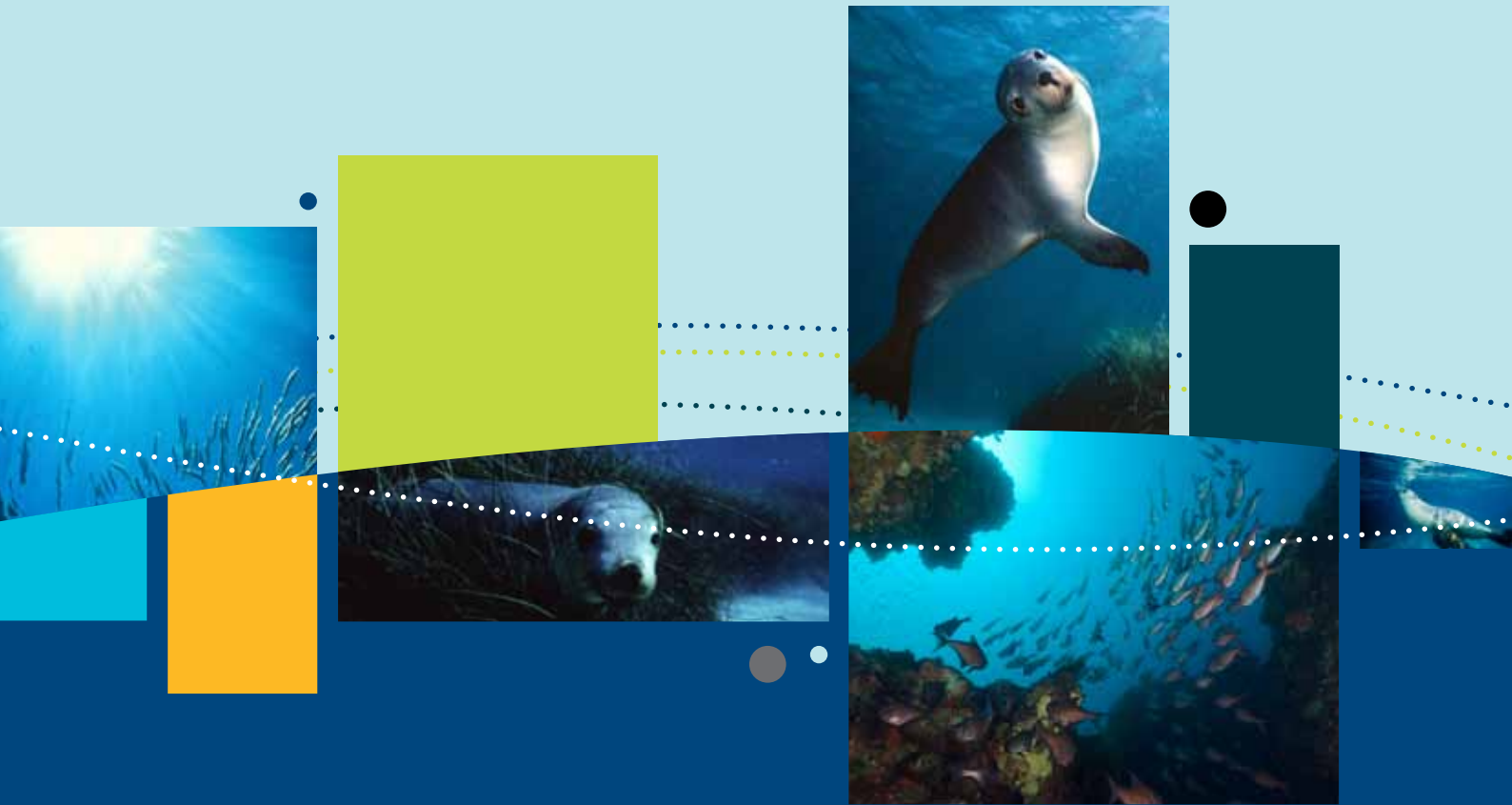




**Australian Government**

**Department of Sustainability, Environment,  
Water, Population and Communities**



# Species group report card —pinnipeds

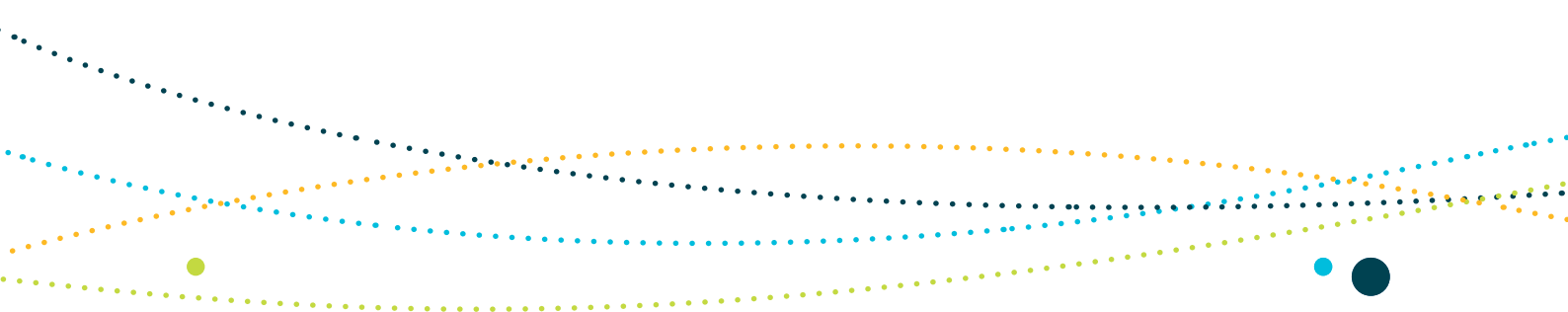
Supporting the draft marine bioregional  
plan for the South-west Marine Region

prepared under the *Environment Protection and Biodiversity Conservation Act 1999*

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# Species group report card—pinnipeds

## Supporting the draft marine bioregional plan for the South-west Marine Region

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### Report cards

The primary objective of the report cards is to provide accessible and up-to-date information on the conservation values found in Commonwealth marine regions. This information is maintained by the Department of Sustainability, Environment, Water, Population and Communities and is available online through the department's website ([www.environment.gov.au](http://www.environment.gov.au)).

Reflecting the categories of conservation values, there are three types of report cards:

- species group report cards
- marine environment report cards
- heritage places report cards.

### Species group report cards

Species group report cards are prepared for large taxonomic groups that include species identified as conservation values in a region; that is, species that are listed under Part 13 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and live in the Commonwealth marine area for all or part of their lifecycle. All listed threatened, migratory and marine species and all cetaceans occurring in Commonwealth waters are protected under the EPBC Act and are identified in the relevant marine bioregional plans as conservation values.

Species group report cards focus on species for which the region is important from a conservation perspective; for example, species of which a significant proportion of the population or an important life stage occurs in the region's waters.

For these species, the report cards:

- outline the conservation status of the species and the current state of knowledge about its ecology in the region
- define biologically important areas; that is, areas where aggregations of individuals of a species display biologically important behaviours
- assess the level of concern in relation to different pressures.

## **1. Pinnipeds of the South-west Marine Region**

This report card focuses on pinnipeds in the South-west Marine Region, specifically the family Otariidae, which contains the fur seals and sea lions. Pinnipeds are aquatic carnivorous mammals, with a streamlined body specialised for swimming and limbs modified as flippers. Of the 10 species of seals and sea lions that occur in Australian waters (including the Australian Antarctic Territory, Heard Island and MacDonal Island), three are known to occur in the South-west Marine Region: Australian sea lion (*Neophoca cinerea*), New Zealand fur seal (*Arctocephalus forsteri*) and Australian fur seal (*Arctocephalus pusillus*). Another seven species have been recorded in the region and are considered vagrant species. Attachment 1 lists the pinnipeds that are known to occur in the region and those that may occur infrequently.

Pinnipeds tend to be highly mobile and opportunistic predators that utilise a wide range of benthic and pelagic foraging habitats, and base their foraging strategies on prior experience and situational decision-making (Baylis, Page & Goldsworthy 2008; Staniland, Boyd & Reid 2007). They forage in shallow coastal waters, across the continental shelf and in oceanic waters beyond the shelf edge.

All pinnipeds found in Australian waters are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as listed marine species. Australian sea lions are also listed as a threatened species in the vulnerable category and, as such, are a matter of national environmental significance.

### **Australian sea lion**

Australian sea lions are endemic to Australia and occur in coastal habitats, waters and islands offshore from South Australia and Western Australia. The species is almost entirely confined to the South-west Marine Region and adjacent state waters, islands and coastal areas. Although its range extends to the Houtman Abrolhos Islands in Western Australia, most of the population is found in South Australia. Australian sea lions have an estimated population of approximately 14 700 individuals (DEWHA 2010a). Based on pup numbers, 86 per cent of the population (3105 pups) is found in South Australia, and 14 per cent (503 pups) is in Western Australia. Australian sea lion populations have not recovered from past hunting, and it appears that populations at some breeding sites may be in decline (DEWHA 2010a).

Australian sea lions are unique among pinnipeds in having large numbers of small breeding colonies, low reproductive rates, an unusually long breeding cycle of 17–18 months (the timing varies between breeding sites that are close to each other—different colonies breed at different times), high site fidelity and poor dispersal. Genetic research into the population structure of Australian sea lions has found evidence of a strong sex bias in dispersal, with females breeding at the colony where they were born (natal site fidelity) and males dispersing between colonies over a range of 200 km. This is highly unusual for pinnipeds (DEWHA 2010a). These findings indicate that at least some Australian sea lions are genetically isolated, and that recolonisation may not occur readily if colonies are extirpated (entirely removed) (DEWHA 2010a).

Australian sea lions feed on the continental shelf in the region, most commonly in depths of 20–100 m (Shaughnessey 1999). They appear to be mainly benthic foragers (Goldsworthy, Campbell

& McKenzie 2006) and eat a wide variety of prey, including fish, small sharks, invertebrates (such as rock lobster), cephalopods (octopus, squid, cuttlefish and nautilus) and occasionally seabirds. Recent studies (e.g. Campbell 2008; Costa & Gales 2003; Goldsworthy, Peters & Page 2007) using satellite tracking and time-depth recording techniques at a number of sites have provided detailed information about the areas where Australian sea lions forage. Generalisations are difficult because different classes of animals and animals of different colonies vary considerably in their foraging and diving behaviour. A study at Dangerous Reef and islands in the Nuyts Archipelago (Goldsworthy et al. 2009) showed that females and sub-adult males spend about one day foraging at sea, followed by a day of rest, whereas adult males typically spend longer at sea—up to 2.5 days per trip. The study showed that sea lions consistently dive to the ocean floor, with the deepest dives at just over 100 m, suggesting that they are benthic foragers.

The species 'hauls out' (or rests) and breeds on rocks and sandy beaches on the sheltered sides of islands, although there are some small colonies on the Australian mainland. As detailed in the technical issues paper to the Australian Sea Lion Recovery Plan, breeding colonies are generally defined as sites where pups have been recorded, and haul-out sites are defined as sites frequented by seals where pups are not born (DEWHA 2010a). Detailed information on methods for estimating the abundance of colonies is in this publication (DEWHA 2010a).

Australian sea lion pups have been reported at 76 sites (48 in South Australia and 28 in Western Australia) over the past 20 years. However, only 58 of these sites have enough pups recorded to be classified as breeding sites (DEWHA 2010a). Most of the known Australian sea lion colonies (42 colonies, 62 per cent) are small, producing fewer than 25 pups per breeding season. Eight breeding colonies produce more than 100 pups each year, and these are all in South Australia (Goldsworthy, Hamer & Page 2007):

- Dangerous Reef and Lewis Island (Southern Eyre Peninsula)
- North and South Page islands (which are adjacent to the South-west Marine Region)
- West Waldegrave Island (Western Eyre Peninsula)
- Seal Bay (Kangaroo Island)
- Purdie Island (Nuyts Archipelago)
- Olive Island (Western Eyre Peninsula).

Because of the closed breeding patterns of Australian sea lions and their conservation status as a threatened species, all breeding sites for Australian sea lions are considered significant.

### **New Zealand fur seal**

Although New Zealand fur seals are native to Australia, they also occur at several other islands in the Southern Ocean and around the South Island of New Zealand, where they were first described. New Zealand fur seals breed adjacent to the South-west Marine Region on rocky islands off South Australia and the southern coast of Western Australia. There are approximately 51 known breeding sites for this species in Australia, mostly in South Australia (30) and Western Australia (17). Large breeding populations, which account for more than 80 per cent of the national pup production for the species (Goldsworthy, Campbell & McKenzie 2006), are found in South Australian waters at North and South Neptune Islands, Kangaroo Island and Liguanea Island. Colonies in Western Australia are centred on the islands of the Recherche Archipelago; the westernmost population is found near Cape Leeuwin. Available information suggests that

the range of the species is expanding in Western Australia, with greater numbers of animals hauling out and breeding on the south-west coast (Goldsworthy, Campbell & McKenzie 2006).

**Australian fur seal**

Australian fur seals have been common visitors to the eastern part of the region for many years. They are known to haul out among and near New Zealand fur seal colonies on Kangaroo Island and are sometimes seen around the Neptune Islands. Recently, small numbers of Australian fur seals have bred in the region—for example, on North Casuarina Island (off Kangaroo Island), 29 pups were produced in February 2008 (Shaughnessy et al. 2010). Like Australian sea lions, Australian fur seals feed mainly in the waters of the shelf. They are known to dive to at least 164 m to feed. Australian fur seals are generally benthic foragers, which is unusual for a fur seal, and take a wide variety of prey, particularly fish, squid, cuttlefish and octopus (DAFF 2007).

**Biologically important areas**

Biologically important areas (BIAs) are areas where aggregations of individuals of a species display biologically important behaviours. To date, BIAs have only been identified for Australian sea lions in the region (Table 1). BIAs for New Zealand fur seals and Australian fur seals will be identified when spatial information on these species is available. BIAs are included in the South-west marine conservation values atlas [www.environment.gov.au/coasts/mbp/south-west/index.html](http://www.environment.gov.au/coasts/mbp/south-west/index.html)

**Table 1. Pinnipeds for which biologically important areas have been defined in the South-west Marine Region**

Species	Conservation status	Behaviour
Australian sea lion ( <i>Neophoca cinerea</i> )	Vulnerable	Foraging (male and female), breeding colonies and haul-outs

**2. Vulnerabilities and pressures**

Vulnerabilities

Populations of Australian sea lions, Australian fur seals and New Zealand fur seals were substantially reduced by commercial sealing in the 18th, 19th and early 20th centuries. Fur seal populations have recently shown evidence of recovery since the cessation of commercial sealing, while Australian sea lions appear to have remained stable or have declined. Unlike fur seals, Australian sea lions have failed to recover from the effects of sealing. Population trends for Australian sea lions are difficult to obtain due to the large number and inaccessibility of breeding sites, although the few observations of population trends indicate that most are stable, some are declining and only one is increasing (Goldsworthy et al. 2007; Hamer et al. 2009; Shaughnessy et al. 2011).

The life history characteristics and population structure of Australian sea lions are unusual among seals and sea lions (see above), and make the species vulnerable to the impacts of

human activities. These characteristics and the species' lack of recovery mean that even small levels of human-induced mortality could have a significant impact on the species.

#### Assessment of pressures

The level of concern about pressures on pinnipeds has been assessed for Australian sea lions and New Zealand fur seals. The South-west Marine Region is particularly important for the conservation and recovery of these species as a large proportion of their breeding populations is found on island and coastal colonies inshore of the region's Commonwealth waters, and the species use Commonwealth waters of the region for foraging. A description of the pressure assessment process, including the definition of substantial impact used in this assessment, is provided in the *Overview of marine bioregional plans* available at [www.environment.gov.au/coasts/mpb/index.html](http://www.environment.gov.au/coasts/mpb/index.html)

The outcome of the assessment is shown in Figure 1. An overview of the pressures that have been assessed as *of concern* and *of potential concern* is provided below.

Pinniped species	Pressures																			
	Sea level rise	Changes in sea temperature	Change in oceanography	Ocean acidification	Chemical pollution or contaminants	Nutrient pollution	Changes in turbidity	Marine debris	Noise pollution	Light pollution	Physical habitat modification	Human presence at sensitive sites	Nuisance species	Extraction of living resources	Bycatch	Oil pollution	Collisions with vessels	Collision or entanglement with infrastructure	Disease	Invasive species
Australian sea lion	Yellow	Red	Yellow	Yellow	Blue	Blue	Blue	Red	Yellow	Blue	Blue	Yellow	Blue	Yellow	Red	Yellow	Blue	Yellow	Blue	Blue
New Zealand fur seal	Yellow	Yellow	Yellow	Yellow	Blue	Blue	Blue	Yellow	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Yellow	Blue	Blue	Blue	Blue

**Figure 1 Assessment of the level of concern associated with the effects of pressures on selected pinniped species of the South-west Marine Region**

Legend:  *of concern*  *of potential concern*  *of less or no concern*

### ***Climate change (sea level rise)***

Sea level rise was assessed as *of potential concern* for Australian sea lions and New Zealand fur seals. Sea level rise may reduce the usable area of many colonies of Australian sea lions, rendering low-lying colonies unviable. Many breeding colonies are on highly exposed rocky shores, and breeding and nursing often take place on small ledges. Rising sea levels, accompanied by more intense and frequent severe storms, are likely to affect pup survival rates. Whether sea lions can adapt to these changes is uncertain (DEWHA 2010a). With its similar life history characteristics, New Zealand fur seals are likely to be affected by climate change in a similar way to Australian sea lions. However, this species may be more resilient because its population is increasing.

Global sea levels have risen about 20 cm between 1870 and 2008. They are currently rising at a rate near the upper end of current projections and will continue to rise during the 21st century in response to increasing levels of greenhouse gases in the atmosphere. The Intergovernmental Panel on Climate Change predicts a rise of 18–79 cm by 2095 (since 1990). However, sea levels higher than this projection are possible because of inadequate understanding of the response of the ice sheets to global warming (Church et al. 2009).

### ***Climate change (changes in sea temperature)***

Changes in sea temperature were assessed as *of concern* for Australian sea lions and *of potential concern* for New Zealand fur seals. Research has already identified a link between higher sea surface temperatures and lower rates of pup survival (Goldsworthy, Shaughnessy & McIntosh 2004; McIntosh et al. 2007). Waters around Australia are projected to warm by 1–2 °C by the 2030s and 2–3 °C by the 2070s (Hobday et al. 2006).

### ***Climate change (change in oceanography)***

Change in oceanography is assessed as *of potential concern* for both Australian sea lions and New Zealand fur seals. Pinnipeds are important predators in the region, and they are likely to be affected by changes in productivity and shifts in trophic processes and structure. The strength of the Leeuwin Current has decreased slightly since the 1970s. The weakening of the Leeuwin Current is likely to have implications for the productivity of the region, with effects on a broad range of species (Feng, Weller & Hill 2009).

### ***Ocean acidification***

Ocean acidification is assessed as *of potential concern* for both Australian sea lions and New Zealand fur seals. Ocean acidity has increased by 30 per cent across all oceans since the late 18th century—the pH of open ocean waters has decreased from 8.2 to 8.1—and the rate of this increase is estimated to be 100 times faster than any change experienced by marine organisms for at least 20 million years (Orr et al. 2009). Projected changes in Australia's marine environment by 2070 include a decline in pH of 0.2 units (Lawrence, Ridley & Lundy 2007). The effects of ocean acidification on marine life are highly uncertain. Whereas some organisms might be able to adapt (Orr et al. 2009), anticipated changes to phytoplankton and zooplankton could have a detrimental effect on ecosystem processes and the structure of ecological communities.

### ***Marine debris***

Marine debris is assessed as *of concern* for Australian sea lions and *of potential concern* for New Zealand fur seals. A number of studies have shown that entanglement in marine debris is likely to be a significant source of mortality for sea lion populations and may be contributing to their lack of recovery across parts of their range (Page et al. 2004; Shaughnessy et al. 2006). It is estimated that 0.2–1.3 per cent of the population becomes entangled in debris (Page et al. 2004; Shaughnessy et al. 2003). The Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life (DEWHA 2009) lists Australian sea lions as being adversely affected by ingestion of, or entanglement in, harmful marine debris. Based on a study at Kangaroo Island, Page et al. (2004) estimated that approximately 64 sea lions and 295 New Zealand fur seals die each year in southern Australia from entanglement, mostly in lost or discarded fishing gear. Because of the threat to pinnipeds, the southern rock lobster industry is phasing out the use of bait supplied in packaging that requires strapping.

### ***Noise pollution***

Noise pollution has been assessed as a pressure *of potential concern* for the Australian sea lion. Pinnipeds are likely to be susceptible to increased noise levels or increased noise pollution—for example, from seismic survey, construction or operational activities. The impacts of noise disturbance on Australian pinnipeds have not been investigated. Studies from elsewhere and on similar species indicate that they may be impacted by seismic surveys and other sources of noise, such as shipping or construction (Gordon et al. 2003). Harbor seals display strong avoidance behaviour (swimming rapidly away from the source) and cessation of feeding in response to air-gun explosions of the type generated through seismic surveys (Thompson et al. 1998). Similar avoidance responses were documented during trials with grey seals: they changed from making foraging dives and moved away from the source, and some seals hauled out, possibly to avoid the noise. Responses to more powerful commercial arrays may be more extreme and longer lasting, and occur at greater distances. Given the status of the Australian sea lion and in light of likely increases in noise generating activities within or in proximity of Australian sea lion habitats, this pressure is *of potential concern*.

### ***Human presence at sensitive sites***

Human presence at sensitive sites has been assessed as *of potential concern* for Australian sea lions because of the conservation status of the species, its lack of recovery, and the absence of monitoring information to assess the effectiveness of mitigation practices. Australian sea lion populations could be disturbed at sea by tourism and recreational activities (DAFF 2007; McKenzie et al. 2005). Tourism and disturbance at colonies has the potential to disrupt breeding behaviour but most colonies are on offshore islands and generally are difficult to access (Goldsworthy & Gales 2008). Tourism-based activities take place at Australian sea lion breeding colonies and haul-out sites in both Western Australia and South Australia. In Western Australia, tourism activities occur at sea lion colonies in the Perth region, in the Jurien Bay area and along the south coast in the Recherche Archipelago near Esperance. In South Australia, tourism activities at colonies of Australian sea lions, Australian fur seals and New Zealand fur seals occur at Baird Bay, Kangaroo Island (two locations), Neptune Islands, Point Labatt, Encounter Bay, Rapid Bay and islands in the Spencer Gulf. Activities that could affect seals and sea lions are boat cruises, swimming, snorkelling and scuba diving with seals, and land-based viewing of colonies. Some sea lion colonies receive large numbers of visitors each year, particularly the Seal Bay colony on Kangaroo Island. Measures are in place at Seal Bay to regulate tourism activities to mitigate disturbance to breeding sites. The impact of visitors on the Australian sea lion is

unknown, but studies from overseas have found that continual disturbance from seal-watching activities can result in reduced feeding and in females moving away from the colony (DEWHA 2010a). Wildlife watching activities in the region are expected to increase.

### ***Extraction of living resources***

Extraction of living resources is assessed as *of potential concern* because of the effects it has on availability of prey species important for the Australian sea lion. Little is known about trophic interactions in Australian waters between fisheries and sea lions, either through direct competition for the same stocks or through more subtle competition involving alteration of the trophic structure. However, it is considered that commercial fishing operations may have reduced the availability of prey for the Australian sea lion (DEWHA 2010a). Australian sea lions are known to prey on rock lobsters, and there are some concerns about rock lobster populations in the South-west Marine Region. Stocks of the southern rock lobster appear to be declining in the northern zone of the fishery, which includes Kangaroo Island and the Eyre Peninsula (Ward et al. 2004, in DEWHA 2010a).

### ***Bycatch***

Bycatch has been assessed as *of concern* for Australian sea lions. Among the anthropogenic threats to Australian sea lions, fisheries interactions are recognised as the major contributor to the species' lack of recovery. Specifically, interactions with bottom-set gillnet fisheries and rock lobster fisheries can result in death or injury to sea lions (DEWHA 2010b). The gillnets used across the range of the sea lion typically target gummy sharks, which are caught using a mesh size that may also catch sea lions. Recent research has shown that rates of mortality might have been underestimated in the past due to high levels of 'drop-out', i.e. instances where the animal falls from the net while the net is retrieved. Interaction with the demersal gillnet fishery off waters of South Australia is considered the key impediment to recovery of the species (Goldsworthy et al. 2010; Hamer et al. 2010). Recent research using information from an independent observer program in the Southern and Eastern Scalefish and Shark Fishery and from modelling suggests that bycatch mortality is likely to be limiting population growth and impeding recovery (DEWHA 2010a). Mitigation measures for the gillnet fishery are in place (AFMA 2010), but the extent of their effectiveness is not yet fully understood.

An observer program has not been established in the Western Australian Temperate Shark Fishery, and so the impacts of possible bycatch off the Western Australian coastline are not known. However, gillnet fishing occurs adjacent to sea lion colonies off the Western Australian coastline. Campbell (2008) reviewed information on Australian sea lion foraging effort and gillnetting activity in Western Australia and found there is almost complete spatial overlap.

In rock lobster fisheries, juvenile sea lions die after being caught in the lobster pots while trying to eat the lobsters or the bait. Although these fisheries have low rates of encounters with and mortality of sea lion pups, the small size of most Australian sea lion populations means that even these low rates may have adverse effects on subpopulations (McKenzie et al. 2005). Spatial analysis by Campbell (2005) and Campbell et al. (2008) of incidental mortality of sea lions in the Western Rock Lobster Fishery indicated that captures were localised around breeding colonies and haul-out sites, and occurred within shallow water (<20 m), with the majority occurring in less than 10 m. Using fishery-dependent sources of data on incidental catch, Campbell (2005) and Campbell et al. (2008) estimated that at least 4–5 sea lions were killed in the fishery every fishing season. Incidental mortality of Australian sea lions in the West Coast Rock Lobster Fishery was identified as one of the key threatening processes for the distinct subpopulation of

about 700 animals on the west coast of Australia (Campbell et al. 2008). Mitigation measures for lobster pots have shown some effectiveness in reducing deaths. No quantitative data on bycatch rates are available for the South Australian Southern Rock Lobster Fishery.

### ***Oil pollution***

Oil pollution is assessed as *of potential concern* for the Australian sea lion and New Zealand fur seal. While oil spills are unpredictable events and their likelihood is low—particularly in the context of the international and domestic regulatory mitigation measures that apply in Australia—their consequences, especially for threatened species at important areas, could be severe. Many colonies of the Australian sea lion and New Zealand fur seal occur in proximity of major shipping lanes and are therefore vulnerable to oil spills caused by shipping accidents. The sinking of the bulk ore carrier *Sanko Harvest* off the Recherche Archipelago in 1991 led to oil fouling of fur seal pups in at least two breeding colonies in Western Australia. Pups were contaminated at two colonies, but prompt action enabled them to be captured, restrained in holding pens and cleaned (Gales 1991; Shaughnessy 1999). New Zealand fur seals are known to be vulnerable to oil spills because of their dependence on their thick fur for thermoregulation (Gales 1991). The intensity and distribution of activities implicated in oil spills – such as oil production and transport – are likely to increase in the region.

### ***Collision or entanglement with marine infrastructure***

Collision or entanglement with infrastructure is assessed as *of potential concern* for Australian sea lions. Marine-based aquaculture occurs in coastal areas within state jurisdictions; however, recent improvements in technology to enable open-ocean operations have led to increased interest in aquaculture in Commonwealth waters. Seals and Australian sea lions are known to interact with tuna farm infrastructure near Port Lincoln in South Australia (adjacent to the region) but data about the current levels of interaction are limited (McKenzie et al. 2005). Offshore installations such as wind farms and wave energy converters are other forms of infrastructure that might become common in the region in the future and have the potential to interact with and affect Australian sea lions. The potential impact of these installations on marine mammals is currently being assessed overseas.

## **3. Protection measures**

All pinnipeds are protected as listed marine species under s. 248 of the EPBC Act. Although there are some differences in the protective management measures in place for species listed under different categories, under the EPBC Act in general it is an offence to kill, injure, take, trade, keep, or move listed marine, migratory or threatened species on Australian Government land or in Commonwealth waters without a permit.

Alongside the EPBC Act, a broad range of sector-specific management measures to address environmental issues and mitigate impacts apply to activities that take place in Commonwealth marine areas. These measures give effect to regulatory and administrative requirements under Commonwealth and state legislation for activities such as commercial and recreational fishing, oil and gas exploration and production, ports activities and maritime transport. In some instances, as in the case of shipping, these measures also fulfil Australia's obligations under a number of international conventions for the protection of the marine environment from pollution and environmental harm.

Protection and conservation measures administered under the EPBC Act and that are relevant to the conservation values described in this Report Card are listed below.

*EPBC Act conservation plans and action plans*

- Action Plan for Australian Seals (Shaughnessy 1999)
- Draft Recovery Plan for the Australian sea lion (*Neophoca Cinerea*) (DEWHA 2010b)
- Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Marine Life (DEWHA 2009)

Other particularly relevant management plans and strategies for these species that are not administered under the EPBC Act include:

- National Strategy to Address Interactions between Humans and Seals: Fisheries, Aquaculture and Tourism (DAFF 2006)
- National Assessment of Interactions between Humans and Seals: Fisheries, Aquaculture and Tourism (DAFF 2007)
- Australian Sea Lion Management Strategy Southern and Eastern Scalefish and Shark Fishery (SESSF) (AFMA 2010)

For more information on conservation listings under the EPBC Act, and related management objectives and protection measures, visit the following sites:

- [www.environment.gov.au/coasts/species/marine-species-list.html](http://www.environment.gov.au/coasts/species/marine-species-list.html) (listed marine species)
- [www.environment.gov.au/epbc/protect/species-communities.html](http://www.environment.gov.au/epbc/protect/species-communities.html) (listed threatened species and ecological communities).

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## Attachment 1: Pinnipeds in the South-west Marine Region

**Table 1: Species known to occur in the region**

Species	Conservation status
Australian sea lion ( <i>Neophoca cinerea</i> )	Vulnerable, marine
Australian fur seal ( <i>Arctocephalus pusillus</i> )	Marine
New Zealand fur seal ( <i>Arctocephalus forsteri</i> )	Marine

**Table 2: Species that may infrequently occur in the region<sup>a</sup>**

Species	Conservation status
Sub-Antarctic fur seal ( <i>Arctocephalus tropicalis</i> )	Vulnerable, marine
Southern elephant seal ( <i>Mirounga leonina</i> )	Vulnerable, marine
Antarctic fur seal ( <i>Arctocephalus gazella</i> )	Marine
Crab-eater seal ( <i>Lobodon carcinophagus</i> )	Marine
Leopard seal ( <i>Hydrurga leptonyx</i> )	Marine
Ross seal ( <i>Ommatophoca rossi</i> )	Marine
Weddell seal ( <i>Leptonychotes weddellii</i> )	Marine

<sup>a</sup> These species are considered vagrant species in the region.

