



Culture and Heritage: Shipwrecks and Associated Objects

S. Kenderdine
Western Australian Maritime Museum

**Australia: State of the Environment
Technical Paper Series (Natural and Cultural Heritage)**



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Preface

Australia: State of the Environment 1996 (the first ever independent and comprehensive assessment of the state of Australia's environment) was presented to the Commonwealth Environment Minister in 1996. This landmark report, which draws upon the expertise of a broad section of the Australian scientific and technical community, was prepared by seven expert reference groups working under the broad direction of an independent State of the Environment Advisory Council. While preparing the report, the former Department of the Environment, Sport and Territories, on behalf of the reference groups, commissioned a number of specialist technical papers. These have been refereed and are now being published as the State of the Environment Technical Paper Series. Reflecting the theme chapters of the report, the papers relate to human settlements, biodiversity, the atmosphere, land resources, inland waters, estuaries and the sea, and natural and cultural heritage. The topics covered range from air and water quality to sea grasses and historic shipwrecks.

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I would like to thank the staff from all of the museums, and State and Federal agencies responsible for implementing protective legislation over shipwrecks and for their participation in formulating this paper. It is their records and documents that enable an interpretation of the status of historic shipwrecks in Australian waters. I would also like to thank Kieran Hosty at the National Maritime Museum, who acted as referee for this paper and provided many valuable comments. I would also like to thank Ian Robertson from Environment Australia, who both enabled this paper to be published and waited patiently for it to be finalised.

Abstract

The values and condition of shipwrecks in Australia and the pressures acting upon them are described and discussed in this paper. Responses to the perceived threats to shipwrecks are analysed. Arguments for and against restoration and excavation of shipwreck sites are considered and a list of indicators for shipwrecks is proposed.

Summary

For the purpose of state of the environment reporting, the heritage environment was defined as having three elements: places, objects and intangible factors. This technical paper reports on the state of those aspects of the heritage environment described as the historic shipwreck resource.

Underwater heritage refers to all those submerged sites of shipwrecks, port facilities and other relics that are considered to be of heritage significance. These sites include shipwrecks, submerged structural remains of wharves, jetties and slipways and deposits of underwater relics. For the purposes of this paper, the term historic shipwreck resource has been used to refer to all shipwrecks whether fully submerged or on land, all associated relics whether they be submerged or in private or government custody, all related maritime facilities existing underwater and relics associated with them. It does not encompass aspects of Aboriginal watercraft and archaeological sites, or submerged landscapes, although these are recognised as valid within the definitions of underwater archaeology.

Shipwrecks are often referred to as 'museums without walls'. Also, they can have great aesthetic appeal to divers and are of archaeological value as store houses of cultural material for researchers if left undisturbed on the seabed. They are often of great significance to the community for reasons of social, cultural, religious, spiritual, or educational associations. These associations may be changed if a site is excavated, destroyed, moved or restored.

More than 7000 shipwrecks are historically recorded to have occurred in Australian waters and are the legacy of a maritime heritage that began in the seventeenth century. A large number of relics from wreck sites are also found in museums and private collections. Much of the historic shipwreck resource

is protected by State or Commonwealth legislation. This protection is a response to the impact that humans have begun to have on shipwrecks especially since the explosion of recreational diving in the 1950s and maritime related activities of fishing, dredging, coastal development and salvage. A general growing appreciation of the values of cultural heritage throughout the world has also stimulated their protection. There is also an increasing demand by the public for the interpretation of shipwreck sites both underwater and in the form of exhibition of relics, involvement in restoration projects, and through publication. Developers are also now charged with a responsibility for the care of shipwreck resources through Environmental Impact Statement (EIS) requirements in some States.

An historic shipwreck represents a limited and finite resource. Despite the comprehensive legislative base at both Commonwealth and State level for protection, significant pressures continue to impact on that resource. The range and diversity of these pressures reflects the multi-jurisdictional administration of the sites and the variety of values that wreck sites hold for the community. Sites may be valued for romantic notions about history, as sites of learning and generation of mythology, opportunities for cultural tourism, or simply as possible sources of revenue and exploitation. A further complicating factor relevant to the pressures prevailing on the shipwreck resource is the unique environment in which the sites are generally located—that is, underwater.

Assessments of the many pressures acting on wreck sites and associated relics are difficult to obtain. A primary indicator in assessment of a change of state would be through the close monitoring of each site to assemble comparative data about impacts of environment and human interaction with regard to site fabric. This would need to take place on a regular basis and would require a significant commitment of resources. This indicator would only be with

reference to the located wreck sites and does not take into account approximately 85 per cent of the historically recorded shipwrecks. At this time, there are insufficient resources for this data accumulation to occur although involving the community in some of this monitoring may contribute to an assessment of the state of place.

However, other indicators (more indirect) may be used to assemble data that contributes to an overall understanding of how the various pressures are addressed. These include the registration of sites and artefacts, increasing wreck inspections, increasing participation of community and developers in wreck site protection, and the resolution of various difficulties inherent in the administration of legislation and the National Historic Shipwrecks Program. Assembling these data will provide a mechanism for future use in state of the environment reports.

1 An assessment of the state of the shipwreck resource

1.1 Introduction

Australia has a rich maritime history that dates back to Aboriginal voyaging more than 40 000 years ago. Water transport has been vital to traditional ways of life for Torres Strait Islanders and Aborigines living in and around the coast and rivers.

Overseas voyaging to Australia began in the seventeenth century. Makassans came from Sulawesi to exploit the trepang. Dutch, French and British explorers also began to map and chart the coastline. Accidental encounters with the Australian coastline were also made by the early traders, in particular, the Dutch en route to Batavia. British settlement commenced in 1788 and ships were the means of transporting goods and people from Europe and the rest of the world to Australia. Before the development of inland transport systems, ships were also the means of communication between the colonies by way of the coast and along the internal waterways.

More than 7000 shipwrecks are historically recorded to have occurred in Australian waters and are the legacy of this maritime heritage. A large number of relics from wreck sites are also found in museums and private collections. Much of the historic shipwreck resource is protected by State, Territory or Commonwealth legislation (the latter protects

shipwrecks found in Commonwealth waters that are at least of 75 years old). This protection is a response to the impact that humans have begun to have on shipwrecks—especially since the explosion of recreational diving in the 1950s and maritime related activities of fishing, dredging, coastal development and salvage. A general growing appreciation of the values of cultural heritage throughout the world has also stimulated the protection of shipwrecks. There is also an increasing demand by the public for the interpretation of shipwreck sites both underwater and in the form of exhibition of relics, involvement in restoration projects, and publication. Developers are also now charged with a responsibility for the care of shipwreck resources through Environmental Impact Statement (EIS) requirements in some States.

An historic shipwreck represents a limited and finite resource. After a shipwreck has occurred, the remains of the vessel cannot be added to, and the shipwreck is vulnerable to destruction from environmental impacts and human interference. Through proper management of maritime archaeological sites, the lives and energies of people in the past have a chance of being rediscovered, preserved and re-told for present and future generations. A cultural resource management (CRM) approach to the care of shipwrecks seeks to embrace the many values that they represent for community, for developers and for the authorities charged with their protection.

Different approaches have been applied to the management of shipwrecks throughout the world. These include treasure hunting and salvage on the one extreme through recreation and tourism to mitigation, archeology and cultural resource management on the other. CRM is concerned with the identification, assessment and management of shipwrecks. Assessment includes an evaluation of significance, research potential and protection strategies for potential impacts on sites. CRM also explores short and long term possibilities for establishing and maintaining site protection.

By adopting CRM objectives, managers incorporate research, mitigation, recreation and other protective mechanisms in their work. An important element in a program of management of shipwrecks is the concept of regional surveying. It is essential to know where the resources are and where they are not. CRM, while providing for protection and preservation, also devises a number of strategies for the sites (in the form of management plans) that reflect the various values

of sites in terms of their significance to society, and how these values may be enhanced.

1.2 Values of shipwrecks

1.2.1 Social, cultural and aesthetic

Social and cultural values emphasise shipwrecks as sites that are linked to the fabric of our society. For example, a site may be celebrated and become enshrined in the folklore or oral history of a community. A wreck event may have been of such significance that it remains associated with a region for decades after the incident. Wrecks often generate songs, literature, art, poems and films.

Wreck sites also have particular aesthetic or romantic connotations for the community in general and as symbols, they have the power to evoke intense feelings and images. As ruins, they are an integral part of a cultural landscape offering the opportunity to access the past.

Aesthetic appeal of shipwrecks gives added reason for their protection *in situ*. The full restoration of shipwrecks can be financially prohibitive and tends to offer a sanitised view of the past. However, excavated material does offer the opportunity for a comprehensive interpretation of history when conserved, researched and displayed in an appropriate manner.

1.2.2 Archaeological, historic and scientific

Other attributes of shipwrecks of equal value are how they act as stimuli for archaeological, historical and anthropological research into our maritime heritage. Vessels are compact, largely self-contained structures that are effectively sealed off after cargo, crew and passengers have come aboard and the ship sets sail. In historic times, this closed society only opened up when another port was reached. In instances where little material was lost in the wreck event, shipwreck sites are particularly valuable as a focus of material culture describing the nature of society (Delgado 1988, p. 7).

For archaeological research to take place there must be material remains. A shipwreck site's inherent value is contingent upon the condition of this material and what it can potentially tell us about society. Archaeological investigation is an effort to learn about the vessel, its cargo, what the crew did, how the ship was built and operated, and then assess what was going on in that period of history. Insights into these

issues only come about through careful documentation of each artefact on the sea bottom, mapping and plotting its exact position and then perhaps recovering the evidence for further analysis (Delgado 1988, p. 7). The recovery of a data set through excavation requires interpretation using a number of other disciplines including historical research, scientific analysis of materials, statistical manipulation and other forms of research. For example, an anthropological approach to the archaeological data asks further questions about human behaviour. Knowing the characteristics and patterns of individual and group behaviour offers us a clear sense of our past, current and future horizons.

Archaeological value also depends on the site's environment. Certain processes degrade sites. As a vessel sinks, parts wash away and certain organic material such as bodies, sails and clothes may disintegrate. Scientific investigation conducted on the structural remains can answer questions to do with the deterioration and preservation of the site. Many other elements of the hull structure, cargo and the personal effects of the crew remain (Delgado 1988, p. 7). Shipwreck sites have significant potential for archaeological investigation. Many exist in shallow water, some in a surprisingly good state of preservation. Before the advent of diving technology the sites have been relatively inaccessible and not subject to the threats of continual salvage, vandalism and disturbance that affect land-based archaeological sites.

1.2.3 Recreational and interpretive

Shipwrecks often provide significant recreational opportunities. Diving has increased substantially in the past years and continues to grow as a major tourist activity. Shipwrecks can be considered underwater museums, and they offer spectacular habitats for marine biota. Many divers are aware of the importance of the preservation of these unique environments. In most States, the diving community has been a major lobby in the protection and research of shipwreck sites. It is through their concern and efforts that so many sites have been located and recorded. Further education about the value of wreck sites is required to prevent looting and destruction on some sites. Shipwrecks may also be considered of monetary value (not related to the potential of salvageable cargo) as a source of generating revenue through cultural tourism. It is for all these reasons that shipwrecks have been afforded protection. A document such as this one goes some way to

promoting an understanding of the value of shipwrecks.

1.3 Quantitative assessment of the shipwreck resource

The value of shipwrecks—in terms of cultural significance and heritage value—does not reside in the numbers of these sites that are recorded or only in those that have legislative protection. However, by assessing the resource in a quantitative way it may be possible to use the data as indicators to the increased accessibility to, and protection and effective management of the resource in subsequent years.

1.3.1 Shipwrecks

The data in Table 1 have been restricted due to the constraints of the project. The number of historic shipwrecks recorded in each State includes all located and unlocated shipwrecks and those in adjacent Commonwealth waters administered by State agencies. Some figures for the declared sites show the

pre-blanket declaration figures which were significantly increased in number when the legislation changed for sites in Commonwealth waters (see Section 4.2.1, *Blanket protection*). The wreck sites recorded below under ‘Commonwealth’ refer specifically to those that have been specially declared and fall outside of the current 75–year blanket protection.

Table 2 shows the number of wreck sites found within each State or Territory jurisdiction as a proportion of the total historically recorded resource. Wreck inspections have been conducted on a high proportion of those vessels that have been located. While it is outside the scope of this document to further analyse these data the trends indicate approximately 15 per cent of the total resource has been located.

Figure 1 shows that the majority of shipwrecks in Western Australia occurred in the 1880s and 1890s. Statistical information on the Australian Shipwrecks Database (ASD) can be useful in assessing the state of place (see Section 4.2.2).

Table 1: Magnitude of the historic shipwreck resource

State or Territory	Historic shipwrecks ¹ (Commonwealth/ State)	Declared sites (Commonwealth/State)	Protected zones (State)	Permits Issued
New South Wales	2000	1664 (1264/400)	1 ³	3 p.a. ⁴
South Australia	702 (181/521)	154 (115/39)	1	11 p.a.
Tasmania	760	10 (10/0)	0	Nil
Queensland	1800 ²	18 (18/0)	5	10 p.a.
Victoria	684	494 (total)	6	2 per month
Western Australia	1040	95 (75/20)	1	Nil
Northern Territory	87	6 (1/5)	0	Nil
Total	5829			
Commonwealth	> 7000	9	11	

1. Numbers show both located and unlocated shipwrecks.
2. Pre-WWII
3. 1 zone pending
4. Plus renewals

Table 2: Number of wreck sites found within each State or Territory jurisdiction as a proportion of the total historically recorded resource

State or Territory	Located shipwrecks	Per cent of total resource
New South Wales	178	8.9
South Australia	140	20.0
Tasmania	60	12.7
Queensland	200	9.0
Victoria	150	21.9
Western Australia	185	17.8
Northern Territory	12	13.8

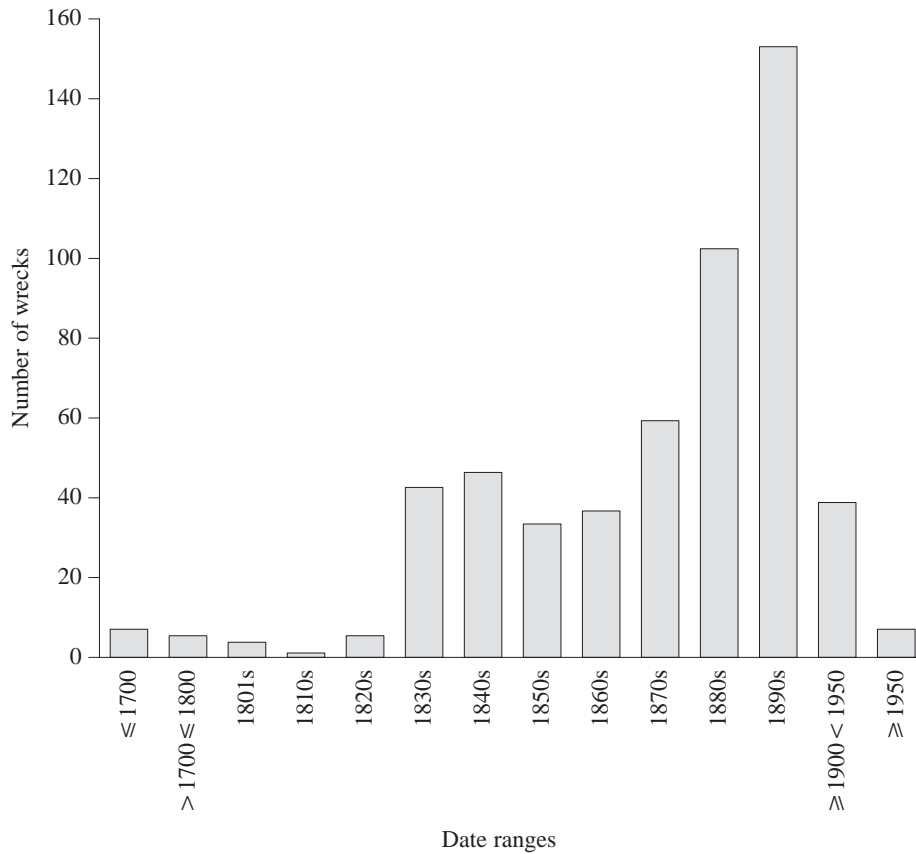


Figure 1: Occurrence of shipwrecks in Western Australia

Table 3: Public collections of objects from shipwrecks

Institution	Description of collection
Western Australian Maritime Museum	<ul style="list-style-type: none"> • Dutch shipwrecks (14 414 artefacts) • colonial collection (8751 artefacts) • historic boats collection
Northern Territory Museum and Art Gallery	<ul style="list-style-type: none"> • ethnographic watercraft (73 items) • maritime archaeological material (8 artefacts) • maritime history collection • maritime technology collection
Queensland Museum	<ul style="list-style-type: none"> • collection from <i>Pandora</i> (1500 artefacts registered) • Wreck Reef material (400 items plus artefacts)
Queen Victoria Museum and Art Gallery	<ul style="list-style-type: none"> • <i>Sydney Cove</i> material (2700 artefacts registered)
Flagstaff Hill Maritime Museum	<ul style="list-style-type: none"> • extensive collection of material from coastal western district of Victoria
Australian National Maritime Museum	<ul style="list-style-type: none"> • full collection (20 000 items) • maritime archaeological (approximately 6000 objects—including the <i>Dunbar</i> (1857) relics of over 5000 items—purchased in December 1994)

1.3.2 Relics held by statutory agencies

Table 3 demonstrates that there is a huge resource base to draw on from within museums for the interpretation of shipwreck relics, and for material cultural studies. The statutory authorities—Heritage Victoria (Victoria) and the Department of Planning (South Australia)—also have substantial collections. There have been few attempts to publish information catalogues on these collections other than such catalogues by Kenderdine (1991) and Stanbury (1994). The Western Australian Maritime Museum has produced a number of reports by Stanbury (1973, 1974, 1979, 1982, 1983, 1985) and Stanbury & Sawday (1991). No comparative analyses of artefact material or collections have been undertaken.

Collections in private and smaller regional museum are known to be extensive.

2 Pressures on the shipwreck resource

2.1 Introduction

The development of technology has had a significant impact on accessibility to and the relocation of shipwreck sites. In the past, vessels wrecked on the beach or coastline or, in relatively shallow waters, were the only vessels that could be effectively approached. Many shipwrecks were legally salvaged

shortly after their loss in a quick recovery effort of soon-to-be damaged or slightly damaged cargo. Vessels that were lost in the open sea, or lost under shifting sediments remained inaccessible. The advent of remote sensing techniques for wreck location, accurate Global Positioning Systems (GPS) for relocation, Remote Operated Vehicles (ROVs) and numerous other advances in technology have made wreck location, exploration and excavation an increasingly viable activity. The technology involved in these activities is generally very expensive and only becomes feasible when substantial and immediate financial rewards can be gained as in the case of treasure hunting or when government or private sponsors invest in the excavation of highly significant sites.

The invention of the aqua-lung meant public accessibility to shipwrecks began to increase from the 1950s. The dive industry continues to grow exponentially and parts of Australia are considered to be prime diving areas in the world. Shipwreck sites become home to marine flora and fauna and are of interest to divers not only for their physical beauty but also for their intrinsic value as heritage items. There has been a rapid increase in the number of relocated (and increasingly reported) shipwrecks.

Despite the legislative protection that is afforded historic shipwrecks at both State and Commonwealth levels there continues to be destruction of shipwreck sites. This, in part, stems from lack of awareness on

the part of the public and developers with regard to their obligations to shipwreck sites. There are also notions held within the community that regard shipwrecks to be the exclusive property of the finder. The pressures on shipwrecks include those listed (in Section 2.2).

2.2 Pressures

Environmental pressures are outside the scope of this paper.

2.2.1 Technology and access

Developments in technology and access lead to the following pressures:

- advent of remote sensing techniques—including magnetometer, side scanning sonar, satellite imagery, infra-red sensing, ROVs and other remotely operated excavation and salvage equipment—stimulating increased access to sites and ways of extracting material from them
- dramatic increase in numbers of recreational divers, resulting in stress on sites—including anchor damage, unlawful interference and removal of relics
- the more frequent use of mixed gases used in deep diving
- technology that increases access can enable the media to publicise shipwrecks and their locations, thus attracting activities that are detrimental to the preservation of the sites.

2.2.2 Development

Development pressures on shipwreck sites may include:

- dredging operations
- extractive industries
- cable or pipe laying
- anchor damage
- scallop dredgers
- fishing net damage
- marina developments
- reclamation projects
- shipping channels
- extensions to wharves or jetties
- seismic testing

- increased galvanic corrosion due to increased water movements.

2.2.3 Cultural and ethical considerations

Cultural and ethical pressures include:

- conflict between legislation and community interests
- increasing publicity given to treasure hunter activities
- conflicts in the ethics of promoting wreck site salvage through the display of material (with regard to the debates concerning the exhibition of *Titanic* material in the UK)
- mythology of shipwrecks (State resources are consumed in the hunt for phantom ships)
- treasure hunting activities continue to be legitimised in some parts of the world.

2.2.4 Administrative and management

Administrative and management pressures include:

- a multi-jurisdictional administrative system that is sometimes unclear in its intentions and obligations
- restricted financial resources for implementing the National Historic Shipwreck Program
- inability to enforce a legal framework and loopholes in the framework that allow collectors to purchase material from undeclared collections and then apply for permits to hold this material
- restricted financial resources for reports, and for ongoing monitoring or development of short and long-term management strategies for sites
- except in the case of the State of Victoria, no extra provisions made for administrative responsibilities such as those generated by the *Amnesty* (see Section 4.2.1, *Amnesty*).

2.2.5 Research and interpretation

Restricted resources for excavation and research into cultural material, and for the adequate publication of results leads to pressures on research and interpretation of shipwrecks.

2.2.6 Relics

Pressures on shipwreck relics include:

- unlawful retrieval of relics from shipwrecks
- high costs involved in conservation treatments

- poor conservation for those relics in private collections
- lack of provenance of relics removed unrecorded from shipwreck sites and kept in private collections.

3 Impacts of pressures

The main impacts of the various pressures on the historic shipwrecks resources have resulted in the following positive and negative responses:

- the implementation of historic shipwreck legislation
- the intentional and accidental destruction of shipwreck sites through development
- undeclared removal of relics with only a small number of prosecutions
- unintentional damage to sites through increasing diver visitation and associated anchor damage
- insufficient resources available within government—thus restricting the ability to monitor effects on the historic shipwreck resource, to research and interpret shipwrecks, and educate the public.

3.1 Qualitative assessment

Given the nature of the impacts, what can be said about the quality of the remains of shipwrecks? Only a small proportion of the protected shipwreck resource has been located. Prior to blanket declaration, there were only 150 sites declared under Commonwealth legislation. Without having inspected the resource, it is difficult to give a qualitative assessment with regard to its state. It is not within the scope of this paper to assess the wreck inspection and management reports compiled by State agencies with regard to the environmental conditions of the wreck sites or the significant threats affecting each one. Location, accessibility, site fabric (metal, wood) and environment (exposed, buried) are prime indicators to the likely impacts on sites. Analysis of these could be a way of assessing site quality.

There are, however, very good theoretical frameworks available for the assessment of wreck sites that can be applied even when the archaeological state or condition of the site (or the location) are not known. For example, models developed by

Muckelroy (1978) have been used to estimate positions, types of vessels, depth of water in particular areas, seabed bottoms, strength and direction of winds and so forth to predict the possible nature of the remains.

At this stage, the Australian Shipwrecks Database (ASD) does not record wreck inspection data or site state information. More generalised comments about the possible quality of site remains could begin to be made by assessing such factors as:

- marine environments (reef top/buried, water quality/movements, inland/coastal, etc.)
- vessel types (The iron ship was responsible for an enormous advance in the amount of trade and transportation of people to and from Australia. It is a natural consequence of the abundance of such vessels on our shores that a large number of them ended up as shipwrecks. Whilst the whole of wooden vessels that become buried under the sand slowly degrades, and even in its waterlogged state can last in its original shape for hundreds of years the situation is not the same for iron wrecks. Once they are concreted, that is, covered with a calcareous marine growth, they will continue to corrode, albeit at a slower rate than that originally dictated by the deposition of the vessel in the benthic environment.

One of the consequences of the fact that iron continues to corrode whilst on a shipwreck site is that the iron wrecks are in fact a diminishing archaeological resource. (MacLeod 1992, p. 15))

- popular culture (How wreck sites are manifest in the public psyche are also important if trying to estimate the possible quality of remains. Historic shipwrecks that have a rich narrative associated with them, or those that are possible sources of relics (especially gold and silver bullion) become targets for shipwreck hunts and looting. If located, these sites are extremely vulnerable and are likely to be subject to more pressure than those sites that do not generate such real or imagined notions about ships).

What can be said is that through environmental parameters operating on wreck sites, the impacts of unlawful activities and even the actions of controlled excavation, the historic shipwreck resource continues to diminish. Ways of assessing the rate at which this loss occurs are extremely complex, as is whether it may increase in the future, or be reduced through

successful conservation techniques, effective interpretation and education. Further comment on what is required to assess the state of the historic shipwreck resource is discussed in Section 7.

4 Responses to impacts on the shipwreck resource

4.1 Introduction

Different approaches have been applied to managing shipwreck sites throughout the world. These approaches derive not only from the value assigned to the resource by the society in general but also by those responsible for the management of wrecks. To understand the current Australian approach, it is necessary to examine the development of the legislation, the responsibilities of the Commonwealth, States and Territories with regard to the implementation of this legislation and the development of the National Historic Shipwrecks Program. The increasing involvement of community and developers have evolved from these programs.

4.2 Commonwealth

4.2.1 Legislation

The *Historic Shipwrecks Act 1976* is Commonwealth legislation which applies to all Commonwealth waters extending from the low-water mark of the coast to the outer edge of the continental shelf but does not cover States internal waters such as lakes, rivers and harbours. The Act is administered in each State by delegates appointed by the Minister (see Appendix 1).

The legislation was implemented as a direct result on the impacts affecting shipwreck sites and relics. In 1963, the Dutch East Indiamen, *Batavia* (wrecked in 1622) and the *Vergulde Draeck* (wrecked in 1656) were discovered off the Western Australian coastline. Concern that the bullion and artefacts were being salvaged for private sale and thus dispersed, and the resulting destruction of the wreck sites led the Commonwealth and Western Australian Governments to legislate (originally through the *Museum Act 1964* and then under the *Maritime Archaeology Act 1973* (Western Australia) to protect this important heritage. The later legislation sought to remove the emphasis on the act of wrecking and introduced the concept of 'historic ship' as any vessel lost, wrecked,

abandoned, or stranded before 1900, whether above or below the low-water mark.

Following a legal challenge to the *Maritime Archaeology Act 1973* (WA), the Commonwealth *Historic Shipwrecks Act 1976* was invoked in Western Australia and subsequently in all other States (in 1977). The Commonwealth also administers other pieces of legislation that can offer some protection to shipwrecks and maritime relics. These include the *Navigation Act 1912* and the *Moveable Cultural Heritage Act 1977*.

Definition

An 'historic shipwreck' is a term that covers any ship lying off the coast of Western Australia which belonged to the Dutch East India Company; any ship of significance to Papua New Guinea; the remains of any ship at least 75 years old lying off the coast of any State or Territory. An 'historic relic' under the Act is any article coming from a shipwreck site. In some instances, a shipwreck may be declared historic if younger than 75 years where significance can be proven.

Preservation and duty

The responsibilities of the public with regard to this legislation include providing the Minister with a description of any sites located in Commonwealth waters and declaring any article that may come into a person's possession that is deemed to have come from an historic shipwreck. Individuals are also responsible for the correct housing and preservation of relics that they hold. There is prohibition on the sale or export of historic relics.

Permit for access to declared historic shipwrecks for non-disturbance purposes does not require permits unless a protected zone has been established around the site. Permission is specifically required to enter a protected zone for any purpose other than in instances of saving human life, securing the safety of a ship or dealing with an emergency that could have a serious threat to the environment. Protective zones can also have general exemption applied to them prohibiting some activities such as fishing and dredging while allowing others, such as diving.

Permits for access to a shipwreck for disturbance activities (such as excavation) are issued by the appropriate State delegates on behalf of the Commonwealth in accordance with section 15 of the Act, and the conditions that apply here are

site-specific. Permits are only issued in cases where archaeological survey and excavation lead to the answering of questions relevant to history and heritage, and the conservation, publication, illustration, explanation and display of the results is carried out. The proposed disturbance of a wreck site must be justified in the terms of:

- advancement of knowledge
- ultimate protection of material; or
- public benefit for the greater access of material.

The projects and expeditions to be undertaken by community groups must be approved by the relevant delegate. The group must have the demonstrated ability to plan, equip, staff, finance, organise, carry out and record the proposed activity. All material evidence recovered from the area of the site, together with any excavation report, will be accessioned into the register of a museum or agency as directed by the delegate.

Community groups wishing to retain material recovered from shipwreck sites must demonstrate that they have access to the necessary conservation and curatorial expertise, and have the appropriate facility for storing and displaying artefacts according to approved standards (AIMA–ACDO 1994).

Rewards and relics

The Act provides rewards to be given to people who first notify the appropriate authorities of the discovery of shipwrecks. Notification of the location of a shipwreck must be submitted to the appropriate authority.

Material derived from wreck sites is also protected. A recent amnesty (see Section 4.2.1, *Amnesty*) for all artefacts held in personal collections deemed to be from historic shipwrecks, resulted in a wealth of material being registered, recorded and photographed before being returned to the owners. Conservation treatments were also recommended.

The reader is referred to copies of the relevant legislation for further details and to the recent publication *Historic shipwrecks: Public access guidelines* (DAAS 1993).

Blanket protection

Prior to 1993, the number of sites declared by the Commonwealth throughout Australia through the

Historic Shipwrecks Act 1976 was 150 (MacIntyre 1992, p. 2). In response to the concerns expressed by the practitioners of maritime archaeology in each State, the legislation was amended on 1 April 1993. As a result, blanket protection is now provided for all sites over 75 years old. This sought to recognise the inherent difficulties in definition of the term ‘historic’ and gave greater range to the significance of a wreck to include the attributes of scientific, archaeological, recreational, educational and aesthetic potential (see Appendix 2). With this amendment the number of protected sites in Australia has increased to more than 5000 (MacIntyre 1992, p. 3).

Amnesty

In 1993, the Commonwealth Government instigated an amnesty for holders of historic relics to declare their material and have it registered and recorded by the appropriate agencies. Holders of relics from historic shipwrecks were then allowed to keep the items in their custody and seek conservation treatment where necessary. The returns, occurring over a twelve-month period, varied across the States. The surprising volume of material tends to indicate that there are major collections held in private custody. In several instances private collections known to exist were not declared, despite the amnesty.

Table 4: Relics registered during the 1993 amnesty for holders of historic relics

State	Number of amnesty artefacts registered to date
Northern Territory	0
South Australia	524
New South Wales	1004 registrations, 10 000 items
Victoria	126 registrations, 8000 items
Western Australia	1969 registrations, (> 1369 coins), 200 more awaiting processing
Tasmania	40 registrations, 250 items
Queensland	30 registrations, 1000 items

4.2.2 Historic Shipwrecks Program

The focus of the *Historic Shipwrecks Act 1976* has changed in response to a wider range of interests since

its enactment. The initial concern with strict heritage values has broadened to include a commitment to protect the recreational, tourist, educational and scientific values of wrecks. The overall objectives of the program are to:

- conserve and protect historic shipwreck sites and associated material as a cultural resource for the nation
- develop a comprehensive register of historic shipwrecks and associated material
- obtain support of an informed public for historic shipwrecks as a cultural resource; and
- promote commitment by government authorities to the protection and preservation of the historic shipwreck resource (DAAS 1993, p. 2).

The elements of the program have resulted in a number of recent initiatives:

- The Australian Shipwrecks Database (ASD) has been established to record primarily historical information such as rig type, dimensions, builders and owners, ports of construction and registration, cargo, and site management information for historic shipwrecks in Australian waters—such as location of loss, legislative protection and the reason and nature of loss.
- Recent analysis of the ASD (Edmonds et al. 1994) has shown that there are significant gaps in the records of some States. For its potential as a research tool to be realised, the database will need to be completed and include a field in the database

that records the wreck site environment. Site integrity measurement would certainly be beneficial for assessing the state of place—however, given the number of variables used to describe wreck integrity, this could lead to coding or input difficulties.

- *Guidelines for the management of Australia's shipwrecks* (AIMA–ACDO 1994) has been published as a guiding document for delegates, practitioners, heritage bodies, developers, teachers, the diving community and museum visitors.
- *Historic shipwrecks: Public access guidelines* (DAAS 1993) outlines the Commonwealth legislation for the diving public.
- The report *Historic Shipwrecks National Research Plan* (Edmonds et al. 1995) has been instigated by the Commonwealth to develop a broad plan that will guide the responsible authorities in determining their research priorities and provide a basis for determining how best to communicate the results of maritime archaeology to the public up to and beyond the year 2001.

4.3 State and Territory

4.3.1 Legislation

The disparate nature of historic shipwreck legislation is an issue that needs to be addressed. State and Territory Governments may need to align legislation with Commonwealth initiatives.

Table 5: Historic shipwreck legislation

State	Legislation	Coverage
South Australia	<i>Historic Shipwrecks Act 1981</i>	through individual declaration
New South Wales	<i>New South Wales Heritage Act 1977</i>	blanket—if over 50 years from date built
Western Australia	<i>Maritime Archaeology Act 1973</i>	blanket—if wrecked before 1900
Northern Territory	<i>Heritage Conservation Act 1992</i>	blanket—if shipwrecks are over 75 years old
Victoria	<i>Historic Shipwrecks Act 1981</i> <i>Archaeological and Aboriginal Relics Act 1972</i>	blanket—if shipwrecks are over 75 years old and above the high-water mark
Tasmania	<i>Historic Cultural Heritage Act 1995</i>	blanket—if shipwrecks are over 75 years old
Queensland	<i>Heritage Act 1991</i>	requires declaration as a 'resource of the reef'

In reference to the Victorian State Government’s latest amendment to the *Historic Shipwrecks Act 1981* Gurney noted:

...the Commonwealth Act contained new initiatives which created major disparities between the respective levels of protection afforded the maritime heritage resource under Commonwealth and State legislation. It is believed that these differences would cause confusion for client groups such as recreational divers and tourism industry operators as well as increasing the difficulty of enforcement for inspectors.

(Gurney 1994, p. 47)

4.3.2 Management programs

The National Historic Shipwrecks Program is implemented by each State through a dedicated maritime archaeological museum (Western Australia), two general museums (Northern Territory and Queensland), and four CRM agencies (located in the planning or heritage departments of the New South Wales, South Australian, Tasmanian and Victorian State Governments and the Government of Norfolk Island). The general scope of their activities involve:

- site and artefact management—including ongoing wreck inspection
- collection management
- research
- survey and inventory
- evaluation of shipwrecks according to established criteria (see Appendix 2)
- documentation of shipwreck sites
- interpretation, education and publicity
- public access
- volunteer programs.

Some aspects of each program have been collated for the purposes of this paper to give examples of the range of outcomes from each State and the Northern Territory. A comprehensive assessment of this information was outside the scope of this paper but such data could be viewed as indicators to the state of the historic shipwreck resource in the future. The different numbers of reports etc. do not necessarily reflect performance as much as staffing levels and funding available to implement the program.

Table 6: Shipwreck research by State or Territory

State or Territory	Excavations (last two decades)	Cultural resource management reports	Regional surveys
South Australia	5	4	6 (2 intended)
New South Wales	0	n.a.	n.a.
Western Australia	9	4 (in 1994)	5
Northern Territory	0	1 p.a.	1
Victoria	3	5 (1 ongoing)	5
Queensland	1	3	
Tasmania	1	1 p.a.	4 (1 ongoing)

Several States have successful wreck trail programs. The Western Australian program uses community groups to assemble the information for each region. Community-based projects are particularly important. The Wreck Survey Project Kit, instigated by the Heritage Branch in New South Wales, is an excellent example of a community-based initiative that has dramatically increased public participation in wreck site preservation and documentation. Kits have been introduced into school programs.

Table 7: Shipwreck trails and community projects by State or Territory

State or Territory	Wreck trails	Community projects
South Australia	5	4
New South Wales	2 (1 intended)	20
Northern Territory	0	1
Victoria	3 wet, 2 land-based	0
Western Australia	4	3
Queensland	0	0
Tasmania	0	2

4.4 Local government

Local government can play an increasing role in heritage planning and interpretation by:

- protecting underwater heritage sites through their inclusion in heritage studies, local environmental plans and development control plans
- encouraging appreciation of the historic shipwreck resource through interpretation signs and shipwreck trails.

4.5 Other responses

Other mechanisms that can or do help protect the shipwreck heritage include:

- Register of the National Estate (for historic shipwreck sites and *in situ* relics)
- Australian Institute of Maritime Archaeology (provides guidelines, principles, codes of practice, initiates conferences and is the main publication outlet for maritime archaeology)
- the proposed Centre for Excellence for Maritime Archaeology based at the Western Australian Maritime Museum
- memorandum of understanding between heritage bodies and conservation bodies responsible for establishing marine parks and reserves that formalise access to wrecks through policy development and zoning schemes. An example of an effective marine park is that of Wilson's Promontory in Victoria. This offers protection to all archaeological sites, including over 25 shipwrecks.

4.6 Industry and development

The proponents of developments that impact on the marine environment should contact the agency concerned with historic shipwrecks. In some States this is mandatory procedure. By obtaining advice on the presence and significance of archaeological sites in the area of proposed development, the proponent is able to incorporate the sites into the project design and determine the appropriate actions for their preservation or removal. Negative impacts on sites through development projects can be limited by State agencies by:

- assessing the impact of development proposals
- providing advice on how to minimise impacts

- proposing archaeological consultants and suitable consultants for environmental impact statements
- commenting on planning schemes
- maintaining a register of consultants
- maintaining records on surveys and project reports
- supervising environmental impact surveys of areas containing significant underwater sites (New South Wales Government, Department of Planning, 1994).

4.7 Community

Community groups and amateur societies can be involved in historic shipwrecks through the instigation of specific projects by the State or Territory agencies. Interpretation of wreck sites can produce underwater wreck trails, publications, lectures, exhibits etc. that promote an awareness among the public. The public are often involved in reporting sites and are invaluable for oral history, enhancing research and adding depth to regional surveys.

Community-based maritime archaeological associations often work in conjunction with State organisations to document and interpret shipwreck materials. These include the Maritime Archaeological Association of Western Australia, the Maritime Archaeological Association of Victoria, the Maritime Archaeological Association of Far North Queensland and the Society of Underwater Historical Research in South Australia.

4.8 Education

4.8.1 Academic

Practitioners involved in implementing the heritage legislation draw their staff primarily from individuals who hold qualifications in maritime archaeology. There are no tertiary studies courses that are dedicated to the study of maritime archaeology at an undergraduate level in Australia. There were three opportunities to study maritime archaeology in 1995—from a specialised post graduate diploma to limited duration field schools—namely:

1. Curtin University of Technology—a specialised post graduate diploma course run full time every four or five years (one year duration)
2. James Cook University of Northern Queensland—one semester course at stage three level in coastal and underwater archaeology, and

introduction to maritime archaeology at stage two level

3. Flinders University of South Australia—field methods course at stage two level lasting six weeks; intended primarily for overseas students, it is a non-award topic.

4.8.2 Diver training

The inclusion of shipwreck diver components into diving instruction courses is a direct result of the growing appreciation of shipwrecks as a cultural heritage resource. Legislative components are now widely publicised with regard to diver awareness. At present Australia is looking to introduce components of the British Nautical Archaeology Association's maritime archaeological training course. The guidelines for the NAS-based accreditation for individual divers are currently being assembled and rewritten with changes that are appropriate for Australian requirements.

4.9 International perspective

Several international efforts to promote cooperation for the protection of underwater heritage and related relics include:

- the International Committee on the Underwater Cultural Heritage under the auspices of the International Council on Monuments and Sites (ICOMOS)
- Panpac Consortium of Maritime Museums
- exchange and training schemes funded by the Australian Research Council, operating overseas
- Earthwatch, and similar programs.

5 Effectiveness

Through the comprehensive historic shipwreck legislative mechanisms and together with increasing community outreach programs and wreck site interpretation, governments have actively demonstrated a belief in the heritage and cultural values of shipwrecks. Accordingly, the community and developers have increasingly come to appreciate the importance of these values. By world standards, Australia offers a very comprehensive program, and is a leader in the field of shipwreck management and protection. The continuing development of maritime archaeology and the ongoing and enhanced protection

of shipwrecks is, however, hampered in the following areas.

5.1 Legislative

A legislative response is needed to deal with the following:

- there is a need to harmonise the Commonwealth and various State and Territory legislation to enhance the multi-jurisdictional effort to protect shipwrecks. Blanket protection for all sites over 75 years old should be considered a minimum
- implementation of proceedings against those who have infringed upon the various Acts has little precedent in the courts. This may be a reflection of the reluctance of State agencies to alienate the community. Victoria is a notable exception to this—in 1993 several prosecutions were brought against parties thought to hold historic relics. Attitudes to court action and law enforcement need to be clarified amongst State practitioners and enforcement officers. Gurney (1994) provides a specific discussion on this subject.

5.2 Administrative

Administrative responses are needed to improve effectiveness in the following areas:

- there continues to be a lack of adequate funding to implement all the proposed elements of the National Historic Shipwrecks Program—including ongoing site monitoring, increased staffing levels, the issue of permits and policing requirements, and publication and research
- there are inherent difficulties in operating CRM (Cultural Resource Management) units from within museums without the proper support infrastructures that planning and heritage department can supply (e.g. GIS databases)
- Commonwealth funding to the States is divided up. The pooling of resources or the allocation of extra funding would enable some nationally significant projects to take place
- increased communication between the States and Territories, and between States, Territories and the Commonwealth, the coordination of joint projects, training internships and the movement of staff between agencies would enhance the cooperative protection of shipwrecks
- the Amnesty generated a significant public profile and stimulated the registration of thousands of items. Apart from Victoria; no extra funding was

provided for the huge administrative costs that were inherent in processing these claims. Now that the Amnesty is over, there appears to be no move by the Commonwealth to collate the data from the different States or to assess the material. This needs to be addressed

- the failure to resolve the Australian Diving Standards code of practice for scientific divers continues to complicate excavation, site inspections and the use of volunteers in some States
- there is a need to increase interaction with other government agencies that can include shipwreck protection in policy development and enter into joint projects of monitoring or interpreting wreck sites.

5.3 Development

There should be a statutory requirement across all States and Territories for environmental impact statements to be made before any developments take place that may impact on the historic shipwreck resource.

5.4 Outreach

Improved effectiveness of responses to outreach should address the following issues:

- there is a continuing need for the historic shipwreck resource to be interpreted for the public. Increased publication (including electronic publication) is essential, and use of on-line multimedia information and education outlets (such as the World Wide Web) need to be sought. Shipwreck education through the use of virtual classrooms at the wreck site is happening overseas
- the public, and teaching and archival institutions should be given hands-on access to the Australian Shipwrecks Database (ASD) through either multimedia CD-ROMs or the World Wide Web
- there is an increasing need for the introduction of maritime archaeological components into the diving industry courses. This could significantly promote effective shipwreck protection.

5.5 Education in maritime archaeology

Education initiatives are required in the following areas to improve effectiveness:

- there is a lack of theoretical development within maritime archaeology as an academic discipline
- there is a lack of practitioners training to PhD level
- maritime archaeology does not have much dialogue with other related academic disciplines such as those of history or archaeology.

6 *In situ* or *ex situ*: The historic shipwreck resource and the cultural landscape

Shipwrecks are often referred to as ‘museums without walls’. Also, they can have great aesthetic appeal to divers and are of archaeological value as storehouses of cultural material for researchers if left undisturbed on the seabed. They are often of great significance to the community for reasons of social, cultural, religious, spiritual, or educational associations. These associations may be changed if a site is excavated, destroyed, moved or restored. Shipwrecks may be considered by some as significant grave sites. An example of this is the *Titanic*, although arguments that justify its excavation suggest that it is not a grave because the loss of life took place on the surface and not at the final resting place of the vessel.

Wreck site environments can also be viewed as cultural landscapes where the archaeological sites and their associated cultural material can be seen as juxtaposed with the remains of other maritime-based activities. Wharves, jetties, navigational markers etc. all form part of this landscape. *In situ* shipwrecks are of importance if we consider that the cultural tourists think in terms of heritage identity and want to see things in the context of place, space, time and human dynamism (Moulin 1990, p. 6).

Wreck trails are increasingly used by the public. Often both underwater and land-based interpretation takes place. Also, technology enables views of wreck sites to be brought to the surface for the benefit of the non-diving public, and ‘virtual classrooms’ can be created that educate about the cultural, scientific, archaeological and heritage values of shipwrecks.

Arguments can also be found for not restoring historic vessels. In seeking to preserve history, we run the risk of retarding its normal dynamic process of evolution (Moulin, 1990, p. 6). Wreck sites are monuments in decay, and they serve to illustrate many aspects of past life. They demonstrate the dynamics of wrecking and reflect elements of the environment in which they are found. They can affect people’s attitude to this environment.

The values of our heritage places should be presented realistically, holistically and honestly, not selectively to enhance a desired and more comfortable stereotype. (Stewart 1990, editorial)

Aligned with this is the shipwreck site as a concentration for marine biota. Shipwrecks have enhanced protection if they are included in marine parks whose primary function is to preserve the environment.

The advances in technology also mean that better methods are being developed for preserving sites for the future in the underwater environment. This also applies to development of excavation methodology, and the tools used to record and remove material from the seabed. Cultural resource management (CRM) arguments favour non-intervention on sites and careful stabilisation of sites in the belief that better methods of exploring, excavating and recording shipwrecks will be available in the future.

Recovery of archaeological material is a destructive process and excavation disturbs material that has established an equilibrium with its surrounding environment either under sediment or within coralline formations. Conservation and curatorial demands require perpetual maintenance and an abiding commitment of funds and professional expertise. Adequate housing for material needs to be found for both during and after treatment.

The difficulties associated with this have helped to stimulate (along with the development of significance assessments and management plans) a move away from ad hoc excavation of sites to excavations particularly designed to answer specific questions, and to preserve evidence of them *in situ*. However, archaeological intervention on historic shipwrecks is an effective method to rediscover, through the systematic recovery of material, the life and times of ordinary people and the maritime settlement of Australia. Extensive planning and identification of the appropriate methodology are essential prerequisites to excavation.

7 Indicators for reflecting change to state of shipwreck resource

7.1 Constraints in using indicators

It is difficult to assess the impacts on the historic shipwreck resources and changes to the state of place through a set of formal indicators. Shipwrecks are a

diminishing 'unknown resource' in that as more are declared, fewer are easily found. Thus, fewer sites being declared does not necessarily mean that the public are less aware of their status or importance. Similarly, community projects on shipwreck sites have a limited time span, and after they have been completed there is no need to return to same site. A decrease in the number of community projects does not correspond to a falling interest in the community. With this in mind, positive indicators can be used to suggest a beneficial change of state in the shipwreck resource and its management, and acceptance by the general public of the necessity to conserve and protect historic shipwrecks and relics as a cultural heritage resource of the nation.

7.2 Positive indicators

The following are suggested as possible positive indicators of protection of shipwrecks and sites:

- increasing number of sites added to the registers
- increased number of sites inspected
- completion of the Australian Shipwrecks Database
- increasing memoranda of understanding between government agencies and inclusion of shipwrecks in policy development
- increasing declaration of marine parks
- mandatory acceptance of environmental impact statement requirements with regard to shipwrecks in all developments
- increasing funding opportunities within maritime archaeology for research and excavation aligned with appropriate guidelines
- increasing educational opportunities and higher level training among practitioners
- increasing interpretation of shipwreck related material and information
- increasing involvement of community with regard to shipwreck documentation
- increasing diver training and promotion of shipwrecks through dive centres
- increasing preservation and conservation *in situ*
- increasing cultural resource management based activities
- resolution of legislative and administrative difficulties
- increasing overseas, Commonwealth, interstate and local cooperation

- enhanced dialogue with the dive industry and the instigation of diver training courses that promote shipwreck protection
- participation in state of the environment reports
- decreasing number of instances of damage to shipwreck sites by divers and developers.

7.3 Requirements for establishing benchmarks for management

The selection of indicators to be given high priority for use in assessing the state of the 'shipwreck' environment requires a collaborative effort from all State practitioners. The success of the chosen indicators to reflect a change of the place's state would need to be reviewed after trial data sets had been collected. A theoretical model would need to be developed for this. Data would need to be obtained on:

- all wreck site environments and the state of the integrity of shipwreck sites for comparative analysis to assess the diver impacts and environmental parameters. This would be a massive undertaking and each site would need to be visited regularly. The wreck inspection program operating in each State has this as their part of their ultimate goal
- number of sites inspected
- number and range of new sites added to registers
- numbers of environmental impact statement reports that refer to shipwrecks
- shipwrecks in marine parks, and analysis of diver impacts and visitation levels
- public enquires for information with regard to shipwreck sites.

Other indicators include:

- numbers of interpretive products and a quantitative analysis of the demand for products
- numbers of cultural resource management reports, regional surveys etc. produced at State level
- museum visitor attendance levels
- new amateur maritime archaeological educational packages
- funding allocations
- numbers of prosecutions
- numbers of permits issued
- numbers of community projects
- legislative changes
- new research
- the numbers of relics sold through auction houses, by traders and private individuals.

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Appendix 1: Commonwealth minister's delegated authorities

The Secretary
Department of Communications and the Arts
GPO Box 2154
Canberra ACT 2601
Ph. (02) 6279 1000
FAX (02) 6275 4499

The Director
Western Australian Maritime Museum
Cliff Street
Fremantle WA 6160
Ph. (08) 9431 8488
FAX (08) 9430 5120
e-mail: hendersog@museum.gov.au

The Manager
State Heritage Branch
Department of Environment and Natural Resources
GPO Box 1047
Adelaide SA 5001
Ph. (08) 8207 2378
FAX (08) 8207 2490
e-mail: jefferb@ephp.dep.sa.gov.au

The Manager
Maritime Heritage Unit
Heritage Victoria
Department of Planning and Development
29–31 Victoria Avenue
Albert Park VIC 3206
Ph. (03) 9628 5025
FAX (03) 9628 5650
e-mail: Peter.Harvey@dpd.vic.gov.au.

The Director
Heritage Branch
Department of Urban Affairs and Planning
GPO Box 3927
Sydney NSW 2001
Ph. (02) 9391 2000
FAX (02) 9391 2336
e-mail: nutleyd@www.nsw.gov.au

The Secretary
Department of Environment and Land Management
Division of Resources Wildlife and Heritage
GPO Box 44A
Hobart TAS 7001
Ph. (03) 6233 7387
FAX (03) 6233 3477
e-mail: miken@delm.tas.gov.au

The Director
Queensland Museum
Queensland Cultural Complex
PO Box 3300
South Brisbane QLD 4101
Ph. (07) 3840 7673
FAX (07) 3846 1918
e-mail: P.Gesner@mailbox.uq.oz.au.

The Director
Northern Territory Museum of Art and Sciences
PO Box 4646
Darwin NT 0800
Ph (08) 8999 8201
FAX (08) 8999 8279
e-mail: Paul.Clark@DWNMUS.MAGNT.nt.gov.au

Appendix 2: Evaluation criteria for significance assessments

Evaluation criteria provide a mechanism for assessing and describing the significance of shipwrecks. These are inherently linked to the values that our culture places on heritage and as such are constantly changing. It has been recognised that it may be necessary to reassess shipwrecks in the future, in accordance with the changes in cultural values that may affect their significance. However, to allow for management strategies to be proposed, a shipwreck site should be evaluated in terms of an agreed criteria. These are stated in the Guidelines (AIMA–ACDO 1994) as:

1. *Historic*: Significant in the evolution and pattern of history. Important in relation to a figure, event, phase or activity of historic influence.
2. *Technical*: Significant in possessing or contributing to technical or creative accomplishment. Important in demonstrating a high degree of technical or creative achievement for the period in question.
3. *Social*: Concerned with association with a community or communities in Australia today for social, cultural and spiritual reasons. Important as cultural items or places highly valued for reasons of social, cultural, religious, spiritual, aesthetic or educational associations by a community today.
4. *Archaeological*: Significant for the potential to yield information contributing to an understanding of history, technological accomplishments and social developments. Important for its potential to yield information contributing to a wider understanding of the history of human activity.
5. *Scientific*: Concerned with research potential through repeatable measured tests, and information about the composition and history of cultural remains and associated natural phenomena, particularly biota, through examination of physical, chemical and biological processes. Important in the generation and testing of hypothesis in conservation of wreck sites.
6. *Interpretive*: Significant for its potential to contribute towards public education through on-site or other interpretation.
7. *Rare*: Significant in possessing rare, endangered or uncommon aspects of history. Important in demonstrating a distinctive way of life or custom, process, waterway, function or design which is no longer being practised, is in danger of being lost or is of exceptional interest to the community.
8. *Representative*: Demonstrating the characteristics of a class of cultural items. Important in demonstrating the principal characteristics of a range of human activities.

Appendix 3: Project brief, methodology and sources of information

The objective of the paper was to establish baseline information for incorporation in the report *Australia: State of the Environment 1996*. The information is likely to be presented in a ‘box’/case study. Information was sought in the following specific areas for use in the Natural and Cultural Heritage chapter of the national State of the Environment (SoE) report related to shipwrecks and associated objects (relics):

1. A summary of the current number of listed shipwreck sites in Australian waters vested under the relevant Commonwealth and State legislation. Compare these to the number of historically listed shipwrecks.
2. Describe the main human-induced pressures affecting the state/condition of shipwrecks and associated objects over the last two decades.
3. Summarise the main impacts of the pressures. If possible provide a qualitative assessment of the physical state and condition of shipwrecks currently listed under Commonwealth and State legislation.
4. Summarise the major human responses/actions over the last two decades aimed at ensuring that shipwrecks and associated objects remain in good condition. Responses may be by government, industry, community or individuals. Factual data (e.g. numbers of objects returned during amnesties) should be provided where relevant. Trends should also be included if relevant and data is available.
5. If possible assess the effectiveness of the responses described above (see Point 4) in protecting shipwrecks and associated artefacts and identifying the limiting/promoting factors in

their effectiveness. Comment particularly on the effectiveness of inter-governmental funding and administrative arrangements.

6. Comment on the tension between the cultural/heritage value of objects *in situ* and *ex situ*, and the effect on the cultural value of shipwrecks.
7. Outline the possible indicators which could be used in future SoE reports as measures of pressure, state of shipwrecks and responses to pressures on sites.

Methodology

Data gathering required consultation with both State and Commonwealth practitioners and those charged with shipwreck protection. Museums and other government agencies were contacted where possible.

Sources of information

The author also drew information from recent reports and publications—including *The Bulletin of the Australian Institute of Maritime Archaeology*. Other sources of data included the recent Historic Shipwreck National Research Plan (Edmonds et al. 1995). The Australian Shipwrecks Database (ASD) was also accessed.

The reader is referred to the following documents to complement this paper:

- Australian Institute for Maritime Archaeology & the Australian Cultural Development Office 1994, *Guidelines for the management of Australia's shipwrecks*, AIMA–ACDO, Canberra, ACT.
- Department of the Arts and Administrative Services 1993, *Historic shipwrecks: Public access guidelines*, Canberra, DAAS, ACT.

Appendix 4: Constraints

There were significant restraints on the scope of this paper given the deadlines for the SoE report and the late issue of the contract brief within this time-frame. During the short period of the consultancy, a number of practitioners were taking part in the *Pandora* excavation and were be unable to provide relevant information for their State or Territory. These States include Tasmania and Queensland. The consultant acknowledges that a broader report on shipwrecks may have been possible given different parameters, but considers that the paper will fulfil the objectives of the former Department of the Environment, Sport and Territories and lay the basis for future assessment of the shipwreck resource. Had the time-frame allowed, the consultant would also have taken the opportunity to review the document before practitioners. This would have been especially useful in prioritising the selection of indicators that may be used to assess a change in the state of place. It is hoped that such a review can take place before data begins to be assembled.

The brief was primarily concerned with the *Historic Shipwrecks Act 1976* (Commonwealth), and a variety of State and Territory acts that protect the historic shipwreck resource. The Commonwealth legislation

includes the *Navigation Act 1976* and the *Moveable Cultural Heritage Act 1977*. Specific reference to the legislation enacted in each State is made (see Section 4.3 p. 17). There is also a separate Australia Netherlands Committee on Dutch Shipwrecks (ANCODS) agreement between governments of the Australian and Netherlands with regard to historic relics from Dutch shipwreck sites. The ANCODS agreement operates in accordance with the Commonwealth agreement as included in the *Historic Shipwrecks Act 1976*.

This paper is not intended to encompass aspects of Aboriginal watercraft and archaeological sites, or submerged landscapes, although these are recognised as valid within the definitions of underwater archaeology.

Underwater sites have unique environmental parameters that are very significant to their long term preservation. The brief was, however, particularly concerned with the human impacts on shipwrecks and related relics. An assessment of the pressures acting on sites from the natural environment and the responses to these impacts were outside the scope of this paper.

Appendix 5: Definitions

Protected zone: This refers to the area surrounding a declared shipwreck or relic that may be declared to be a protected zone and to which controls may be applied to the activities which may occur in the area. Access (legislation) to the zone requires a permit under section 15 of the *Historic Shipwrecks Act 1976*. The Minister, or the delegated authority, may grant a permit authorising exploration or recovery of shipwreck material within this zone.

Historic shipwreck resource: For the purposes of this paper the term *historic shipwreck resource* has been used to refer to all shipwrecks whether fully submerged or on land, all associated relics whether submerged or in private or government custody, all related maritime facilities existing underwater, and relics associated with those. It does not encompass aspects of Aboriginal watercraft and archaeological sites, or submerged landscapes, although these are recognised as valid within the definitions of underwater archaeology.

Underwater archaeology: This is also known as

nautical or maritime archaeology and is one of the discrete areas of archaeological research. It examines the material evidence of submerged shipwrecks and other cultural remains to explain the lives and social conditions of previous generations. Shipwrecks contain valuable information about naval architecture, engineering skills, commerce, social customs, shipbuilding, and the lives of captain and crew. For example, wreck sites can provide insights into the lives of passengers and immigrants who travelled to Australia by sea (New South Wales Government 1994, p. 1).

Underwater heritage: This refers to all those submerged sites of shipwrecks, port facilities and other relics that are considered to be of heritage significance. These sites include:

- shipwrecks
- submerged structural remains of wharves, jetties and slipways
- deposits of underwater relics.