

BLUE, FIN AND SEI WHALE RECOVERY PLAN

2005 - 2010



Natural Heritage Trust

Helping Communities Helping Australia

An Australian Government Initiative



Australian Government

Department of the Environment and Heritage

The blue whale (*Balaenoptera musculus*) is listed as endangered, and fin (*Balaenoptera physalus*) and sei (*Balaenoptera borealis*) whales are listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This plan outlines the measures necessary to ensure recovery of the Australian populations of these species and is set out in accordance with Part 13, Division 5 of the EPBC Act.

Objectives for recovery

The objectives are:

- the recovery of populations of blue, fin and sei whales utilising Australian waters so that the species can be considered secure in the wild; and
- to maintain the protection of blue, fin and sei whales from human threats.

For the purposes of this plan ‘secure in the wild’ is defined qualitatively, recognising that stricter definitions are not yet available, but will be refined and where possible quantified during the life of this plan by work currently underway and identified in the actions of this plan.

‘Secure in the wild’ with respect to these species means: a population with sufficient geographic range and distribution, abundance, and genetic diversity to provide a stable population over long time scales.

Criteria to measure performance of the plan against the objectives

It is not anticipated that the objectives for recovery will be achieved during the life of this plan. However, the following criteria can be used to measure the ongoing performance of this plan against the objectives:

1. an indication of the population and recovery status of blue, fin and sei whale populations using Australian waters was developed; and
2. domestic and international protection regimes that support the recovery of the species were maintained and where possible improved.

Species information

Blue, fin and sei whales are baleen whales (order Cetacea, family Balaenopteridae). All are wide ranging oceanic species and the current scientific view suggests that the species show a general migration pattern of summer in higher latitudes and wintering in warmer tropical waters.

General information on the biology, population status, distribution and habitat of humpback whales can be found on the Species Profiles and Threats Database – www.deh.gov.au/sprat. This information is regularly updated to ensure that it reflects the most recent research.

Blue whales

Blue whales are the largest living animals, growing to a length of over 30m and weighing up to 180 tonnes. While the taxonomy is unclear, it is currently accepted that there are three subspecies of blue whale. Two are ‘true’ blue whales; the northern hemisphere *Balaenoptera musculus musculus* and the southern hemisphere *Balaenoptera musculus intermedia*. The third is the ‘pygmy’ blue whale *Balaenoptera musculus brevicauda* known mainly from the southern Indian Ocean, the eastern South Atlantic and the western South Pacific. Blue whales are extremely long-lived animals, with ‘true’ blue whales living up to 90 years and pygmy blue whales to around 50 years.

There are reported size and other morphological differences between ‘true’ and ‘pygmy’ blue whales, however, there is no confirmed set of features that make individuals of the two sub-species readily distinguishable from each other at sea. Studies have not yet conclusively distinguished differences between each subspecies, although recent acoustic research indicates segregation

between the southern ocean populations. One notable differentiation is that during the southern hemisphere summer, 'true' blues are usually found south of 60°S, while 'pygmy' blues are usually found north of 55°S. The taxonomy of these different blue whales remains uncertain and may change with future genetic and behavioral work.

Blue whales were greatly over-exploited by commercial whalers in the 19th and 20th centuries. In 1960, the International Whaling Commission (IWC) banned the taking of blue whales in the North Atlantic, banned it entirely in the North Pacific in 1966, and in the southern hemisphere in 1967. However illegal unreported and unregulated hunting may have continued through to the early 1970's. In 1985/86 the IWC declared a global moratorium on commercial whaling. Scientists have estimated that prior to whaling, southern hemisphere true blue whales numbered approximately 311,000 and pygmy blue whales approximately 10,000. In 2001 it was estimated between 500 and 2300 true blue whales were living in Antarctic waters. No agreed estimates of the number of pygmy blue whales exist. Recent data has shown an increase in the number of Antarctic blue whales, but the species remains at less than 1% of pre-whaling numbers.

In Australia, blue whales are found in the waters off Australia's Antarctic Territory, and along the southern parts of the Australian coast including Western Australia, South Australia, Victoria, Tasmania, New South Wales through to southern Queensland. The majority of the most northerly sightings are likely to be pygmy blue whales.

Fin whales

Fin whales are large whales growing to a maximum of approximately 26m. The biology and life history of the species is poorly known. Most fin whale populations were severely depleted by modern whaling from the early 1900's until protection in 1975. The fin whale was second to the blue whale in commercial importance because of its size and wide ranging distribution. In the southern hemisphere the pre-exploitation abundance was estimated at around 500,000 and may have been reduced to as few as 25,000. There are no estimates of current fin whale abundance for the southern hemisphere or for Australian waters.

Fin whales are widely distributed in both hemispheres between latitudes 20-75°. The species is more common in temperate waters, and the Arctic and Antarctic Oceans. Areas of upwelling and interfaces between mixed and stratified waters may be an important feature of fin whale feeding habitat. In the Antarctic the species is seen feeding both at the ice edge and further to the north in areas of complex bathymetry.

In Australia, there are confirmed records of fin whales for all coastal waters except in New South Wales and the Northern Territory, but the available information suggests that the species is more commonly present in deeper water.

Sei whales

Sei whales are moderately large whales growing up to 18m. The biology and life history of the species are less well known than for blue and fin whales. Sei whales were hunted by modern whalers primarily after other whale species (such as blue, fin and right whales) had been depleted. Most populations of sei whales were reduced by extensive whaling from the 1950's until the 1970's. International protection was afforded in 1977 for this species.

The sei whale is one of the less well studied great whales and the current status of most populations is poorly known. The original southern hemisphere population may have numbered around 100,000. There is no accepted current abundance estimate for sei whales in the southern hemisphere and no estimate for Australian waters.

The movements and distributions of sei whales are unpredictable and not well documented. Sei whales are similar in appearance to Bryde's whales which has resulted in confusion about distributional limits and frequency of occurrence, particularly in warmer waters where Bryde's whales are more common. The available information suggests that sei whales have the same general pattern of migration as most other baleen whales including blue and fin whales, although the timing is generally later and the current scientific view is that the species does not go to such high latitudes. There is evidence from catch data of a pronounced segregation of the sexes during migration, where the pregnant females generally arrive and depart from feeding areas earlier than males.

Sei whales are not often found near coasts and the species is infrequently recorded in Australian waters, with records only occurring from Western Australia, South Australia, Tasmania and Queensland.

Habitat critical to the survival of blue, fin and sei whales

It is not currently possible to define habitat critical to the survival of blue, fin and sei whales. Due to the limited knowledge about the distribution and abundance of these species, little is currently known about the location and characteristics of these habitats. To date the best information relates to aggregation areas (in particular feeding areas) for blue whales. These areas can be considered important to the survival of blue whales as they seasonally support significant aggregations of whales, and those ecosystem processes on which blue whales rely.

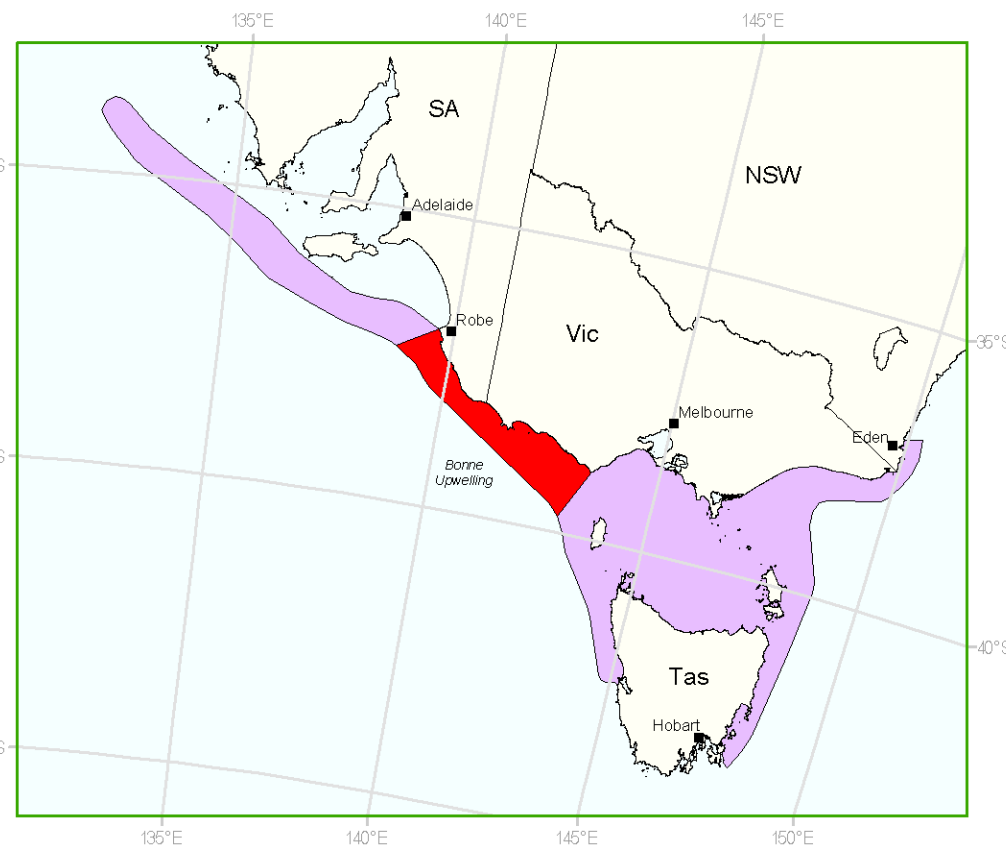
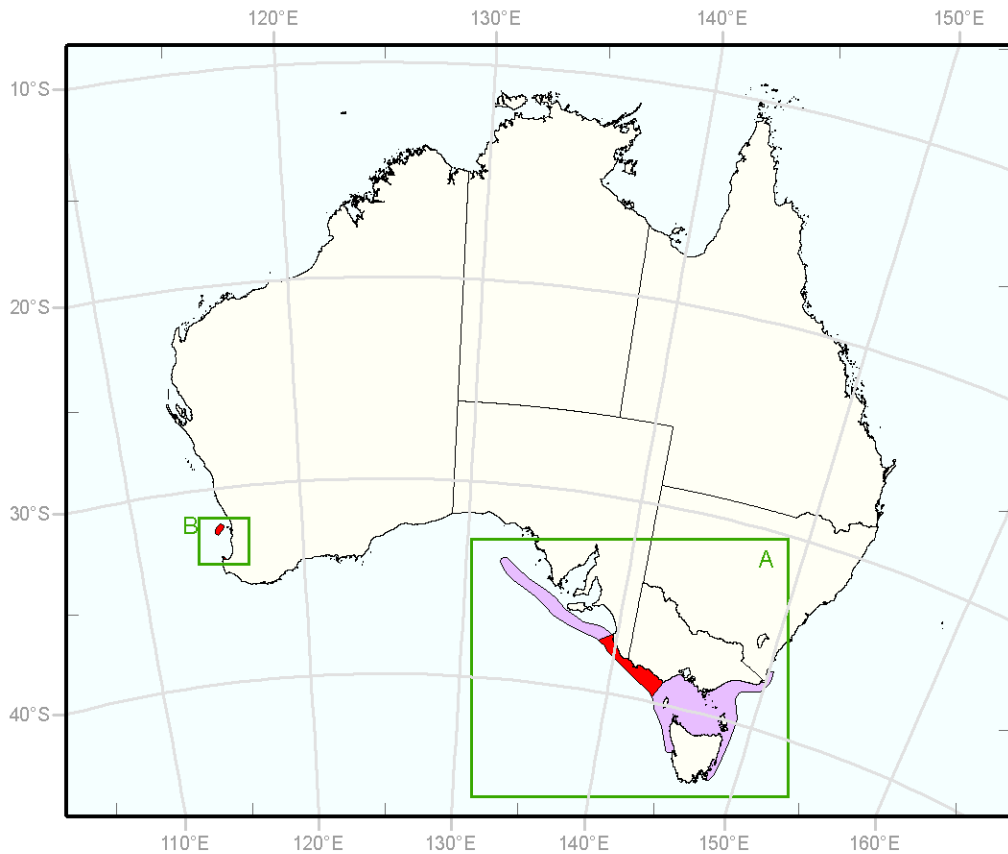
Australian Antarctic waters are known to support feeding for all three species and should be considered as important to conserve. In Australian coastal waters, a number of areas are known to support aggregations of blue whales. Known feeding areas are listed in Table 1. Fin and sei whales have also been sighted in some of these areas but not enough information currently exists to suggest that they are important to the survival of these species. Significant aggregations of blue whales are also found at Geographe Bay in Western Australia, although the reasons for this are not currently known. Figure 1 illustrates the recognised aggregation areas for blue whales utilising Australian waters. It should be noted that the boundaries presented on the map are indicative only and there is inherent variability in the movements of the species.

Table 1: known feeding areas for blue whales within Australia's main Exclusive Economic Zone.

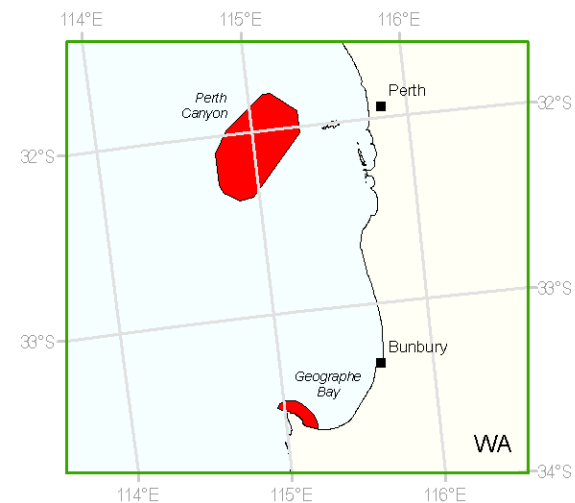
Location	Feeding observed
• Bonney upwelling, southeast SA to western Victorian waters	November to April
• Duntroon Basin, SA	November to April
• Perth Canyon off Rottnest Island, WA	December to April

True blues appear to feed mainly, if not exclusively, in the Antarctic. Pygmy blues, however, are not generally found in the Antarctic, and appear to feed in more temperate latitudes. It is more than likely that Australian records of blue whales, almost entirely in summer, are of pygmy blue whales.

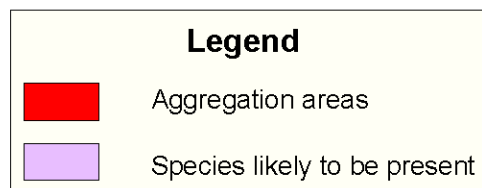
Figure 1: Recognised aggregation areas of the blue whale



▲ A. Southeastern Australia



◀ B. Southwestern Australia



Caveat:
 The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything contained herein. The map has been collated from a range of sources, with data at various resolutions. Data used are assumed to be correct as received from the data suppliers.

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 Department of the Environment and Heritage
 Canberra February 2005
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Projection: Lambert Conformal Conic
 Spheroid: Australian National
 Datum: Australian Geodetic 1984

Map Scales:
 Australia 1:37,500,000
 Southeastern Australia 1:12,500,000
 Southwestern Australia 1:4,000,000

Note: All distribution boundaries are indicative only

Management Practices

Domestic measures

In Australia, blue whales are listed as Endangered under the EPBC Act. Both fin and sei whales are listed as vulnerable under the Act. The EPBC Act established the Australian Whale Sanctuary and gives high levels of protection to cetaceans in Commonwealth waters. The Australian Whale Sanctuary encompasses the area of the Exclusive Economic Zone (EEZ) outside state waters and generally extends 200 nm from the coast, but further in some areas to cover the continental shelf and slope. It also includes the waters around the Australian Antarctic Territory and external territories including Christmas, Macquarie, Heard and McDonald Islands.

Within the Australian Whale Sanctuary it is an offence to kill, injure, take, trade, keep, move or interfere with a cetacean. The EPBC Act also makes it an offence for Australians to carry out any of these actions beyond the outer limits of the Australian Whale Sanctuary, that is, in international or foreign waters. Other than in the case of killing or taking for live display, permits may be issued by the Australian Government Minister for the Environment and Heritage to carry out these activities (e.g. for the purpose of research).

Blue, fin and sei whales are protected in all States and Territories under general native species and/or threatened species protection and management legislation.

A number of measures currently exist to manage interactions with all species of whales. These include administrative guidelines under the EPBC Act relating to interactions between offshore seismic operations and whales, and both Commonwealth and State regulations to manage whale watching activities.

International measures

True and pygmy blue whales, as well as fin and sei whales are afforded a degree of international protection through listing on Appendix I of the Convention on International Trade in Endangered Species (CITES), and on Appendix I of the Convention on Migratory Species (CMS). True blue, fin and sei whales are also listed endangered on the World Conservation Union's Red List of Threatened Species (IUCN). Pygmy blue whales are not listed due to insufficient data.

In addition, Australia participates in several other international agreements that directly or indirectly relate to the conservation of marine mammals. Specifically, Australia was a founding member of the International Whaling Commission (IWC), is the host country of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), and a key player in Antarctic Treaty Consultative Meetings (ATCM).

Whales are protected from commercial whaling by IWC member states as part of the current moratorium and by the IWC's Indian Ocean Sanctuary and Southern Ocean Sanctuary. Sanctuaries do not protect whales from whaling under special permit and are reviewed every ten years.

Australia is also working within the South Pacific Regional Environment Programme (SPREP) to establish a Memorandum of Understanding for the conservation and management of marine mammals in the South Pacific region, under the Convention on Migratory Species.

Threats

Identified Threats

1. *The resumption of commercial whaling and/or the expansion of scientific whaling*

The impacts of commercial hunting on blue, fin and sei whales have been well documented. While currently banned under the IWC moratorium on commercial whaling, the potential for commercial whaling to recommence exists and pressure may well increase as populations recover.

An additional area of concern is the potential expansion of de facto commercial whaling under the guise of scientific whaling. The IWC Convention allows member states to issue special permits to kill whales for research purposes and then process these animals for sale. Since 1986, Japan and Iceland have issued special permits for several whale species as part of their scientific whaling research programs. The recent expansion of these programs in the Northern Hemisphere involve the killing of various baleen whales including minke, Bryde's, fin, sperm and sei whales. In addition, since the implementation of the Southern Ocean Sanctuary in 1994, Japan has continued to harvest minke whales there under special permits. While not likely in the near future for blue whales, there is no guarantee that blue, fin or sei whales will not be included in future research programs.

2. *Habitat degradation*

A range of anthropogenic activities have the potential to degrade habitat important to the survival of blue, fin and sei whales. These activities may degrade habitat by operating at times that coincide with the presence of whales, or they may occur when whales are absent, but degrade habitat suitability on a permanent or semi-permanent basis. These activities may include:

- acoustic pollution (e.g. commercial and recreational vessel noise, and seismic survey activity);
- entanglement (e.g. in marine debris, fishing and aquaculture equipment);
- physical injury and death from ship strike;
- built structures that impact upon habitat availability and/or use (e.g. marinas, wharves, aquaculture installations, mining or drilling infrastructure);
- changing water quality and pollution (e.g. runoff from land based agriculture, oil spills, outputs from aquaculture); and
- changes to water flow regimes causing extensive sedimentation or erosion or altered currents in near shore habitat (e.g. canals and dredging).

Of the three species covered by this plan, blue whales are potentially the most likely to be affected by these processes because of the species' use of Australian coastal waters. Given the limited knowledge about the use of habitat by fin and sei whales, it is difficult to determine the extent of the threat of habitat degradation to these species.

Habitat degradation may result in reduced occupancy and/or exclusion of individual whales from suitable habitat, compromised reproductive success, and mortality. It is possible that impacts on a sufficient number of individual whales could lead to broader impacts at the population level, e.g. by reducing recruitment to such an extent that species recovery is impeded. This would be more likely to arise where activities that cause habitat degradation occurred intensively and/or cumulatively, or over a large portion of their range.

Ongoing monitoring and management, particularly in relation to known blue whale aggregation areas, are required to ensure that habitat degradation does not become a significant issue.

Further identification of habitat areas important to the survival of all three species is also needed.

Potential threats

1. Climate and oceanographic change

Most of the world's leading scientists agree that global warming caused by human activity is occurring. The exact implications of these changes are unknown, but it is predicted that there will be reduced productivity of Southern Ocean ecosystems and unpredictable weather events caused by increasing ocean water temperatures, changing ocean currents, rising sea levels and reductions in sea ice.

The potential impacts of climate and oceanographic change on blue, fin and sei whales are twofold:

1) Habitat availability

Whale migration, feeding, breeding, and calving site selection for these species may be influenced by factors such as ocean currents and water temperature. Any changes in these factors could affect recovery by rendering currently used habitat areas unsuitable.

2) Food availability

Changes to climate and oceanographic processes may also lead to decreased productivity and different patterns of prey distribution and availability. Such changes would certainly effect dependant predators such as blue, fin and sei whales.

2. Prey depletion due to over harvesting

Blue, fin and sei whales rely on krill as a main food source and require adequate supplies to accumulate energy reserves essential for migration and breeding. Depletion of krill through over harvesting may be a potential future threat for Australian populations of these species. However, it should be noted that:

- the krill fishery is managed through the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) on an ecosystem basis which takes into account the needs of predators such as whales; and
- while the fishery is likely to grow, fishing currently occurs well within the current precautionary limits.

Actions to achieve the objectives

Population recovery

1. Implement a program to measure population abundance, trends and recovery for Australian populations of blue, fin and sei whales

- Included within this activity will be the need to:
 - establish models for measuring the recovery and status of blue whales, incorporating a range of indicators (e.g. population numbers, structure, use of habitats etc);
 - engage in the IWC southern ocean survey process to determine meaningful population estimates for fin and sei whales;
 - gather information on population structures and limits – e.g. through the use of genetic analysis; and
 - continue to collect long-term data sets using standardised survey methodologies for blue whales in a statistically robust manner.

Habitat use and needs

2. *Implement a program to better define the characteristics (spatial, temporal, physical) of calving, feeding, and migratory areas*
 - Included within this activity will be the need to:
 - gather information on movements, migrations, and feeding grounds – e.g. through the use of satellite tracking, acoustic monitoring and other survey methods; and
 - determine the values and characteristics of important migratory pathways and aggregation areas (calving, resting, and feeding) particularly in areas where human use is likely to impact upon the species.

Protection from threats

3. *Prevent commercial whaling and/or the expansion of scientific whaling*
 - Australia should maintain its position on promoting high levels of protection for blue, fin and sei whales in all relevant international agreements including the IWC, CITES, CMS, fisheries-related agreements, and Antarctic Treaty Consultative Meetings (ATCM).
 - Australia should continue to support a ban on directed take of blue, fin and sei whales.
4. *Protect habitat important to the survival of the species*
 - Ensure that in areas important to the survival of the species environmental assessment process and research activities are in place to determine the level of impact and threat of human activities, and implement management measures to ensure the ongoing recovery of each species. This should include, but not be limited to, the following actions:
 - assess and manage acoustic disturbance – including the development and application of administrative guidelines under the EPBC Act such as the “Guidelines on the application of the EPBC Act to interactions between offshore seismic operations and larger cetaceans”;
 - encourage best practice approaches that will reduce the likelihood of blue, fin and sei whales being entangled in marine debris, fishing and aquaculture equipment. If entanglements occur, manage the impact of individual entanglements where possible through the application of national standards for disentangling large cetaceans;
 - ensure that habitat requirements of blue, fin and sei whales are considered in the establishment and management of marine conservation areas and reserves;
 - manage the potential impacts of tourism – e.g. through the application of consistent Commonwealth and State tourism and whale watching regulations; and
 - assess and manage physical disturbance and development activities (such as ship-strike, aquaculture, pollution, recreational boating, and exploration and extraction industries) – including the application of environmental impact assessment and approvals and the development of industry guidelines and State/Commonwealth government regulations.
 - Implement education programs to inform marine users (e.g. whale watchers, fishermen, and shipping crews using important habitat) about best practice behaviours and regulations when interacting with whales.
5. *Monitor and manage the potential impacts of prey depletion due to over harvesting*
 - Improve knowledge of blue, fin and sei whale feeding ecology, and the ecology of prey species in order to determine if or when prey depletion becomes a threat.
 - Australia should support regional ecosystem approaches to krill management through its involvement in CCAMLR and other fora.
6. *Monitor climate and oceanographic change*
 - Develop an understanding of the effects of climate and oceanographic change on blue, fin and sei whale populations to determine if species survival and recovery are being, or are likely to be affected.

Major benefits to other native species or ecological communities

As blue, fin and sei whales are wide ranging species, marine management protection regimes may have some benefits for other cetaceans found within Australian waters, in particular other oceanic mysticete species such as Bryde's and minke whales, as well as the more coastal (in Australian waters) humpback and southern right whales.

Implementation of this plan is unlikely to have negative impacts on any other native species or ecological communities.

Duration and cost of the recovery process

It is anticipated that the recovery process will take longer than the life of the plan (2005-2010), which should be reviewed after five years. A recovery plan should remain in place until such time that the populations of blue, fin and sei whales utilising Australian waters have improved to the point that the populations are considered secure.

The cost of this plan will be met through various direct and indirect funding activities undertaken by the Australian Government, State and Territory governments, researchers, conservation groups, marine based industries and the Australian public. Costing of specific actions will be determined at the time of activity.

Role and interests of Indigenous people

Many marine mammal species have cultural significance to Aboriginal or Torres Strait Islander people. Recognising this cultural connection to whales is important. No record has been found of whale hunting before the arrival of Europeans, although it is likely that some use was made of whales that washed ashore. Indigenous people must be considered if plans for development or use of an area are expected to impact upon indigenous ownership or native title interests. Agreements between government and Indigenous people are essential and serve to increase the involvement of all parties with a stake in the welfare and recovery of whales.

Social and economic impacts

It is not anticipated that this plan will have significant economic and/or social impacts in the short or long-term.

Organisations/persons involved in evaluating the performance of the plan

The Threatened Species Scientific Committee (TSSC) with the assistance of relevant scientists, managers and other stakeholders should evaluate the performance of this plan and report the results of their review to the Minister for the Environment and Heritage.

Affected interests

Organisations likely to be affected by the actions proposed in this plan include the following:

Australian Government:

Aboriginal and Torres Strait Islander Commission
Australian Fisheries Management Authority
Australian Maritime Safety Authority
Department of Agriculture, Fishing and Forestry
Department of Defence
Department of Foreign Affairs and Trade
Department of Industry, Tourism and Resources
Department of the Environment and Heritage
Great Barrier Reef Marine Park Authority
Indigenous Land Corporation

Industry and Non-Government Organisations:

Commercial fishers and associations
Commercial shipping
Conservation groups
Energy distribution networks
Indigenous Land Councils and communities
Local communities
Nature-based tourism industry
Oil and gas exploration and production industry
Recreational fishers and associations
Universities and other research organisations
Whale-watching industry and associations

State/Territory Governments:

Department of Conservation and Land Management, WA
Department of Environment and Heritage, SA
Department of Primary Industries, Water and Environment, TAS
Department of Primary Industry, QLD
Department of Sustainability and Environment, VIC
Environment Protection Agency, QLD
Fisheries agencies
Museums
National Parks and Wildlife Service, NSW
Parks and Wildlife Commission, NT
Parks Victoria
Shipping, oil and gas exploration and development agencies

Where to get the plan

This recovery plan is obtainable from:

<http://www.deh.gov.au/biodiversity/threatened/recovery/list-common.html>

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