



Australian Government

Department of the Environment
Australian Antarctic Division

**HEARD ISLAND AND McDONALD ISLANDS MARINE RESERVE
MANAGEMENT PLAN
JULY 2014**

Public consultation pursuant to section 368(5) of the
Environment Protection and Biodiversity Conservation Act 1999

STRUCTURE OUTLINE

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CHAPTER 1:

FOREWORD AND ACKNOWLEDGEMENTS

Foreword

Located some 4,000 kilometres south-west of mainland Australia in the southern Indian Ocean, the Heard Island and McDonald Islands Marine Reserve is Australia's most remote Commonwealth Reserve.

The Reserve was established in October 2002 under the *Environmental Protection and Biodiversity Conservation Act 1999* (the EPBC Act). It is some 71,000 square kilometres in area and includes the Commonwealth external territory of Heard Island and McDonald Islands. It possesses an incredibly dynamic natural environment dominated by volcanism, glacial action, major ocean currents and abundant wildlife. By virtue of its extreme isolation and harsh subantarctic climate, the Reserve is largely devoid of human introduced species. The Reserve provides important breeding and foraging grounds for many bird and mammal species, some of which are listed as threatened or migratory species under the EPBC Act. The Reserve also contains important benthic habitats and unique marine species that collectively make an outstanding contribution to Australia's National Representative System of Marine Protected Areas. In recognition of its outstanding natural universal values, the Territory was inscribed on the World Heritage List in December 1997.

This management plan is the second for the Reserve and takes account of submissions received through two public consultation processes. It was prepared by the Australian Antarctic Division (AAD) of the Department of the Environment. The Director of National Parks has delegated responsibilities under the EPBC Act in respect of the Reserve to the AAD in recognition of the AAD's considerable Antarctic and subantarctic expertise and its ongoing responsibilities for the administration of the Territory on behalf of the Australian Government. Management and research activities in the Reserve are limited by its extreme isolation and the consequent need for resource-intensive support.

This management plan provides a comprehensive management framework to facilitate the identification, protection and communication of the Reserve's values over the next ten years.

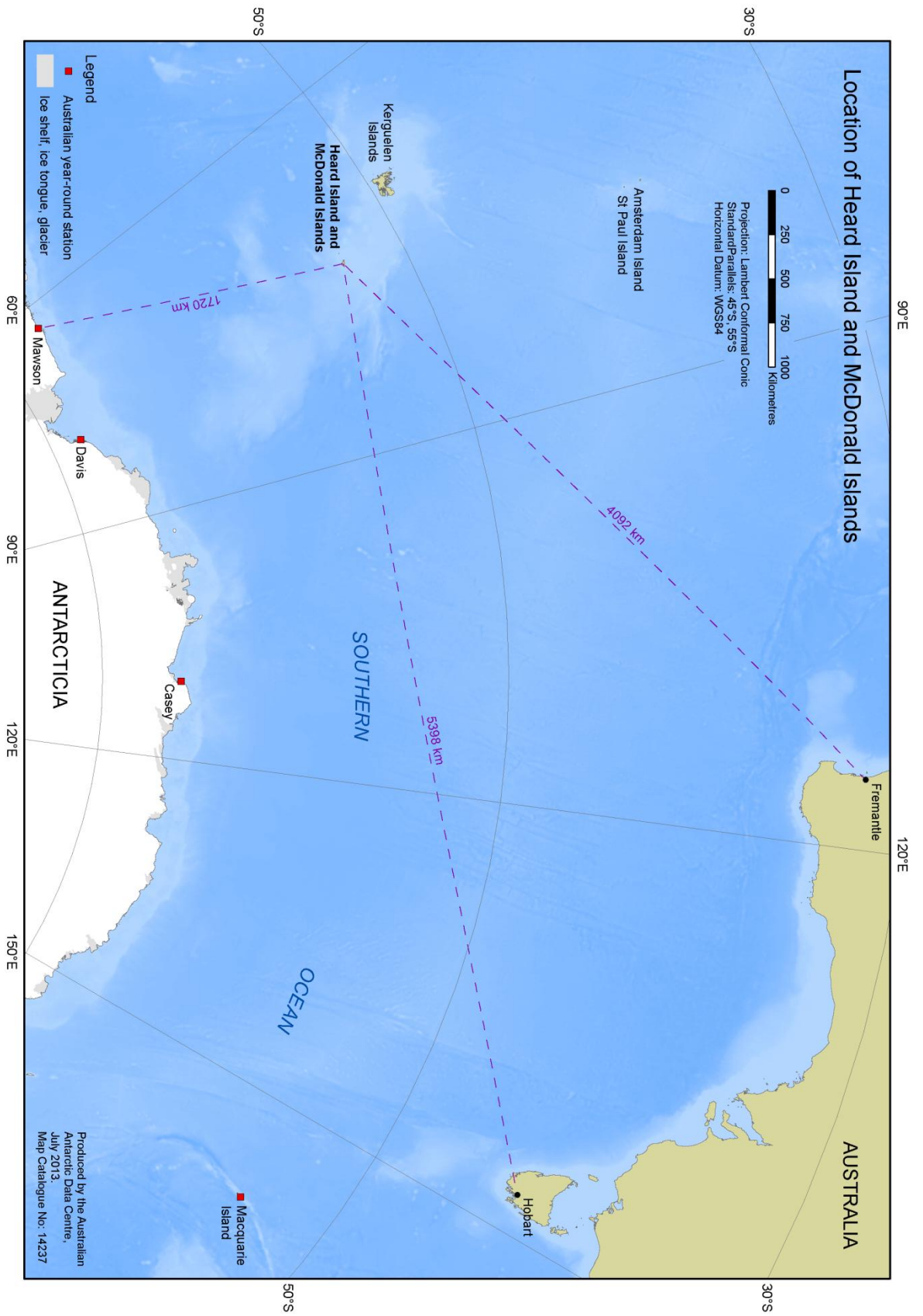
Dr. Tony Fleming
Director
Australian Antarctic Division

Acknowledgements

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FIGURE 1: Location of HIMI Marine Reserve



CHAPTER 2:

A DESCRIPTION OF THE RESERVE

Location and area

Heard Island and the McDonald Islands (HIMI) are located in the southern Indian Ocean some 4,100 kilometres south-west of Perth, Western Australia. The McDonald Islands are located 43 kilometres west of Heard Island. Heard Island is 368 square kilometres in area. Following significant subsea volcanic activity, McDonald Island is now approximately three square kilometres in area. The Reserve is some 71,000 square kilometres in area.

Governance and people

The Territory of Heard Island and McDonald Islands (the Territory) has been an external Territory of the Commonwealth of Australia since 1953. The *Heard Island and McDonald Islands Act 1953* provides the legislative basis for the Territory's administration. Administration of the Territory is the responsibility of the Australian Government department that administers the *Heard Island and McDonald Islands Act 1953*. This responsibility has historically been undertaken by the Australian Antarctic Division. Intermittent visits by Australian Government personnel, scientists and tourists aside, the Territory is devoid of human habitation.

History

▪ Discovery and industry

Although sealing and shipping operations were undertaken around Îles Kerguelen from the 1770s onwards, HIMI remained unknown to humankind until the mid-1800s (Downes and Downes 2005). The first definitive sighting of Heard Island was made on 25 November 1853 by Captain John Heard on the vessel *Oriental* (Green 2005). The first definitive sighting of the McDonald Islands was made on 4 January 1854 by Captain William McDonald on the vessel *Samarang*. More than 40 vessels made over 100 voyages to Heard Island to conduct sealing operations in the three decades following its discovery (Downes and Downes 2005). Heard Island's typically severe sea and weather conditions and lack of sheltered harbours contributed significantly to the wreckage of many vessels (Budd 2007). Very large numbers of seals were killed for their fur and oil on Heard Island. The sealers' principal target was the 'sea-elephant' (i.e. southern elephant seal *Mirounga leonina*). Seal oil production peaked between 1857 and 1859. Despite the near destruction of Heard Island's seal populations, hunting continued until 1877 (Downes and Downes 2005). There are no records of sealing operations on the McDonald Islands.

- **Early scientific research**

Five scientific expeditions visited Heard Island between 1874 and 1929. The crew of the vessel *Challenger* visited Atlas Cove briefly in 1874 to collect scientific samples. Later that same year a German expedition visited Heard Island on the vessel *Arkona* to locate suitable sites for the observation of the transit of Venus. The German Antarctic Expedition landed briefly at Atlas Cove in 1902 to collect scientific samples. French geologists visited the Atlas Cove region in 1928. The British Australian New Zealand Antarctic Research Expedition led by Douglas Mawson visited Heard Island in 1929 (Green 2005).

- **ANARE 1947-1955**

The Australian National Antarctic Research Expeditions (ANARE) established a station at Atlas Cove on 11 December 1947 as a prelude to Britain's transfer of sovereignty over HIMI to Australia on 26 December 1947. Many of the station's 35 buildings were constructed from materials left over from World War II. In the years that followed, ANARE conducted extensive botanical, geological, meteorological and zoological studies around Heard Island. It also conducted spatial surveys and produced the first detailed maps of Heard Island. These activities solidified Australian sovereignty over HIMI (Munro 2005). The Atlas Cove station was closed in March 1955 following the establishment of Mawson station in the Australian Antarctic Territory in February 1954.

- **ANARE 1955-2004**

Eleven ANARE expeditions were undertaken at HIMI between 1955 and 2004 (Green 2005). The principal objective of these expeditions was scientific research. Scientific research was undertaken in the fields of botany, geology, glaciology, meteorology and zoology. Detailed geospatial and archaeological surveys were also undertaken. In January 1971 a helicopter-borne team of Australian and French expeditioners made the first documented landing on McDonald Island (Budd 2007). Heard Island's severe winds and persistent dampness have hastened the disintegration of the former Atlas Cove station buildings. The AAD subsequently undertook cleanup operations at this site during the 1985/86, 1986/87, 1987/88 and 2000/01 austral summers.

- **Private expeditions and tourism visits**

Seven private expeditions were undertaken at HIMI between 1963 and 2000 (Green 2005). The first successful ascent of Mawson Peak was achieved on 25 January 1965 by mountaineers of the Southern Indian Ocean Expedition (Budd 2007). Two further successful ascents were achieved in 1983 and 2000. Amateur radio enthusiasts conducted private expeditions to Heard Island in 1983 and 1997. Ship-borne tourism visits were made to Heard Island in 1992, 1997, 2002, 2011 and 2012. A small number of individuals have visited Heard Island on yachts since the early 1970s.

Natural values

▪ **Geology**

HIMI's unique geomorphology is the product of volcanism, glaciations and vigorous marine processes. HIMI remains volcanically active. Volcanism has significantly altered the coastline and topography of the McDonald Islands over the past three decades. Satellite imagery captured in 2012 shows that McDonald Island has doubled in area since 1980. Heard Island's topography is dominated by the active volcanic cone known as Big Ben which rises to a height of 2745 metres at Mawson Peak (Stephenson et al. 2005). Mawson Peak is Australia's highest peak outside of the Australian Antarctic Territory. Numerous eruptions and volcanic events have been observed on Big Ben since 1947. Other volcanic landforms (including scoria, cinder cones, craters, domes, open vertical volcanic conduits, lava flows and lava tubes) are found across Heard Island, with notable concentrations on the Laurens and Azorella Peninsulas (Kiernan and McConnell 1999).

▪ **Glaciology**

Approximately 70% of Heard Island's area is glaciated. Steep glaciers descend radially and rapidly from Mawson Peak. Following periods of glacial retreat, many of Heard Island's glaciers now terminate inland from the coastline. This has led to the widespread formation of glacial lakes and lagoons. Heard Island lost approximately 11% of its glacial coverage between 1947 and 1988 (Ruddell 2005).

▪ **Wetlands**

Heard Island possesses several wetland areas around its coastal perimeter. These include areas of wetland vegetation, lagoons and rocky and sandy shores. They are mostly separated by active glaciers. Heard Island's wetland areas are of high conservation significance (Watkins and Jaensch 2003). They provide important breeding and feeding habitats for several Antarctic and subantarctic species including gentoo, king, macaroni and southern rockhopper penguins and southern elephant seals. Although some wetland areas were previously recorded on McDonald Island, ongoing volcanic activity may have altered their extent.

▪ **Marine environment**

HIMI is a surface exposure of the Kerguelen Plateau (Quilty 2005). Covering an approximate area of two million square kilometres, the Kerguelen Plateau is one of the world's largest submarine plateaus. It is surrounded by deep ocean basins. Located at the confluence of key oceanographic fronts and possessing assemblages of upwellings, eddies and gyres, HIMI possesses nutrient rich biologically productive waters. HIMI supports key foraging areas for land-based marine predators, bird species and cetacean species. It supports significant fish stocks and nurseries and a diverse range of benthic invertebrates (including corals, sponges, barnacles and echinoderms) (Meyer et al. 2000).

- **Flora**

By virtue of its severe climate, extensive ice coverage and extreme geographic isolation, HIMI possesses a low level of flora diversity. Low-growing herbaceous flowering plants and bryophytes predominate. Twelve species of vascular plant and 133 species of bryophyte and lichen are known to inhabit Heard Island. Although flora habitation is concentrated around coastal areas, glacial retreat and the consequent reconnection of previously separated ice-free areas is extending the distribution of some flora species (Scott and Bergstrom 2005). The McDonald Islands possess less vegetation and flora diversity than Heard Island. Furthermore, ongoing volcanic activity has probably altered the distribution and abundance of vegetation on the McDonald Islands.

Poa annua, a grass species that originated in Europe (Tutin 1957) and is now found on all major subantarctic island groups (Frenot et al. 2005), was discovered at the edge of Heard Island's Winston Lagoon in the austral summer of 1986-87. Seabirds probably transported *Poa annua* to Heard Island from nearby Îles Kerguelen (Scott and Kirkpatrick 2005). *Poa annua* is considered a non-native species on Heard Island. *Leptinella plumosa*, a daisy found on several subantarctic islands (Du-Puy et al. 1993), was discovered at Heard Island's Paddick Valley in 2004. Genetic research may clarify whether *Leptinella plumosa* arrived on Heard Island via a human vector or a natural process (i.e. seabird, wind or ocean current dispersal).

- **Fauna**

HIMI supports diverse and significant populations of birds, fish, invertebrates and mammals. Unlike many other subantarctic islands, HIMI is devoid of introduced predators.

HIMI is crucial breeding and foraging habitat for several mammal populations. Seven species of seal have been recorded at HIMI. Three species are known to breed at Heard Island. The broader HIMI region is an important habitat for cetacean species (Bannister et al. 1996). Although cetacean sightings are relatively rare around Heard Island in comparison to other subantarctic islands (Green 2005), sixteen cetacean species (including baleen whales, toothed whales and dolphins) are known to inhabit the surrounding Kerguelen Plateau.

HIMI is crucial breeding and foraging habitat for several bird species. Its wetland areas have been known to support more than four million birds (Woehler and Croxall 1991). Nineteen bird species are known to breed at HIMI (Woehler 2005). Two species, the Heard Island cormorant (*Phalacrocorax atriceps*) and the Heard Island sheathbill (*Chionis minor nasicornis*), are endemic to HIMI. HIMI possesses a diverse range of fish species. Antarctic cod and icefish species predominate in shallower nearshore waters while decapods, skates and toothfish predominate in deeper offshore waters (Williams 2005, Gon and Heemstra 1990).

Heard Island possesses a relatively low number of terrestrial invertebrate species (Chown et al. 2005). Heard Island possesses only three non-native animal species: the worm *Dendrodrilus rubidus*

(Dartnall 2003), the thrip *Apterothrips apteris* and the mite *Tyrophagus putrescentiae* (Frenot et al. 2005). Although Heard Island has been exposed to other non-native animal species in the past, there is no evidence of their current existence.

Cultural values

▪ Sealing era

Several sites around the Heard Island coastline exhibit evidence of 19th century sealing operations. Ruins and artefacts include stone working platforms, hut footings, occupied caves, graves, barrels and work tools. These remnants provide insight into the lives of sealers and the nature and scale of their activities on Heard Island (McGowan and Lazer 1989).

▪ ANARE artefacts

Atlas Cove possesses Heard Island's most significant concentration of historic ruins and artefacts. Although Atlas Cove was the site of several small scale scientific research expeditions following the decline of the sealing industry, the majority of its ruins and artefacts are associated with the ANARE research station which operated there between 1947 and 1955. Ruins and artefacts include building foundations, graves, machinery and expeditionary equipment. These remnants provide insight into the lives of expeditioners and the nature of their activities on Heard Island. They also demonstrate early ANARE building design and engineering.

▪ Shipwrecks

More than 40 vessels made over 100 voyages to Heard Island to conduct sealing operations in the three decades following its discovery (Downes and Downes 2005). At least fourteen of these vessels are recorded as having been wrecked at Heard Island (Downes 1996). No specific shipwreck locations are known, however shipwreck artefacts have been recorded at Walrus Beach, Skua Beach and Spit Bay (McGowan and Lazer 1989).

Climate

HIMI is located in a climate zone associated with deep low-pressure systems and strong and persistent westerly winds (known colloquially as the 'furious fifties'). HIMI's maritime setting leads to low temperature ranges, persistent cloud cover and frequent precipitation. Approximately 1400 millimetres of precipitation is recorded annually. Heard Island's local climate is significantly influenced by its perennial ice cover and steep topography. Monthly average temperatures at Atlas Cove range from 0.0° to 4.2°C, with average daily ranges of 3.7 to 5.2°C in summer and -0.8 to 0.3°C in winter (Thost and Allison 2005).

The climate of Heard Island is changing. Observations at Atlas Cove indicate an average annual air temperature increase of almost 1°C between 1948-1954 and 1997-2001 (Thost and Allison 2005). Similar changes have also been observed at other locations in the southern Indian Ocean. Increased

warming has led to glacial retreat (Thost and Truffer 2007), which is leading to the formation of lagoons and freshwater lakes and is exposing new land to flora and fauna colonisation. Climate change is likely to increase the risk of the establishment of invasive species (Chown et al. 2005).

Scientific values

HIMI is of significant importance and interest to the scientific community. The key drivers for scientific research at HIMI can be broadly classified as:

- **Condition:** HIMI possesses relatively undisturbed physical and biological systems and natural processes.
- **Content:** HIMI contains unique and highly dynamic physical and biological systems and natural processes.
- **Location:** HIMI is located in an isolated and unique subantarctic geographical location that is in the flow of the Antarctic Circumpolar Current (ACC) and close to the Antarctic Polar Frontal Zone (APFZ).
- **Management:** Science facilitates the achievement of the Reserve’s management objectives, including the fulfilment of requirements under national legislation and international agreements.

Table 1. Key scientific values and research drivers in the HIMI region

Key Scientific Values	Driver(s)
The relatively undisturbed physical and biological systems of the HIMI region are excellent indicators of environmental change.	Condition (undisturbed terrestrial and marine ecosystems)
Glacial retreat is an indicator of climate change. Heard Island provides unique opportunities to measure the rate of glacial retreat.	Location (south of the APFZ) Content (presence of glaciers)
HIMI is a site of relatively rapid geological change. It provides a unique opportunity to gain insight into island and plateau formation.	Content (presence of exposed geological features and processes)
Records of past climate provide insight into climate change. Heard Island yields records of past climate.	Location (subantarctic, south of APFZ) Content (glacial ice, peat/sediment records)
Big Ben provides unique opportunities for research into deep-earth magmatic processes.	Content (presence of volcanic activity)
HIMI’s relatively undisturbed biological systems provide unique opportunities to test ecological theories and model the dynamics of environmental change and associated biological	Location (in flow of ACC) Content (unique, unusual and dynamic processes, biologically and trophically simple

responses.	ecosystems) Condition (relatively undisturbed ecosystems processes)
HIMI is an important site for the recording of biota along an Antarctic terrestrial transect that monitors the effects of climate change.	Location (isolated location, subantarctic, south of AFPZ) Content (biologically and trophically simple terrestrial ecosystems, rapid climate warming) Condition (relatively undisturbed biota)
HIMI presents opportunities for the direct examination of the early geological history of the Kerguelen Plateau.	Location (subantarctic, Kerguelen Plateau) Content (exposed stratified rocks and geological formations)
HIMI provides a scientific reference area for the study of ecosystem function on the Kerguelen Plateau.	Location (Kerguelen Plateau) Condition (relatively undisturbed marine ecosystems)
Heard Island is a stable platform on the Kerguelen plateau for the establishment of observatories (geophysics, meteorology).	Location (Southern Ocean) Content (terrestrial areas)

International and national significance

The Territory of Heard Island and McDonald Islands was inscribed on the World Heritage List under the World Heritage Convention in December 1997. The basis for its inscription is its outstanding natural universal values. See Appendix D for further information regarding the Territory's World Heritage listing.

By virtue of its earlier inscription on the World Heritage List, the Territory was found to fulfil three National Heritage criteria pursuant to the EPBC Act. It was subsequently added to the National Heritage List in May 2007.

Many of the species known to inhabit the Reserve are listed as threatened and/or migratory under the EPBC Act. Many of the migratory species known to inhabit the Reserve are protected under international agreements. See Appendix B for a list of the threatened and/or migratory species known to inhabit the Reserve.

CHAPTER 3:

MANAGEMENT PLAN FOR THE RESERVE

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1. Introductory Background

1.1 Proclamation of the Reserve

The Heard Island and McDonald Islands Marine Reserve (the Reserve) is a Commonwealth Reserve. It was declared on 16 October 2002 to protect the conservation values of Heard Island and McDonald Islands and their adjacent unique and vulnerable marine ecosystem. The boundaries of the Reserve were expanded on 28 March 2014. The Australian Government's decision to expand the Reserve followed a comprehensive scientific assessment of a Conservation Zone adjoining the Reserve. The scientific assessment recommended that 6200 square kilometres of the Conservation Zone be added to the Reserve on the basis that its waters were of high conservation value. The Reserve's area subsequently increased to 71,000 square kilometres.

1.2 Conservation significance of the Reserve

The Reserve possesses values of outstanding international and national conservation significance. It is assigned an IUCN Category 1A Strict Nature Reserve classification.

The Reserve is one of the world's least anthropogenically disturbed areas. Its terrestrial and marine ecologies and oceanographic conditions are distinct from those of other subantarctic islands. It is the only subantarctic island group that is largely devoid of human introduced species. The Reserve is a crucial breeding habitat for a range of species. Many of these species are listed as threatened and/or migratory under international conservation agreements and the EPBC Act. Two bird species – the Heard Island sheathbill (*Chionis minor nasicornis*) and Heard Island cormorant (*Phalacrocorax atriceps*) – are endemic to the Reserve.

The Reserve is the Commonwealth's largest IUCN Category 1A Strict Nature Reserve. It features diverse and distinctive benthic habitats that support a range of vulnerable corals, sponges, barnacles and echinoderms. Its highly productive nutrient rich waters – created by the confluence of multiple oceanographic fronts, upwellings eddies and gyres – support: prime feeding grounds for cetacean species and land-based marine predators; important nursery areas for fish species; and a diverse range of benthic invertebrates (including corals, sponges, barnacles and echinoderms) (Meyer et al. 2000).

The Reserve's terrestrial environment exhibits distinctive geographical features. Heard Island's topography is dominated by the active volcanic cone known as Big Ben which rises to height of 2745 metres at Mawson Peak (Stephenson et al. 2005). Mawson Peak is Australia's highest peak outside of the Australian Antarctic Territory. The Reserve possesses cultural heritage ruins and artefacts associated with nineteenth century sealing operations and twentieth century Australian research expeditions.

The key conservation values of the Reserve were documented in *Conservation of marine habitats in the region of Heard Island and McDonald Islands* (Meyer et al. 2000). The conservation values of the Reserve are summarised in the following sections.

International Conservation Significance

World Heritage – outstanding universal natural heritage values

The Territory was inscribed on the World Heritage List by the World Heritage Committee on 3 December 1997 on the basis of its outstanding natural universal values.

The World Heritage Committee found the Territory met two of the World Heritage natural heritage criteria.

The statement of significance given in its World Heritage nomination reads:

HIMI is a unique wilderness, a place of spectacular beauty which contains outstanding examples of biological and physical processes continuing in an essentially undisturbed environment. Significant biological processes include colonisation and speciation, while the island group's physical processes provide valuable indicators of the role of crustal plates in the formation of ocean basins and continents and of atmospheric and oceanic warming.

Migratory species

The Reserve is an important habitat for several migratory bird and marine mammal species. Many of these species are listed under international agreements for the protection and conservation of migratory species, including: the Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention); the Agreement on the Conservation of Albatrosses and Petrels (ACAP); the Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment (CAMBA); and the Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Species and Birds in Danger of Extinction and their Environment (JAMBA).

Migratory bird species known to breed within the Reserve include the wandering albatross, black-browed albatross, southern giant petrel, Wilson's storm petrel and the light-mantled sooty albatross. Several cetacean species and non-breeding bird species recorded in the Reserve are also listed under these international agreements. A summary of the migratory species recorded in the Reserve is provided in Appendix B.

National Conservation Significance

National Representative System of Marine Protected Areas

The primary objective of the National Representative System of Marine Protected Areas is to establish and manage a comprehensive, adequate and representative system of marine protected areas that will contribute to the long-term ecological viability of marine and estuarine systems, maintain ecological processes and systems and protect Australia's biological diversity at all levels.

The Reserve's declaration contributes to the protection of Australia's unique marine biodiversity by ensuring the inclusion of subantarctic waters in the comprehensive and national representative system of marine protected areas.

Natural and cultural heritage

National Heritage List

The National Heritage List established under the EPBC Act lists Australian places with outstanding heritage value. The HIMI territory was included on the National Heritage List in May 2007 on the basis of its outstanding natural universal values.

Atlas Cove ANARE station

The Atlas Cove ANARE station site is significant because it bears testimony to the difficulties, remoteness and isolation experienced by the 87 expeditioners who lived there between 1947 and 1955.

Sealers' sites

Several sites around the Heard Island coastline exhibit evidence of 19th century sealing operations. These sites include ruins and artefacts, including stone working platforms, hut footings, occupied caves, graves, barrels and work tools (McGowan and Lazer 1989). They are significant because they demonstrate the ingenuity and resolve of the sealing crews and provide insight into the remoteness and isolation that they experienced.

Important Wetlands

The Territory's wetlands are listed on the *Directory of Important Wetlands in Australia* – a comprehensive inventory of Australia's nationally important wetlands – for meeting the following criteria: it is a good example of a wetland type occurring within a biogeographic region; it is a wetland that plays an important ecological or hydrological role in the natural functioning of a major wetland system or complex; it is a wetland that provides important habitat for animal taxa at a vulnerable stage in their life cycles; the wetland supports 1% or more of the national population of any native plant or animal taxa; and the wetland supports native plant or animal taxa which are considered important, endangered or vulnerable at the national level.

1.3 PREVIOUS MANAGEMENT PLANS

This management plan is the third for the HIMI region and the second under the EPBC Act for the Reserve. It replaces the *Heard Island and McDonald Islands Marine Reserve Management Plan 2005-2012*.

1.4 STRUCTURE OF THIS MANAGEMENT PLAN

This management plan has been structured in accordance with Parks Australia's Strategic Planning and Performance Assessment Framework.

This management plan has been developed against the following key result areas:

- Natural heritage management (see Section 5)
- Biodiversity science, knowledge management and use (see Section 5)
- Cultural heritage management (see Section 6)
- Use and appreciation of protected areas (see Section 7)
- Stakeholders and partnerships (see Section 8)
- Business management (see Section 9)

The Director has developed outcomes for each of these key result areas. Each section of this management plan contains a list of *aims* that describe the desired result of Reserve management activities, and a series of *prescriptions* that provide Reserve management strategies for the fulfilment of these aims.

In addition to annual reporting on the implementation of the management plan's prescriptions, progress against identified aims shall also be measured periodically (noting, however, the practical limitations that the Reserve's isolation and uncertainty over the timing of Government visits place on research and monitoring).

2. Introductory provisions

2.1 Short title

This management plan may be cited as the *Heard Island and McDonald Islands Marine Reserve Management Plan*.

2.2 Commencement and termination

This management plan will enter operation following approval by the Minister under s.370 of the EPBC Act on the day after it is registered under the *Legislative Instruments Act 2003* or on a later date specified in the Minister's approval.

2.3 Interpretation (including acronyms)

In this management plan, unless the contrary intention appears:

AAD means the Australian Antarctic Division of the Department of the Environment.

AFMA means the Australian Fisheries Management Authority.

Approved purpose means scientific research, environmental monitoring, Reserve management and other purposes consistent with this management plan and Australian IUCN reserve management principles.

Australian Government means the Government of the Commonwealth of Australia.

Authorised official means:

- (a) an authorised officer for the purposes of the EPBC Act;
- (b) an inspector appointed under the Heard Island and McDonald Islands *Environment Protection and Management Ordinance 1987*;
- (c) an inspector for the purposes of the *Antarctic Marine Living Resources Conservation Act 1981*;
- (d) a special constable for the purposes of the Heard Island and McDonald Islands *Criminal Procedure Ordinance 1993*;
- (e) an officer for the purposes of the *Fisheries Management Act 1991*; or
- (f) a person authorised in writing by the Director for the purposes of this management plan.

CAMBA means the Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment.

CAMLR Convention means the Convention on the Conservation of Antarctic Marine Living Resources.

CCAMLR means the Commission for the Conservation of Antarctic Marine Living Resources established under Article VII of the CAMLR Convention.

Cetacean means whale, dolphin and porpoise species.

Commonwealth reserve means a reserve declared under Division 4 of Part 15 of the EPBC Act.

Director means the Director of National Parks under s.514A of the EPBC Act and includes Parks Australia and any person to whom the Director has delegated powers and functions under the EPBC Act in relation to the Reserve, and including any agency that succeeds to the functions of the Director.

Ecological character, when used in relation to a wetland, means the sum of the biological, physical, and chemical components of the wetland ecosystem, and their interactions, which maintain the wetland and its products, functions, and attributes.

Environment has the meaning given in s.528 of the EPBC Act, and includes:

- (a) ecosystems and their constituent parts, including people and communities;
- (b) natural and physical resources;
- (c) the qualities and characteristics of locations, places and areas;
- (d) heritage values of places; and
- (e) the social, economic and cultural aspects of a thing mentioned in (a), (b) or (c).

Environmental damage includes disturbance of wildlife, damage to vegetation, burrows, wallows, nesting areas and wildlife corridors, wetlands, water bodies and catchments, sensitive geological features, research sites and cultural heritage sites.

EPMO means the *Environment Protection and Management Ordinance 1987 (HIMI)* made under the *Heard Island and McDonald Islands Act 1953*.

EPBC Act means the *Environment Protection and Biodiversity Conservation Act 1999* and includes reference to any Act amending, repealing or replacing the EPBC Act.

EPBC Regulations means the *Environment Protection and Biodiversity Conservation Regulations 2000* and includes reference to any regulations amending, repealing or replacing the EPBC Regulations.

Exclusive Economic Zone (EEZ) means the Exclusive Economic Zone declared under the *Seas and Submerged Lands Act 1973*, and in relation to HIMI commences at the outer limit of the territorial sea (12 nautical miles from the territorial sea baselines established under the Act) and extends to 200 nautical miles from the baselines except where it is less to take account of the treaty line defined by the Maritime Delineation Treaty between the Government of Australia and the Government of the French Republic.

Facility means something that is built, installed or established in the Reserve, including structures to be used for accommodation, scientific equipment and communications equipment.

Heard Island and McDonald Islands Marine Reserve means the areas declared as a Commonwealth reserve by that name under the EPBC Act on 16 October 2002 and amended on 28 March 2014.

HIMI means Heard Island and McDonald Islands.

HIMI Territory Administration (or **Administration**) means the part of the Australian Government agency with responsibility for administration of the HIMI Territory. At the time of this management plan's preparation, that agency was the Australian Antarctic Division of the Department of the Environment.

Issuer of a permit means the person deciding whether to issue a permit under the EPBC Regulations or the EPMO.

IUCN means the International Union for Conservation of Nature.

JAMBA means the Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment.

MARPOL means the International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978.

Mining operations means mining operations as defined by s.355 of the EPBC Act.

Minister means the Minister administering the EPBC Act or the EPMO.

NRSMPA means the National Representative System of Marine Protected Areas.

Parks Australia means the Director of National Parks and the agency that assists the Director in performing the Director's functions under the EPBC Act. At the time of this management plan's preparation, the agency assisting the Director is the Parks Australia Division of the Australian Government's Department of the Environment.

Reproductive material means seeds, spores, cuttings or any other part, or product of a plant, from which another plant could be produced; and embryos, eggs, sperm or any other part, or product of an animal, from which another animal could be produced.

Reserve means the Heard Island and McDonald Islands Marine Reserve.

Reserve management principles means the Australian IUCN reserve management principles set out in Schedule 8 of the EPBC Regulations.

Territorial sea means the water surrounding Heard Island and McDonald Islands to a distance offshore of 12 nautical miles.

The Territory means the Australian external Territory of Heard Island and McDonald Islands, and includes the territorial sea.

World Heritage Convention means the Convention Concerning the Protection of the World Cultural and Natural Heritage.

3. IUCN category and zoning

Performance indicator

- The degree to which the Reserve is managed in accordance with this management plan (as determined by section 9.4 Management plan implementation and evaluation).

3.1 Assigning the park to an IUCN category and zoning

Our aim

The Reserve is managed in accordance with an IUCN categorisation and zoning scheme that provides for its appropriate use and protection.

Background

The categorisation and zoning scheme takes into account the requirements of the EPBC Act and EPBC Regulations, including reserve management principles, regional conservation strategies for the conservation of biodiversity through the maintenance of habitat corridors and water quality, the protection of endangered species and habitat and the conservation of the marine environment.

A management plan must assign a Commonwealth reserve to an IUCN protected area category. The categories are prescribed by the EPBC Regulations and correspond with the protected area categories identified by the IUCN.

The EPBC Act also allows a management plan to divide a Reserve into specific zones. Each of these specific zones must be assigned an IUCN category. The IUCN category of each of these specific zones may differ from the Reserve's overall IUCN category.

Issues

- An appropriate level of protection needs to be assigned to each zone identified within the Reserve.

Prescriptions

Policies

3.1.1 The Reserve is assigned the IUCN Category 1a (Strict Nature Reserve) categorisation. It will be managed in accordance with the IUCN Category 1a Strict Nature Reserve management principles set out in Schedule 8 of the EPBC Regulations.

3.1.2 The Reserve is divided into seven management zones:

(a) Main Use Zones

Main Use Zones are located at Atlas Cove and Spit Bay. They provide access points to the Reserve, locations for the potential establishment of facilities, locations for the potential establishment of field encampments and locations at which to undertake higher-impact and longer-term activities (see section 7.2 Access and transport and 7.3 Management of facilities).

The Atlas Cove Main Use Zone comprises the land area within the outer boundaries described below, except for the Heritage Zone as defined in (c). Commencing at the sign post at 53°01'10"S, 73°23'42"E, the Atlas Cove Main Use Zone boundary proceeds in a straight line south-west to the low water mark of Atlas Cove (53°01'14"S, 73°23'33"E), follows the high water mark generally northwards to Wharf Point (53°01'11"S, 73°23'26"E) then generally north-east along the south-eastern extent of the vegetation on Azorella Peninsula (the southern boundary of the Restricted Zone) until the point where the vegetation limit intersects the edge of the Azorella Peninsula lava flow (approx. 53°01'01"S, 73°23'41"E), before tending southwards along the western limit of the lava flow to the point of commencement (see Figure 4). The Spit Bay Main Use Zone comprises all the land area within a 150 metre radius centred on the large rock at 53°06'26"S and 73°43'14"E (see Figure 5).

(b) Visitor Access Zones

Visitor Access Zones are located at Atlas Cove, Long Beach and Spit Bay. They provide locations for lower-impact, shorter-term visitor activities. Visitor Access Zones can provide comparatively safe landing sites in good weather and sea conditions. Located around Heard Island's coastline, they increase the opportunity for visitor landings which are often impeded by severe weather and sea conditions or inflexible voyage itineraries. They facilitate access to a range of attractions and features including heritage sites, extensively vegetated areas, wildlife colonies and unique landscape features. Only lower impact access (i.e. vessel beach landings or helicopter landings at designated points) and lower-impact activities (i.e. walking, photography and wildlife observation) are allowed in Visitor Access Zones (see section 7.1 Management of commercial and other non-government actions and section 7.2 Access and transport).

The Atlas Cove Visitor Access Zone - located at the north-western end of Heard Island - comprises the low-lying shingle and sandy areas of The Nullarbor, and is bound to the west by Atlas Cove, to the north by the Azorella Peninsula Restricted Zone and Atlas Cove Main Use Zone, to the east by Corinthian Bay and the base of the Baudissin Glacier moraine, and to the south by the vegetation at the foot of Mount Drygalski. The Atlas Cove Visitor Access Zone also includes:

- an area with a 50 metre radius surrounding sealers' huts and relics on the Azorella Peninsula lava flow adjacent to the north-eastern corner of The Nullarbor (53°01'08"S, 73°24'30"E);
- a coastal walking route extending to the flanks of Mount Aubert de la Rue on the western side of Atlas Cove (53°01'27"S, 73°22'50"E);
- a coastal walking route extending 500 metres from Wharf Point north along the western shore of Azorella Peninsula (53°00'56"S, 73°23'14"E) (see Figure 4); and
- an unspecified walking route from the Atlas Cove Main Use Zone to an access area with a 10 metre radius around the memorial cross at 53°01'05"S, 73°23'29"E, approximately 65 metres from the closest point on the north-western boundary of the Atlas Cove Main Use Zone. Access to the memorial cross will only be allowed if it can be achieved without causing environmental damage, and must be via the most direct suitable route.

The Spit Bay Visitor Access Zone, at the south-eastern end of Heard Island, comprises a triangular area with sides around two kilometres in length located between Elephant Spit and the eastern-most part of the island proper, plus two narrow coastal strips approximately one kilometre in length extending to the north-west and south-west from this triangular area. The north-west coastal strip ends where Stephenson Lagoon meets the sea (approx. 53°06'19"S, 73°43'04"E). The south-west coastal strip runs along Sealers Beach and ends at the coast adjacent to the north-eastern end of the unnamed lagoon to the north-east of Doppler Hill (53°08'00"S, 73°43'51"E). The eastern limit of the Zone, on Elephant Spit, is approximately two kilometres from the centre of the Spit Bay Main Use Zone at 73°46'17"E (see Figure 5).

The Long Beach Visitor Access Zone, located on the central southern coast of Heard Island, comprises a narrow coastal strip of beach extending from 50 metres west of the sealers' hut ruins near Cape Labuan (53°11'40.5"S, 73°29'58.5"E), and approximately two kilometres east to the end of Long Beach where the beach joins a set of low lava cliffs (53°11'11"S, 73°31'16"E) (see Figure 6).

(c) Heritage Zone

The Heritage Zone is located within the Atlas Cove Main Use Zone. It encompasses the site of the former ANARE Atlas Cove Station and pre-ANARE buildings on the

western side of Ephemeral Creek. It is bound to the north-west by the southern limit of the Azorella Peninsula Restricted Zone, then by a ten metre buffer north-east of the remains of the Seal Pen/Tractor/Clothing Store, east of the remains of Chippy's Church/the Carpenter's Store, south of the remains of the Biology Lab, south-west of the remains of Biology Lab/Meteorology and Wireless Hut, and west of the remains of the Meteorology and Wireless Hut/Dogkeeper and Cosmic Ray Hut (see Figure 4).

Severe winds and persistent dampness have hastened the disintegration of the station buildings. The resultant fragments have formed a large debris field across the Heritage Zone. This debris field degrades the wilderness qualities of the Reserve and may pose harm risks to visitors and wildlife.

A scientific analysis of building fragments collected by the AAD in November 2012 established the presence of asbestos in the Heritage Zone. In the interests of health and safety, access to the Heritage Zone is now strictly controlled. Access to the Heritage Zone will only be granted to persons undertaking management tasks specific to the Heritage Zone.

(d) Wilderness Zone

The Wilderness Zone comprises land not included in the Main Use, Visitor Access, Heritage or Restricted Zones (see Figure 3). It manages human activities in the Reserve's relatively undisturbed terrestrial areas. Activities that pose longer-term impacts upon the Reserve's natural values – including the establishment of permanent or semi-permanent facilities – will not be permitted within the Wilderness Zone. Access will generally be restricted to scientific research, environmental monitoring and management activities (section 7.2 Access and transport and section 7.3 Management of facilities).

Note: The term 'wilderness' is used here as a general descriptor and is not intended to refer to the IUCN category of Wilderness Area; each management zone is assigned to the IUCN Category 1a (Strict Nature Reserve) category (see 3.1.3).

(e) Restricted Zones

The Restricted Zones comprise areas that possess natural values that are particularly sensitive to human impacts and/or pose specific additional hazards to human health and safety. Access to the Restricted Zones will be strictly controlled (section 7.2 Access and transport and section 7.3 Management of facilities). The Restricted Zones comprise: the area north of the southernmost extent of the vegetation or the lava flow on Azorella Peninsula (i.e. the northern boundaries of the Atlas Cove Main Use Zone

and the Atlas Cove Visitor Access Zone) (see Figure 3 and Figure 4); the McDonald Islands; Sail Rock; Shag Rock; and Drury Rock.

Azorella Peninsula is a particularly hazardous and environmentally sensitive area. It contains sinkholes and lava tubes. The entrances to some of these features are highly unstable and the ceilings of the very shallow lava tubes are susceptible to collapse. Its vegetation is particularly vulnerable to human impacts and it possesses a significant number of nesting sites for South Georgian diving petrels and Antarctic prions.

The coastlines of the McDonald Islands are precipitous and rugged and provide a natural barrier to sea-borne landings. Very few landings have been made on the McDonald Islands.

(f) Inner Marine Zone

The Inner Marine Zone is the marine area that extends from the high tide mark to the 12 nautical mile boundary of the Territory's territorial sea. Activities in the Inner Marine Zone are managed to protect the Reserve's coastal environments and near shore wildlife foraging areas (see section 5.3 Waste management and section 7.2 Access and transport).

(g) Outer Marine Zone

The Outer Marine Zone is the marine area that extends beyond the Inner Marine Zone to the Reserve's boundary. Given the Outer Marine Zone is a greater distance from the Reserve's islands than the Inner Marine Zone, the management of human activities in the Outer Marine Zone is comparatively less strict than in the Inner Marine Zone. A vessel will not need a permit to enter and pass through the Outer Marine Zone (see section 5.3 Waste management and section 7.2 Access and transport).

3.1.3 Each of the Reserve's management zones are assigned to the IUCN Category 1a (Strict Nature Reserve) categorisation.

3.1.4 Activities undertaken within a specific zone must be compatible with the management purposes of that zone.

3.1.5 The zoning scheme does not prevent the Director from closing areas or restricting activities in the Reserve in the future, as provided under the EPBC Regulations.

- 3.1.6 The lava tubes and caves within the Azorella Peninsula Restricted Zone may only be accessed for research or management purposes in accordance with a permit issued under the EPMO that specifically authorises such access.
- 3.1.7 Access to the Heritage Zone will only be granted to persons undertaking Heritage Zone-specific management tasks.

Actions

- 3.1.8 The Director will monitor and review the effectiveness of the Reserve's zoning system during the course of this management plan. In accordance with the requirements of the EPBC Act and the provisions of this management plan, the Director may adjust management approaches to improve conservation outcomes in the Reserve.
- 3.1.9 The Director will investigate ways to manage any safety risks posed by asbestos containing material and other debris in the Heritage Zone.

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Figure 2. HIMI territorial and marine boundaries

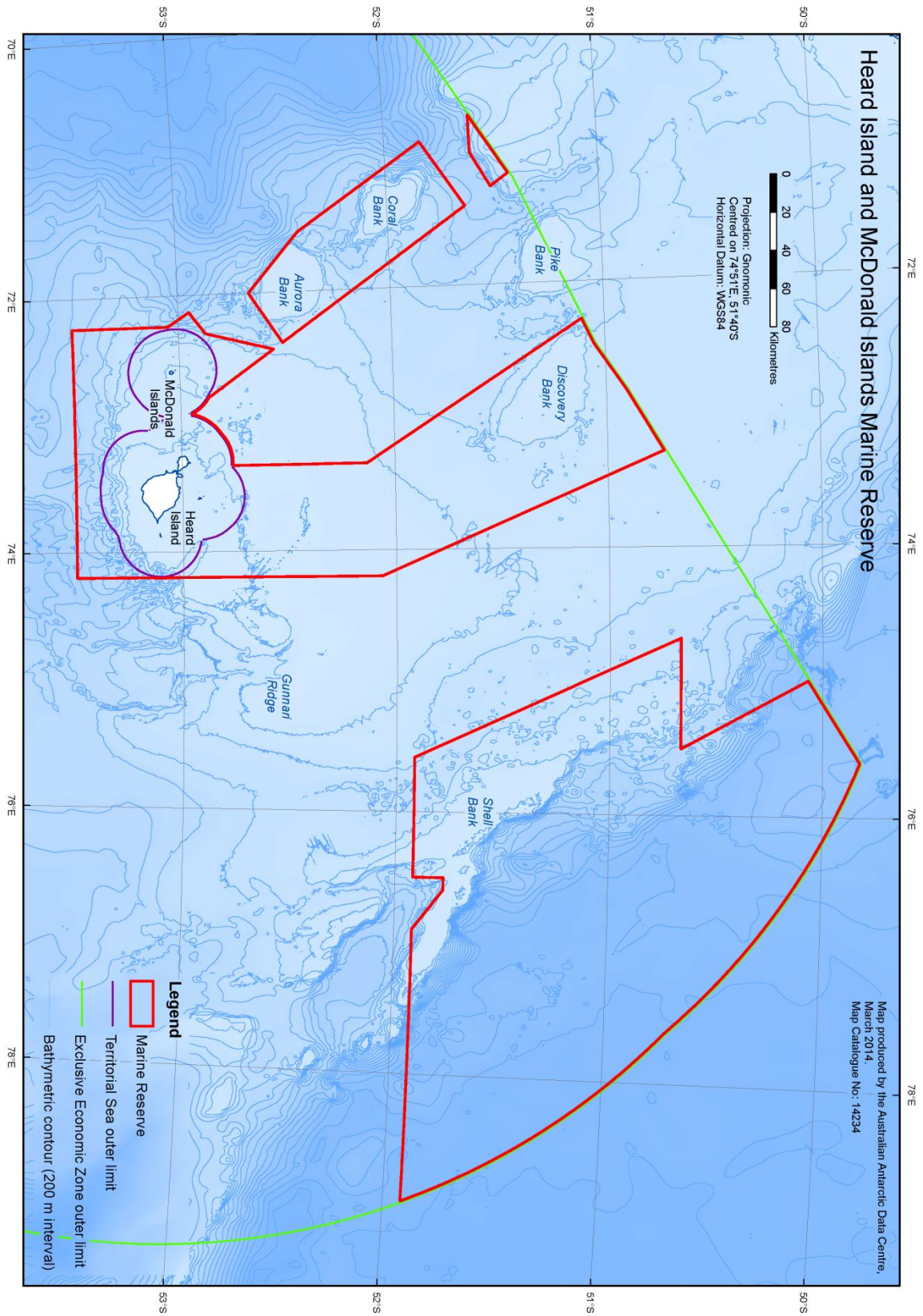




Figure 3. HIMI Reserve management zones

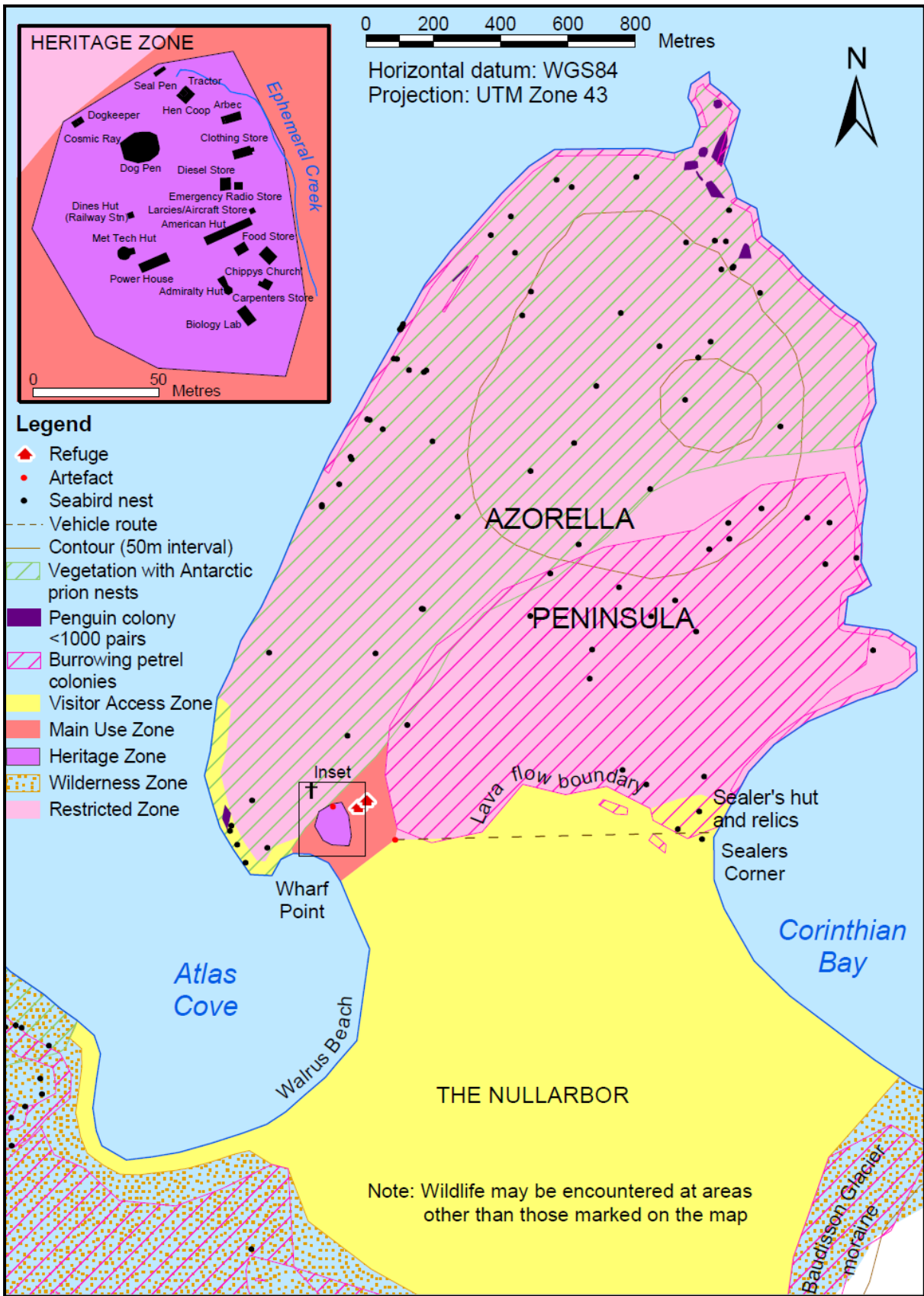


Figure 4. Atlas Cove zones

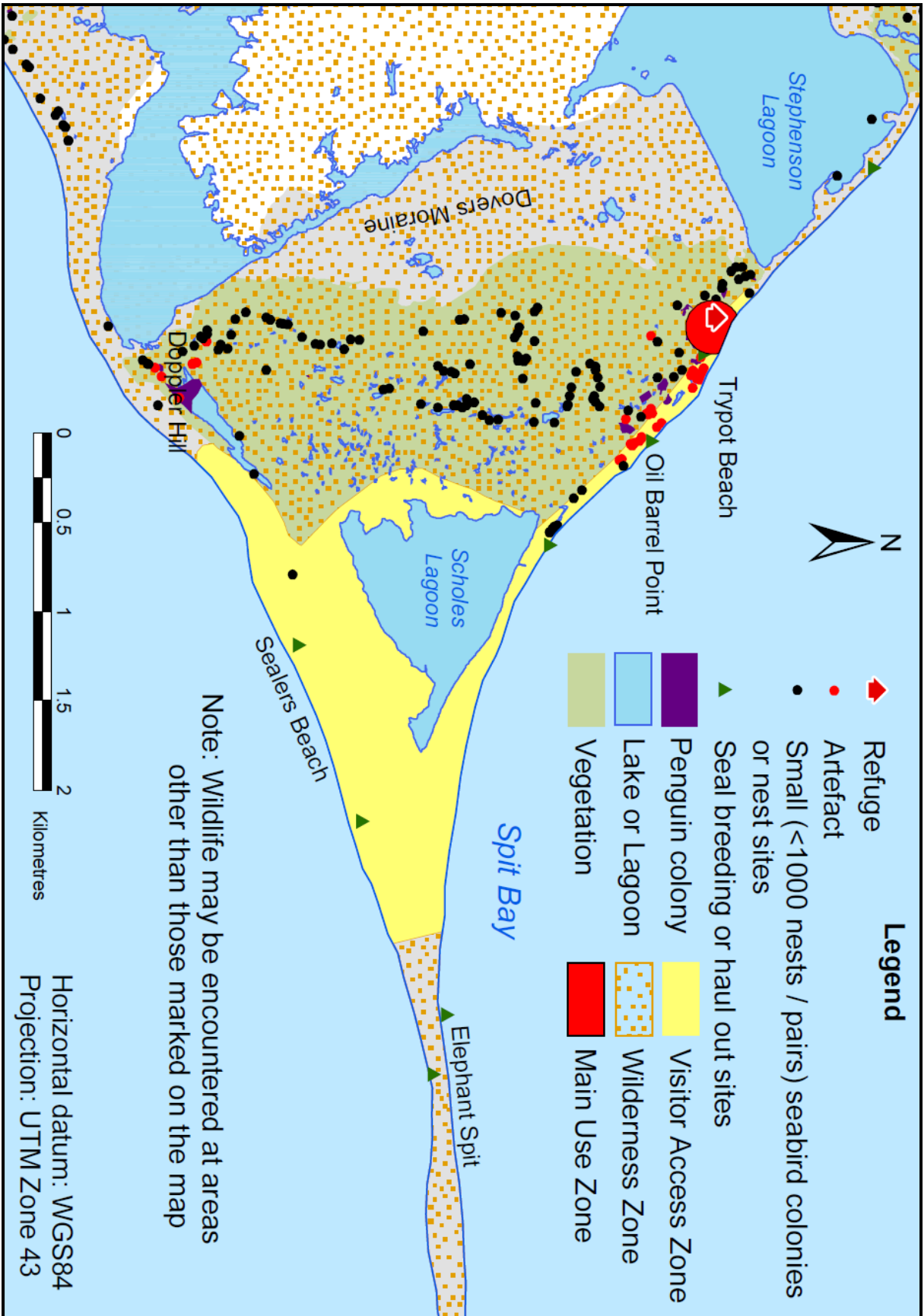


Figure 5. Spit Bay zones

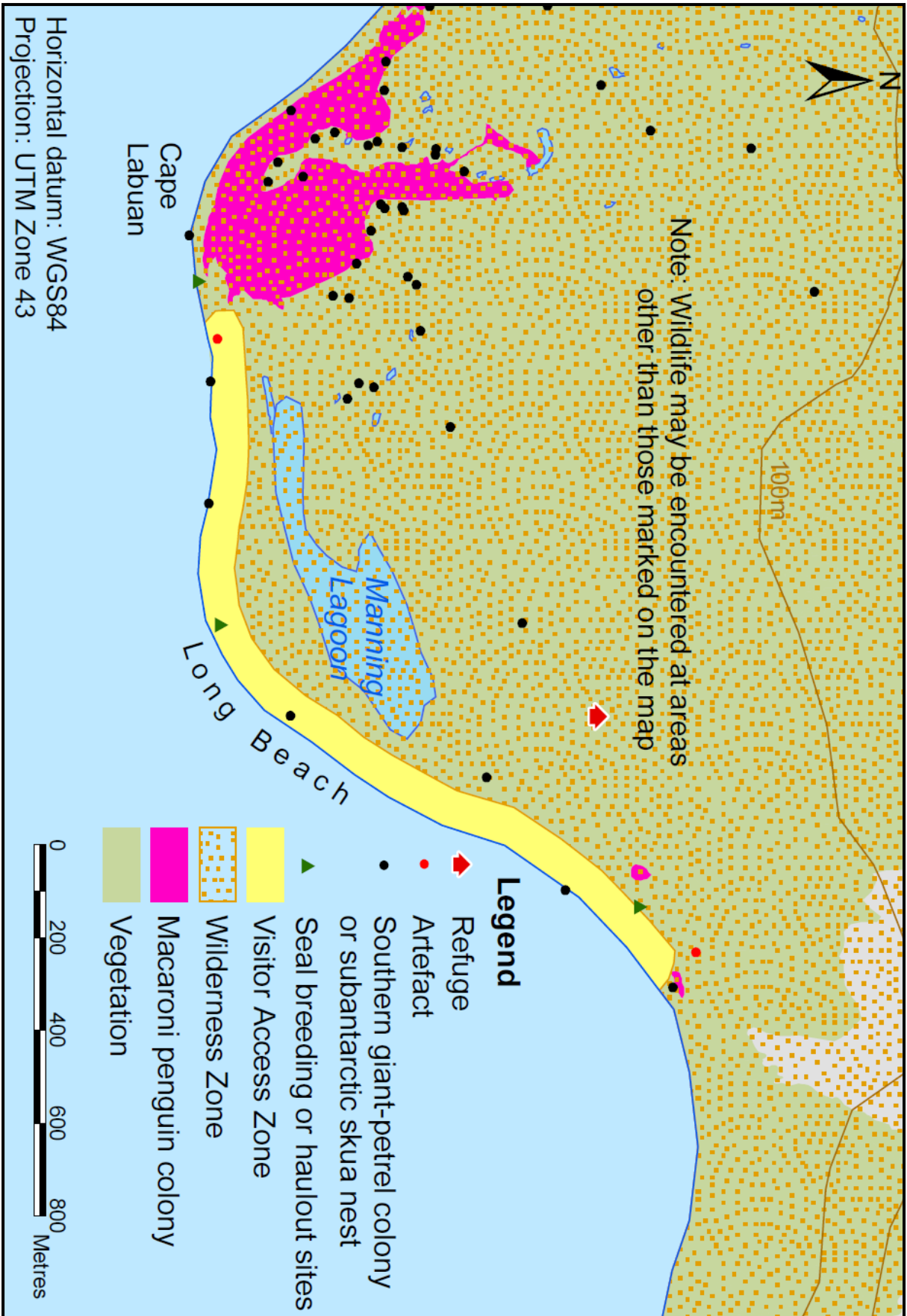


Figure 6. Long Beach zones

4. Assessment and approval of activities

Performance indicator

- The maintenance and implementation of effective activity assessment procedures.
- The consistent application of effective conditions upon activities.

Our aims

The accurate assessment of the potential impacts of proposed activities upon the Reserve's values.

The application of necessary conditions upon approved activities to facilitate the ongoing protection of the Reserve's values and environment.

The application of necessary conditions upon approved activities to facilitate the safety of persons, aircraft, vehicles and vessels in the Territory.

Background

This management plan, the EPBC Act and the EPMO collectively aim to protect and manage the nationally and internationally important flora, fauna, ecological communities and heritage places of the Reserve.

The EPMO also aims to protect the safety of persons, aircraft, vehicles and vessels in the Territory.

To fulfil these aims, proposed activities are subject to assessment and approval processes. Assessments are undertaken to facilitate:

- the evaluation of proposed activities' likely effects;
- the location of alternative activities or mitigation measures to reduce actual and potential impacts; and
- suitable outcomes for the Reserve and the proponent.

Proponents of proposed activities must complete an AAD prescribed application form. This form is available from the AAD. Its purpose is to facilitate:

- (i) an accurate assessment of a proposed activity's likely impacts; and
- (ii) the identification of effective mitigation measures to reduce the actual and potential impacts of a proposed activity.

Access to, and activities within the Territory will be managed and regulated in accordance with this management plan primarily through the EPMO. The EPMO provides that a person may only enter the

Territory in accordance with a permit, except during the course of an emergency or through the performance of the duties of an inspector appointed under the EPMO. The EPMO also prohibits or regulates specific activities (see sections 12, 13 and 14).

In deciding whether to issue a permit under the EPMO, and in deciding the conditions on which a permit will be issued, consideration will be given to the prescriptions in this management plan and to the need to protect the Territory's values and environment, and the safety of persons, aircraft, vehicles and vessels within the Territory.

This management plan provides that an activity that is otherwise prohibited by ss.354 or 354A of the EPBC Act, or the EPBC Regulations, may be carried on in the Territory if authorised and undertaken in accordance with an EPMO permit.

Activities in the Outer Marine Zone will be managed and regulated in accordance with this management plan primarily through the EPBC Regulations. Entry into the Outer Marine Zone does not require a permit, however certain activities as specified in Part 12 of the EPBC Regulations are managed and regulated under permits (such as scientific research, r.12.10). However, access to all or part of that zone may be prohibited under EPBC Regulation 12.23, or the conduct of an activity or class of activities may be prohibited under regulation 12.23A.

EPBC Regulation 12.23 provides that the Director may prohibit or restrict entry to the Reserve at all times, at specified times or for a specified period, by persons generally or by a class of persons. Notice of such prohibition or restriction must be published in the Gazette. Such a notice will also be published on the HIMI public website. Contravention of a prohibition or restriction is an offence. At the time of this management plan's preparation, a prohibition has been imposed under subregulation 12.23(3) to prohibit entry to the Territory and its territorial sea by all persons except for officers, servants and agents of the Commonwealth acting in the course of their duties, persons authorised in accordance with subsection 12(2) of the EPMO, and persons authorised by the Director of National Parks.

In deciding whether to issue a permit under the EPBC Regulations, and in deciding the conditions on which the permit will be issued, consideration will be give to the prescriptions in this management plan and to the requirements stipulated in the EPBC Regulations.

Proposed activities that are likely to have a significant impact on a Matter of National Environmental Significance are subject to the referral, assessment and approval provisions of Chapters 2 to 4 of the EPBC Act.

Prescriptions

Policies

- 4.1 To facilitate compliance with this management plan, a proponent of an activity in the Reserve must complete and submit the AAD prescribed application form.
- 4.2 All approved activities within the Reserve must comply with this management plan.
- 4.3 All proposed commercial, recreation and tourism activities in the Reserve will be managed in accordance with this management plan, the Australian IUCN Category 1a management principles, the EPMO, EPBC Act and EPBC Regulations except where exempted by this management plan (see 9.1 Compliance and enforcement and 9.2 Incident management).
- 4.4 An EPMO permit will only be issued to authorise a proposed activity within the Territory when the issuer of the permit:
- a) is satisfied that the activity, either as proposed or with certain modifications, has been assessed as being consistent with this management plan;
 - b) has considered the need to protect the environment of the Territory; and
 - c) has considered the safety of persons, aircraft, vehicles and vessels in the Territory.
- 4.5 Permits issued under the EPMO and EPBC Regulations will contain conditions requiring compliance with this management plan. Permits may also include additional conditions that the issuer considers appropriate for the protection of the Reserve.
- 4.6 Proposed activities that are likely to have a significant impact on a Matter of National Environmental Significance will be subject to the assessment and approval provisions of Chapters 2 to 4 of the EPBC Act.
- 4.7 An activity that is otherwise prohibited by ss.354 or 354A of the EPBC Act, or the EPBC Regulations, may be undertaken in the Territory if authorised by and undertaken in accordance with an EPMO permit.
- 4.8 Proponents must satisfy the permit issuer that they have adequately assessed and addressed all safety and public liability issues associated with their proposed activity.
- 4.9 Proponents must satisfy the permit issuer that their proposed activity is consistent with this management plan and IUCN Category 1a Strict Nature Reserve principles.

- 4.10 The Director may require an organiser or leader of an activity to attend pre-departure planning or briefing sessions conducted by the AAD.

Actions

- 4.11 The Director will take reasonable steps to provide intending visitors with appropriate briefings that detail the requirements of this management plan.
- 4.12 The Director will provide information to assist proponents' understanding of the management plan's assessment and approval processes.
- 4.13 The Director will encourage proponent consultation in the early stages of activity planning.

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5. Natural heritage management

Performance indicators

- The protection of the Reserve's landscape and terrestrial and marine ecosystems.
- The prevention, identification and management of non-native species and diseases.

5.1 Terrestrial and marine ecosystems and landscape

Our aim

To protect the Reserve's terrestrial and marine ecosystems and landscape.

Background

Terrestrial and Marine Ecosystems

Heard Island and the McDonald Islands are unique amongst subantarctic islands in that they possess substantively intact ecosystems. The Reserve's flora and fauna composition has been shaped by its extreme geographic isolation, geological compositions, extensive ice coverage, cold temperatures, and persistent precipitation. The Reserve's ecosystems possess a low level of fauna and flora diversity. Several species that inhabit the Reserve are designated as listed, threatened and/or migratory species under the EPBC Act (see Appendix B). Most of the Reserve's flora and fauna inhabit low-lying coastal areas. Given low-lying coastal areas are also the principal locations for the conduct of human activities, they are more susceptible to human impacts.

The Reserve is a declared IUCN Category 1a Strict Nature Reserve. Fishing activities may pose unacceptable risks to the Reserve's marine ecosystem. Accordingly, all fishing activities will be prohibited in the Reserve unless undertaken for scientific research or management purposes in accordance with section 5.5 Research and monitoring. Although protected from harvesting within the Reserve, some fish species are targeted by authorised commercial fishing operators in the adjoining EEZ.

Several legislative provisions exist to protect the Reserve's ecosystems. The EPBC Act provides for the control of access to biological resources in Commonwealth areas (the Reserve is a Commonwealth area). The relevant provisions are in Part 8A of the EPBC Regulations (see Appendix A Legislative and policy contexts).

The EPMO provides that, unless authorised by a permit, a person must not bring any organism into the Territory, take any organism in the Territory, remove from the Territory any organism indigenous to the Territory, or engage in conduct that results in a living organism that has been introduced to the Territory escaping in the Territory.

Sections 354 and 354A of the EPBC Act provides that a person must not kill, injure, take, trade, keep or move a member of a native species in the Reserve except in accordance with this management plan.

Section 229 of the EPBC Act generally provides that it is an offence to kill or injure a cetacean in the Australian Whale Sanctuary, which includes the waters of the Reserve. Part 8 of the EPBC Regulations details separation distances and guidelines for aircraft and vessels approaching cetaceans.

Part 13 of the EPBC Act contains provisions that prohibit and regulate actions taken in Commonwealth areas in relation to listed threatened species and ecological communities, listed migratory species, cetaceans and listed marine species.

Section 268 of the EPBC Act provides that a Commonwealth agency must not contravene recovery plans and threat abatement plans for listed threatened species and ecological communities. Section 269 requires the Commonwealth to implement such plans to the extent to which they apply in Commonwealth areas.

Landscape

Heard Island and the McDonald Islands are surface exposures of the Kerguelen Plateau. Heard Island's topography is dominated by the active volcanic cone known as Big Ben which rises to a height of 2745 metres at Mawson Peak (Stephenson et al. 2005). Mawson Peak is Australia's highest peak outside of the Australian Antarctic Territory. Other volcanic features include scoria, cinder cones, craters, domes, open vertical volcanic conduits, lava flows and lava tubes. Approximately 70% of Heard Island's 367 square kilometre area is glaciated (Ruddell 2005). Heard Island's coastal perimeter is marked by low growing wetland flora and coastal lagoons. McDonald Island's landscape is devoid of permanent ice and possesses considerably less flora than Heard Island.

The Reserve is an IUCN Category 1a Strict Nature Reserve. Mining operations – including petroleum or mineral exploration or extraction – may pose unacceptable harm risks to the Reserve's landscape and terrestrial ecosystem. The EPBC Act's definition of mining operations includes all activities associated with petroleum and mineral exploration and recovery. Sections 355 and 355A of the EPBC Act prohibit mining operations in Commonwealth reserves unless they are carried out in accordance with a management plan. Furthermore, the EPMA provides that a person must not engage in conduct that results in interference to any soil or other geological matter in the Territory or remove any soil or other geological matter from the Territory.

This management plan prohibits mining operations in the Reserve other than minor extractions for non-commercial scientific research purposes under strict permit conditions and as provided for in section 5.5 Research and monitoring.

Note: this section should be read in conjunction with section 5.2 Climate change.

Issues

- The identification, prevention and monitoring of threats to the Reserve's ecosystems are priorities.
- There is a need to reduce the likelihood of new invasive species arriving and establishing in the Reserve.
- The current population status of some native species is not known. Other native species are known to be in decline but the reasons for their decline are not known.
- The effects of climate change may not be controllable or mitigated to the extent necessary to retain the Reserve's existing natural values.

Prescriptions

Policies

- 5.1.1 No mining operations – including petroleum or mineral exploration or extraction – will be carried out in the Reserve, other than minor extractions for non-commercial scientific research purposes under strict permit conditions and as provided for in section 5.5 Research and monitoring.
- 5.1.2 No fishing activities will be carried out in the Reserve, other than minor take for scientific research purposes and under strict permit conditions and as provided for in section 5.5 Research and monitoring.
- 5.1.3 Activities that involve the killing, injuring, taking, trading, keeping or moving of a member of a native species of flora or fauna in the Reserve may only be carried out:
- (a) insofar as they are necessary for scientific research or Reserve management objectives; and
 - (b) in accordance with a permit issued under the EPMO in respect of activities in the Territory or under the EPBC Regulations in respect of activities in the Outer Marine Zone.

- 5.1.4 The Director may take actions (including actions covered by ss.354 and 354A of the EPBC Act) reasonably required to implement and comply with relevant recovery plans and threat abatement plans to the extent to which they apply in the Reserve, provided that any such actions are undertaken in accordance with this management plan. Notwithstanding any other prescription in this management plan, the Director will not issue permits for actions that would contravene a relevant recovery plan or threat abatement plan.
- 5.1.5 If EPBC Act listed endemic or otherwise threatened or significant species in the Reserve are in decline to a level that may threaten their conservation status, the Director will:
- (a) assess the likelihood of mitigating known threats and, if feasible, implement threat mitigation strategies;
 - (b) if threats are not known, seek to determine (so far as possible) the threats and appropriate mitigation measures; and
 - (c) if threats are not known or not likely to be mitigated for some time, assess the feasibility and effectiveness of implementing interventionist programs that have the long-term aim of conserving the species in their natural environment.
- 5.1.6 Disturbance to flora and fauna by Reserve visitors will be minimised by maintaining and enforcing strict controls:
- (a) on human access and activities (see prescriptions in section 5.5 Research and monitoring, section 7.1 Management of commercial and other non-government actions and section 7.2 Access and transport);
 - (b) on the establishment and management of facilities (see prescriptions in section 7.3 Management of facilities); and
 - (c) to prevent deliberate or accidental introductions of alien species or disease by a human agency and to manage any such introductions (see prescriptions in section 5.4 Prevention and management of non-native species and diseases).
- 5.1.7 Permits to authorise research in the Reserve involving living fish, birds and mammals will only be issued where the work will use and comply with humane practices approved by an appropriate animal ethics committee.

Actions

- 5.1.8 The Director will continue to liaise as required with conservation groups, the fishing industry and relevant Government agencies to assist the implementation of initiatives that address wildlife conservation issues in the adjacent HIMI fishery.

- 5.1.9 The Director will monitor and assess potential threats to the Reserve's native species.
- 5.1.10 Where a new non-native species is detected in the Reserve, and its introduction was probably the consequence of human visitation, the Director will assess its potential impact and, where feasible, organise its control or eradication.
- 5.1.11 Information provided to intending visitors by the Director will address the Reserve's flora and fauna and relevant protective measures (see section 7.1.9 and 7.1.19).

5.2 Climate change

Our aim

Reserve management approaches that incorporate new information about climate change.

Background

Climate change has emerged as a key issue for biodiversity and environmental management. The effects of climate change are apparent in the Reserve. Increased warming has led to glacial retreat (Thost and Truffer 2007), changes in weather patterns (Allison and Keage 1986) and the formation of lagoons and freshwater lakes. The Reserve's ecosystems and landscape are vulnerable to further climate change impacts, including: sea level rise; changes to ocean water chemistry; increases in sea surface temperature; and the arrival and establishment of invasive species (Australian National University 2009). Possessing largely intact ecosystems and being relatively devoid of anthropogenic disturbance, the Reserve is an excellent indicator of climate change (see Section 5.5 Research and monitoring). The impact of climate change can be lessened by ensuring that the existing threats to the Reserve's values are appropriately monitored and managed.

Issues

- Climate change is likely to affect many aspects of the Reserve, including its:
 - physical landscape (i.e. glacial retreat and the formation of lagoons and freshwater lakes);
 - biodiversity (i.e. changes in distribution and abundance of flora and fauna and an increased risk of the arrival and establishment of invasive species); and
 - cultural values (i.e. exposure or immersion of low-lying cultural heritage sites).
- Current expert information is needed to assess the impacts and risks of climate change.
- Adequate resources are required to implement possible climate change strategies.

- Management of the Reserve needs to be adaptive to respond to new information on potential impacts.

Prescriptions

Policies

5.2.1 If parts of the Reserve are changing in ways that are of concern to the Director, the Director will decide on further monitoring requirements, and whether protective, rehabilitation or adaptation measures are feasible. If cost effective and logistically feasible, appropriate responses and actions will be implemented.

Actions

5.2.2 Where practicable, the Director will identify priorities for and support further research into the impacts of climate change, and use this information to explore climate change adaptation strategies for the Reserve (see Section 5.5 Research and monitoring).

5.2.3 Where practicable, the Director will undertake non-native species monitoring and control programs to maximise the resilience of the Reserve's native species and habitats.

5.3 Waste management

Our aim

To prevent and minimise the impacts of waste on the Reserve's values.

Background

Waste generated by human activities may have a deleterious impact upon the Reserve's values.

Impacts upon fauna, including waste ingestion or entanglement and disease introduction, are of key concern. Marine and terrestrial species that inhabit the coastal areas of the Reserve are susceptible to marine pollution events.

There are no facilities for the containment, treatment or disposal of waste in the Reserve. All visits to the Reserve must be planned to minimise the use of any materials or items that have the potential to become waste (e.g. excess packaging). Logistical and support arrangements must also be planned to facilitate the effective management, storage and removal of wastes.

A proposed activity that involves the creation of waste that cannot be removed upon departure from the Reserve is unlikely to be permitted.

Major waste removal operations were undertaken in 2000/01. Most of the remaining structures at the Atlas Cove ANARE Station site were dismantled and returned to mainland Australia. Further waste removal operations were conducted in 2003/04. However, some waste and artefacts remain at the Atlas Cove ANARE station site. Continual erosion and soil displacement exposes further items over time. Such items may present a hazard to wildlife and human visitors. They may also degrade the wilderness qualities of the Reserve if they are dispersed by the wind. Some of these items may require assessment and handling in accordance with the cultural heritage management provisions of this management plan (see section 6 Cultural heritage management).

Sewage waste generated by small land-based parties and some small vessels meeting specific criteria may be disposed of in the territorial sea where it will be rapidly dispersed by wave action. In the EEZ surrounding the Reserve, relevant vessels must comply with the requirements of the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and MARPOL. Outside the territorial sea, waste must be treated in accordance with MARPOL Special Area prescriptions.

Under the EPMO a person must not leave any equipment, material or refuse in the Territory, except in accordance with a permit issued under that Ordinance.

EPBC Regulations 12.14 and 12.14A generally provide that it is an offence to discharge, dispose or release certain wastes or substances in a Commonwealth Reserve. Regulation 12.14B(1) provides that the Director may approve or provide an area or receptacle where certain wastes or substances may be discharged, disposed or released. At the time of this management plan's preparation, the Director has not determined any area or receptacle under regulation 12.14B(1) that may be used for the discharge, disposal or release of certain wastes or substances.

Regulations 12.14 and 12.14A do not apply to activities which are provided for and carried out in accordance with this management plan, or are authorised by a permit issued under those Regulations, or under other conditions (r.12.06).

Prescriptions

Policies

5.3.1 Permits to enter the Territory will require compliance with the waste management requirements of this management plan. Additional conditions reasonably necessary to prevent and minimise the environmental impacts of waste on the Reserve's values may be included on permits.

5.3.2 Wastes will be removed from Reserve land.

- 5.3.3 No ballast water may be discharged or exchanged in the Inner Marine Zone.
- 5.3.4 Ballast water may be discharged or exchanged in the Outer Marine Zone subject to compliance with:
- a) the Australian Ballast Water Management Requirements;
 - b) any relevant legislation or international agreements relating to ballast water management; and
 - c) any relevant restrictions and determinations made by the Director under this management plan.
- 5.3.5 Oil, oily mixtures, sludge or tank washing water must not be discharged from a vessel in the Inner Marine Zone or Outer Marine Zone.
- 5.3.6 In the Inner Marine Zone the only wastes that may be discharged from a vessel are washing water and human wastes from a vessel that:
- (a) is certified to carry ten people or less; and
 - (b) does not contain a functional storage tank of a kind designed for the storage of human waste.
- 5.3.7 In the Outer Marine Zone the only wastes that may be discharged from a vessel are:
- (a) human waste from a holding tank discharged at a moderate rate (not instantaneously) while the vessel is underway at a speed of not less than 4 knots;
 - (b) food scraps which have been macerated to a size of 25 millimetres or smaller (provided such food scraps do not contain any plastics); and
 - (c) liquid substances, chemicals or any other substance in a quantity or concentration that will not have a significant adverse impact on the marine environment.
- 5.3.8 Visitors to the Reserve must minimise their use of packaging and wrapping material.
- 5.3.9 Only detergents which are fully biodegradable and low in phosphates may be used in the Reserve.
- 5.3.10 Polystyrene beads and similar particulate material must not be taken into the Reserve.
- 5.3.11 No chemically treated human wastes may be disposed of on land in the Reserve.

Actions

- 5.3.12 The Director will arrange for the provision of briefings to intending visitors that convey information regarding waste management requirements (see prescriptions 7.1.9, 7.1.15 and 7.1.19).
- 5.3.13 All wastes generated on land in the Reserve will be securely stored for removal upon departure from land, other than the types of wastes referred to in prescriptions 5.3.15 – 5.3.17.
- 5.3.14 Persons going ashore for day trips will return all wastes they generate, including solid human wastes, to a support vessel.
- 5.3.15 Where the storage and removal of human waste generated ashore during extended activities is not logistically practicable, the Director may authorise:
- (a) the incineration of human wastes in accordance with prescription 5.3.17;
 - (b) the disposal of human wastes below the high water mark at a site where conditions exist for rapid marine dispersal and which is as far away as practicable from concentrations of fauna; or
 - (c) where the disposal of human wastes below the high water mark is impractical for inland sites, such wastes must be disposed of in a way that minimises impacts on fauna, water bodies and flora (e.g. by burial or disposal into a large rapidly flowing stream with unimpeded access to the sea).
- 5.3.16 Washing water may be disposed of below the high water mark provided reasonable efforts have been made to remove food matter prior to disposal. Such food matter must be handled in accordance with prescriptions 5.3.13 or 5.3.17.
- 5.3.17 Where authorised by a permit, food wastes, human wastes and non-toxic combustibles generated during extended activities ashore may be incinerated using methods that will prevent the dispersal of material or ash. All ash and residue of unburnt materials must be removed upon departure from the Territory.
- 5.3.18 Food and food wastes must be secured and contained at all times to prevent leakage, dispersal and foraging by fauna.
- 5.3.19 A description of the type and amount of any waste (other than human waste and washing water) that cannot be retrieved and removed from land at the end of a visit due to weather conditions or other mitigating circumstances must be recorded and reported to the Director.

Any such waste left in the Reserve for later retrieval or disposal must be securely stored and removed at the first opportunity.

- 5.3.20 Waste associated with early human occupation will be assessed and handled in accordance with the cultural heritage management prescriptions of this management plan (see section 6 Cultural heritage management). Items from this period that do not possess heritage significance may be removed where practicable with the approval of the Director.
- 5.3.21 Where practicable, the Director will seek opportunities to remove waste from the Heritage Zone.

5.4 Prevention and management of non-native species and diseases

Our aim

The effective prevention, identification and management of non-native species and diseases.

Background

The Reserve is one of the world's least environmentally disturbed areas. The human introduction and spread of non-native species and diseases could significantly impact the Reserve's biodiversity and ecosystems.

Heard Island is known to possess four non-native species: the grass *Poa annua*; the worm *Dendrodrilus rubidus* (Dartnall 2003); the thrip *Apterothrips apteris*; and the mite *Tyrophagus putrescentiae* (Frenot et al. 2005). *Leptinella plumosa* was discovered at Paddick Valley on Heard Island in 2004. Genetic research may clarify whether *Leptinella plumosa* arrived on Heard Island via a human vector or a natural process. Conversely, many other subantarctic ecosystems possess many established non-native species. The impacts of these non-native species have often been deleterious.

Experience elsewhere has shown that invasive species are often very difficult, if not impossible, to eradicate. Accordingly, this management plan imposes a comprehensive and strict biosecurity regime to *prevent* the human introduction and dispersal of non-native species and diseases. It also contains provisions for the identification and potential management of new discoveries.

Climate change is likely to increase the probability of the establishment of non-native species and diseases. Climate change may also increase the impacts of non-native species and diseases that may establish in the Reserve (Chown 2003, Bergstrom and Chown 1999).

The prevention of the introduction and establishment of non-native species and diseases relies upon effective quarantine measures and visitor compliance. Visitor compliance is reliant upon visitor

awareness. The Director will ensure that intending visitors are directed to this management plan and briefed on the biosecurity measures in place for the Reserve.

EPBC Regulation 12.19 provides that a person must not cause or allow an animal owned by, or in the charge of, the person, to enter or remain in the Reserve, unless doing so is: provided for by, and carried out in accordance with, this management plan; is authorised by a permit issued under the EPBC Regulations; or under certain other conditions (regulation 12.06).

EPBC Regulation 12.20 provides that a person must not possess a plant in the Reserve or cause or allow a plant to be taken into the Reserve unless doing so is provided for by and carried out in accordance with this management plan or is authorised by a permit under certain other conditions (regulation 12.06).

This management plan does not provide for any animal or plant to be taken into the Reserve for any reason.

EPBC Regulation 12.66 provides that if a ranger or warden considers it necessary for the protection and conservation of biodiversity and heritage in the Reserve or a part of the Reserve, the ranger or warden may take any suitable measure to control or remove an organism that is not a member of a native species or is not indigenous to the Reserve or that part of the Reserve.

The EPMO makes it an offence to bring into the Territory any diseased organism or live poultry. The EPMO also states that unless otherwise authorised by a permit issued under that Ordinance, a person must not: bring an organism into the Territory; bring any dead poultry or poultry products into the Territory; introduce any soil or other geological matter to the Territory; or engage in conduct that results in a living organism that has been introduced into the Territory escaping in the Territory.

Prescriptions

Policies

- 5.4.1 Permits authorising entry into the Territory and Reserve will require compliance with the biosecurity provisions of this management plan. Permits may also include additional conditions that the issuer of the permit considers reasonably necessary to prevent or sufficiently reduce the risk of an introduction and spread of an invasive species or disease.
- 5.4.2 A permit to authorise entry to the Territory will only be granted if:

- (a) the vessel would travel direct from a port that the Director has assessed as having robust biosecurity measures (normally an Australian Government quarantine controlled port and not via other locations, including other subantarctic islands); and
 - (b) the Director is satisfied that the vessel would pose a sufficiently low biosecurity risk to the Territory.
- 5.4.3 The Director may require an authorised official to be present at the departure of any vessel travelling to the Territory to confirm the adequacy of biosecurity processes.
- 5.4.4 The Director may require that a berth is made available for an authorised official to accompany any visit to the Territory to ensure compliance with this management plan.
- 5.4.5 When considering the quarantine risks associated with a vessel proposing to enter the Territory, and the need to appoint an authorised official to be present at the departure of a vessel travelling to the Territory, or to accompany a visit to the Territory, the Director will take into account factors relevant to the risks of introducing alien species, including, but not necessarily limited to:
- (a) the intended activities in the Territory;
 - (b) the vessel operator's previous experience with HIMI region operations;
 - (c) the vessel operator's previous record on environmental matters;
 - (d) the vessel's departure port, other recently visited ports and any quarantine concerns associated with those locations;
 - (e) whether the vessel has been treated with anti-fouling or the hull has been recently cleaned or ice-scoured due to travel through ice;
 - (f) the results of any inspections of the vessel hull for fouling communities;
 - (g) the number of people to go ashore;
 - (h) the quantity and type of equipment to be taken ashore; and
 - (i) current best practice approaches for preventing the introduction of invasive species and disease.
- 5.4.6 A permit will not be issued to authorise a vessel to enter the Territory unless it possesses a valid de-ratting certificate or de-ratting exemption certificate recognised by the Australian Government's quarantine standards. Vessels may nonetheless be inspected on the day of departure to ensure that they are free of rodents and may not be permitted to enter the Territory unless a satisfactory inspection has been undertaken.
- 5.4.7 Prior to departure for the Reserve:

- (a) the quantity of material to be taken ashore should be minimised to the greatest practicable extent;
 - (b) all items travelling in the vessel's cargo spaces or on deck (such as equipment, stores, field accommodation, vehicles, personal gear shipped as cargo) to be taken ashore in the Territory must be hot-washed, disinfected, fumigated or otherwise treated, and inspected for contaminants which if found must be removed and destroyed;
 - (c) all personal luggage and carry-on gear must be cleaned and inspected for organisms, soil and other contaminants which if found must be removed and destroyed; and
 - (d) any vehicles or aircraft to be used ashore in the Territory must be hot-washed and inspected for organisms, soil and other contaminants which if found must be removed and destroyed.
- 5.4.8 Live plants, live animals, growing media or soils must not be taken on a vessel travelling to the Territory.
- 5.4.9 The Director must be promptly informed of the detection of any rodent on a vessel that is underway to the Territory. The Director will prohibit the entry of that vessel into the Territory unless the Director can be satisfied that that vessel's entry into the Territory will not result in the escape of rodents into the Territory.
- 5.4.10 All outer clothing to be taken ashore in the Territory must be new or thoroughly cleaned and appropriately treated to kill all organisms (including reproductive material) (e.g. with a biocide or similar).
- 5.4.11 To reduce the risk of rodent introduction, vessels (other than small support boats) must not moor directly to the shore.
- 5.4.12 The following food products must not be taken ashore in the Reserve:
- (a) brassicas (includes broccoli, cabbages and turnips);
 - (b) other vegetables and fresh fruit (except where the Director is satisfied that they have been effectively treated to eliminate possible alien species and diseases);
 - (c) poultry or poultry products (other than egg powder, or products containing egg powder, which can be taken ashore if kept in sealed containers and opened only in an enclosed shelter);
 - (d) other animal products intended for human consumption that have not been inspected for disease causing agents or approved to the standard required for domestic consumption or export (whichever is the higher);
 - (e) viable seed products (such as sunflower seeds, bean sprouts); and

(f) viable fungal products (including dried mushrooms).

5.4.13 If yeast products are taken ashore:

- (a) such products must be kept in secured, sealed containers and opened only in an enclosed shelter;
- (b) all waste or surplus products (including packaging) must be removed from the Territory in a sealed container; and
- (c) all containers and utensils used with such products must be washed with boiling water and the resulting waste water disposed of in accordance with the prescriptions in section 5.3 Waste management.

5.4.14 No wood may be taken ashore unless it has undergone a Department of Agriculture-recognised treatment to kill any organisms (including reproductive material) and to prevent fungal growth.

5.4.15 Visitors to the Reserve (in particular the McDonald Islands or any of the other offshore rocks) must comply with any additional quarantine measures as may be determined in writing by the Director on a case-by-case basis.

5.4.16 Entry to, or activities in or near areas known or reasonably suspected to support diseased wildlife or human-introduced species, will be for management purposes only (including management-related research or monitoring). Equipment taken into such areas must be restricted to the minimum essential. When departing such areas, all footwear, outer clothing, bags and equipment must be thoroughly cleaned and inspected for organisms (including reproductive material), which must be removed before departing the area. To the extent practicable, such equipment should not be used elsewhere in the Reserve.

5.4.17 Where practicable, comprehensive surveys of indigenous species for which baseline information is lacking will be undertaken to allow the identification of introduced terrestrial, freshwater and marine species. Surveying usual landing sites and main use areas will be a priority (see also section 5.5 Research and monitoring).

5.4.18 Where practicable, species-specific audits of the presence and spread of alien species, and site-specific auditing of landing sites and main use areas, will be undertaken (see also section 5.5 Research and monitoring).

5.4.19 The Director may seek collaborative agreements with molecular biology facilities to facilitate the screening of newly detected species to determine their origin and whether they are a

result of natural or human-induced colonisation (see also section 5.5 Research and monitoring).

- 5.4.20 All sightings of new species or disease events in the Reserve, or while on a vessel travelling to or from the Reserve, must be reported to the Director at the first available opportunity.
- 5.4.21 Actions to eradicate or control an invasive species, or to control disease outbreaks, will be undertaken where the Director is satisfied that such action is practicable and that the adverse impacts on the Reserve's values that are reasonably likely to arise from those actions will be less than the potential adverse impacts from the presence of invasive species or disease.
- 5.4.22 The Director may seek to recover costs associated with management action taken to mitigate or address alien species or disease introduction to the Reserve from those responsible for the introduction.
- 5.4.23 The cost and supply of rodent exclusion devices, rodent traps and bait stations, insect traps, insecticides, biocides and fumigants will be borne by the permit holder.

Actions

- 5.4.24 The Director will ensure that intending visitors are briefed on biosecurity measures for the Reserve. Briefings will include information about:
- (a) the potential risks and consequences of introducing alien species or disease;
 - (b) the emphasis on preventing the introduction of alien species and disease;
 - (c) the measures to be taken to prevent the introduction and spread of alien species and disease;
 - (d) how to identify likely alien species or disease events;
 - (e) the need to eliminate rodents immediately if observed;
 - (f) the need to report any potential invasive species or disease events and to act in a timely and appropriate manner to prevent or minimise the impacts of invasive species or disease events; and
 - (g) to whom, when and how potential invasive species incursions or disease events should be reported.
- 5.4.25 Rodent exclusion devices must be installed on the mooring ropes of vessels scheduled to visit the Territory.

- 5.4.26 Rodent traps, bait stations and insect traps must be deployed throughout vessels travelling to the Territory and monitoring for introduced species must continue regularly while the vessel is underway, with particular attention given to the deployment/retrieval period for visits ashore in the Territory. Broad-spectrum fumigants and insecticides must be available as an option for dealing with newly detected organisms (such as invertebrates).
- 5.4.27 To the extent practicable, items to be used ashore or in the waters of the Territory must be transported in clean cargo holds, within clean (hot-washed at a minimum), inspected and sealed containers that contain only cleaned and inspected cargo.
- 5.4.28 All vessel equipment routinely in contact with the water (such as mooring lines and anchor chains) to be used in the Territory must be cleaned and/or treated prior to entry into the Territory to minimise the risk of marine introductions from fouling species. All other equipment to be used in the waters of the Territory must be thoroughly cleaned, where practicable by hot-washing, prior to use in the Territory.
- 5.4.29 Upon arrival in the Territory, and as late as practicable prior to deployment ashore or in the waters of the Territory:
- (a) all clothing, personal gear (such as bags, cameras, back packs) and emergency equipment (such as sleeping bags, ropes) to be taken ashore must be inspected for organisms, soil and other contaminants (which if found must be removed and destroyed);
 - (b) footwear to be taken or worn ashore must be thoroughly scrubbed to remove all organisms, soil and other contaminants (which if found must be removed and destroyed) and must be treated with a biocide; and
 - (c) all other items to be deployed ashore or in the waters of the Territory must be inspected for organisms, soil and other contaminants (which if found must be removed and destroyed).
- 5.4.30 Rodent traps and baits must be deployed onshore by the first landing party at each location where ship to shore transfers take place, prior to the offloading of cargo. Rodent bait stations and traps must be of a kind designed to avoid bycatch of native species. Traps and baits must be monitored regularly and be removed upon departure.
- 5.4.31 All footwear, clothing, equipment and vehicles in close contact with soil, plants or faeces must be cleaned to the greatest extent practicable when travelling between major ice-free regions.

5.4.32 All equipment to be used with or on birds and marine mammals must be appropriately disinfected prior to use and between use with different individuals.

5.4.33 If a sighting of a new species or unusual animal or plant mortality event is reported, the Director will, as necessary, seek expert advice to evaluate the report and to develop management responses, taking into account factors including:

- (a) the known status and effects of the identified species elsewhere;
- (b) the expertise available on-site for identification and further action;
- (c) the likely means of introduction;
- (d) opportunities for monitoring and the collection and analysis of samples;
- (e) the period of time until the next management visit to the Reserve;
- (f) the duration of the visit during which the potential invasive species or disease is reported; and
- (g) the precautionary approach.

Management responses may include (but are not necessarily limited to) visitor access restrictions, containment, destruction or removal, monitoring and sample collection for further analysis.

5.4.34 The response to the discovery of unusually high numbers of ill or dead fauna, or fauna with signs that suggest disease, will be made in accordance with the AAD's *Response Plan for the Discovery of Unusual Animal Deaths*.

5.4.35 Where practicable, the Director will develop and maintain a database of invasive species with the likely potential to reach and impact the Reserve.

5.5 Research and monitoring

Our aim

Research and monitoring provides:

- an integrated understanding of the Reserve's marine and terrestrial ecosystems, environmental processes, values, threats and management; and
- scientific evidence and advice to guide conservation management decisions in the Reserve.

Background

Research and monitoring efforts provide important baseline information on the Reserve's values and environmental change within the Reserve. It tracks environmental impacts and measures the efficacy of management actions. Research also facilitates the fulfilment of public reporting requirements.

The Director has functions under s.514B of the EPBC Act to protect, conserve and manage biodiversity and heritage within Commonwealth reserves and undertake (alone or in cooperation with other institutions and persons) research and investigations relevant to the establishment and management of Commonwealth reserves.

The Reserve is of scientific value. It provides valuable opportunities for the study of subantarctic ecosystems and climate change. Furthermore, research within the Reserve is required for the integrated and ecologically sustainable management of the broader HIMI region. Research facilitates the development and implementation of effective recovery plans, action plans and threat abatement plans. Studies into the composition and condition of benthic communities, the condition of fish stocks and the habitat ranges and diets of land-based marine predators are essential to the effective management of the adjacent HIMI fishery and the broader CCAMLR Area.

Table 2 indicates the types of research and monitoring activities that may, where practicable, be prioritised over the course of this management plan. It also indicates the management drivers for these activities.

Table 2: Reserve research and monitoring priorities

Research and monitoring drivers	Drivers				
	Legal or other requirements	Key management Issue	Baseline information	Long-term monitoring (SoE)	Management of human pressures
<p>A) Where feasible, research shall be undertaken to:</p> <ul style="list-style-type: none"> ▪ improve understanding of the Reserve's values; and ▪ facilitate accurate reporting on the condition of the Reserve's values as per legislative requirements. 					
A1) Research to provide fundamental data on the distribution, abundance and population trends of listed threatened species or threatened ecological communities.	✓ EPBC RP WH SoP, TAP, AP		✓	✓	
A2) Surveys of indigenous species to obtain baseline information to compare against non-native species.		✓ CC, AS	✓		✓

Research and monitoring drivers	Drivers				
	Legal or other requirements	Key management Issue	Baseline information	Long-term monitoring (SoE)	Management of human pressures
A3) Surveys to determine the presence and extent of possible non-native species	✓ WH, SoP	✓ AS	✓	✓	✓
A4) Monitoring the spatial extent and character of human disturbance or 'footprint' (such as the total area impacted by facilities, debris, historic sites and sampling sites).	✓ WH, SoP			✓	✓
A5) Long-term monitoring of climate, glaciers and fauna and flora colonisation of newly deglaciated areas.	✓ WH	✓ CC	✓	✓	
A6) Surveys to improve understanding of the Reserve's biodiversity and its response to climate change.	✓ WH	✓ CC, AS	✓	✓	
A7) Studies to evaluate the ecological character of wetland areas.	✓ SoP			✓	
A8) Research into the location, condition and significance of heritage sites and items.	✓ SoP		✓	✓	✓
A9) Hydrographic surveys for the production and updating of marine charts.			✓		
A10) Systematic geological mapping and monitoring of volcanic activity.	✓ WH		✓		
A11) Quantitative baseline biological studies of near shore marine ecosystems.			✓		

Research and monitoring drivers	Drivers				
	Legal or other requirements	Key management Issue	Baseline information	Long-term monitoring (SoE)	Management of human pressures
A12) Research into oceanographic features and processes that strongly influence the distribution of marine species and seabirds.		✓ ESD	✓	✓	
B) Where feasible, research will be undertaken to determine whether the current Reserve area is still providing sufficient protection to the conservation values of Heard Island and the McDonald Island and their adjacent marine ecosystems.					
B1) Stratified random sampling of the benthos, particularly habitat-forming benthos (such as sponges and corals) in and around the Reserve.	✓ SoP	✓ ESD	✓		
B2) Studies to determine whether the Reserve provides sufficient protection to the foraging areas of land-based marine predators.	✓ SoP	✓ ESD	✓		
B3) Stratified random sampling in and around the Reserve of those fish species targeted in the HIMI fishery.	✓ SoP, CCAMLR	✓ ESD	✓		✓
C) Where feasible, research shall be undertaken into:					
<ul style="list-style-type: none"> ▪ the impacts of human activities upon the Reserve's values; and ▪ the development of management strategies to minimise these impacts. 					
C1) Identification of introduction pathways for non-native species and associated potential consequences.		✓ AS			✓
C2) Research into the potential impacts of commercial fishing in the HIMI fishery upon the Reserve's values.	✓ WH,	✓ ESD			✓

Research and monitoring drivers	Drivers				
	Legal or other requirements	Key management Issue	Baseline information	Long-term monitoring (SoE)	Management of human pressures
C3) Monitoring changes in the degree to which anthropogenic threats affect threatened fauna or habitats vulnerable to human disturbance (e.g. interactions with fishers, marine pollution, disease outbreaks, direct disturbance, cumulative impacts of research programs and other activities).	✓ RP, WH, SoP	✓ AS, ESD			✓

Key:

- EPBC:** EPBC Act requirement
- WH:** World Heritage reporting requirement
- SoP:** State of the Parks reporting requirement
- TAP:** Threat Abatement Plan
- AP:** Action Plan requirement
- RP:** Recovery Plan requirement
- CCAMLR:** CCAMLR requirement
- CC:** Climate change effects
- AS:** Alien and non-native species
- ESD:** Ecologically Sustainable Development of the HIMI region

Research in the Reserve is prohibited by r.12.10 of the EPBC Regulations unless authorised by this management plan or a permit issued by the Director (or unless one of the other exceptions prescribed by r.12.06 of the EPBC Regulations applies). Research which involves taking, keeping, killing, injuring, trading or moving of native species or is undertaken for commercial purposes is prohibited by ss.354 and 354A of the EPBC Act except in accordance with this management plan. Research that affects listed threatened species or ecological communities, listed migratory species, cetaceans or listed marine species is also regulated under Part 13 of the Act.

Under s.8 of the *Antarctic Marine Living Resources Act 1981* a person must not cause the harvesting of any marine organisms or carry out research with respect to any marine organisms in the Reserve unless it is done in accordance with a permit granted under s.9 of that Act. An exemption is provided for activities authorised under another Commonwealth law, such as an activity authorised by or under the EPBC Act or the *Fisheries Management Act 1991*.

Under the EPMO a person must not: enter the Territory; engage in conduct that results in death or injury to, or interference with, any organism in the Territory; remove from the Territory any organism indigenous to the Territory; remove any soil or other geological matter from the Territory; engage in conduct that results in interference to any soil or other geological matter in the Territory; or collect any material in the Territory, except in accordance with a permit issued under that Ordinance.

The use and possession of weapons in the Territory is governed by the *Weapons Ordinance 2001*. For the purposes of this Ordinance, 'weapon' is defined to include a firearm, a tranquilliser gun or a crossbow, as well as certain items listed in the *Customs (Prohibited Imports) Regulations 1956* (Cth).

Research and monitoring activities must be undertaken in accordance with the research and monitoring priorities identified in Table 2 and the Australian Antarctic Science Strategic Plan.

Research, like other activities, is restricted by the Reserve's remoteness and the consequent need for resource intensive support and logistics capabilities.

The AAD aims to support summer visits by the Australian Antarctic program to the HIMI region approximately every five years where resources allow. This cycle reflects the significant costs of expeditions. Research opportunities in interim years may arise through cooperation with other visitors to the region.

Bioprospecting

Access to biological resources (also known as bioprospecting) is the taking of biological resources of native species for research and development on any genetic resources, or biochemical compounds, comprising or contained in samples or specimens of these species.

Access to biological resources in Commonwealth areas (such as the Reserve) is regulated by s.301 of the EPBC Act and Part 8A of the EPBC Regulations.

Biological resources are defined by s.528 of the EPBC Act to include genetic resources, organisms, parts of organisms, populations and any other biotic component of an ecosystem with actual or potential use or value for humanity. Genetic resources are defined as any material of plant, animal, microbial or other origin that contains functional units of heredity and that has actual or potential value for humanity.

Part 8A of the EPBC Regulations (made under s.301 of the EPBC Act) controls access to biological resources in Commonwealth areas (including the Reserve). Access to biological resources is also covered by ss.354 and s354A of the EPBC Act if the resources are members of a native species and/or if access is for commercial purposes.

Part 8A does not apply where access to biological resources is controlled by the AAD in a manner consistent with the prescriptions below. This exemption applies where access to biological resources is for:

- non-commercial purposes; or
- commercial purposes or potential commercial purposes and a benefit-sharing agreement that, if it were required by r.8A.07 of the EPBC Regulations would: comply with r.8A.08; has been entered into with the Australian Government; and a copy of the agreement has been provided to the Minister and the AAD.

Where a proponent's access is for non-commercial purposes, the policies below require the proponent to sign a statutory declaration declaring, among other things, that: any biological resources taken are not intended to be used for commercial purposes; that a written report will be given to the Commonwealth on the results of any research into the biological resources; that samples will not be given to other people (other than voucher specimens to a specified research institution) without permission of the Commonwealth, and that the person(s) given access will not carry, or allow others to carry out, commercial research or development unless a benefit sharing arrangement is in place with the Commonwealth.

This section should also be read in conjunction with section 5.1 Terrestrial and Marine Ecosystems and Landscape.

Issues

- Scientifically robust evidence is needed to make effective conservation management decisions.
- Research and monitoring activities may be limited by resource availability.
- Research and monitoring activities may be impeded by severe weather and sea conditions.
- Research and monitoring requirements need to be prioritised.

Prescriptions

Policies

5.5.1 Research or monitoring activities in the Territory may only be carried out in accordance with a permit issued by the Director under the EPMO.

5.5.2 Research or monitoring in the Outer Marine Zone may only be undertaken in accordance with:

- (a) a permit issued under the EPBC Regulations; or
- (b) a scientific permit issued under the *Fisheries Management Act 1991* (the conditions of which must be consistent with the relevant provisions of this management plan).

- 5.5.3 Research and monitoring activities must be undertaken in accordance with the research and monitoring priorities identified in Table 2 and the Australian Antarctic Science Strategic Plan.
- 5.5.4 Permits may be issued under the EPMO in respect of activities in the Territory or under the EPBC Regulations in respect of activities in the Outer Marine Zone to authorise research in the Reserve where the issuer of the permit is reasonably satisfied that the proposed research or monitoring:
- (a) is consistent with IUCN Category 1a Strict Nature Reserve management principles;
 - (b) is consistent with the management principles for the specific zone of the Reserve where the research or monitoring activity is proposed to be carried out;
 - (c) will be conducted by a researcher with appropriate credentials and experience;
 - (d) gives due consideration to the likely impact on the conservation status of any fauna or flora species;
 - (e) will not adversely affect the natural or cultural values of the Reserve;
 - (f) cannot reasonably be undertaken outside the Reserve; and
 - (g) will comply with the provisions of this management plan.
- 5.5.5 Permits authorising research or monitoring will be managed so as to:
- (a) avoid potential adverse impacts on the Reserve's values;
 - (b) avoid conflict or duplication of research or monitoring activities; and
 - (c) avoid inappropriate or significant demands on AAD resources.
- 5.5.6 Permits authorising research or monitoring in the Reserve will be subject to conditions, including conditions requiring permit holders to:
- (a) promptly provide research results and a plain English summary of the results to the Director;
 - (b) provide to the Director as part of the post-visit report (see prescription 7.1.11) details of the location(s) at which samples were taken in the Reserve, or equipment and markers deployed, for entry in the Reserve management database; and
 - (c) enter into an agreement with the Australian Government in respect of the equitable sharing of any benefits (whether financial or non-financial) arising from the research.
- 5.5.7 Organisations and individuals seeking to obtain a permit under the EPMO or under the EPBC Regulations to conduct research or monitoring activities in the Reserve will be required to explain how their proposed research activities are consistent with this management plan, the research and monitoring priorities identified in Table 2, and the Australian Antarctic Science Strategic Plan.

- 5.5.8 Organisations or individuals undertaking research or monitoring activities will be subject to the same conditions that apply to other Reserve visitors, except to the extent that the issuer of the permit is reasonably satisfied that some or all of these conditions should not apply or would unduly detract from the proposed research or monitoring activities.
- 5.5.9 When planning management activities the Director will take into account the research and monitoring priorities listed in Table 2.
- 5.5.10 The Director will facilitate the merit assessment and conduct of government-managed research and monitoring activities that are required for the fulfilment of the management objectives of this management plan.
- 5.5.11 The Director may seek to develop cooperative arrangements with other agencies and visitors to the Reserve to facilitate the conduct of research and monitoring outside Australian Antarctic program visits (see section 8 Stakeholders and partnerships).
- 5.5.12 The Director may seek to establish cooperative research and monitoring arrangements with other management authorities and research institutions with responsibilities for, and operations in, other marine protected areas and other locations in the subantarctic region (see section 8 Stakeholders and partnerships).
- 5.5.13 In respect of the use and possession of weapons in the Territory, an activity that is otherwise prohibited by the EPBC Regulations may be carried on in the Territory if authorised by the *Weapons Ordinance 2001 (HIMI)*.
- 5.5.14 Where practicable, global positioning systems or other non-intrusive means of identifying field locations in the Reserve should be used in preference to markers.
- 5.5.15 Where approval has been given for the ongoing use of research and monitoring equipment or markers in the Reserve, they must be suitably marked with origin and project details, and their GPS coordinates recorded to facilitate their future location and identification.
- 5.5.16 Access to biological resources in the Reserve may be provided in accordance with Part 8A of the EPBC Regulations and with written agreement from the Director or in accordance with the 'Declaration of Exempt Biological Resources' signed by the Minister for the Environment and Heritage on 7 January 2007.
- 5.5.17 Permits can be issued for proposed actions involving access to biological resources for non-commercial purposes where the applicant has made a statutory declaration that:

- (a) the access is for non-commercial purposes;
- (b) any biological resources taken by the proponent are not intended to be used for commercial purposes;
- (c) the proponent will provide a written report to the Commonwealth on the results of any research into the biological resources;
- (d) the proponent will not give a sample to another person (other than voucher specimens to a specified research institution) without the permission of the Commonwealth; and
- (e) the person(s) given access will not carry, or allow others to carry out, commercial research or development unless a benefit sharing arrangement is in place with the Commonwealth.

Actions

- 5.5.18 The Director will maintain a central repository of research and monitoring information (see prescription 5.5.6).
- 5.5.19 The Director will promote the review of existing Reserve research and monitoring data during the life of this management plan in order to increase baseline information and to facilitate the evaluation of trends.

6. Cultural heritage management

Performance indicator

- The Reserve's cultural heritage values are described.

Our Aim

The identification, protection, conservation and presentation of the Reserve's cultural heritage values.

Background

The Reserve possesses cultural heritage values. These values are principally connected with Heard Island's nineteenth century sealing industry and ANARE operations conducted between 1947-1955.

Cultural artefacts are located at Atlas Cove, Sealers Cove, Saddle Point, Try Pot Beach, Oil Barrel Point, Sealers Beach, Doppler Hill, Long Beach and the Nullarbor. Although largely undisturbed by human activities, some of the Reserve's cultural heritage sites and artefacts are fragile and thus vulnerable to natural decay (including coastal erosion, wind dispersal and trampling by fauna).

The Heritage Zone encompasses the site of the former ANARE Atlas Cove station. Severe winds and persistent dampness have hastened the disintegration of the station buildings. The resultant fragments of wood, metal, glass and asbestos have formed a large debris field within the Heritage Zone. This debris field degrades the wilderness qualities of the Reserve and may pose harm risks to visitors and wildlife. The AAD undertook removal and disposal operations at the site during the 1985/86, 1986/87, 1987/88 and 2000/01 austral summers. Further clean-up operations may be conducted during the life of this management plan.

At least fourteen ships are recorded as having been wrecked on Heard Island (Downes 1996). No specific shipwreck locations are known, however shipwreck materials have been recorded at Walrus Beach, Skua Beach and Spit Bay (McGowan and Lazer 1989). The *Historic Shipwrecks Act 1976* provides for the protection of historic shipwrecks and associated relics, and the establishment of protected zones around historic shipwrecks. All shipwrecks and associated relics more than 75 years old are protected under the Act by Ministerial declaration. A wreck less than 75 years old may also be protected by a declaration of the Minister. The Act prohibits conduct in relation to historic shipwrecks and relics, including conduct that: destroys or causes damage to a historic shipwreck or relic; causes interference with a historic shipwreck or relic; causes the disposal of a historic shipwreck or relic; or causes a historic shipwreck or relic to be removed from Australia.

The EPMO provides that a person must not engage in conduct that results in interference to any buildings, historical relics, equipment, supplies or survey markers in the Territory (s.14(1)(m)) except in accordance with a permit issued under that Ordinance (s.14(2)(b)). Sections 354 and 354A of the

EPBC Act prohibit interference with heritage in the Reserve except in accordance with this management plan.

Issues

- Coastal erosion is revealing further cultural heritage artefacts.
- Visitors might disturb or remove artefacts.

Prescriptions

Policies

- 6.1 The Reserve's cultural heritage values will be managed in accordance with the EPMO, the EPBC Act, the EPBC Regulations, relevant heritage principles and AAD policies and guidelines.
- 6.2 Assessments undertaken in respect of proposed actions in the Reserve will include an assessment of potential impacts on cultural heritage and of measures to mitigate or avoid any adverse impacts (see prescriptions in section 4 Assessment and approval of activities).
- 6.3 A permit will only be issued under the EPMO to authorise a person to damage, deface, move, possess or otherwise interfere with cultural heritage in the Territory if the issuer of the permit is reasonably satisfied that such actions are necessary for research or management purposes. (Note: this prescription does not remove the need to obtain a permit for activities covered by the *Historic Shipwrecks Act 1976*).
- 6.4 Permits issued under the EPMO to damage, deface, move, possess or otherwise interfere with cultural heritage in the Territory will contain appropriate conditions to minimise impacts on cultural heritage values.
- 6.5 Where practicable, the Director will liaise with the relevant management authority concerning applications for permits to recover any shipwrecks or relics under s.15 of the *Historic Shipwrecks Act 1976*.

Actions

- 6.6 The Director will investigate whether further cultural heritage policies and guidelines are required for the Reserve.
- 6.7 Information regarding the Reserve's cultural heritage values will be included on the AAD Antarctic Heritage Register to facilitate the identification of cultural heritage sites for action

planning, the assessment of proposed actions and the preparation of cultural heritage policies.

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7. Visitor management and Reserve use

Performance indicator

- The number and nature of incidents affecting the Reserve's values.

7.1 Management of commercial and other non-government actions

Our aim

Carefully managed commercial and other non-government visitation that provides opportunities for unique natural and cultural experiences that have a negligible impact upon the Reserve's values.

Background

The Reserve's extreme and typically severe sea and weather conditions impede safe and regular visitation. Relatively few commercial and private tourism actions have been undertaken in the Reserve. Nevertheless, the Reserve's natural and cultural values are strong attractions for those willing and able to make substantial investments in time and capital.

Consistent with the Reserve's IUCN Category 1a Strict Nature Reserve categorisation, only low intensity access will be authorised.

Given its very low level of visitation and complex and expensive logistical challenges, the Reserve does not possess any permanent infrastructure. To protect its values and unique wilderness qualities, the Reserve does not possess any visitor facilities.

The Reserve does not possess a permanent management presence. Emergency assistance may take weeks to reach the Reserve. All visitors must be fully prepared, self-sufficient and be aware of the potential dangers associated with visitation.

Access to and activities within the Reserve are regulated in accordance with the EPMO, EPBC Act, EPBC Regulations and this management plan. Sections 354 and 354A of the EPBC Act and Part 12 of the EPBC Regulations prohibit the undertaking of a broad range of actions within the Reserve except where these actions are undertaken in accordance with this management plan. The EPBC Regulations also allow the Director to make prohibitions, restrictions and determinations relating to activities that may be conducted in the Reserve. The EPMO controls access to the Territory and prohibits a range of activities in the Territory except where otherwise permitted.

The foremost objective of this management plan is the protection and conservation of the Reserve's values. To fulfil this objective, commercial and other non-government activities must be strictly managed.

Issues

- The Reserve's natural and cultural values are vulnerable to visitor impact.
- Access to and activities within the Reserve present hazards to visitors.
- Permit holders, voyage leaders and field leaders need to ensure that they are available for liaison with AAD staff prior to departure to the Reserve.

Prescriptions

Policies

- 7.1.1 The following commercial and non-government actions may be carried on in accordance with a permit issued under the EPMO in respect of actions in the Territory, or under the EPBC Regulations in respect of activities in the Outer Marine Zone:
- (a) commercial activities (excluding commercial fishing charters); and
 - (b) other activities considered by the Director to be consistent with the management objectives for the Reserve, with this management plan, and with IUCN Category 1a Strict Nature Reserve management principles.
- 7.1.2 All proposed recreation or tourism activities will be assessed in accordance with Section 4 Assessment and approval of activities.
- 7.1.3 Filming, photography and audio recording for commercial and personal use may be undertaken in the Reserve.
- 7.1.4 Any film, photograph or audio recording captured in the Reserve must only be used in a way that promotes the natural and cultural values of the Reserve.
- 7.1.5 The Reserve will not be actively promoted as a destination for commercial and other non-government activities in communication and interpretive materials.
- 7.1.6 Permits may only be issued to authorise commercial or other non-government activities if the issuer of the permit is reasonably satisfied that:
- (a) the activity will assist in promoting an understanding and appreciation of the Reserve's values;

- (b) the activity is consistent with IUCN Category 1a Strict Nature Reserve management principles; and
 - (c) all safety and public liability issues are adequately addressed.
- 7.1.7 The Director may require an authorised officer to accompany any visit to the Reserve to oversee compliance with legislation, permits and the requirements of this management plan.
- 7.1.8 Permits issued for visitor access on land in the Reserve will be limited to foot travel within the Main Use Zone and Visitor Access Zones unless access to other zones or other means of transport are expressly authorised by an EPMO permit (see section 7.2 Access and transport).
- 7.1.9 Intending visitors will be provided information that explains the Reserve's values, the difficulties and dangers of visitation to the Reserve and the need to apply for permits.
- 7.1.10 Permits for commercial and other non-government activities will be managed to:
- (a) avoid undesirable conflict or overlap with other authorised activities;
 - (b) avoid disturbance to research and management activities;
 - (c) avoid environmental damage; and
 - (d) avoid inappropriate or significant demands on the Director's resources.
- 7.1.11 Permits authorising visits to the Territory will be issued subject to the requirement that a written report on each visit be provided within 60 days of the visit, including:
- (a) details of any environmental or safety incidents;
 - (b) details of the location of any markers, facilities and equipment used or placed in the Reserve;
 - (c) the number, location, duration and activities of persons ashore at each location visited;
 - (d) a statement of compliance with permit conditions; and
 - (e) other information considered necessary to assist with the management of the Reserve.
- 7.1.12 The Director may determine the size and frequency of commercial and other non-government activities in the Reserve to minimise impacts on the Reserve values or to maximise human safety.

7.1.13 The following requirements apply to shore landings in the Reserve:

Location	Maximum number of persons allowed ashore at any one time	Requirements
Atlas Cove (Main Use Zone and Visitor Access Zone)	60 persons	Visitors are free to explore location without direct accompaniment of a field guide, provided: <ul style="list-style-type: none"> ▪ a visitor-to-guide ratio of 1:14 is maintained; and ▪ field guides deploy across the location and maintain a direct watch over all visitors.
Long Beach (Visitor Access Zone)	30 persons	Groups of <14 visitors must be formed, maintained and accompanied by a field guide.
Spit Bay (Main Use Zone and Visitor Access Zone)	30 persons	Groups of <9 visitors must be formed, maintained and accompanied by a field guide.

7.1.14 All parties ashore in the Reserve must be capable of maintaining two-way voice communication with their support vessel.

7.1.15 Permit holders, voyage leaders and field leaders will ensure that they are available for any pre-departure liaisons or briefings sought by the AAD in relation to this management plan.

7.1.16 Permit holders must provide all guides going ashore with laminated A4-sized colour maps of relevant Main Use Zones and Visitor Access Zones.

7.1.17 Permit holders must ensure that all visitors going ashore are suitably briefed on human safety requirements and are appropriately clothed and shod.

7.1.18 Permit holders must ensure that all visitors going ashore are suitably briefed on quarantine requirements and comply with pre-landing biosecurity processes.

Actions

- 7.1.19 The Director will take reasonable steps to provide permit holders, voyage leaders and field leaders with appropriate information that details the requirements of this management plan. In addition to this management plan, information provided to visitors will include *Environmental Guidelines for Heard Island* which stipulates guidelines (including wildlife approach guidelines) for minimal impact visitation.

7.2 Access and transport

Our aim

Safe visitation that has a negligible impact upon the Reserve's values.

Background

The Reserve's isolation and typically severe sea and weather conditions often impede safe visitation. The Reserve does not possess any harbour facilities, airfields, roadways or marked walking trails.

The main anchorage site for vessels visiting Heard Island has historically been Atlas Roads. Located to the north-west, it is relatively sheltered from the prevailing westerly and south-westerly weather conditions. Nevertheless, it is not a safe all-weather anchorage site. Personnel and cargo may be transported ashore to Walrus Beach in the Main Use Zone via small boat or amphibious vehicle or by helicopter using approved approach corridors and landing sites to minimise the risk of disturbance to wildlife.

In favourable sea and weather conditions, vessels may anchor in Corinthian Bay and deploy personnel and cargo ashore to the beach at Sealers Corner. A defined route crossing the lava flow base that marks the southern boundary of the Azorella Peninsula can be used to facilitate travel between Corinthian Bay and the Atlas Cove Main Use Zone. At the eastern end of Heard Island, vessels generally stand-off in Spit Bay and deploy personnel and cargo ashore to the Spit Bay Main Use Zone at Trypot Beach.

Access to other locations on Heard Island via water, air or land may be possible in favourable weather conditions. Vehicle use is discouraged. Low impact transport options - such as walking - should be undertaken where practicable.

The EPMO provides that a person must not land an aircraft, drive a vehicle or sail a vessel in the Territory except in accordance with a permit granted under the EPMO or where entry is undertaken to avoid possible loss of human life or injury to persons, or avoid risk to aircraft, vehicle or vessel safety.

The landing and take-off of aircraft in the Reserve is prohibited by r.12.58 of the EPBC Regulations.

A permit is not required to access the Outer Marine Zone. However, activities in the Outer Marine Zone will be managed and regulated in accordance with this management plan and the EPBC Regulations.

Domestic and international shipping is regulated by the Australian Maritime Safety Authority (AMSA). Any persons intending to visit the Reserve should have regard to any marine notices and other requirements or recommendations for vessel operations in subantarctic waters specified by AMSA.

Nothing in this management plan is intended to interfere with the right of innocent passage of foreign vessels through the territorial sea in accordance with UNCLOS (see Appendix A Legislative and policy contexts).

Issues

- Visitor access increases the risk of harm to the Reserve's values, including the introduction and establishment of non-native species.
- The Reserve is difficult to access and it present hazards to visitors.

Prescriptions

Policies

- 7.2.1 A permit for an activity that uses an aircraft, vehicle (including amphibious craft) or vessel (including small boats) for entry or use in the Territory may only be issued for an approved purpose (as defined at 2.3 Interpretation (and acronyms)).
- 7.2.2 Aircraft, vehicle and small boat use in the Territory must be restricted to the minimum level reasonably necessary to safely carry out an approved purpose.
- 7.2.3 Permits for access to the Territory will include a condition that persons operating aircraft, vehicles and vessels in the Territory must take all reasonable steps to minimise, and where possible avoid, damage to the Reserve's values and wildlife disturbance.
- 7.2.4 Australian vessels -- like foreign vessels - may transit through the Inner Marine Zone (i.e. the territorial sea) without a permit provided transit is consistent with the UNCLOS definition of innocent passage.

- 7.2.5 Fuels and lubricants must only be taken ashore for the purpose of refuelling aircraft, vehicles or small vessels where the refuelling cannot reasonably be carried out aboard a support vessel.
- 7.2.6 Subject to 7.2.5, the refuelling of aircraft, vehicles or small vessels on land must only be conducted in the Main Use Zones.
- 7.2.7 The spillage of any petroleum product in the Reserve must be reported to the Director at the earliest reasonable opportunity.

Vehicles

- 7.2.8 Vehicles may be operated in the Main Use Zones and Visitor Access Zones for an approved purpose. However, vehicles must not be operated in areas of vascular vegetation unless such operation is expressly authorised by a permit issued under the EPMO.
- 7.2.9 Vehicles may be operated in the Wilderness Zones and Restricted Zones insofar as their operation is necessary to undertake scientific research or Reserve management activities. However, vehicles must not be operated in areas of vascular vegetation unless such operation is expressly authorised by a permit issued under the EPMO.

When deciding whether to issue a permit, the issuer will consider whether the proposed vehicle operation is likely to result in the least environmental impact of the practicable alternative modes of transport.

Vessels

- 7.2.10 Small vessels may be landed in the Main Use Zones or Visitor Access Zones for an approved purpose.
- 7.2.11 Small vessels may be landed in the Wilderness Zones or Restricted Zones insofar as their landing is necessary to facilitate scientific research or Reserve management activities.
- 7.2.12 Small vessels may be used to travel the coastline and open lagoons of Heard Island subject to prescriptions 7.2.1 and 7.2.2.
- 7.2.13 To minimise the risk of bird strike, vessels must only use the minimum level of lighting reasonably required for navigation and safety.

Aircraft

- 7.2.14 EPMO permits for activities that involve the use of aircraft in the Territory may specify flight paths and landing sites to minimise disturbance to fauna and flora.
- 7.2.15 When deciding whether to issue an EPMO permit and relevant conditions for aircraft use, the issuer of the permit will consider:
- (a) aircraft type;
 - (b) viable alternatives to air transport;
 - (c) the locations of wildlife concentrations and critical periods in wildlife lifecycles; and
 - (d) any potential environmental benefits of aircraft use.
- 7.2.16 Aircraft may be landed in the Main Use Zones for an approved purpose.
- 7.2.17 Aircraft may be landed in the Visitor Access Zones, Wilderness Zones and Restricted Zones insofar as such landings are necessary to facilitate scientific research or Reserve management activities.

Actions

- 7.2.18 All appropriate precautions must be taken to minimise the risk and harm of petroleum product spillage (including the use of funnels and drip mats).
- 7.2.19 Any petroleum products taken ashore must be transported and stored in a secure container.
- 7.2.20 Appropriate petroleum product spill management equipment must be readily available for use in an emergency.
- 7.2.21 If a petroleum product is spilled, all reasonable measures must be immediately undertaken to contain the spill and minimise environmental harm.
- 7.2.22 All fuel and fuel containers must be removed upon departure from the Territory.

7.3 Management of facilities

Our aim

Facilities are located, established and managed to minimise impacts on Reserve values.

Background

The establishment (i.e. construction, placement or assemblage) of facilities has the potential to harm the Reserve's values.

Facilities in the Reserve need to be durable to withstand severe weather conditions. They need to be light to facilitate ready deployment and retrieval. Furthermore, they need to be appropriate for the zone in which they will be used.

Temporary refuge facilities have been established at the Atlas Cove and Spit Bay Main Use Zones and in the Wilderness Zones adjoining Brown Lagoon, Long Beach and Red Island. Given Heard Island's typically severe weather conditions and the irregularity of management operations, the presence and condition of these refuges must not be assumed or relied upon (see also section 9.2 Incident Management).

Sections 354 and 354A of the EPBC Act provide that a person must not carry on an excavation, erection of a building or other structure, or carry out works in the Reserve except in accordance with a management plan. The EPMO provides that a person must not, except in accordance with a permit:

- engage in conduct that results in death or injury to, or interference with, any organism in the Territory;
- leave any equipment, material or refuse in the Territory;
- engage in conduct that results in interference to any soil or other geological matter in the Territory;
- engage in conduct that results in interference to any buildings, historical relics, equipment, supplies or survey markers; or
- engage in conduct that results in interference to the conduct of a scientific experiment that is the subject of a permit in the Territory.

Issues

- Unknown status of facilities.
- Severe weather conditions.
- Logistical constraints.
- Irregularity of management operations in the Reserve.

Prescriptions

Policies

- 7.3.1 A new facility may only be established in the Territory:
- (a) insofar as it is necessary to facilitate scientific research or Reserve management activities;
 - (b) following assessment and approval (see section 4 Assessment and approval of activities); and
 - (c) in accordance with an EPMO permit.
- 7.3.2 When deciding whether to issue an EPMO permit and impose relevant conditions at prescription 7.3.1, the issuer of the permit will consider the findings and recommendations of the assessment and approval process (see section 4 Assessment and approval of activities).
- 7.3.3 An EPMO permit for the establishment of a new facility in the Territory may only be issued where the issuer of the permit is reasonably satisfied that:
- (a) the establishment of the facility is consistent with this management plan and the IUCN Category 1a Reserve management principles;
 - (b) the establishment and use of the facility at the proposed location will not result in adverse damage to the Reserve's values;
 - (c) the facility will be sufficiently durable to remain intact and in position for the duration of its intended period of use;
 - (d) adequate logistical capabilities are likely to be available to remove the facility at the end of its stated period of use; and
 - (e) upon the facility's removal, appropriate measures will be undertaken to rehabilitate the site it occupied.
- 7.3.4 Where practicable, any new facilities in the Territory will be established on the sites of existing or former facilities.
- 7.3.5 No new facilities may be established in the Heritage Zone.
- 7.3.6 An EPMO permit may only be issued to authorise the establishment of a facility in the Visitor Access Zones or Wilderness Zone where the issuer of the permit is satisfied that the facility:

- (a) is required to ensure human safety in the Visitor Access Zones or Wilderness Zone;
and
 - (b) will be temporary.
- 7.3.7 An EPMO permit may only be issued to authorise the establishment of a facility in the Restricted Zone where the issuer of the permit is satisfied that the facility:
- (a) is of critical importance to research or management operations (including the health and safety of researchers and management operators); and
 - (b) will be temporary (i.e. removed upon departure from the Reserve).
- 7.3.8 An EPMO permit authorising the placement of a temporary facility must state when the facility is to be removed.
- 7.3.9 An EPMO permit may only be issued for the establishment of a permanent facility if the facility's establishment is for compelling research or management purposes. Where practicable, a permanent facility should only be established in a Main Use Zone.
- 7.3.10 The alteration or removal of an existing facility in the Territory may be undertaken:
- (a) insofar as it is necessary to facilitate scientific research or Reserve management activities;
 - (b) following assessment and approval (see section 4 Assessment and approval of activities); and
 - (c) in accordance with an EPMO permit.
- 7.3.11 The establishment or alteration of a facility must be planned to avoid visual impacts that may detract from the Reserve's wilderness qualities.
- 7.3.12 No wood or wood product may be taken into the Reserve unless it has undergone a Department of Agriculture recognised quarantine treatment.
- 7.3.13 Equipment transport on the ground should be undertaken in a manner that minimises environmental impacts.
- 7.3.14 The location and nature of facilities proposed for establishment in the Territory must be provided to the Director.
- 7.3.15 Where approval has been given for an item to remain in the Territory, it must be suitably marked to facilitate future identification.

7.3.16 To minimise the risk of bird strike:

- (a) masts and guy wires must be appropriately marked to ensure that they are reasonably visible; and
- (b) the use of lighting must be minimised as much as reasonably practicable.

Actions

7.3.17 Prior to each management visit the Director will review existing facilities in the Territory to determine whether their retention is still justified or warranted.

7.4 Communicating Reserve values

Our aims

The enhancement of public awareness and appreciation of the Reserve's values.

The effective use of off-site measures to present the Reserve to national and international audiences.

Issues

- Unrealistic visitor expectations.
- Visit proposals that are inconsistent with the protection of the Reserve's values.

Background

The provision of interpretive information can improve public understanding and appreciation of the Reserve's values. Given visits to the Reserve are relatively infrequent and the placement of onsite interpretive resources may impede its wilderness qualities, offsite interpretative resources are preferred. These include a comprehensive website, remote monitoring camera and interpretive resources at the AAD.

Recognising that recreation activities may be undertaken in the Reserve, the AAD provides intending visitors with information to facilitate informed, responsible, compliant and safe visitation (see prescriptions 7.1.9, 7.1.15 and 7.1.19).

The World Heritage Convention specifically calls for the provision of education and information to strengthen appreciation and respect for World Heritage Areas.

Prescriptions

Policies

- 7.4.1 A Reserve website will be maintained to provide information about the Reserve. It will include:
- (a) this management plan;
 - (b) general information about the location, features, values and management of the Reserve;
 - (c) information regarding the assessment and approval of activities;
 - (d) maps of the Reserve;
 - (e) images of the Reserve;
 - (f) cultural and historic information;
 - (g) scientific information;
 - (h) links to relevant legislation;
 - (i) public notices; and
 - (j) Reserve management contact details.
- 7.4.2 Where practicable, opportunities will be taken to present the Reserve in appropriate public forums.

Actions

- 7.4.3 Where practicable, an interpretation package will be prepared and maintained for use by AAD staff at appropriate exhibitions and forums.
- 7.4.4 Where practicable and with due regard to prescription 7.1.5, the Director will use appropriate media opportunities to raise public awareness of the Reserve through newspapers, radio and television coverage (particularly in association with research and management visits).

8. Stakeholders and partnerships

Performance indicators

- The maintenance of effective stakeholder relations.
- The facilitation of effective stakeholder engagement.

Our aim

That effective and cooperative relations are maintained with Reserve stakeholders to facilitate the achievement of this management plan's objectives.

Background

The AAD is responsible for the Australian Government's administration of the Territory. The AAD - under delegation from the Director of National Parks - is also responsible for the management of the Reserve.

The AAD aims to support summer visits by the Australian Antarctic program to the HIMI region approximately every five years where resources allow.

To facilitate management or research operations in the interim, the AAD needs to maintain good working relationships with stakeholders that undertake (or may undertake) operations in the Reserve.

Most activities in the Reserve are undertaken by the AAD, the Australian Customs and Border Protection Service and the Australian Fisheries Management Authority.

At the time of this management plan's preparation, the Reserve's stakeholders include:

- the Australian science community;
- the Australian Customs and Border Protection Service;
- the Australian Fisheries Management Authority;
- the Australian Maritime Safety Authority;
- the Department of Agriculture;
- the Department of Defence;
- French Government agencies responsible for the administration of the French Southern and Antarctic Lands;
- licensed Australian commercial fishers;
- tourism operators and recreational visitors;
- environmental interest groups;
- the Australian public; and
- the global public.

There is no resident local or indigenous community within, or in close proximity to, the Reserve.

The AAD is responsible for supporting the activities of the Australian Antarctic science program. To achieve the aims of the research and monitoring prescriptions of this management plan, the AAD must maintain good working relationships with the science community. Expert scientific advice, beyond that available within the AAD, may also be required to develop and implement management actions (for example, appropriate responses to known or possible invasive species or diseases).

Partnerships with French Government authorities will be primarily achieved through the *Treaty between the Government of Australian and the Government of the French Republic on Cooperation in the Maritime Areas adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands* and the *Agreement on Cooperative Enforcement of Fisheries Laws between the Government of Australia and the Government of the French Republic in the Maritime Areas adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands*.

Issues

- There is a need to maintain effective communication with Reserve stakeholders.
- Some management and conservation issues relevant to the Reserve can only be effectively addressed through cooperative approaches.
- The availability of resources may constrain the active maintenance of cooperative arrangements.

Prescriptions

Actions

- 8.1 The Director will promote stakeholder involvement in the management of the Reserve by:
 - (a) making information about the Reserve publicly available (i.e. providing on the internet information about planned and current Australian Antarctic program expeditions and summary reports of such expeditions; and
 - (b) inviting Reserve visitors to make management observations and recommendations as part of their post-visit report (see prescription 7.1.11).

- 8.2 The Director will seek to maintain effective cooperative management initiatives with:
 - (a) Australian Government agencies with responsibility for activities in the region, including the Australian Customs and Border Protection Service, the Australian Fisheries

Management Authority, the Australian Maritime Safety Authority and the Department of Defence;

- (b) French Government agencies with responsibility for the administration of the French Southern and Antarctic Lands;
- (c) groups that maintain an operational presence in the region (including licensed commercial fishers and tourism operators); and
- (d) other parties involved or interested in the Reserve's management.

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9. Business management

Performance indicators

- The extent to which the management plan is implemented.
- The number and nature of infringements detected or suspected in the Reserve.

9.1 Compliance and enforcement

Our aim

Relevant legislation is complied with as a result of effective education.

Background

Enforcement of the EPMO, EPBC Act, EPBC Regulations and other relevant legislation and policies is an important component of protecting the Reserve's values.

The Reserve's values and extreme geographic isolation makes a permanent management presence undesirable and cost prohibitive. Accordingly, visitor education and self-regulation are needed to protect the Reserve's values.

Compliance and enforcement activities are undertaken in the Reserve by the Australian Government. The Australian Government also collaborates with the French Government agencies responsible for the administration of the French Southern and Antarctic Lands in compliance and enforcement activities on the broader Kerguelen Plateau.

Compliance and enforcement in the Reserve will be undertaken by authorised officials in accordance with this management plan and relevant legislation. The Australian Government requires officers undertaking compliance and enforcement activities to be trained to standards prescribed in the Commonwealth Fraud Control Guidelines. Inspectors conduct monitoring and enforcement operations while on routine patrols and during specific targeted programs. Australian Government staff not appointed as inspectors are expected to encourage legislative compliance through the provision of visitor education and general information.

Issues

- The Reserve does not possess a permanent management presence. Accordingly, a greater emphasis is placed on visitor education and self-regulation.
- The exercise of enforcement powers by authorised officials must comply with relevant Australian Government policies, standards and guidelines.

Prescriptions

Policies

- 9.1.1 Compliance and enforcement will be managed in accordance with the Parks Australia Compliance and Enforcement Manual and all relevant Australian Government policies and procedures.
- 9.1.2 Good working relationships will be developed and maintained with other relevant compliance agencies.
- 9.1.3 Visitor education and self-regulation will be key elements in the Reserve's compliance and enforcement regime.
- 9.1.4 Where practicable, authorised activities in the Reserve will be monitored for compliance with permit conditions.

Actions

- 9.1.5 The Director will monitor the effectiveness of the EPMO, EPBC Act and EPBC Regulations in relation to the Reserve and may recommend amendments to the Minister.
- 9.1.6 The Director will aim to ensure that copies of this management plan and relevant supporting materials are made available to the public and provided to all persons intending to visit the Reserve (see prescriptions 7.1.9, 7.1.15 and 7.1.19).
- 9.1.7 The Director will provide appropriate training for staff appointed as authorised officials.

9.2 Incident management

Our aim

Incidents in the Reserve are responded to as effectively and safely as conditions and resources allow.

Background

Incidents could occur in the Reserve that jeopardise life, property and the environment.

Given its climate and isolation, the Reserve is an inherently dangerous place to visit. The Reserve does not possess any ongoing management presence or any permanent infrastructure.

Temporary refuge facilities have been established at the Atlas Cove and Spit Bay Main Use Zones and in the Wilderness Zones adjoining Brown Lagoon, Long Beach and Red Island. Given Heard Island's typically severe weather conditions and the irregularity of management operations, the presence and condition of these refuges must not be assumed or relied upon.

Emergency assistance is not readily available in the southern Indian Ocean. An emergency response commenced from mainland Australia may take more than 14 days to reach the Reserve. Such emergency responses are very expensive to undertake. A responding vessel's ability to provide medical assistance may be limited or non-existent.

All intending visitors to the Reserve must be appropriately prepared, self-sufficient and aware of the potential dangers associated with their activities and visitation generally.

The Director has a range of responsibilities in relation to incidents in the Reserve. The Director has a duty of reasonable care for Reserve visitors and staff. The Director also has a duty under the *Work Health and Safety Act 2011* to take reasonably practicable steps to protect employees, contractors and visitors from health and safety risks.

In the course of an emergency there may be grounds for a person to enter the Territory without a permit and/or undertake activities that would otherwise be prohibited in the Reserve.

s.12(2) of the EPMO provides that a person may enter the Territory without a permit during the course of an emergency that involves a possible:

- loss of human life;
- injury to persons; or
- risk to the safety of an aircraft, vehicle or vessel.

r.12.06(1)(j) of the EPBC Regulations provide that an offence provision under Division 12.2 does not apply to an activity that is reasonably necessary to deal with an emergency involving a serious threat to human life or property.

Issues

- There are very significant costs involved in the provision of incident response services.
- An emergency response commenced from mainland Australia may take more than 14 days to reach and respond to an incident in the Reserve. A responding vessel's ability to provide medical assistance may be limited or non-existent.

- All intending visitors to the Reserve must be appropriately prepared, self-sufficient and aware of the potential dangers associated with their activities and visitation generally.

Prescriptions

Policies

- 9.2.1 All permits to enter the Territory or to conduct activities in the Outer Marine Zone must include the condition that the Director be notified of any incident in the Reserve as soon as practicable.
- 9.2.2 The Director will take all reasonable efforts to inform persons intending to visit the Reserve of the need for self-sufficiency, relevant precautions and the procedure for reporting any emergencies. Relevant precautions include:
- (a) fully enclosed and operational life rafts;
 - (b) the provision of sufficient thermal protective survival suits for all persons on board;
 - (c) contingency plans for medical emergencies that may arise in the course of a voyage;
 - (d) carriage of sufficient reserves of food, fresh water, fuel and spares for critical equipment to provide for unforeseen delays; and
 - (e) a Shipboard Oil Pollution Emergency Plan (SOPEP) and marine pollution mitigation arrangements to manage a fuel or waste spill from a vessel.
- 9.2.3 Subject to legal requirements, the Director may seek reimbursement or contributions for the cost of responding to incidents, in particular search and rescue operations.

Actions

- 9.2.4 All groups that go ashore in the Reserve must take sufficient emergency equipment and supplies to shelter and sustain the maximum number of people ashore for an extended period of time.
- 9.2.5 Permit notes or other information provided to visitors will include contact details for emergencies.
- 9.2.6 A full report of activities conducted during an emergency (including details of the environmental impact of any actions taken and details of any facilities or supplies used) must be provided to the Director at the earliest reasonable opportunity.

9.3 New activities and circumstances not specified in this management plan

Our aim

The Director is able to respond to new issues and proposals consistent with this management plan, the EPBC Act and EPBC Regulations.

Background

This management plan sets out how the Reserve will be managed for a period of ten years. During this time circumstances may arise that were not foreseen at the time of the management plan's preparation. Where this occurs the Director may need to take actions that are not covered by specific prescriptions in this management plan.

As noted in Appendix A Legislative and policy contexts, under ss.354 and 354A of the EPBC Act certain types of actions can only be taken if they are authorised by this management plan (including acts in relation to native species and works and actions for commercial purposes). Division 12.2 of the EPBC Regulations prohibits or allows the Director to control a range of activities. The Director is required by s.362 of the EPBC Act to exercise the Director's powers (for example, to issue permits and to perform the Director's functions) so as to give effect to the management plan.

Issue

- This management plan needs to enable appropriate unforeseen actions to be permitted.

Prescriptions

Policies

- 9.3.1 The Director may take actions that are not covered by specific prescriptions in this management plan, including actions covered by ss.354 and 354A of the EPBC Act.
- 9.3.2 The Director may authorise (whether by permit, contract, lease or licence) actions by other persons that are not covered by specific prescriptions in this management plan, including actions covered by ss.354 and 354A of the EPBC Act and Division 12.2 of the EPBC Regulations.
- 9.3.3 The Director may exercise powers under Division 12.2 of the EPBC Regulations to prohibit, restrict or regulate activities to respond to circumstances not covered by specific prescriptions in this management plan.

9.3.4 Except in cases of emergency, Section 4 Assessment and approval of activities applies to actions under this section.

9.4 Management plan implementation and evaluation

Our aim

This management plan is implemented effectively.

Background

The Director of National Parks has delegated responsibilities under the EPBC Act and EPBC Regulations in respect of the Reserve to the AAD. It is the Director's responsibility under s.514B of the EPBC Act to administer, control, protect, conserve and manage biodiversity in Commonwealth reserves. Funds for the management of the Reserve are allocated from the Australian National Parks Fund as provided for by the EPBC Act. As an authority for the purposes of the *Commonwealth Authorities and Companies Act 1997*, the Director is also subject to the requirements of that Act as well as to other relevant legislative requirements and government policies.

The prescriptions contained in this management plan are based on the achievement of Key Result Area outcomes and government legislative requirements (including the EPBC Act) that deal with specific attributes and issues related to the management of the Reserve.

The AAD is responsible for the management of the Reserve's budget in accordance with the Chief Executive Instructions, policies of the Director and relevant government policies. Reserve funds are principally expended in the implementation of this management plan.

At the time of this management plan's preparation, the AAD is a part of the Department of the Environment. The department has a hierarchy of linked strategic plans that implement the government's priorities and meet legislative requirements. These are the Departmental Strategic Plan, Portfolio Budget Statements, the Parks Australia Divisional Plan and individual performance and development plans, as well as this management plan.

Issues

- Adequate resources are needed to facilitate the implementation of this management plan.
- The AAD needs clear, accurate and regular information to enable it to effectively monitor and evaluate the implementation of this management plan.

Prescriptions

Policies

9.4.1 Priorities for implementing the actions in this management plan will be determined by the availability of resources and the need to:

- (a) protect and promote the natural and cultural heritage values of the Reserve;
- (b) promote visitor safety; and
- (c) ensure cost effectiveness.

9.4.2 Budgets and expenditure will be linked to the implementation of this management plan and any other priorities as determined by the Director.

Actions

9.4.3 The Director will report on the management plan's implementation and associated expenditure annually, consistent with government legislative, policy and other requirements.

9.4.4 The Director will audit the management plan's implementation before preparing the next management plan. The audit will include, but not be limited to:

- (a) an assessment as to whether the management plan's policies and actions were successfully adopted or implemented (and if not, the reasons why);
- (b) an assessment as to whether the management plan's intended aims were achieved (and if not, the reasons why); and
- (c) the making of recommendations for the preparation of the next management plan.

CHAPTER 4: APPENDICES

Appendix A – Legislative and policy contexts

Appendix B – Native Fauna of the HIMI Marine Reserve Listed Under the EPBC Act

Appendix C – Physical and biological characteristics of the Reserve

Appendix D – World Heritage Values of the Heard Island and McDonald Islands

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Appendix A

Legislative and policy contexts

A.1 The EPBC Act

Objects of the Act

The objectives of the EPBC Act as set out in Part 1 are:

- (a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
- (b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
- (c) to promote the conservation of biodiversity;
- (ca) to provide for the protection and conservation of heritage;
- (d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and Indigenous peoples;
- (e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
- (f) to recognise the role of Indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
- (g) to promote the use of Indigenous people's knowledge of biodiversity with the involvement of, and in cooperation with, the owners of the knowledge.

Establishment of the Reserve

The Reserve was proclaimed under the EPBC Act as the Heard Island and McDonald Islands Reserve on 3 October 2002.

Director of National Parks

The Director is a corporation under the EPBC Act (s.514A) and a Commonwealth authority for the purposes of the *Commonwealth Authorities and Companies Act 1997*. The corporation is controlled by the person appointed by the Governor-General to the office that is called the Director of National Parks (s.514F of the EPBC Act).

The functions of the Director (s.514B) include the administration, management and control of the Reserve. The Director generally has power to do all things necessary or convenient for performing the Director's functions (s.514C). The Director has a number of specified powers under the EPBC Act and EPBC Regulations, including powers to prohibit or control some activities, and to issue permits for activities that are otherwise prohibited. The Director performs functions and exercises powers in accordance with this management plan.

Management plans

The EPBC Act requires the Director to prepare a management plan for the Reserve. When prepared, a management plan is given to the Minister administering the EPBC Act for approval. A management plan is a 'legislative instrument' for the purposes of the *Legislative Instruments Act 2003* and must be registered under that Act. Following registration, the management plan is tabled in each House of the Commonwealth Parliament and may be disallowed by either House on a motion moved within 15 sitting days of the House after tabling.

A management plan for a Commonwealth reserve has effect for ten years, subject to being revoked or amended earlier by another management plan for the Reserve. The Director must give effect to a management plan in operation for a Commonwealth reserve. The Commonwealth and Commonwealth agencies must also not perform functions or exercise powers in relation to the Reserve inconsistently with the management plan (s.362).

Under the EPBC Act (s.367) a management plan for a Commonwealth reserve must provide for the protection and conservation of the Reserve and must assign the Reserve to one of the following IUCN categories (which correspond to the six distinct categories of protected areas identified by the IUCN): strict nature reserve; wilderness area; national park; natural monument; habitat/species management area; protected landscape/seascape; or managed resource protected area.

In preparing a management plan the EPBC Act (s.368) requires account to be taken of various matters. In relation to the Reserve these matters include: the regulation of the use of the Reserve for the purpose for which it was declared; the protection of the special features of the Reserve, including objects and sites of biological, historical, palaeontological, archaeological, geological and geographical interest; the protection, conservation and management of biodiversity and heritage within the Reserve; the protection of the Reserve against damage; and Australia's obligations under agreements between Australia and one or more other countries relevant to the protection and conservation of biodiversity and heritage.

A3 Purpose and content of management plans below provides further detail on the requirements of management plans under s.367(1) of the EPBC Act.

Control of actions in Commonwealth reserves

The EPBC Act (ss.354 and 354A) prohibits certain actions being taken in Commonwealth reserves except in accordance with a management plan. These actions are: kill, injure, take, trade, keep or move a member of a native species; damage heritage; carry on an excavation; erect a building or other structure; carry out works; or take an action for commercial purposes.

Mining operations are prohibited in the Reserve by the EPBC Act (ss.355 and 355A) except in accordance with this management plan.

The EPBC Regulations control, or allow the Director to control, a range of activities in Commonwealth reserves such as camping, use of vehicles and vessels, littering, recreational fishing and research. The Director applies the Regulations subject to and in accordance with the EPBC Act and management plans. The Regulations do not apply to the Director or to wardens or rangers appointed under the EPBC Act. Activities that are prohibited or restricted by the EPBC Act may be carried on if they are authorised by a permit issued by the Director and/or they are carried on in accordance with a management plan or if another exception prescribed by r.12.06(1) of the Regulations applies.

Environmental Impact Assessment

Actions that are likely to have a significant impact on 'matters of national environmental significance' are subject to the referral, assessment and approval provisions of Chapters 2 to 4 of the EPBC Act (irrespective of where the action is taken).

At the time of this management plan's preparation, the Matters of National Environmental Significance identified in the EPBC Act were: World Heritage listed properties; National Heritage listed places; Ramsar wetlands of international importance; nationally listed threatened species and ecological communities; listed migratory species; nuclear actions (including uranium mining); Commonwealth marine areas; and the Great Barrier Reef Marine Park.

The referral, assessment and approval provisions also apply to actions on Commonwealth land that are likely to have a significant impact on the environment and to actions taken outside Commonwealth land that are likely to have a significant impact on the environment on Commonwealth land. The land component of the Reserve is Commonwealth land for the purposes of the EPBC Act.

Responsibility for compliance with the assessment and approvals provisions of the EPBC Act lies with persons taking relevant 'controlled' actions. A person proposing to take an action that the person believes may be a controlled action or is a controlled action should refer the proposal to the Minister. The Minister will then decide whether or not the action is a controlled action. The Director of National Parks may also refer proposed actions to the Minister.

Wildlife Protection

Part 13 of the EPBC Act contains provisions that prohibit and regulate actions in relation to listed threatened species and ecological communities, listed migratory species, cetaceans and listed marine species.

Appendix B of this management plan lists species of significance to the Reserve. It includes species that are listed under the EPBC Act and under international conventions, treaties and agreements at the time of its preparation.

Actions taken in a Commonwealth reserve in accordance with a management plan in relation to members of species listed under Part 13 of the EPBC Act are exempt from prohibitions that would otherwise apply under Part 13.

Heritage Protection

The Territory of Heard Island and McDonald Islands is listed in the National Heritage List under the EPBC Act. The EPBC Act heritage protection provisions (ss.324A to 324ZC and ss.341A to 341ZH) provide:

- for the establishment and maintenance of a National Heritage List and a Commonwealth Heritage List, criteria and values for inclusion of places in either list and heritage management principles for places that are included in the two lists;
- that Commonwealth agencies must not take an action that is likely to have an adverse impact on the heritage values of a place included in either list unless there is no feasible and prudent alternative to taking the action and all measures that can reasonably be taken to mitigate the impact of the action on those values are taken; and
- that Commonwealth agencies that own or control places must:
 - i) prepare a written heritage strategy for the management of those places to protect and conserve their Commonwealth Heritage values. The strategy must address any matters required by the EPBC Regulations and not be inconsistent with the Commonwealth Heritage management principles; and
 - ii) identify Commonwealth Heritage values for each place, and produce a register that sets out the Commonwealth Heritage values (if any) for each place (and do so within the timeframe set out in the place's heritage strategy).

The prescriptions within this management plan constitute a heritage strategy for the management of the Reserve and are consistent with the Commonwealth Heritage and National Heritage management principles and other relevant obligations under the EPBC Act for the protection and conservation of the heritage values for which the Reserve has been listed on the National Heritage List.

Penalties

Civil and criminal penalties may be imposed for breaches of the EPBC Act.

A.2 The EPMO

The EPMO is an Ordinance made for the Territory pursuant to s.10(1) of the *Heard Island and McDonald Islands Act 1953*. It applies in the Territory and territorial sea. It provides for the protection of the Territory's environment and its indigenous plants and animals. The EPMO provides that persons may only enter the Territory in accordance with a permit (s.12). It prohibits the introduction of diseased organisms or poultry into the Territory (s.13). It provides that persons may only undertake activities in the Territory that may have a damaging effect on its environment or indigenous plants or animals in accordance with a permit (s.14).

Applications for permits under the EPMO must be made to the Minister administering the EPMO (namely the Minister for the Environment when this management plan was implemented).

The EPMO provisions regulate the application for (s.15A), the granting of (s.15) and the restrictions applicable to (s.16) permits. A register of permits must be maintained. The EPMO provides for the appointment of inspectors to deal with breaches of its provisions.

Prior to the proclamation of the Reserve under the EPBC Act, the EPMO was the primary legislative instrument for the management and conservation of the Territory. This management plan is premised on the continued operation of the EPMO and its application to the Territory, notwithstanding that the Territory now comprises part of a Commonwealth reserve established under the EPBC Act. The EPBC Act expressly allows the continued application of the EPMO and other laws of the Territory (see ss.10 and 356(3)).

There are advantages to the continued application of the EPMO as a management and conservation tool in the Reserve. These include:

- the provisions of the EPMO apply to and govern a broader range of activities and conduct than the EPBC Act or the EPBC Regulations. As such, the EPMO strengthens the protection of the Reserve and its values.
- the EPMO provides greater sanctions than those available under the EPBC Regulations. The EPBC Act provides that the maximum penalty that can be imposed under the EPBC Regulations is 50 penalty units (s.520(2)). In contrast, the penalties under the EPMO for similar or the same conduct include significant terms of imprisonment. The continued availability of this sanction or deterrence – through the application of the EPMO – is warranted given the international and national significance of the Reserve.

For the purposes of this management plan, the EPMO will generally be relied upon or invoked to regulate activities occurring within that part of the Reserve that is comprised of the Territory and its territorial sea (the inner Marine Zone of the Reserve), whereas the EPBC Regulations will generally be invoked to regulate activities within the other part of the Reserve, namely the Outer Marine Zone

(see section 3 IUCN Category and Zoning). Permits issued under the EPMO or the EPBC Regulations will contain conditions requiring compliance with the prescriptions of this management plan.

The EPBC Act and EPBC Regulations will prevail over the EPMO to the extent of any inconsistency (ss.10 and 356(3)). As mentioned above, ss.354 and 354A of the EPBC Act also provide that certain activities in a Reserve can only be carried out if they are authorised by and undertaken in accordance with a management plan made under the EPBC Act for that Reserve. This is despite any other inconsistent Commonwealth, State or Territory law – such as the EPMO, the EPBC Regulations and other provisions of the EPBC Act. Similarly, EPBC Regulation 12.06(1)(a) provides that activities otherwise prohibited by those Regulations may be carried on in a Reserve if provided for by, and carried out in accordance with, a management plan in force for that Reserve.

In view of the above, this management plan includes prescriptions which expressly provide that an activity that is otherwise prohibited by ss.354 and 354A of the EPBC Act, or by the EPBC Regulations, may be carried on in the Territory if authorised by and undertaken in accordance with an EPMO permit (see section 4 Assessment and approval of activities). As mentioned above, activities in that part of the Reserve that does not form part of the Territory will be regulated through the EPBC Regulations.

Delegation of Management Responsibilities under the EPBC Act to the AAD

At the time of this management plan's preparation, the Reserve was being managed for and on behalf of the Director by the AAD. The Director has delegated all powers and functions under the EPBC Act and Regulations in relation to the Reserve to the Director of the AAD and other AAD officers. These arrangements reflect the AAD's continuing role and responsibilities for the management and administration of HIMI as an external Territory of the Commonwealth of Australia. They also reflect the AAD's long and significant historic involvement in the HIMI region. Accordingly, references to requirements of, or actions by, the Director within this management plan should generally be read as including the Director of the AAD and the delegate of the Director of National Parks (see the definition of Director in section 2.3 Interpretation (including Acronyms)).

A.3 Purpose and content of the management plan

The purpose of this management plan is to direct the management of the Reserve for the next ten years, in accordance with the EPBC Act. It identifies desired outcomes and the actions required to achieve these outcomes. As is the case for most protected areas, it is recognised that knowledge and understanding of the Reserve is incomplete. This management plan aims to: weigh options in line with current information and best practice approaches; provide a decision making framework to facilitate the orderly management of competing interests; and provide a basis to determine resource allocation priorities for management purposes.

Under s.367(1) of the EPBC Act, a management plan for a Commonwealth reserve must provide for the protection and conservation of the Reserve. In particular, the management plan must address matters specified in s.367(1), including:

- the assignment of an IUCN category to the Reserve (whether or not a proclamation has assigned the Reserve or a zone of the Reserve to that IUCN category);
- state how the Reserve, or each zone of the Reserve, is to be managed;
- state how the natural features of the Reserve, or of each zone of the Reserve, are to be protected and conserved;
- specify an operation or activity that may be carried on in the Reserve;
- indicate generally the activities that are to be prohibited or regulated in the Reserve, and the means of prohibiting or regulating them;
- indicate how the management plan takes account of Australia's obligations under relevant international agreements;
- not be inconsistent with the National Heritage management principles; and
- not be inconsistent with the Commonwealth Heritage management principles.

A management plan may divide a Commonwealth reserve into zones and assign each zone to an IUCN category. The category to which a zone is assigned may differ from the category to which the Reserve is assigned (s.367(2)). The provisions of a management plan must not be inconsistent with the management principles for the IUCN category to which the Reserve or a zone of the Reserve is assigned (s.367(3)).

A.4 IUCN category and zoning

A management plan for a Commonwealth reserve or a zone within a Commonwealth reserve must be assigned an IUCN categorisation. This management plan divides the Reserve into seven zones and assigns each zone and the Reserve an IUCN Category 1A Strict Nature Reserve categorisation (see section 3 IUCN Category and zoning).

A.5 International agreements

This management plan must take account of Australia's obligations under relevant international agreements. The following agreements are relevant to the Reserve.

Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention)

The World Heritage Convention was adopted to ensure the proper identification, protection, conservation and presentation of cultural and natural heritage with 'outstanding' universal value. The Territory was inscribed on the World Heritage List on 3 December 1997 for its outstanding natural universal values (see Appendix D). Australian World Heritage management principles are prescribed by the EPBC Regulations (Schedule 5).

Convention on the Conservation of Antarctic Marine Living Resources (CAMLR Convention)

The CAMLR Convention provides a management regime for the conservation of the Antarctic marine ecosystem. The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) was established under the Convention to manage living marine resources in the Convention Area. The Commission determines conservation measures to regulate the harvesting of marine living resources and associated activities. Such measures may include: the setting of precautionary catch limits; the prescription of harvesting methods and fishing seasons; waste disposal regulation; and catch reporting. The Heard Island and McDonald Islands EEZ is located within the Convention Area.

United Nations Convention on the Law of the Sea (UNCLOS)

UNCLOS defines the rights and responsibilities of nations in their use of the world's oceans. It establishes guidelines for businesses, the environment and the management of marine natural resources (Jarmache 2010). It provides foreign vessels with a right of innocent passage through territorial seas.

International Convention for the Prevention of Pollution from Ships (MARPOL Convention)

MARPOL is the principal international convention covering the prevention of pollution by ships.

International Convention for the Regulation of Whaling

The International Convention for the Regulation of Whaling was initially developed to conserve whale stocks for the orderly development of the whaling industry. It now provides for the complete protection of specific species, the promotion of relevant research and the designation of whale sanctuaries. The Reserve is located within the Indian Ocean Sanctuary. Australia has declared its entire EEZ (including that around HIMI) a whale sanctuary under the EPBC Act. Appendix B lists cetacean species recorded in the Reserve at the time of this management plan's preparation.

Agreement on the Conservation of Albatrosses and Petrels (ACAP)

ACAP aims to achieve and maintain a favourable conservation status for albatrosses and petrels. To do this it coordinates international activities to mitigate known threats to albatross and petrel populations. Appendix B lists albatross and petrel species recorded in the Reserve at the time of this management plan's preparation.

Convention on Biological Diversity (the Biodiversity Convention)

The Biodiversity Convention requires parties to pursue the conservation of biological diversity and the sustainable use of its components. The establishment of the Reserve has aided Australia's fulfilment of its convention obligations and its commitments under the Jakarta Mandate on the Conservation and Sustainable Use of Marine and Coastal Biological Diversity.

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES aims to ensure that the international trade of wild fauna and flora specimens does not threaten the survival of the species from which they are derived. It places controls on the international trade of specimens from certain species. At the time of this management plan's preparation, several marine mammal species found in the Reserve were listed under CITES Annex II.

Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. Parties to this convention work together to conserve migratory species and their habitats. Species that are listed under the above migratory agreements and conventions are listed species under Part 13 of the EPBC Act. Appendix B lists migratory species recorded in the Reserve that were covered by the Bonn Convention at the time of this management plan's preparation.

Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment (CAMBA)

CAMBA provides for Australian and Chinese cooperation on the protection of migratory birds listed in the annex to the agreement and their environment. It requires each country to take appropriate measures to preserve and enhance the environment of migratory birds. Appendix B lists the migratory species found in the Reserve that were covered by CAMBA at the time of this management plan's preparation.

Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment (JAMBA)

JAMBA provides for Australian and Japanese cooperation on the protection of migratory birds, birds in danger of extinction and the management and protection of their environments. It requires both countries to take appropriate measures to preserve and enhance the environment of birds protected under the provisions of the agreement. Appendix B lists the migratory species found in the Reserve that were covered by JAMBA at the time of this management plan's preparation.

Treaty between the Government of Australia and the Government of the French Republic on Cooperation in the Maritime Areas adjacent to the French Southern and Antarctic Territories (TAAF), Heard Island and the McDonald Islands

This treaty aims to facilitate Australian and French cooperation in the maritime areas adjacent to TAAF and HIMI. It provides a framework for cooperative surveillance operations against illegal, unreported and unregulated (IUU) fishing and encourages scientific research on marine living resources.

Agreement on Cooperative Enforcement of Fisheries Laws between the Government of Australia and the Government of the French Republic in the Maritime Areas adjacent to the French Southern and Antarctic Territories, Heard Island and the McDonald Islands

This agreement facilitates cooperative Australian and French enforcement actions against IUU vessels operating in the maritime areas adjacent to TAAF and HIMI. It provides for joint surveillance, enforcement missions and mutual assistance.

A.6 National agreements and strategies

Australia's National Representative System of Marine Protected Areas

The declaration of the Macquarie Island Marine Park on 27 October 1999 and the Reserve on 16 October 2002 contributes to Australia's National Representative System of Marine Protected Areas, which was agreed by all governments of Australia in 1998.

The primary goals of the NRSMPA are: the establishment and management of a comprehensive, adequate and representative system of marine protected areas that will contribute to the long-term ecological viability of marine and estuarine systems; the maintenance of ecological processes and systems; and the protection of Australia's biological diversity at all levels. Protected areas within the NRSMPA: are established for the conservation of biological diversity; are classified into one or more IUCN protected area categories; have secure conservation status; and contribute to the representativeness, comprehensiveness or adequacy of the national system.

Other NRSMPA goals relevant to the Reserve include: the promotion of integrated ecosystem management; the provision of formal management for a range of human activities; the provision of scientific reference sites; provisioning for the special needs of rare, threatened and migratory species; the conservation of special groups of organisms; and the conservation of areas possessing high levels of species diversity, natural refuges for flora and fauna and centres of endemism.

Recovery Plans, Action Plans and Threat Abatement Plans

A number of EPBC Act recovery plans and threat abatement plans for listed threatened species, and other national actions plans, are relevant to the protection and management of species found in the Reserve.

Other Agreements and Strategies

The Commonwealth Government's declaration and ongoing management of the Reserve advances its objectives for protected areas and networks under the *National Strategy for the Conservation of Australia's Biological Diversity* and the *National Strategy for Ecologically Sustainable Development*.

A.7 Other relevant legislation

The ***Heard Island and McDonald Islands Act 1953*** (HIMI Act) ratifies Australia's acceptance of sovereignty over the Territory and provides for the Territory's legal regime, including the application of:

- Commonwealth laws which expressly apply to the Territory;
- Ordinances made specifically for the Territory;
- the laws, other than criminal laws, in force from time to time in the Australian Capital Territory, so far as they are applicable and not inconsistent with an Ordinance in force in the Territory; and
- the criminal laws in force from time to time in the Jervis Bay Territory, so far as they are applicable and not inconsistent with an Ordinance in force in the Territory.

The HIMI Act provides for the Governor-General to make ordinances for the peace, order and good government of the Territory.

The ***Criminal Procedure Ordinance 1993 (HIMI)*** provides mechanisms for law enforcement in the Territory, including the designation of special constables. Special constables have powers to deal with persons who have breached the laws of the Territory.

The ***Weapons Ordinance 2001 (HIMI)*** restricts the possession and use of weapons in the Territory to approved scientific projects, with some minor exceptions. Storage and registration of weapons is also provided for and a register must be compiled and maintained.

The ***Protection of the Sea (Prevention of Pollution from Ships) Act 1983*** deals with the protection of the marine environment from ship-sourced pollution. The Act implements MARPOL 73/78 and regulates normal operational discharges from ships. MARPOL 73/78 annexes regulate the discharge of oil (Annex I), noxious liquid substances (Annex II), the disposal of sewage from ships (Annex IV) and garbage (Annex V), and prohibit the disposal of harmful substances carried by sea in packaged forms (Annex III).

The ***Environment Protection (Sea Dumping) Act 1981*** regulates the dumping of controlled material at sea (including certain wastes and other matter), the incineration of controlled material at sea, loading for the purpose of dumping or incineration, export for the purpose of dumping or incineration, and the placement of artificial reefs. The Act gives effect to Australia's obligations under the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (thereby also fulfilling Australia's international obligations under the London Dumping Convention). Permits are required for any sea dumping activities. Operational discharges from

vessels are not defined as 'dumping' under the 1996 Protocol and are therefore not regulated under the Act.

The ***Fisheries Management Act 1991*** regulates fishing activities in the Australian Fishing Zone (and therefore the HIMI Exclusive Economic Zone). The Act also applies to fishing undertaken by Australians on the high seas, including in the CAMLR Convention Area.

The ***Antarctic Marine Living Resources Conservation Act 1981*** (AMLRC Act) implements Australia's obligations under the CAMLR Convention. The Reserve falls within statistical division 58.5.2 of the Convention Area and a small part of the EEZ extends into divisions 58.4.3a and 58.4.3b. The Act provides for a system of permits and inspectors and allows for the implementation of conservation measures adopted by CCAMLR. The management of commercial harvesting in the CAMLR Convention Area is regulated by the *Fisheries Management Act 1991* rather than the AMLRC Act.

The ***Historic Shipwrecks Act 1976*** provides for the protection of historic shipwrecks and associated relics and the establishment of protected zones around historic shipwrecks. All shipwrecks and associated relics more than 75 years old are protected under the Act by Ministerial declaration. A wreck less than 75 years old may also be protected by a declaration of the Minister. The Act prohibits conduct in relation to historic shipwrecks and relics, including conduct that: destroys or causes damage to an historic shipwreck or relic; causes interference with an historic shipwreck or relic; causes the disposal of an historic shipwreck or relic; or causes an historic shipwreck or relic to be removed from Australia.

Appendix B

Native Fauna of the HIMI Marine Reserve Listed Under the EPBC Act

Scientific Name	Common Name	Listings						
Birds recorded as breeding								
<i>Aptenodytes patagonicus</i>	king penguin		S					
<i>Catharacta lonnbergi</i>	subantarctic skua		S					
<i>Daption capense</i>	cape petrel		S					
<i>Diomedea exulans</i>	wandering albatross	V	S	M	B	J		A
<i>Eudyptes chrysocome</i>	southern rockhopper penguin		S					
<i>Eudyptes chrysolophus</i>	macaroni penguin		S					
<i>Larus dominicanus</i>	kelp gull		S					
<i>Macronectes giganteus</i>	southern giant petrel	E	S	M	B			A
<i>Oceanites oceanicus</i>	Wilson's storm petrel		S	M		J		
<i>Pachyptila crassirostris</i>	fulmar prion		S					
<i>Pachyptila desolata</i>	Antarctic prion		S					
<i>Pelecanoides georgicus</i>	South Georgian diving petrel		S					
<i>Pelecanoides urinatrix</i>	common diving petrel		S					
<i>Leucocarbo atriceps nivalis</i> (e)	Heard Island cormorant	V	S					
<i>Phoebastria palpebrata</i>	light mantled sooty albatross		S	M	B			A
<i>Pygoscelis papua</i>	gentoo penguin		S					
<i>Sterna vittata vittata</i>	Antarctic tern (Indian Ocean)	V	S					
<i>Thalassarche melanophris</i>	black-browed albatross	V	S	M	B			A
Non-breeding birds								
<i>Catharacta maccormicki</i>	south polar skua		S	M		J		
<i>Diomedea epomophora</i>	southern royal albatross	V	S	M	B			A
<i>Diomedea exulans amsterdamensis</i>	Amsterdam albatross	E	S	M	B			A
<i>Fregetta grallaria grallaria</i>	white-bellied storm petrel	V	S					
<i>Fregetta tropica</i>	black-bellied storm petrel		S					
<i>Fulmarus glacialis</i>	southern fulmar		S					
<i>Garrodia nereis</i>	grey-backed storm petrel		S					
<i>Halobaena caerulea</i>	blue petrel	V	S					
<i>Macronectes halli</i>	northern giant petrel	V	S	M	B			A
<i>Pachyptila belcheri</i>	slender-billed prion		S					
<i>Pachyptila vittata</i>	broad-billed prion		S					
<i>Pagodroma nivea</i>	snow petrel		S					
<i>Phoebastria fusca</i>	sooty albatross	V	S	M	B			A
<i>Procellaria aequinoctialis</i>	white chinned petrel		S	M	B			A
<i>Procellaria cinerea</i>	grey petrel		S	M	B			
<i>Pterodroma barau</i>	Barau's petrel		S					
<i>Pterodroma brevirostris</i>	Kerguelen petrel		S					

Scientific Name	Common Name		Listings					
<i>Pterodroma inexpectata</i>	mottled petrel		S					
<i>Pterodroma lessonii</i>	white-headed petrel		S					
<i>Pterodroma macroptera</i>	great-winged petrel		S					
<i>Pterodroma mollis</i>	soft-plumaged petrel	V	S					
<i>Pygoscelis adeliae</i>	Adelie penguin		S					
<i>Pygoscelis antarcticus</i>	chinstrap penguin		S					
<i>Sterna paradisaea</i>	Arctic tern		S					
<i>Thalassarche chlororhynchos</i>	yellow-nosed albatross	V	S	M	B			A
<i>Thalassarche chrysostoma</i>	grey-headed albatross	E	S	M	B			A
<i>Thalassoica antarctica</i>	Antarctic petrel		S					
<i>Tringa nebularia</i>	greenshank		S	M	B	J	C	
Seals								
<i>Arctocephalus gazella</i>	Antarctic fur seal		S					
<i>Arctocephalus tropicalis</i>	subantarctic fur seal	V	S					
<i>Hydrurga leptonyx</i>	leopard seal		S					
<i>Leptonychotes weddelli</i>	Weddell seal		S					
<i>Lobodon carcinophagus</i>	crabeater seal		S					
<i>Mirounga leonina</i>	southern elephant seal	V	S					
<i>Ommatophoca rossi</i>	Ross seal		S					
Cetaceans and elasmobranchs								
<i>Balaenoptera acutorostrata</i>	Minke whale		W					
<i>Balaenoptera bonaerensis</i>	Antarctic Minke whale		W	M				
<i>Balaenoptera borealis</i>	Sei whale	V	W	M				
<i>Balaenoptera musculus</i>	blue whale	E	W	M	B			
<i>Balaenoptera physalus</i>	fin whale	V	W	M				
<i>Berardius arnuxii</i>	Arnoux's beaked whale		W					
<i>Eubalaena australis</i>	southern right whale	E	W	M	B			
<i>Globicephala melas</i>	long-finned pilot whale		W					
<i>Grampus griseus</i>	Risso's dolphin, Grampus		W					
<i>Hyperoodon planifrons</i>	southern bottlenose whale		W	M	B			
<i>Lagenorhynchus cruciger</i>	hourglass dolphin		W					
<i>Lagenorhynchus obscurus</i>	dusky dolphin		W	M	B			
<i>Lamna nasus</i>	Porbeagle, mackerel shark		S	M	B			
<i>Lissodelphis peronii</i>	Southern right whale dolphin		W					
<i>Megaptera noveangliae</i>	humpback whale	V	W	M	B			
<i>Mesoplodon hectori</i>	Hector's beaked whale		W					
<i>Mesoplodon layardii</i>	strap-toothed beaked whale		W					
<i>Orcinus orca</i>	killer whale		W	M	B			
<i>Phocoena dioptrica</i>	spectacled porpoise		W	M	B			
<i>Physeter macrocephalus</i>	sperm whale		W	M				
<i>Tursiops truncatus</i>	Bottlenose dolphin		W					
<i>Ziphius cavirostris</i>	Cuvier's beaked whale, goose-beaked whale		W					

Key to codes

- (e) Taxon endemic to the HIMI
 - A Listed under ACAP
 - B Species listed under the Bonn Convention
 - C Listed under CAMBA
 - E Listed under the EPBC Act as endangered
 - F In a family listed under the Bonn Convention
 - J Listed under JAMBA
 - M Listed under the EPBC Act as migratory species (listed under the Bonn Convention, and/or CAMBA and/or JAMBA)
 - S Listed marine species under the EPBC Act
 - V Listed under the EPBC Act as vulnerable
 - W Whales and other cetaceans under the EPBC Act
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Appendix C

Physical and biological characteristics of the Reserve

Local Unit	Physical Characteristics	Biological Characteristics
Coral Bank	<ul style="list-style-type: none"> – mesa-like bank rising steeply from deep water – flat but rugged top with pinnacles, boulders and sand – 300-500 metres deep – locally highly productive in relatively warm, nutrient-rich waters as it is influenced by relatively warm water of the ACC 	<ul style="list-style-type: none"> – rich benthic fauna, including slow-growing gorgonian corals – affinity with Aurora Bank – stalked barnacles only found here – localised distribution of the ophiuroid <i>Astrostoma agassizii</i> – productive area for meso-pelagic fish – habitat for juvenile <i>D. eleginoides</i> and skates – similar fish fauna to Aurora, Discovery and Pike Banks
Discovery Bank	<ul style="list-style-type: none"> – whale-backed bank rising from the northern plateau – reasonably flat with basaltic sand, but can be pebbly and craggy in places – about 300-400 metres deep – influenced by relatively warm water of the ACC 	<ul style="list-style-type: none"> – epibenthic fauna consists primarily of anemones, sponges and asteroids – tall erect glass sponges found here and at Shell Bank, north-eastern plateau and eastern trough – habitat for juvenile <i>D. eleginoides</i> and skates – similar fish fauna to Aurora, Coral and Pike Banks
Shell Bank (representative portions)	<ul style="list-style-type: none"> – isolated mesa-like bank with a flat, even top – steep craggy slopes with a craggy rim – only area with a distinctly different substratum - white sand and uniquely covered with a thick deposit of shell grit – 180-350m deep – cool water – influenced by an eddy of productive water 	<ul style="list-style-type: none"> – rich benthic fauna with high diversity of echinoderms – tall erect glass sponges here and Discovery Bank, north-eastern plateau and eastern trough – only record of a new species of asteroid, <i>Astropectin</i> sp. – localised distribution of the asteroid <i>Rhopiella hirsuta</i> – localised distribution of the holothurian <i>Cucumaria godeffroyi</i> – a morphotype of Valvifera isopods of the Family Idoteidae is local to this area, the north-eastern plateau and the eastern trough – distinct population of <i>C. gunnari</i> – habitat for juvenile <i>D. eleginoides</i> – population of <i>L. squamifrons</i> on south edge – part of the main foraging area, including area to the north and east, for many land-based marine predators
Territorial Sea	<ul style="list-style-type: none"> – substratum is mostly smooth, medium-grain black basaltic sand, with basaltic cobbles and boulders common in the nearshore area – 0-300 metres deep – substratum disturbed by wave action in water shallower than 200m, particularly in the north, north-east and eastern areas – southern margins are steep slopes descending to 1000 metres 	<ul style="list-style-type: none"> – diverse benthic fauna near to the island with affinities to inner southern plateau – a new species of sea cucumber, <i>Pseudocnus</i> sp. found here, in the southern plateau inner and the banks – localised distribution of the asteroid <i>Cycethra verrucosa</i> – localised distribution of the echinoid <i>Ctenodaris nutrix</i> – localised distribution of the holothurians <i>Cucumaria kerguelensis</i>, <i>Cucumaria serrata</i>, <i>Trachythyaone lecheri</i>, <i>Psolus ephippifer</i> – localised distribution of the ophiuroids <i>Opiacantha imago</i>, <i>Opiacantha vivipara</i>, <i>Ophiura ambigua</i> – an asteroid morphotype and the ophiuroid, <i>Opiacantha vivipara</i>, are local to this area – foraging area for nearshore flying birds
Southern Plateau Inner (representative portions)	<ul style="list-style-type: none"> – broad, flat, hard and even substratum – west, south and east margins are generally steep and undulating to craggy slopes – ground is mostly smooth, medium-grain black basaltic sand and grey silt – 200-500 metres deep – influenced by relatively warm water of the ACC 	<ul style="list-style-type: none"> – rich benthic fauna with affinities to nearshore areas in the territorial sea – localised distribution of the holothurian <i>Psolidum incertum</i> – a new species of holothuroid, <i>Pseudocnus</i> sp. found here, in the territorial sea and the banks – very young mackerel icefish have been found here – <i>D. eleginoides</i> is widespread with mostly juveniles on the plateau surface – a principal habitat for skates, <i>C. rhinoceratus</i> and a variety of less common nototheniids
Southern Plateau Outer (representative portions)	<ul style="list-style-type: none"> – broad, flat and even substratum – east and west margins generally steep and undulating to craggy slopes 	<ul style="list-style-type: none"> – rich benthic fauna with affinities to the eastern trough, such as prawns, shrimps and isopods – variety of asteroids and the polychaetes from the Family

Local Unit	Physical Characteristics	Biological Characteristics
portions)	<ul style="list-style-type: none"> – ground is mostly smooth, medium-grain black basaltic sand and grey silt – 300-500 metres deep – influenced by cooler water from the eastern trough and the relatively warm water of the ACC in the west and north of this unit 	<ul style="list-style-type: none"> Aphroditidae are local to this area – localised distribution of the asteroid <i>Smilasterias triremis</i> – the ophiuroid <i>Ophiura</i> only found here and in the northern plateau – soft coral only found here – contains a separate stock of <i>C. gunnari</i>, concentrating in the shallow water in the eastern half of the unit – <i>D. eleginoides</i> is widespread, but there are mostly juveniles on the plateau surface, with larger fish generally on the slopes – principal habitat for skates, <i>C. rhinocerotus</i> and a variety of less common nototheniids
Northern Plateau (representative portions)	<ul style="list-style-type: none"> – relatively narrow region of the main plateau – very uneven topography – hard substratum of basaltic cobbles, small pinnacles, shell grit, black sand and grey silt – deeper than the southern plateau, averaging about 500 metres in depth – influenced by cooler water from the eastern trough and the relatively warm water of the ACC in the west and central areas of this unit 	<ul style="list-style-type: none"> – similar benthic fauna to Discovery Bank and the north-eastern plateau – <i>Ophiura</i> only found here and in the southern plateau outer – fewer <i>D. eleginoides</i> and skates and a less abundant and diverse fish fauna generally
North-eastern Plateau (representative portions)	<ul style="list-style-type: none"> – hard substratum with cobbles, yellow sand and grey silt – 500-700 metres deep which slopes into deeper water in the east 	<ul style="list-style-type: none"> – similar benthic fauna to Shell Bank – tall erect glass sponges found here and at Discovery Bank, Shell Bank, and eastern trough – a morphotype of Valvifera isopods of the Family Idoteidae is unique to this area, Shell Bank and the eastern trough – only record of a new species of holothurian, <i>Psolus</i> sp. – only records of three new species of ophiuroid, <i>Amphiura</i> sp., <i>Ophiacantha</i> sp. and <i>Ophiomitrella</i> sp. – localised distribution of the ophiuroid <i>Asteronyx loveni</i> – only known location within the HIMI region where Lucifer sharks (<i>Etmopterus granulosus</i>) have been recorded – fish fauna comprising mainly <i>D. eleginoides</i> and deeper water species such as the Macrouridae and Moridae – part of the main foraging area, including area to the north and east, for many land-based marine predators
South of HIMI (local unit is only a small portion of the EEZ to south of HIMI)	<ul style="list-style-type: none"> – relatively warmer water of the ACC moving over the southern parts of the plateau 	<ul style="list-style-type: none"> – no information is available to describe this area except that a number of land-based marine predators forage to the south of the island

Adapted from Meyer, L., Constable, A. and Williams, R. (2000) *Conservation of marine habitats in the region of Heard Island and the McDonald Islands*. Australian Antarctic Division, Department of the Environment and Heritage, Kingston.

Appendix D

World Heritage Values of the Heard Island and McDonald Islands

The HIMI Territory was inscribed on the World Heritage List during the twenty-first session of the World Heritage Committee in 1997 on the basis of its outstanding natural universal values.

The site met two of the *Operational Guidelines 2002* criteria for listing as a natural World Heritage site:

i. an outstanding example representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of land forms, or significant geomorphic or physiographic features

Heard Island and McDonald Islands contains outstanding examples of physical and biological processes continuing in an essentially undisturbed environment, particularly physical processes which provide an understanding of the role of crustal plates in the formation of ocean basins and continents and of atmospheric and oceanic warming, and biological processes including colonisation and speciation. Examples of these World Heritage values include:

- an active example of plume volcanism, and direct geological evidence of the action of the longest operational plume system known (plumes are the unseen, upward movements of relatively warm parts of the earth's mantle);
- geological evidence of plume interaction with overlying crustal plates;
- a uniquely wide range of isotopic compositions of elements in volcanic rocks, providing insight into mantle plume composition;
- the only known continuously active volcano on a subantarctic island;
- fast-flowing glaciers that retreat and advance quickly in response to changes in temperature and precipitation;
- evidence of dramatic fluctuation in glacier extent in recent decades, and consequent changes in the total glaciated area; and
- formation of newly deglaciated areas.

ii. an outstanding example representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals

Heard Island and McDonald Islands, the only subantarctic islands free of introduced species and with negligible modification by humans, provide a classic example of a subantarctic island group with low species diversity and large populations of certain species. Examples of the World Heritage values include:

- the unmodified status of the islands and intact ecosystems, providing opportunities for ecological research investigating population dynamics, species interactions, propagule immigration, plant colonisation, species recolonisation, and monitoring of the health and stability of the larger Southern Ocean ecosystem;

- crucial habitat and breeding grounds for large numbers of marine birds and mammals;
- areas of newly deglaciated land providing habitat for plants and animals and an outstanding location for researching plant colonisation;
- ice-free areas of land isolated from each other by glaciers which provide unparalleled opportunities for study of dispersal and establishment of plants;
- absence of human disturbance, providing unique opportunities for research into population dynamics of plant and animal species;
- important breeding location for burrowing birds due to the absence of introduced mammals;
- large breeding populations of flying birds and penguins;
- species of conservation significance (such as the endemic Heard Island cormorant *Phalacrocorax nivalis* and the endemic sub-species Heard Island sheathbill *Chionis minor nasicornis*);
- bird predator populations unaffected by the presence of introduced predators;
- populations of invertebrate species, some endemic to Heard and McDonald Islands, and some endemic to the Heard and McDonald Islands/Kerguelen region;
- populations of seal species, including breeding southern elephant seals, Antarctic fur seals, and subantarctic fur seals; and
- the diversity of fauna and flora.

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