880*. Nedlands: UWA Press.
- Henderson, G. & L. Cairns. 1995. *Unfinished Voyages: Western Australian Shipwrecks 1881-1900*. Nedlands: UWA Press.
- Hiscock, P. 1984. Preliminary Report on the stone artefacts from Collis Creek Cave, north west Queensland. *Queensland Archaeological Research* **1**, 48-56.
- . 1994. Technological Responses to Risk in Holocene Australia. *Journal of World Prehistory* **8**, 267-291.
- Hiscock, P. & V. Attenbrow. 1998. Early Holocene backed artefacts from Australia. *Archaeology in Oceania* **33**, 49-62.
- Hiscock, P. & P.M. Veth. 1991. Change in the Australian desert culture: a reanalysis of tulas from Puntutjarpa rockshelter. *World Archaeology* **22**, 332-345.
- Horton, D. 1991. *Recovering the tracks - the story of Australian archaeology*. Canberra: Aboriginal Studies Press.
- (ed.) 1994. *The Encyclopaedia of Aboriginal Australia*. Canberra: Aboriginal Studies Press.
- Jones, R. 1985. Deaf Adder Gorge:Lindner Site, Nauwalabila 1. In *Archaeological Research in Kakadu National Park* (ed.) R. Jones. Canberra: Australian National Parks and Wildlife Service. Thr Australian National University.
- Lantzke, D. 1999. Mardie Gasfield Exploration Programme: archaeological survey. TAP Oil Pty Ltd Unpublished report.
- McCarthy, F.D. 1976. *Australian Aboriginal Stone Implements*. Sydney: The Australian Museum.
- McCarthy, M. 1991. *Macey's Wreck-An unidentified wreck in the mangroves at Mardie Station Report No 5*). Perth: WA Maritime Museum, Department of Maritime Archaeology.
- . 1996. Charles Edward Broadhurst: A Remarkable Nineteenth Century Failure. MPhil: Murdoch University.
- McDonald Hales and Associates. 2001. Report on Aboriginal heritage investigations: proposed DBNGP pipeline corridor widening project. URS Unpublished report.

- McDonald Hales and Associates, M. 1994. Goldfields Gas Transmission Project Aboriginal Heritage Survey, Northern Section.
- Moore, R. 1994. The Management of the Western Australian Pearling Industry. *The Great Circle, Journal of the Australian Association for Maritime History* **16**.
- Morse, K. 1988. Mandu Mandu Creek rockshelter: Pleistocene human coastal occupation of North West Cape, Western Australia. *Archaeology in Oceania* **23**, 81-88.
- . 1993a. New radiocarbon dates from North West Cape, Western Australia. In *Sahul in review: Pleistocene Archaeology in Australia, New Guinea and Island Melanesia* (eds) M.A. Smith, M. Spriggs & B. Fankhauser. Occasional Papers in Prehistory. Canberra: Department of Prehistory, Research School of Pacific Studies, The Australian National University.
- . 1993b. Shell beads from Mandu Mandu Creek rock-shelter, Cape Range peninsula, Western Australia, dated before 30,000 b.p. *Antiquity* **67**, 877-883.
- . 1993c. West Side Story: Towards a prehistory of the Cape Range Peninsula. PhD: University of Western Australia.
- . 1993d. Who can see the sea? Prehistoric Aboriginal occupation of the Cape Range Peninsula. *Records of the Western Australian Museum* **45**, 227-242.
- Murphy, A. & E. McDonald. 1990. A summary report of an ethnographic and archaeological survey of Aboriginal sites on the proposed Harriett Gasfield Pipeline Route: in the vicinity of Peters Creek. Dames and Moore Unpublished report.
- Przywolnik, K. 2002. Patterns of occupation in Cape Range peninsula (WA) over the last 36,000 years. PhD: University of Western Australia.
- Quartermaine Consultants. 1994. Report on an archaeological survey programme, Barrow Island. West Australian Petroleum Pty Ltd Unpublished report.
- Quartermaine, G. 1997. Addendum to The report on an archaeological survey programme, Barrow Island. West Australian Petroleum Pty Ltd Unpublished report.
- Roberts, R.G., R. Jones & M.A. Smith. 1990a. Early dates at Malakunanja II, a reply to Bowdler. *Australian Archaeology* **31**, 94-97.
- . 1990b. Thermoluminescence dating of a 50,000-year-old human occupation site in northern Australia. *Nature* **345**, 153-156.
- Simpson, J.A. & E.S.C. Weiner (eds) 1989. *The Oxford English Dictionary*. Oxford: Oxford University Press.
- Smith, M. 1986. The antiquity of seed grinding in arid Australia. *Archaeology in Oceania* **21**, 29-39.
- Stevens, R. 1998. Report of the Heritage Survey of the Second Varanus Island/CSI Natural Gas Pipeline. Apache Energy Pty Ltd Unpublished report.
- Streeter, E.W. 1886. *Pearls and Pearling Life*. London: Bell and Sons.
- Tindale, N.B. 1974. *Aboriginal Tribes of Australia: Their terrain, environmental controls, distribution, limits and proper names*. California: University of California Press.
- Veitch, B. 1993. Report of an archaeological monitoring programme. Tubridgi, near Onslow, Western Australia. BHP Petroleum Unpublished Report.
- Veitch, B. & F. Hook. 1993. Roller/skate gas export pipeline roller "A" to Tubridgi. West Australian Petroleum Pty. Ltd. Unpublished Report.

- Veitch, B. & L. Warren. 1992. A report of an archaeological recording and salvage programme at Tubridgi, near Onslow. Western Australia. Doral Resources N.L. Unpublished Report.
- Veth, P. 1994. The Aboriginal Occupation of the Montebello Islands, north-west Australia. *Australian Aboriginal Studies* **2**, 39-50.
- Veth, P., K. Aplin, T. Manne, T. Pulsford & A. Chappell. in press. Pleistocene Foragers on Arid Coastlines: the archaeology of Noala and Hayne's Caves, Montebello Islands, Northwest Australia: Submitted to *Archaeology in Oceania*, 2004.
- Veth, P.M. 1993. *Islands in the Interior: The Dynamics of Prehistoric Adaptations within the Arid Zone of Australia* (International Monographs in Prehistory. Michigan: Ann Arbor.
- Wallis, L. & S. O'Connor. 1998. Residues on a sample of stone artefacts from the west Kimberley. In *A Closer Look: Recent Australian Studies of Stone Tools* (ed.) R. Fullagar. Archaeological Methods Series. Sydney: Archaeological Computing Laboratory, University of Sydney.
- White, J.P. & F. O'Connell. 1982. *A Prehistory of Australia, New Guinea and Sahul*. Sydney: Academic Press.
- Wilkie, L.A. 1996. Glass-knapping at a Louisiana plantation: African-American tools? *Historical Archaeology* **30**, 37-49.

APPENDIX 1

LIST OF KNOWN CULTURAL HERITAGE SITES IN IMMEDIATE VICINITY OF GORGON DEVELOPMENT

Barrow Island

Category	Code (Site Name)	Site Type	Location	Easting*	Northing*	Brief Description	Within Gorgon Development?	Recommendation if Cannot be Avoided	Reference
Indigenous	GD04-01 (Flacourt Bay 01)	Possible Site, Rock shelter	Flacourt Bay	331540	7705613	Identified during March 2004 field visit. Rock shelter with potential for sub-surface cultural material. No surface material noted.	Possibly c. 80 m north-east of Flacourt Bay Gas Feed Gas Pipeline centreline	Record in more detail. Test excavate to determine potential for sub-surface cultural material.	Appendix 2
Historical	GD04-02 (Flacourt Bay 02)	Bottle Scatter	Flacourt Bay	331534	7705477	Identified during March 2004 field visit. Five pieces of light olive beer bottle glass manufactured in late 19 th – early 20 th Century.	Yes Flacourt Bay Gas Feed Gas Pipeline centreline	Record in more detail. Test excavate to determine potential for sub-surface cultural material.	Appendix 2

* = Zone 50; Datum GDA 94; Grid Reference Accuracy ± 20m

Mainland

Category	Code (Site Name)	Site Type	Location	Easting*	Northing*	Brief Description	Within Gorgon Development?	Recommendation if cannot be avoided	Reference
Indigenous	17429 (Nyungarrarra)	Ethnographic (named place)	Inland Peters Creek	398502	7629610	Named creek, 'Nyungar' translates as Blue Sky.	No		McDonald, Hales & Associates (1994)
Indigenous	17004 (Warlu Waterhole)	Ethnographic (mythological)	Inland Peters Creek	390974	7627050	'Waterhole' located in Peters Creek Associated with water-source is a scatter of flaked artefacts	No	Relocate to define location accurately.	Stevens (1998) McDonald, Hales & Associates (2001)
Indigenous	(Hadson 1)	Ethnographic (water-source) Artefact Scatter	Inland Adjacent Apache pipeline	390141	7633154	'Waterhole' known to Martuthunira informants; "used by local Aboriginal people as a water source as they moved to the coast". Associated with water-source is a scatter of flaked and ground stone artefacts in a claypan. Nine artefacts recorded in a 2 m ² sample square. Scatter measures 500 m by 500 m in	Possibly DOMGAS Pipeline	Consult with relevant Indigenous groups Relocate and record archaeological component in detail. Possible test excavation.	Murphy & McDonald (1990)

Category	Code (Site Name)	Site Type	Location	Easting*	Northing*	Brief Description	Within Gorgon Development?	Recommendation if cannot be avoided	Reference
						area.			
Indigenous	(Hudson 2)	Artefact Scatter	Coast	378141	7647154	Scatter of flaked stone artefacts on a sand island in coastal flat. Shell fragments (<i>Melo</i> spp., <i>Anadara</i> spp.) present, however, the report does not state whether cultural or natural.	No	Relocate to define location accurately.	Murphy & McDonald (1990)
Indigenous	(Hudson Midden 1)	Shell & Artefact Scatter	Saltpan/sandplain Adjacent Apache pipeline	385141	7647154	Scatter of flaked stone artefacts and some shell: <i>Saccostrea</i> spp., <i>Terebralia</i> spp., <i>Anadara</i> spp. and <i>Melo</i> spp. Given the presence of coral blocks and mangrove branches shell scatter may be natural.	Possibly DOMGAS Pipeline	Relocate and record in detail to determine whether shell scatter is cultural or natural. Possible test excavation.	Murphy & McDonald (1990)
Indigenous	(Hudson Midden 2)	Shell & Artefact Scatter	Coast Adjacent Apache pipeline	381141	7655154	Scatter of two flakes and one muller immediately behind coastal mangroves. Economic shell species present: <i>Anadara</i> spp., <i>Terebralia</i> spp., <i>Melo</i> spp., <i>Syrinx</i> spp. and <i>Tectus</i> spp. Shell scatter may be result of water action given close proximity to mangroves.	Possibly DOMGAS Pipeline	Relocate and record in detail to determine whether shell scatter is cultural or natural. Possible test excavation.	Murphy & McDonald (1990)
Indigenous	17833 (Tap Site 2)	Shell & Artefact Scatter	Coast	378938	7646377	Small scatter of shells and flaked stone artefacts. Artefacts manufactured from chert, dolerite and basalt. Site on shore of salt flat island.	No	Relocate to define location accurately.	Lantzke (1999.4)
Indigenous	18026 (PC 33)	Artefact Scatter	2 km south-west of Compressor Station 1	390068	7625886	Sparse scatter of four flaked stone artefacts. Artefacts in a stony exposure.	No	No further work required	McDonald Hales and Associates (2001)
Historical Maritime Indigenous	(Maceys Wreck)	Shipwreck Artefact Scatter	Coast, near Hudson/ Apache pipeline	Not provided	Not provided	Remains of nineteenth century lugger with associated glass remains, including possible Indigenous material	Possibly DOMGAS Pipeline	Relocate and record. Indigenous archaeologist to identify possible retouched glass artefacts.	McCarthy (1991)

* = Zone 50; Datum GDA 94; Grid Reference Accuracy ± 100m

APPENDIX 2

CULTURAL HERITAGE ASSESSMENT ON BARROW ISLAND – MARCH 2004 (VEITCH, PATERSON & SOUTER)

Activity Summary

Day	Activity	Description
16 March 2004	Travel to Barrow Is. Induction Project Orientation	Preliminary inspection of proposed development and general tour of island.
17 March 2004	Reconnaissance	Inspected previously recorded sites 888 (FS06) and 889 (FS07). Also visited possible Gas Feed Pipeline landing at Flacourt Bay. Spot checks on road side along possible pipeline routes.
18 March 2004	Reconnaissance	Inspected possible Gas Feed Pipeline landing White Beach and Gas Processing Facility Area. Inspected previously recorded sites 887 (FS05), Boudie cave, Pearlers Camp 891 (FS09). Examined collected Indigenous and historical artefacts in Environment laboratory.
19 March 2004	Reconnaissance Travel to Perth	Inspected Port Facility on eastern side of Island and possible jetty location. Photographed artefacts from Environment laboratory collection.

The proposed development areas were inspected in preliminary detail, with spot checks undertaken at areas of high archaeological potential such as coastal areas and in claypans (see Quartermaine Consultants 1994 for a discussion of some of these areas). Inspections were made at the coastal pipeline crossings at Flacourt Bay, White's Beach and Town Point. In addition a 60 m wide transect was walked through the centre of the proposed Gas Processing Facility area. Inspections were made of the coast at Town Point and at low tide the seaward side of Town Point was also inspected.

Four previously recorded Indigenous sites were visited [887 (FS05), 888 (FS06), 889 (FS07) and 891 (FS09)]. In addition two new cultural heritage sites were identified in Flacourt Bay; a rock shelter with the possibility for sub-surface Indigenous cultural material (GD04-01); and one historical site (GD04-02) (Appendix 1).

Indigenous Archaeology – summary of findings (B Veitch)

Previously Recorded Sites

Site 887 (FS05)

This artefact scatter is located well north of the proposed Gorgon Development and will not be impacted. The original recording identified six artefacts, including four collected artefacts (Quartermaine Consultants 1994:17, Appendix 3). During the March 2004 visit an estimated flaked stone artefact population of between 100 and 500 was noted. The artefact scatter also comprises exposed stone artefact reduction

areas that have been revealed as the dune has deflated. The new artefacts have been exposed as a result of cyclonic activity. If the site is to be impacted it is recommended that further recording work including test excavation is warranted.

Site 888 (FS06 Area C)

This artefact scatter is located well north of the proposed Gorgon Development and will not be impacted. Quartermaine Consultants (1994:17-18, Appendix 3) recorded six flaked stone artefacts in Area C, however, during the March 2004 visit only one artefact was relocated. In other parts of the site (Area A, B, D) less material was also noted. This is most likely the result of siltation and water action during cyclonic weather, exposing and burying artefacts. As recognition of this Quartermaine Consultants (1994:18) recommended that test excavations were warranted at this site. In most cases on the mainland, artefacts are noted on the margins of claypans, while on Barrow they appear to be in them. This raises the possibility that the artefacts observed by us and Quartermaine Consultants (1994:17-18) are not in primary locations of discard. Given that CTA intend to place concrete footings every 2 m along the length of the proposed CO₂ Pipeline (Tony Cotton pers. comm.), Area C should be test excavated in accordance with the recommendations made by Quartermaine Consultants (1994:18).

Site 889 (FS07)

This artefact scatter is located well north of the proposed Gorgon Development and will not be impacted. The scatter was recorded in 1994 as comprising four artefacts in a small claypan (Quartermaine Consultants 1994:18). During the March 2004 visit only the quartz flake was relocated. Like site 888 the claypan at site 889 has been affected by cyclonic activity burying and exposing artefacts. This site, therefore, has the potential for sub-surface cultural material and should be test excavated prior to any disturbance (cf. Quartermaine Consultants 1994:18).

General Comments

The differences between the numbers of artefacts in 1994 and 2004 in sites 887, 888 and 889 all stem from cyclonic activity. Two cyclones have passed over the area since 1994 (Olivier and Monty), leaving their mark on the landscape:

1. Scoured out deposits in the eastern part of the dunes swale in which 887 is located, resulting in one reduction area and considerably more artefacts being revealed.
2. Wash-sedimentation occurring at 888 and 889 that seems to have either buried or washed artefacts away.
 - a) It seems unlikely that artefacts would have been washed away given that the claypans are in low points on the landscape.
 - b) It seems more likely that the artefacts that Quartermaine Consultants (1994) recorded have been buried in the claypan features by siltation associated with wash from cyclonic rains. A sea sponge was noted in site 888 Area B which may support this proposition.

As a result of this cyclonic activity the surface archaeological signature of these sites and therefore other parts of the island has altered since 1994.

Newly Recorded Sites

GD04-01

A potential site was recorded at Flacourt Bay (50K 331540mE 7705613mN; Datum GDA 94). GD04-01 is a small rock shelter with the potential for sub-surface cultural material. No artefactual material was on the surface, but due to safety requirements the survey team did not enter the rock shelter beyond the drip-line. The proposed Flacourt Bay Gas Feed Pipeline option may disturb this rock shelter. The rock shelter should be test excavated prior to any disturbance to determine the potential for sub-surface cultural material.

Boodie Cave

In addition, Boodie Cave was visited. This was recorded by Quartermaine Consultants (1994:22, 25) as a site with potential sub-surface cultural material, but is not in the proposed Gorgon Development. This cave has considerable potential to contain stratified cultural remains; however, as with site GD04-01 no surface artefactual material was noted during the March 2004 visit. The lack of surface cultural material is consistent with the proposition that Barrow Island was abandoned from approximately 7,000 BP.

Proposed Development

A number of factors suggest that the surface archaeology on and near the proposed Gorgon Development has undergone substantial changes since Quartermaine Consultants conducted their assessment in 1994. As a result of cyclonic weather some sites have more artefactual material than originally recorded as a result of erosion, while in other sites sedimentation appears to have concealed artefacts, possibly forming stratified cultural deposits. These processes have been occurring for millennia. The possibility exists therefore that there will be stratified and newly revealed archaeological material within the proposed Gorgon Development that was not visible during the 1994 survey (Quartermaine Consultants 1994)⁵. Most of the proposed development covers areas that have low potential for Indigenous archaeological material. However, given that parts of the development occur on the coast or in low lying areas that may have features such as claypans, a systematic pedestrian survey is the only way to establish with any confidence the presence or absence of additional cultural heritage.

⁵ It also needs to be emphasised that the assessment by Quartermaine Consultants (1994) did not cover very much of the proposed Gorgon Development. Further, as has been shown, their results may no longer apply to the contemporary situation given the geomorphic processes outlined above.

Historical & Maritime Archaeology – summary of findings (A Paterson & C Souter)

Previously Recorded Sites

Site 891 (FS09)

This artefact scatter is on the southern end of the island and will not be impacted by the proposed Gorgon Development. The original recording identified many historical artefacts, including glass retouched by Indigenous people (Quartermaine Consultants 1994:19-20, Figure 15). The site originates from a pearlers' camp, although not surprisingly the identity of the ship associated with the site is not known given the paucity of historical accounts. The presence of Indigenous people in a pearlers' camp is supported by the documentary review, although it is not clear whether they were present willingly or by force. During the March 2004 visit an estimated flaked glass artefact population of between 10 and 20 was noted. If the site is to be impacted in future it is recommended that a complete excavation be conducted by an archaeologist qualified in contact archaeology. All workers on the island should avoid the site. Removal of any material may contravene the Western Australian *Aboriginal Heritage Act 1972* and the *Maritime Archaeology Act 1973*.

Newly Recorded Sites

GD04-02

This artefact scatter, of glass, is in Flacourt Bay (50K 331534mE 7705477mN; Datum GDA 94) and may be impacted by the proposed Gorgon Development, specifically the Flacourt Bay Feed Gas Pipeline option. The site comprises glass fragments from a single light olive glass bottle of a champagne beer type common in the late 1800s and early 1900s. While rare on Barrow Island, elsewhere along the Australian coast this is a common artefact and could be collected prior to the site being disturbed. There may however be buried archaeological material at this site and the procedures for site disturbance detailed in Section 5 of this report should be followed.

General Comments

As with the Indigenous archaeology it is clear from the review of documents and the field visit that there is the potential for additional historical sites within the Gorgon Development on Barrow Island. Additional survey and monitoring work will be required to identify historical sites prior to construction.

It is also suggested given number of references to Whitlock Cove in the historical sources that that this area should be surveyed for historical/maritime material. It is acknowledged that this area is not within the proposed Gorgon Development, however, for wider management issues on the island it would be advisable to have this area inspected (see below).

Interest in the archaeological survey was expressed by some workers on the island in March 2004 to those taking part in the survey. Such interest could be harnessed to protect the archaeological resources, especially when it is made clear that the

archaeological resource is non-renewable. One worker who knew of a site stated he wanted to return with a metal detector and explore the locality for more finds: an understandable curiosity which however would contravene a number of heritage acts. Workers should be made aware of these limitations and procedures should reflect a policy of reporting archaeological finds and not removing anything from a site until the proper procedures have been followed.

Conclusions

Most of the proposed Gorgon Development on Barrow Island covers areas that have low potential for cultural heritage. But since parts of the development are likely to take place in places of high cultural heritage potential, such as on the coast and along creeks or seasonal drainage lines, a systematic pedestrian survey is the only way to establish with any confidence the presence or otherwise of additional cultural heritage within the Gorgon Development on Barrow Island. It is therefore strongly recommended that an Indigenous, historical / maritime pedestrian survey of the proposed development on Barrow Island be undertaken prior to construction activities. Given the potential for sub-surface cultural material in these high potential areas it is also suggested that proposed construction works are monitored by qualified Cultural Heritage Management practitioners.

During the field visit the collection of flaked stone artefacts in the Barrow Island Environmental Laboratory was inspected. The idea was discussed with Tony Cotton (CTA HES Supervisor) that the collection might be better housed in the Western Australian Museum. It is suggested that this matter be raised with relevant State heritage departments such as the DIA, the WA Museum and the Maritime Museum.

The field visit strengthened the proposition that a number of Indigenous sites on Barrow Island could contain sub-surface cultural material, with Boodie Cave having the highest such potential. Results from archaeological excavations at rock shelters/caves such as Boodie Cave and to a lesser extent open surface scatter sites such as 888 and 889 have the potential to answer fundamental questions regarding Indigenous occupation of the region from 30,000 years ago. Barrow Island also has unusual historical sites that warrant further research. CTA, in our opinion, has the opportunity to support cultural heritage research on the island, similar to research currently conducted into the rare fauna, palaeofauna and flora. Such cultural heritage research places CTA in a proactive and positive situation with regard to cultural heritage.

In view of the interest expressed by some of the workers on Barrow Island in cultural heritage and their lack of knowledge regarding the protection of these sites, it is also suggested that the proposed Gorgon Development Cultural Heritage Induction (see Section 5) is extended to include all workers on the island. In addition, CTA may wish to consider the production of information boards detailing the cultural history of the island and the types of sites and artefacts present. These information boards may be strategically placed on the island, perhaps at the airport or in the induction room.

APPENDIX 3

ASSESSMENT OF HISTORICAL SOURCES RELATED TO BARROW ISLAND – FEBRUARY 2004 (PATERSON)

Introduction

A survey of historical documents was conducted to establish the range of historical events that occurred on Barrow Island. The focus of this survey was on 19th century events as these tend to be considered more significant than those of the 20th century; this, however, is a subjective distinction and a more comprehensive knowledge of the potential total history of site use is the intention of this survey.

Historical sources are not necessarily true. Where it is felt a source is unsubstantiated we have suggested cautionary use.

Historical events described in these documentary sources are not always linked to a specific site on Barrow Island. This clearly presents a problem for management; however the combined use of historical and archaeological surveys provides the most comprehensive understanding of the cultural resources of Barrow Island. The archaeological surveys provide the most useful record of historical sites on the island which, together with the data detailed here and in earlier documentary surveys (see below), provides a list of known historical sites in the surveyed areas plus a “best fit” interpretation of their historical use.

There have been several earlier studies of the historical sources related to Barrow Island. This desktop study does not repeat such data (which may however feed into Appendix 1 and Section 4.2 above).

This survey was assisted by Ms Annie Carson (BA Hons, UWA) and Jo Pritchard and Anna Vitenbergs (Local History Office, Shire of Roebourne).

Primary Sources

Author(s):	Robert Langdon (ed)
Title:	Where the Whalers Went: An index to the Pacific ports and islands visited by American whalers, and some other ships, in the 19th century.
Archive:	Mitchell Library, Sydney
Reference no.	Q387.54041
Year(s):	1984

Site/person/event(s) associated with: Barrow Island – early whaling – *Stephania* (1842) and *Canton* (1864)

Description: The list of places on page 263 lists Barrow Island early whaling as being reportedly visited by the *Stephania* (21 June, 4 August 1842) and *Canton* (22 July, 1864). The latter is possible, as is the former, however this is a very early era for whaling in the northwest which predates permanent occupation in the region. Any sites related to either would be extremely significant. There were many reports of American whalers operating in this region in the 1840s and later decades. Other key places were the Montebello Islands, the Dampier Islands (especially Rosemary Island which was reportedly visited in 1801 by whalers), Exmouth Gulf, Shark Bay, and Bedout Island. These reports suggest regular informed whaling in the region with a probable presence on Barrow Island of whalers in the period after 1801, especially after 1840.

Author(s): Jarman, Capt.
Title: The 'Tien Tsin's' Track to the Harding River
Archive: Exploration Diaries; Volume 5, 1858-1865
Reference no. PR 5441 / Battye
Year(s): 1863

Site/person/event(s) associated with: Barrow Island – early sightings – Capt. Jarman

Description: The 'Exploration Diaries' consist of six volumes of excerpts taken from the original diaries and papers of various explorers and pioneers in Western Australia. Pages 54-60 are excerpts from Captain Jarman's journey to Nickol Bay in the barque 'Tien Tsin' in 1863. He mentions sighting Barrow Island:

"Saturday, May 2. – Lat. 20deg. 21min., long. 114deg. 21min., abreast of Barrow Isle; the soundings from N.W. Cape thus far on Admiralty Chart are very correct..." (p. 55).

Author(s): Burges, L. C
Archive: Battye – Exploration Diaries; Volume 5, 1858-1865
Reference no. PR 5441
Year(s): 1864
Date: October 8, 1864

Site/person/event(s) associated with: Barrow Island – early sightings – L.C. Burges

Description: Extract from the journal of Mr. L.C. Burges, a pastoralist who travelled on board the *Flying Foam* from Fremantle to Roebuck Bay to explore the north-west and assess the suitability of the area for settlement. Left Fremantle October 3, 1864, arrived Roebuck Bay October 13, 1864. This passage describes sailing close to Barrow and Montebello Islands.

"Saturday, October 8. – We are [words obliterated] distance north of the Cape this morning in consequence of a strong current out of the gulf, running in a southerly direction. 4 p.m. – Barrow Island visible from the masthead. 5 p.m. – The Monte Bello Isles are in view now. At 8 p.m. the captain changed his course after passing between the reef and one of the Monte Bello Isles, and got into a regular harbour where we had to come to an anchor for the night in 2 ¾ fathoms of water." (p.397).

Author(s): Captain Jarman
Title: Perth Gazette and Times
Archive: Battye Microfilm
Reference No. 994.11/ PER
Date: 27.1.1865

Site/person/events associated with: Barrow Island – early exploration – Capt. Jarman

Description: Jarman describes anchoring at Barrow Island in what is probably Whitlock Cove, on December 18, 1864. He provides a detailed account of the surrounding environment and vegetation he and his party encountered during their walk on the island. Observations of interest include an apparent lack of water, plenty of wallabies and some kangaroo, and turtle tracks. Camped overnight and commenced turtle hunting in the early hours of the next morning.

December 19, 1864, traversed westward across the island, noting dense masses of spinifex and sporadic outcrops of calcined limestone. Jarman notes stumbling across a solitary tree, the only one noted by him on the island. Jarman then set the island alight in order to increase the quality of the spinifex for grazing by the wallabies in the hope they would 'fatten up'. Left the island early December 20, 1864.

Author(s): Whitlock, F. Lawson
Title: Notes on Northwestern Birds. *Emu*, Vol. 17(4): 166-179.
Archive: 2nd Floor Battye Stack
Reference No. 590 EMU
Year(s): 1918

Site/person/events associated with: Barrow Island – visit by F. Lawson Whitlock, 1918

Description: Naturalist F. Lawson Whitlock describes in detail his two-week visit to Barrow Island. His aim was to learn all he could about the little-known Black and White Wren of Barrow Island. Hence, most of the article is concerned with the description and recording of his observations of these animals. As the article could not be photocopied, relevant details about his trip to the island have been transcribed here:

“We left Cossack on Wednesday, 24th October 1917, and reached Barrow Island on Saturday, 27th October.” (p.171).

“... more often the coast was a mere fringe of low sand hills, with infrequent and small patches of mangroves. Our anchorage was a natural little port, easily entered at high tide, and well protected from a heavy sea by its very narrow entrance [Whitlock Cove]. Immediately to the east, and not more than a half-mile away, was Double Island. Fresh water was obtainable on Double Island and near our anchorage by digging in the sand above high water mark.” (p.173).

“My beat was the before-mentioned sandy peninsula, and also about 5 miles of coastal country on the north side of our harbour. I also made several trips half-way across the island, but the bird-life of the interior was so sparse and uninteresting...” (p.173).

“I was on the island to a fortnight, and also put in a day on the neighbouring Double Island.” (p.173).

“There was no shade or shelter apart from an awning over our boat and a small patch of mangroves a hundred yards away. I tried camping ashore, and erected a tent-fly furnished with mosquito netting, but this was soon torn off by strong winds.” (p.174).

“Turtle were plentiful, and my Japanese boatmen brought many eggs back to the cutter.” (p.174).

Whitlock drew a map of his ‘beat’, the area he covered on the island during his visit; a photograph of the map was taken and has been attached.

Author(s): Mayne, Blair E
Title: Votes and Proceedings of the Legislative Council, 1885
Archive: Batty Microfilm
Reference No. Q328.941 WES
Year(s): 1885
Date: 21 May, 1885

Site/person/events associated with: Barrow Island – quarantine station; Montebello Islands – pearl diving

Description: “Report by the Inspector of Pearl Shell Fisheries, for the Season 1884-1885.” 2-page letter written by Inspector Mayne who was stationed at Cossack when he wrote this report.

“At the commencement of the season, September, we had the misfortune to have the measles epidemic raging amongst the natives, thereby causing the boats to be very late at starting. I have great pleasure in now being able to contradict many statements that are afloat with regard to the inhuman treatment the natives get from their employers. For as soon as it was observed that measles has broken out, Barrow Island was converted into a quarantine station, with the schooner *Amy* into the medical ship tending to their wants; whilst the schooners *Expert* and *Pearl* were kept constantly running to and from the main, bringing over the sick ones and returning the convalescent. So, from the great care that was bestowed, the death rate was very small. I am unable to procure any definite figures. The natives themselves speak very highly of the treatment shown towards them by the whites.” (p.3).

“The boats using the Diving Apparatus have also found some new ground at the Monte Bello Group, where some very fine specimens of both shell and pearls have been got. They afterwards migrated to King Sound, where also they have been doing good work...” (p.3).

Author(s): Haynes, T.H.
Title: Mother-o’-pearl shell culture: report to the Montebello Shell Syndicate Ltd.
Archive: Battye PR Cabinet
Reference No. PR 1692
Year(s): 1912

Site/person/events associated with: Montebello Shell Syndicate

Description: Report on the state of the mother-of-pearl cultivation venture begun by the Montebello Shell Syndicate, brainchild of Thomas Haynes. There is a proposition its management over to the federal government.

No references to Barrow Island.

Author(s): Department of Fisheries and Wildlife. Extension and Publicity Service
Title: The pearling industry of Western Australia, 1850-1979.
Archive: Battye Stack
Reference No. 338.372411 WES
Year(s): 1979
Site/person/events associated with: Pearl Industry W.A – history – Montebello Shell Syndicate
Description: Brief overview of the development of the pearling industry in Western Australia, with explanations of pearl formation and cultivation. No reference to Barrow Island, but p.16 refers to the unsuccessful venture into pearl shell cultivation at the Montebello Islands with Thomas Haynes and the Montebello Shell Syndicate in 1900.

Author(s): Montague, P.D
Title: The Monte Bello Islands. *Geographical Journal* 42(1): 34-44
Archive: JSTOR – www.jstor.org/
Year(s): 1913
Site/person/events associated with: Montebello Islands – visit by P.D. Montague
Description: P.D. Montague was a scientist who visited the Montebello Islands and then published this article about the vegetation and wildlife on Hermite and Tremouille islands and several surrounding lagoons. He often refers to similarities in the ecology of both Barrow Island and the Montebellos suggesting that he may also have visited Barrow Island at some stage, or perhaps, given his description of Barrow’s location, he may simply have sailed around it and taken notes.

Title: The Marine Underwriters’ Association of Western Australia: Report of Committee with Balance Sheet for the Year Ended 30th April 1967
Archive/Location: Battye Serial Stack
Reference no. 368.22 MAR/ Battye
Year(s): 1966-1967
Site/person/event(s) associated with: Barrow Island Oil Shipment
Description: (p.19) “The tanker P.J. Adams began loading the first commercial cargo of Barrow Island oil on Sunday, April 23 and will earn the first pay cheque in 15 years for the West Australian Petroleum Pty. Ltd.”
“This shipment marks the culmination of an intensive testing programme of the Barrow Island discovery.”

Author(s): Serventy, D.L and A.J. Marshall
Title: A Natural History Reconnaissance of Barrow and Montebello Islands 1958
Archive/Location: Battye Cabinet
Reference no. 591.99413 SER
Year(s): 1964
Site/person/event(s) associated with: Barrow Island – Natural History
Description: Serventy and Marshall report on the findings of their visit to the Barrow, Lowendall and Montebello islands between 18-24 September 1958. Includes a referenced overview of previous visits to the islands by other naturalists, and includes details of Serventy’s and Marshall’s own research and campsites. Most of the report describes the vegetation, mammals and birds recorded during reconnaissance. 18-21 September was spent on Barrow Island, 21-22 on Lowendall Island and 22-24 on the Montebellos (p.3).
Relevant details of Barrow Island include (p.4):

- 1840 H.M.S. *Beagle*, type specimens of the local race of the euro were collected
- 1846 J. Lort Stokes recorded observations on the euro and other fauna
- 1900 J.T Tunney collected birds and mammals
- 1917 and 1918 F. Lawson Whitlock camped and observed the bird life
- 1945 G.P Whitley skirted the western coastline of Barrow Island on a fisheries survey in lugger *Isobel* but did not land.
- 1952 Personnel associated with the testing of the atomic bomb made sparse natural history observations.

Serventy and Marshall camped in the same general area as Whitlock. A little cove (Whitlock Cove) opposite Double Island (p.5).

Author(s): Tull, Malcolm
Title: The development of Western Australia's fishing industry: a preliminary survey.
Archive: Battye Cabinet
Reference No. 338.3727 TUL
Year(s): 1990
Site/person/events associated with: Maritime industries – Western Australia
Description: Report for Murdoch University on the historical development of the whaling, sealing, pearling and fishing industries in Western Australia. It details the importance of major industry areas such as Shark's Bay, however neither Barrow Island, nor the Montebello Islands are mentioned.

Lease Applications and Maps

Title: The Eastern Districts Chronicle
Archive: Battye Microfilm
Reference No. 994.12 YOR
Date: 27 August, 1880
Site/person/events associated with: Barrow Island – pastoral use
Description: Short newspaper article announcing the commencement of Messrs. Henry J. Cooke and James Morrell's pastoral lease on Barrow Island.

"Messrs. Henry J. Cooke and James Morrell, who as already notified, have taken Barrow Island on the N.W Coast for a sheep station, leave overland for the destination in about a fortnight from the present time, travelling with a flock of sheep, with which to make a start on their new run. The best wishes of many friends in these districts will go with them. Accounts given by those who have recently visited this Island are favourable in the extreme..."

Title: The Eastern Districts Chronicle
Archive: Battye Microfilm
Reference No. 994.12 YOR
Year(s): 1881
Date: 23 September 1881
Site/person/events associated with: Barrow Island – pastoral use
Description: Short newspaper article announcing that Messrs. Cook and Morrell are leaving Barrow Island.
"We much regret to learn that Messrs. Cook & Morrell who went up some months ago with sheep to take possession of Barrow Island are by no means satisfied with this locality which we hear they have some idea of abandoning. These gentlemen however, have succeeded in securing other runs with which we heartily wish them better luck."

Archive: State Records Office – CSO Files / Battye
Reference No. RM/R23 – Battye Microfilm
Year(s): 1871
Date: 11 August, 1871
Site/person/events associated with: Barrow Island – leases – C.L Smith
Description: A letter drafted from the Governor Resident of Roebourne to the Surveyor General's Office in Perth to request a Class A licence for turtle fishing on Barrow Island (50,000 acres) and Delambre Island on behalf of Mr. C. Lambert Smith. May have been one of the first applications for the lease of an island other than for pastoral purposes given the nature of the application and the response in which the Survey General instructed that the applicant could have access to the islands until the time when proper rental regulations could be drawn up. There is no map accompanying this application.

Archive: State Records Office – CSO Files / Battye
Reference No. SDUR/S6/611/ Battye Microfilm
Year(s): 1872
Date: 9 July 1872
Site/person/events associated with: Barrow Island – leases – C.L. Smith
Description: Application by C. Lambert Smith to the Surveyor General for an extension of his lease to fish turtle at Barrow and Delambre Islands. Extension was granted until June 1873.

Archive: State Records Office – CSO Files / Battye
Reference No. N352/ Battye Microfilm
Year(s): 1874
Date: August 30, 1874
Site/person/events associated with: Barrow Island – leases – J.G. Anderson
Description: Special Lease application form by James Grimmond Anderson for ‘...turtling and fish preserving generally, and the rights of grazing stock on same if found not to interfere with the habits of the turtle.’
There is no map accompanying this application but the lease does not appear to be restricted to any one area of Barrow Island.

Archive: State Records Office – CSO Files / Battye
Reference No. 67/1212/ Battye Microfilm
Year(s): 1897
Date: 23 July, 1897
Site/person/events associated with: Barrow Island – leases – James Clarke and Co.
Description: Application for pastoral lease of 50,000 acres of land on Barrow Island by James Clarke & Co. No map accompanying application.

Archive: State Records Office – CSO Files / Battye
Reference No. 94/281/ Battye Microfilm
Year(s): 1900
Date: 5 February, 1900
Site/person/events associated with: Barrow Island – leases – John Hurst
Description: Application for a pastoral lease for 50,000 acres of land on Barrow Island by John Hurst from Perth. Includes a sketch map of Barrow Island.

Archive: State Records Office – CSO Files / Battye
Reference No. 152/316 / Battye Microfilm
Year(s): 1900
Date: November, 1900
Site/person/events associated with: Barrow Island – leases – E.C Clark
Description: Application for a special lease for turtling on Barrow Island by Emmeline Collier Clark from East Fremantle. Unlike previous applications, Clark only applied for 100 acres and not the whole island, the positioning of which is shown in the sketch map drawn on the application.

Archive: State Records Office – CSO Files / Battye
Reference No. 94/489 / Battye Microfilm
Year(s): 1902
Date: 28 January, 1902
Site/person/events associated with: Barrow Island – leases – J.W. King

Description: Application for a pastoral lease for 50,000 acres of land on Barrow Island by James Westerhouse King. Sketch map included.

Archive: State Records Office – CSO Files / Battye

Reference No. 96/307 / Battye Microfilm

Year(s): 1904

Date: 22 August, 1904

Site/person/events associated with: Barrow Island – leases – A. Stevens

Description: Application for a pastoral lease for 50,000 acres of land on Barrow Island by Alexander Stevens. Listed as a pearler from Onslow. Sketch map included.

Archive: State Records Office – CSO Files / Battye

Reference No. 152/967 / Battye Microfilm

Year(s): 1907

Date: 6 August, 1907

Site/person/events associated with: Barrow Island – leases – F.C. Broadhurst

Description: Entry in the Dept. Lands and Surveys Lease Applications book under the name of F.C. Broadhurst. Application for a special lease of 50,000 acres of land on Barrow Island for the purpose of ‘shipping, working and exporting phosphates.’

Author(s): Dept. Lands and Surveys

Title: North West Division – West Pilbara

Archive: State Records Office – Dept. Lands and Surveys records

Year(s): 1908-1971

Site/person/events associated with: Maps – West Pilbara, including the coastline and offshore islands, eg. Barrow and Montebello Islands.

Description: A series of 5 maps drawn up by the Dept. Lands and Surveys to supplement one after the other as each was cancelled. Each one is roughly 1m x 0.65m in dimension and they all use the scale of 1:237600, or 3¼ of a mile per inch on the map. Each one is listed:

Cons 4567, Item 111/2, Title 506009, 1908-1914: The section of Barrow Island has ‘A.E. Hall’ written on it, a reference perhaps to the lease that A.E Hall once owned on the island. All leases became void after the island was reclassified as an Aboriginal Reserve in 1908. Harry F. Johnston was the Surveyor General. (see photo).

Cons 4567, Item 111/3, Title 506010, 1914-1921: Very similar to 506009, Harry F. Johnston Surveyor General. (see photo).

Cons 4567, Item 111/4, Title 506011, 1921-1925: H.S. King Surveyor General.

Cons 4567, Item 111/5, Title 506012, 1925-1951: J.P Camm Surveyor General

Cons 4567, Item 111/6, Title 506013, 1951-1971: W.V Fyfe Surveyor General. Increased detail regarding the contours of the island and its bays.

Secondary Sources

Author(s): Cox, Josephine M

Year: 1977

Title: Barrow Island: an historical documentation

Publisher: Author

City: Perth

Call no./Library: Q994.13 BAR/ Battye

Site/person/event(s) associated with: Barrow Island – documentary sources and history

Description: A comprehensive research thesis which documents known historical evidence for the visitation and/or use of Barrow Island prior to oil exploration and settlement by WAPET. Includes information regarding the first sightings of the island and hydrographic surveys, leases, scientific studies, reserve history and conservation.

Where possible, the original documents referred to in this study have been obtained and/or copied. Includes some maps.

Author(s): Butler, H. and J. Cox
Year: 1982
Title: Barrow Island
Publisher: West Australian Petroleum Pty. Ltd.
City: Perth
Pages: 1-16
Call no./Library: PR 994.13 BAR/ Battye
Site/person/event(s) associated with: Barrow Island – history, oil exploration
Description: Small tourist-style information booklet with a brief outline of the island’s history, climate, geology, vegetation, fauna, oil history and current status. Includes an index of place names and their history where possible.

History (unreferenced) –1801-1803 French Commander-in-Chief Nicolas Baudin sighted the island and thinking it was part of the mainland, did not survey. Named Cape Dupuy, Cape Malouet, Cape Poivre and Flacourt Bay.

- 1818 Lieutenant Phillip Parker King named the island Barrow Island
- 1840 Commander John Clements Wickham and Lieutenant John Lort Stokes in the *Beagle* visited the island and made observations of the fauna.
- 1900 Tunney, John T. spent two months collecting birds and mammals.
- 1908 Declared Nature Reserve
- 1910 Class ‘A’ Reserve.
- 1917-1918 Naturalist F. Lawson Whitlock visits
- 1952 F.L. Hill of the Royal Navy
- 1964 D. Goodall – botanist
- 1969 A.A Burbidge and A.R Main
- 1964-1967 W.H. Butler frequently visits

Oil Field History - 1954 – first recognised as anticline to trap oil

- 1962-62 Light airplane landing strip and beach landing facilities built
- 1964 Drilling commences
- 1967 First oil shipment

Includes small map of Barrow Island oil fields

Author(s): De La Rue, Kathy
Year: 1979
Title: Pearl Shell and Pastures
Publisher: Cossack Project Committee (Inc)
Edition: 1st
Call no./Library: 994.1 1979/ Reid Library (UWA).
Site/person/event(s) associated with: Barrow Island – Aboriginal quarantine station.
Description: Detailed and well-referenced social history of the North-West, particularly the Pilbara region and the districts of Roebourne and Port Hedland. Focuses on the development of the pearling and pastoral industries at places like Onslow, Cossack, Roebourne and inland Pilbara. The reference to Barrow Island indicates the presence of a quarantine station c.1884-1885.

“On one occasion at least, they surpassed the terms of the Act by setting up a quarantine station with intensive medical care on Barrow Island, when a measles epidemic broke out among the Aboriginal divers in the 1884-1885 pearling season.” (p.99).

Author(s): Forrest, K
Year: 1996

Title: The Challenge and the Chance: the colonisation and settlement of North West Australia 1861-1914.

Publisher: Hesperian Press

City: Perth, Western Australia

Edition: 1st

Call no./Library: 994.1303 1996 CHA/ Reid Library (UWA).

Site/person/event(s) associated with: Barrow Island – barracoons and slave markets; Exploration history of Barrow Island

Description: Referenced history of the exploration, colonisation and settlement of the north-west of Western Australia. References to exploration of the north-west coastline:

“Earlier, when King [Phillip Parker] surveyed Barrow, Lowendal and Trimouille Islands he decided these were the elusive Tryal Rocks, ‘the dread of every voyager to the Eastern Islands for the last two centuries.’” (p.3)

“The first settlement in Western Australia took place in 1829, and Lort Stokes made the next voyage of coastal survey in the H.M.S *Beagle* in 1838. He came to the same conclusion as King. The group of islands, named by the French the Monte Bello, and consisting of Barrow, Lowendal and the Trimouille Islands, within their encircling reefs, were the dreaded Tryals of former days...” (p.3).

“The *Mystery* (17 tons) came from Fremantle and in July Sholl paid her master, Peter Hedland, ten pounds to search the Monte Bellos, Barrow Island and the islands off Exmouth Gulf.” (p.47).

“The following year Sholl received verification of Cadell’s infamies by letters from the Government Resident of Koepang and from Lt. Ross of *The Flower of Yarrow*. Ross informed him of Cadell’s barracoons on Barrow Island an the ill-treatment he and his crew meted out to 30-40 divers. He starved them all. Cadell himself maimed two for life and murdered another.” (p.111).

“David Forrest, brother of the Surveyor General, and one of the first pastoralists to openly defend the Aborigines, rarely put pen to paper but now, deeply angered at the continuing ‘plight of the poor creatures’, he wrote at length on the kidnapping still rife on the Ashburton. He described the ‘well-equipped’ and ‘fully rationed’ parties who travelled down from the Hammersley Ranges to the head of the Ashburton ‘procuring all the young natives for pearl shell diving.’ He maintained Rouse and his brother-in-law Joseph McCarthy led well equipped armed parties and took the natives against their will, shipping them out from Hooley’s Creek to Barrow Island.” (p.192).

Author(s): Bain, M. A

Year: 1982

Title: Full Fathom Five

Publisher: Artlook Books

City: Perth, Western Australia

Pages: (see chapter 2: pp.26-37)

Edition: 1st

Call no./Library: 338.371412 1982 FUL/ Reid Library (UWA).

Site/person/event(s) associated with: Barrow Island – barracoons and slave markets

Description: Comprehensive referenced history of the pearling industry in North-West Western Australia. Refers to Captain Francis Cadell and his association with establishing slave markets for pearling vessel operators on Barrow Island:

“Intermingled with lengthy reports of murder and rape were serious rumours of blackbirders having established barracoons (slave markets) on islands near the coast where kidnapped Aborigines were sold when the pearling season commenced. There was talk too, of female barracoons on Enderby, de Lambre and Barrow Islands where women were sold to the highest bidder.” (p.28).

“In 1874 when an English yacht arrived at Cossack to commence pearling, the captain delivered a letter to Sholl from the Resident at Koepang. He stated that the local rajahs were complaining strongly that their indentured men were not being paid in many cases and a large number were being ill-treated. The Resident confirmed, too, the rumours of established barracoons run by a pastoralist and Cadell on the de Lambre and Barrow Islands and that Sustenance and another stranger to the coast had been responsible for the female market on Enderby Island.” (p.30).

Author(s): Bain, M.A.
Year: 1983
Title: Some incidents in the heyday of pearling
Journal/Vol/No: Early Days; Volume 9, No.1
Pages: 37-48
Call no./Library: 994.1 WES/ Battye
Site/person/event(s) associated with: Barrow Island – barracoons and slave markets
Description: Referenced social history of the pearling industry of the North-West, focusing on the treatment of Aboriginal and Asian divers. Refers to the existence of a slave market on Barrow Island.
“Some men gave up the idea of searching for m.o.p. when they realised that easier money was to be made by establishing slave markets or ‘barracoons’ on islands that lay off shore from Shark Bay to King Sound. Young female aborigines at such markets at Enderby, Lambre and Barrow Islands were sold to the highest bidder. When the police began searching islands around the Dampier Archipelago, the ‘barracoons’ were transferred further to the north-east, and the Lacedpede Islands ... became a favoured resort.” (p.41).
Unfortunately this particular situation described has not been referenced and so the original source could not be consulted for further investigation.

Author(s): McCarthy, Mike
Year: 1992
Title: Failure and success: the Broadhursts and the Abrolhos guano industry
Journal/Vol/No: Studies in Western Australian History, V13
Pages: 10-23
Call no./Library: 994.1 STU
Site/person/event(s) associated with: Barrow Island – guano collection
Description: Article documents the exploits of Charles Edward Broadhurst involved in a range of industries in the North-West such as pearling in Shark’s Bay and collecting Guano in the Abrolhos islands.
With regards to Broadhurst's initial forays into collecting guano McCarthy states that, “Unknown to officials in Perth, however, a large amount of unauthorised harvesting of guano occurred on several remote islands further north. It is now known that guano was worked on the Lacedpede Islands, Browse Island, Ashmore Reef, Jones Island (in Napier Broome Bay), Lesueur Island, Monte Bello Islands and Barrow Island.” (p.12).

Author(s): Cairns, Lynne and Graeme Henderson
Year: 1995
Title: Unfinished Voyages – Western Australian shipwrecks 1881-1900
Publisher: University of Western Australia Press
City: Nedlands, Perth, Western Australia
Edition: 1st
Call no./Library: 994.1 CAI/ Reid Library (UWA)
Site/person/event(s) associated with: Barrow Island – guano collection
Description: Reference guide to shipwrecks and shipping history of Western Australia. Refers to the barque *Oleander* and the shipping of guano from Barrow Island.
“During September 1883, the barque *Oleander* (Official Number 43921) was in Fremantle Harbour awaiting a suitable charter. After the master, James Joass, had obtained a licence to load guano at Shark Bay, the ship was chartered for that purpose and left Fremantle in ballast on 24 September. On arrival at Shark Bay, some 80 tonnes of cargo was loaded. Then the vessel proceeded to Barrow Island where it was intended to complete loading, but as no cargo was available there, Joass returned to Shark Bay to take on more guano.” (p.63).

Author(s): George, C. D.
Year: 1996
Title: The pearling industry in Australia and Papua New Guinea, 1949-1977, and the part played by the author and the Japanese.

Call no./Library: Q639.412 GEO

Site/person/event(s) associated with: Montebello Shell Syndicate

Description: There is no reference to Barrow Island in this book, however George does mention the establishment of the Montebello Shell Syndicate by T.H. Haynes in 1904 in his brief discussion on the early development of pearling in Australia.

Author(s): Marie-Stephanie
Year: 1996
Title: Monte Bello Island Pearling
Journal/Vol/No: Exmouth Expression, January 1996
Pages: 10
Call no./Library: Q994.13 EXM/ Battye

Site/person/event(s) associated with: Montebello Island group - pearling history

Description: 1-page article describing the history of the islands from the visit of Nicolas Baudin in 1801 to the pearling industry today.

Early pearling - Thomas Haynes held pearling licence from 1902-1913. 1981 Dick Morgan established Morgan & Co., a pearling company that operates from Hermite Island.

Author(s): Stanbury, Myra
Year: 1994
Title: Mother-of-Pearl shell cultivation: an early 20th Century experiment in the Montebello Islands, Western Australia.
Journal/Vol/No: The Great Circle, 16(2)
Pages: 90-120
Call no./Library: 387.2 GRE/ Battye

Site/person/event(s) associated with: Montebello Islands – pearl shell cultivation

Description: Article describes the history of pearl shell cultivation in the Montebello Islands, with reference to similar experiments conducted elsewhere in the state at the time such as Broome. Details the attempts by Thomas Haynes to cultivate m.o.p. shell in the Montebello Islands from 1901 to 1908. Includes archaeological evidence for pearling camps on the islands and hence gives a good idea of what similar pearling camps on Barrow Island may or may have looked like.

Author(s): Bartlett, Norman
Year: 1954
Title: The Pearl Seekers
Publisher: Andrew Melrose Limited
City: London
Edition: 1st
Call no./Library: 639.412/ Reid Library (UWA)

Site/person/event(s) associated with: Barrow Island - pearling

Description: Unreferenced history of the pearling industry in Australia and Torres Strait. Emphasis has been placed on the industry of Western Australia, particularly in the north around Broome. Bartlett describes the pearling grounds of Barrow Island:

“Thirty miles south of the Monte Bellos are the Barrow Island Shoals, probably the richest of the Australian pearling grounds, where they still fish the best pearls, although the area is too dangerous to tempt present-day pearl-ers who can get good shell easier elsewhere.” (p.23).

Author(s): Coate, Yvonne and Kevin
Year: 2000
Title: More Lonely Graves of Western Australia
Publisher: Hesperian Press
City: Perth, Western Australia

Edition: 1st

Call no./Library: B/994 COA/ Battye

Site/person/event(s) associated with: Montebello Islands – burials

Description: Reference guide to individual burials and cemetery records for West Australia, including off-shore and at-sea burials.

“BRAHNN, died 2.1.1887 aged about 30 years on the MONTE BELLO ISLANDS. A Malay seaman on the Osprey, who died of natural causes.” (p.44).

Author(s): Coate, Yvonne and Kevin

Year: 2000

Title: More Lonely Graves of Western Australia

Publisher: Hesperian Press

City: Perth, Western Australia

Edition: 1st

Call no./Library: B/994 COA/ Battye

Site/person/event(s) associated with: Barrow Island – burials

Description: Reference guide to individual burials and cemetery records for West Australia, including off-shore and at-sea burials.

“ANDREAS, died 5.10.1904 aged 45 years on board the lugger *Marietta* – buried on BARROW ISLAND in the Mary Ann Passage by Allic. Witnesses present at the burial were Dolha and Mattir. The informant was M. Fredrikson, master pearler, Onslow. A seaman, who died suddenly of unknown causes. He was born on one of the Malay islands and he had lived in Western Australia for 18 years.” (p.10).

Author(s): Coate, Yvonne and Kevin

Year: 2000

Title: More Lonely Graves of Western Australia

Publisher: Hesperian Press

City: Perth, Western Australia

Pages:

Edition: 1st

Call no./Library: B/994 COA/ Battye

Site/person/event(s) associated with: Barrow Island – burials

Description: Reference guide to individual burials and cemetery records for West Australia, including off-shore and at-sea burials.

“LOCHRIN Joe, died 1.10.1904 aged 55 years, on board the schooner *Cutty Sark* off Barrow Island near Mary Ann Passage – buried on BARROW ISLAND by J. Montengre. Witnesses present at the burial were Rubino and Pablo. The informant was A. Harding, resident and partner of Onslow. A sail maker, whose sudden death was of unknown causes. He was born in Chile, South America, and had lived in Western Australia for 2 years.” (p.224).

Author(s): Coate, Yvonne and Kevin

Year: 2000

Title: More Lonely Graves of Western Australia

Publisher: Hesperian Press

City: Perth, Western Australia

Edition: 1st

Call no./Library: B/994 COA/ Battye

Site/person/event(s) associated with: Barrow Island – burials

Description: Reference guide to individual burials and cemetery records for West Australia, including off-shore and at-sea burials.

“Bin Usop Dollah, died 8.2.1905 aged 20 years from lugger *Ellen* off Pascoe Island near Barrow Island – drowned at sea. A sailor, who drowned and his body was not recovered. He was born in Malacca and had lived in Western Australia for 9 months.” (p.36)

Author(s): Coate, Yvonne and Kevin
Year: 2000
Title: More Lonely Graves of Western Australia
Publisher: Hesperian Press
City: Perth, Western Australia
Edition: 1st
Call no./Library: B/994 COA/ Battye
Site/person/event(s) associated with: Barrow Island – burials
Description: Reference guide to individual burials and cemetery records for West Australia, including off-shore and at-sea burials.
“Deichi Matsumoto, died 8.2.1905 aged 24 years – drowned at sea off Pascoe Island near Barrow Island. A sailor on the lugger *Ellen*, who was drowned and his body was not recovered.” (p.101)

Author(s): Gribble, John B.
Year: 1905
Title: Dark deeds in a sunny land or, blacks and whites in the North-west Australia
Publisher: Daily News
City: Perth
Call no./Library: CSO 3678/86
Site/person/event(s) associated with: Barrow Island – burials
Description: European man at Barrow Island died in 1872. Both Carley and Captain Tuckey, who first saw the body, swore an oath that they felt he had been murdered. Official inquiry resulted in a suicide decision. Victim was supervising a large number of Aborigines.

Author(s): WAPET
Year: 1987
Title: Barrow Island Environmental Research: list of references on Barrow Island and adjacent areas
Publisher: WAPET Technical Information Services
Pages: 1-15
Call no./Library: Q333.72 BAR/ Battye
Site/person/event(s) associated with: Barrow Island - environmental research
Description: Bibliographic reference to reports, documentation and journal articles associated with the environmental and ecological aspects of Barrow Island to date (1987). Also includes a list of references regarding publicity relating to Barrow Island.

Author(s): Butler, W. H.
Year: 1983
Title: The Barrow Island experience: a presentation to the 53rd ANZAAS Congress
Publisher: WAPET
City: Perth, W.A
Pages: 1-7
Call no./Library: PR12958/ Battye
Site/person/event(s) associated with: Barrow Island – conservation and preservation
Description: Provides a brief outline of Barrow Island’s history and the development of its oil resources. Historical section is brief and not referenced, the emphasis of the presentation highlighting WAPET’s procedures for the conservation and preservation of the island’s environment.

Author(s): Murray, Robert
Year: 1991

Title: From the edge of a timeless land: a history of the North West Shelf gas project.
Publisher: Allen and Unwin
City: Sydney, Western Australia
Edition: 1st
Call no./Library: 338.27285 MUR/ Battye

Site/person/event(s) associated with: Barrow Island – oil production

Description: History of the development of the North West gas shelf project and the oil and gas industries. References to Barrow Island refer mainly to the oil production and its value. Early references briefly describe WAPET's exploration on the island from the 1950s to the drilling of Barrow 1.

Author(s): Wilkinson, Rick
Year: 1988
Title: A Thirst for Burning: the story of Australia's oil industry
Publisher: David Ell Press
City: Sydney, NSW
Pages: 21 & 38
Edition: 2nd
Call no./Library: 338.27282 WIL/ Battye

Site/person/event(s) associated with: Barrow Island – oil production

Description: Details the history and current status of the oil industry throughout Australia and the major oil fields. References to Barrow Island refer mainly to the early phases of exploration (1954, 1956, 1962, 1963), and the current status of WAPET's drilling on the island.

Author(s): Playford, Phillip E.
Year: 1970
Title: Petroleum exploration in Western Australia; past, present and future.
Journal/Vol./No: Journal of the Royal Society of Western Australia, V54, No.1.
City: Perth
Pages: 1-13
Call no./Library: 506 ROY/ Battye

Site/person/event(s) associated with: Barrow Island - oil fields

Description: Article briefly describes the history of oil exploration in Western Australia with particular attention paid to the developments of West Australian Petroleum Pty. Ltd (WAPET).

Barrow Island oil discovered 1964, first shipment of crude oil from the island 1967. Provides a map of the oil fields on the island, including oil and gas wells and abandoned wells.

Author(s): Gorgon Australian Gas
Year: 2003
Title: Environmental, Social and Economic Review of Gorgon Gas Development on Barrow Island
Publisher: ChevronTexaco
City: Perth, Western Australia
Location: <http://www.gorgon.com.au/>

Site/person/event(s) associated with: Barrow Island - oil fields

Description: Contains summary of history of oil exploration and extraction on Barrow Island.

"In 1953 West Australian Petroleum Pty Ltd (WAPET) discovered oil at Rough Range, near Exmouth. This prompted an extensive program of geological surveys and exploration drilling in the northern Carnarvon Basin.

Drilling commenced on the Barrow One well on 7 May 1964 and in the first week of July the well produced flowing oil. Two years later, Barrow Island was declared a commercial oil discovery, Western Australia's first. Production began in April 1967 at over 8000 barrels of oil per day, peaking in 1971 at 50 000 barrels per day and in December 2003, the 300 millionth barrel of oil was produced.

Since 1967, more than 800 wells have been drilled, including more than 500 oil production wells, over 250 water injection wells, and various gas producer and water disposal wells. Oil is pumped to the surface using beam pumps in the majority of producing wells, the remaining wells using gas-lift or natural flow. Today, approximately 455 wells are producing oil.

In February 2000 Chevron took over operatorship of the assets previously managed by WAPET. Today ChevronTexaco continues the task of managing a producing oilfield on behalf of its partners Santos Offshore Pty Ltd and Mobil Australia Resources Company Pty Ltd. Personnel working and living on the Island number from 150-200 and rotate in two-week shifts. By 2024, the expected life of the field, it is estimated that Barrow Island will have produced 360 million barrels of oil" (p. 6).

Author(s): Gibbs, Martin
Year: 1995
Title: The Historical Archaeology of Shore-Based Whaling in Western Australia 1836-1879
City: Perth
Call no./Library: Q338.37295 GIB
Site/person/event(s) associated with: Whaling Western Australia – history
Description: PhD Thesis, submitted to the University of Western Australia, 1995.
Whilst there are no references to Barrow Island or the Montebello Islands in this text, Gibbs' discussion of the history of shore-based whaling in the North-West includes details of the history and archaeological survey of the operation that existed on Malus Island (Dampier Archipelago) from 1870-1877.

Author(s): Idriess, Ion L.
Year: 1937
Title: Forty Fathoms Deep: pearl divers and sea rovers in Australian seas
Publisher: Angus and Robertson Limited
City: Sydney
Call no./Library: 639.412/ Reid Library (UWA)
Site/person/event(s) associated with: Pearling Western Australia - history
Description: Unreferenced social history recounting stories of individual pearl divers, most of whom worked around Broome.
No references to Barrow Island or Montebello Islands.

Author(s): Shepherd, B.W
Year: 1975
Title: A History of the Pearling Industry off the North-West Coast of Australia From its Origins Until 1916.
Call no./Library: Q639.412/ Battye
Site/person/event(s) associated with: Pearling industry, North-West Western Australia
Description: MA Thesis submitted to the University of Western Australia, 1975.
Comprehensive history of the pearling industry of the North-West, focusing on the contribution of the Shark Bay industries to the overall economic growth of this part of the state. Covers the contribution of Aboriginal and Asian labour to the industry as well as the development of pearling technology until 1916.
No references to Barrow Island or the Montebello Island group.

Author(s): Battye, J.S
Year: 1985
Title: The History of the North West of Australia: embracing the Kimberley, Gascoyne and Murchison districts.
Publisher: Hesperian Press
City: Carlisle, Western Australia
Edition: 2nd
Call no./Library: Q994.13 HIS / Battye

Site/person/event(s) associated with: North-West Australia - history

Description: History of the exploration and settlement of the North West, particularly the Kimberley, Gascoyne and Murchison districts. Although there is some detail given about early explorations up north, the details regarding the voyage of the H.M.S 'Beagle' and Captain Wickham do not include visits to Barrow Island. Barrow Island does not feature in the chapters on the pearling and pastoral industries either.

Author(s): Hardie, Jenny
Year: 1981
Title: Nor'-Westers of the Pilbara Breed
Publisher: Sands & McDougall (Aust.) Pty. Ltd.
City: Perth, Western Australia
Edition: 1st

Call no./Library: 994.1 1981 NOR/ Reid Library (UWA)

Site/person/event(s) associated with: North-West History – Port Hedland

Description: Referenced social history of the settlement of the Pilbara, particularly Port Hedland, and the development of the pastoral and to a lesser extent, pearling industries. History does not extend back to include earlier exploration phases for the North-West coast.

No references to either Barrow or Montebello Islands or the use of offshore islands in the vicinity.

APPENDIX 4

ASSESSMENT OF HISTORICAL SOURCES RELATED TO SHIPWRECK SITES IN THE BARROW ISLAND REGION – FEBRUARY 2004 (SOUTER)

Shipwreck Sites Protected Under the *Historic Shipwrecks Act 1976*– Not Found

<i>Vianen</i>	Ship	1628/01/25 (refloated)
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Historical Précis: One of the earliest ships to founder on the West Coast, the VOC ship *Vianen* was a wooden vessel of 400 tons enroute from Batavia (Jakarta) to Goeree, Zeeland in the Netherlands. In a letter from the Governor-General to the managers of the East India Company, November 3, 1628, the grounding and refloating of the vessel in the vicinity of Barrow Island is described;

...[We] thought fit to give orders for the ship Vyänen to sail to the strait of Balamboan. [She] sailed [from Batavia] thither on the 14th of January, and from there stood out to sea on the 25th do. She was by head-winds driven so far to south-ward that she came upon the South-land beyond Java where she ran aground, so that she was forced to throw overboard 8 or 10 lasts of pepper and a quantity of copper, upon which through God’s mercy she got off again without further damage....

The incident is recorded in Tasman’s instructions where it is noted that after the *Vianen* had come across the coast unexpectedly in latitude 21° S she had sailed for 50 miles along the coast but no specific observations had been made. A chart by VOC cartographer Hessel Gerritsz in 1618 has annotations which date to the *Vianen*’s sighting of the coast. These marks conform to modern charts and suggest that the vessel grounded in the Port Hedland region, incorporating Barrow and the Montebello islands.

Location:

Lat Max	20° 00	Long Max	115° 10
Lat Min	21° 00	Long Min	115° 50

Sources:

Schilder, G., 1976, *Australia unveiled, the share of the Dutch navigators in the discovery of Australia*. Theatrum Orbis Terrarum, Amsterdam.

Letter of the Governor General and Councillors to the Heeren XVII, 3 November 1628, in Heeres, J.E., 1899. *The part borne by the Dutch in the discovery of Australia 1606-1765.*, Royal Dutch Geographical Society, Leiden.

<i>Ariel</i>	Schooner/Lugger	1868/01/04
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Historical Précis: This Tasmanian built wooden schooner (Official number 30805), of 26 tons was built in Hobart in 1845 was engaged in pearling when it foundered with Joseph Barrett as Master.

On 25 January 1868 *Ariel* was lost off Locker Point, 50 km west of Ashburton with all hands and around a ton of shell. This was the first recorded tragedy on the pearling grounds of Western Australia and though it was an indication of the risks associated with the industry it did not deter the rest of the pearlery (McCarthy 1996).

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

Perth Gazette, 3 April 1868

Inquirer, 1 April 1868

RJS, 25/1/1868, Battye Library

Henderson, G., 1988 *Unfinished Voyages: Western Australian Shipwrecks 1851-1880* UWA Press. Nedlands.

McCarthy, M., 1996 *Charles Edward Broadhurst: A Remarkable Nineteenth Century Failure*. Unpublished Mphil Thesis. Murdoch University.

Wild Wave (China) Brig 1873/08/30

Historical Précis: The *Wild Wave* (Official number 43302) was built at Abenraa in Denmark, in 1858 by Peter Lund. The vessel's master was Captain Edward Fothergill and the owner George Howlett. The 180-ton wooden vessel, measuring 31.4 metres by 7.4 metres by 3.9 metres, had one deck with a break, two masts, a round stern and a snake's head figure (Henderson 1988:134).

The ship was enroute to Singapore with a cargo of sandalwood at the time of wrecking. The evidence indicates that the *Wild Wave* was normally employed in the intercontinental trade out of Singapore and that its brief trading period along the Australian coast was speculative until a return cargo to Singapore could be arranged (Batten, MA 439/71). The *Wild Wave* sailed from Fremantle on August 25 with 27 passengers and a crew of 15 Malays. At noon on the 30th, the ship was in latitude 25° 55' South, with Point Cloates bearing north-east 50 kilometres away. The vessel sped past the North West Coast and Barrow Island. Captain Fothergill thought the brig would be well to the west of Barrow Island, but a current had brought it quite close to land. The studding sails were taken in and a lookout posted on the foreyard at midnight. However, the brig was going at 13 kilometres per hour, one and a half hours later, when the officer saw breakers ahead (Captain Edward Fothergill, evidence at the Inquiry held at Cossack, 18 October 1873, CSR 736, fol. 128). The brig struck and at once filled with water. The boats were made ready to leave the ship, and at daylight the crew saw the Montebellos, 13 kilometres to the East (Henderson 1988:133). They made for the Southern end of the group and set up camp, probably on Hermite Island. Lockier Burges in his reminiscences *The Pioneers of the Nor'-West, Australia* in 1913 states that the *Wild Wave* was lost in the vicinity of 'Big Sandy Island' but that name is not listed in the *Gazetteer* (Henderson 1988:133). The wreck was later sold at auction for £200 to Cossack importer Charles Crouch, who salvaged most of the cargo of sandalwood and mining equipment (*Inquirer*, 29 October 1873).

Location:

Lat Max	20° 00	Long Max	115° 10
Lat Min	21° 00	Long Min	115° 50

Sources:

George Howlett to John Absolon, 1 May 1872, Habgood Papers, 813A, Battye Library

Captain Edward Fothergill, evidence at the Inquiry held at Cossack, 18 October 1873, C.S.R. 736, fol. 128

Henderson, G & K.J., 1988 *Unfinished Voyages: Western Australian Shipwrecks 1851-1880* University of WA Press, Nedlands.

Division of Natural Mapping, Dept. of Minerals and Energy, 1975 *Gazetteer* Australian Government Publishing Service, Canberra.

Inquirer, 29/10/1873

Inquirer 29/10/1873 fr 3d

Inquirer 5/11/1873 fe 3d

Inquirer 27/8/1873

Morning Star Lugger 1881/01/07

Historical Précis: At the beginning of the 1880s, those involved in the pearling industry were still ignorant of the weather patterns in the North West. A devastating cyclone struck the coast between Exmouth Gulf and Cossack on 7 January 1881 and decimated the unsuspecting pearling fleet (*Herald* 12/2/1881).

In April 1867, the first of a new style of larger pearling boats, the *Morning Star*, was employed for the purpose of harvesting shell. (RJS, 28/4/1867 Battye). These vessels ranged from around 5 tons upwards. Despite the early failures, large boats such as the *Morning Star* were to prove the next step in the developing pearling industry. Not only could they act as a mother vessel to their smaller counterparts and as a transport and storage medium for the shell, but they also could accommodate the shell gatherers themselves. They were the next step up from a small land based open boat and were obviously needed in the efficient pursuit of the shell (McCarthy 1996).

Details of the vessel have not been found as it was unregistered. Archival sources indicate that it was anchored at the time of the cyclone in the vicinity of Yammerdery Creek along with the luggers *Alpha*, *Baningara*, *Emma*, *Florence*, *Kate*, *Nautilus*, *Adela* and *Yule* (Henderson & Cairns 1995:14). Similarly an *Unidentified Lighter* was also reported lost in the pearling grounds west of Yammadery Creek during this cyclone (Henderson & Cairns 1995).

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

Herald 12 /2/1881

Henderson, G., and Cairns, L., 1995 *Unfinished Voyages: Western Australian Shipwrecks 1881-1900* UWA Press. Nedlands.

McCarthy, M., 1996 *Charles Edward Broadhurst: A Remarkable Nineteenth Century Failure*. Unpublished Mphil Thesis. Murdoch University RJS, 28/4/1867 Battye Library

Ruby **Lugger/Cutter** **1882/03/06**

Historical Précis: The cutter *Ruby* (Official Number (753089) set sail for the pearling grounds from Point Walcott and was lost when a cyclone struck the region. The Custom's revenue vessel *Myra* was dispatched to search for the missing vessel. A report indicated that Aborigines had seen wreckage near Depuch Island, but a thorough search of the area around the islands of the Montbello and Lowendal groups found no trace of the cutter. Bad weather had prevented Captain Pemberton Walcott of the *Myra* from searching Barrow Is and there was a faint hope that the *Ruby's* crew may have reached there, but it was generally concluded that the vessel must have foundered at sea during the cyclone, all hands being lost.

Location:

Lat Max	10° 00	Long Max	112° 00
Lat Min	26° 40	Long Min	115° 50

Sources:

Inquirer 29 /5/1882

Inquirer 5 /4/ 1882

West Australian 4 /4/ 1882

West Australian 12 May 1882

Herald 13 /5/ 1882

Herald 3 /6/ 1882

Henderson, G., and Cairns, L., 1995 *Unfinished Voyages: Western Australian Shipwrecks 1881-1900* UWA Press. Nedlands.

Register of British Ships. National Archives Perth. Transcribed by Parsons, R., (1971)

SS Dolphin **Cutter** **1902/06/14**

Historical Précis: The *SS Dolphin* (Official number 72472), of 24 tons foundered off Beadon Point, NW Coast of WA. J. Clarke (Owner); Crew 4; Osman bin Buleah (Master); passengers 3; Vessel valued at £200; Cargo values at £400.

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

Register of Wrecks and Casualties in Western Australia 1897-1942, Her Majesty's Customs, Department of Marine and Harbours. (Transcribed by Dickson, R Report-Department of Maritime Archaeology, WA Maritime Museum No. 56)

Marietta **Lugger** **1905/02/08**

Historical Précis: The *Marietta*, a pearling lugger working off the North West coast was not a registered vessel, and is therefore not listed in the Shipping Registers. McKenna's transcription of the Register of Wrecks however, records the following details:

Stereas (Owner); Scuttled at Barrow Island to avoid total loss.

Another secondary source corroborates this and adds that the vessel may also have been called *Marutta* or *Marcella* (Barnett, 1983). No entries for these names were found in a search of the Registers.

Location:

Lat Max	20° 00	Long Max	115° 10
Lat Min	21° 00	Long Min	115° 50

Sources:

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

Barnett, J., 1983 *An Illustrated Map and Brief History of Shipwrecks along the WA Coast*. Unpublished. Battye Library.

Ellen **Lugger** **1905/02/08**

Historical Precís: The *Ellen* was an unregistered lugger; Alex Burney (Owner); Harry B. Johnson (Master) which was swamped by heavy seas at Onslow, WA. While the vessel was at anchor, the chain parted causing the boat to drift and founder. All five crew were lost and the vessel valued at £500.

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

Register of Wrecks and Casualties in Western Australia 1897-1942, Her Majesty's Customs, Department of Marine and Harbours.(Transcribed by Dickson, R Report–Department of Maritime Archaeology, WA Maritime Museum No. 56)

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

RN 791 Battye Library

Curlew **Lugger** **1911/02/06**

Historical Precís: The *Curlew* (Official Number 101614); was a pearling lugger of 11 tons built and registered in Fremantle in 1892; A.R. Harding (Owner); Crew 7; C,F Nyshom (Master). The *Ships Registered in Western Australia* archive records it as wrecked in a hurricane at Onslow in cyclone, with one survivor while the *Register of Wrecks and Casualties in Western Australia* records the vessel as wrecked lagoon at Hermite Is. Montebellos with all 7 crew saved, no cargo.

Location:

Lat Max	20° 00	Long Max	115° 10
Lat Min	21° 00	Long Min	115° 50

Sources:

Register of Wrecks and Casualties in Western Australia 1897-1942, Her Majesty's Customs, Department of Marine and Harbours.(Transcribed by Dickson, R Report–Department of Maritime Archaeology, WA Maritime Museum No. 56)

Ships Registered in Western Australia National Archives. (Transcribed by Dickson, R. Report–Department of Maritime Archaeology, WA Maritime Museum No.80.)

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

Lapwing **Lugger** **1911/02/07**

Historical Precís: The peeling schooner *Lapwing* (Official no. 102227) of 11.26 tons was reported as a total wreck near the MonteBello Islands. The owner is recorded as F.L. Parkes.

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

Moana **Lugger** **1920/08/17**

Historical Precís: The *Moana*, (Official number 118529) a lugger engaged in pearling, was for a large part of it's life owned by the Broome Pearling Company. The vessel foundered in Mary Ann Passage after a collision with the *SS Bambra* resulting in the loss of 7 lives. P.J Smith is listed as the owner at the time of wrecking. The vessels is also sometimes referred to as *Moara* (Dept. Harbour and Lights *Record of Shipping Casualties* AN16/3 ACC 1056).

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

Register of Wrecks and Casualties in Western Australia 1897-1942, Her Majesty's Customs, Department of Marine and Harbours. (Transcribed by Dickson, R Report-Department of Maritime Archaeology, WA Maritime Museum No. 56)

Ships Registered in Western Australia National Archives. (Transcribed by Dickson, R. Report-Department of Maritime Archaeology, WA Maritime Museum No.80.)

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

Dept. of Harbour and Lights *Record of Shipping Casualties* AN16/3 ACC 1056

SS Bamba Log Book 1920(2) AN 16/14 ACC 1056

AN 16/5 ACC 1036 & 1066 *SS Bamba* collision with lugger *Moara* in Mary Ann Passage

Shipwreck Sites Not Protected– Not Found

Boreas	Lugger	1932/05/04
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Historical Precís: Official number 140171; A.E. Iverson, G.W. Lort, L. J. Jones of Onslow (Owners) Wrecked NE end of Weld Is.

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

AN 16/5 ACC 1066 1936 837 Wreck of luggers.

Rosebud	Lugger	1933/09/12
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Historical Precís: Official number 1022417, 12 tons wrecked nr Broome(?) or Airlie Is. NE of Onslow Samuel H. J. N. Clark, of Beadon, storekeeper (Owner).

Location:

Lat Max	10° 00	Long Max	115° 00
Lat Min	21° 45	Long Min	115° 50

Sources:

HMC 40/3 McKenna Collection 681, WA Maritime Museum

AN 16/5 ACC 1066 1936 837 Wreck of luggers

McKenna, R., 1967 Transcription of *Register of Wrecks; Strandings and Mishaps of British Ships, Port of Fremantle* Her Majesty's Customs, Perth.

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