10. ADELAIDE AND MT LOFTY RANGES REGIONAL OILED WILDLIFE RESPONSE PLAN

Government of South Australia
Department for Environment and Water

AMOSC
Australian Marine Oil Spill Centre Pty Ltd

History of this Document

This regional plan was developed by the Department for Environment and Water (DEW) and the Australian Marine Oil Spill Centre (AMOSC) to be consistent with the Western Australia (WA) Pilbara Regional Oiled Wildlife Response Plan which was produced jointly by the Western Australia Department of Parks and Wildlife (Parks and Wildlife) and AMOSC on behalf of the Petroleum Industry to set out the minimum standard for an OWR in state waters. The South Australian Oiled Wildlife Response Plan contains the general arrangements which apply across the state and seven chapters which comprise the local plans for each of the coastal regions. This chapter describe those local arrangements in the Adelaide and Mt Lofty Ranges Region.

The Adelaide and Mt Lofty Ranges Regional Oiled Wildlife Response Plan was developed in consultation with Adelaide and Mt Lofty Ranges regional staff**.** The contribution and assistance of AMOSC and the Western Australian Government is both acknowledged and appreciated. The Plan was approved by the Adelaide and Mt Lofty Ranges Regional Director and adopted on 29 October 2018.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with South Australian Marine Oil Pollution Plans and petroleum titleholder oil pollution emergency plans, as required.

Review

This plan will be reviewed and updated by the Regional Director, Adelaide and Mt Lofty Ranges, DEW and AMOSC initially within twelve months of release. Thereafter it will be reviewed following an incident or at least once every two years. The table below will be updated as future revisions of the Adelaide and Mt Lofty Ranges regional plan are reviewed.

Version	Date	Reviewed by	Approved by
V1.1	29/10/ 2018	Jason Van Weenen, Tony Flaherty and Judy Borlase	Brenton Grear, Regional Director DEW

10.1 INTRODUCTION

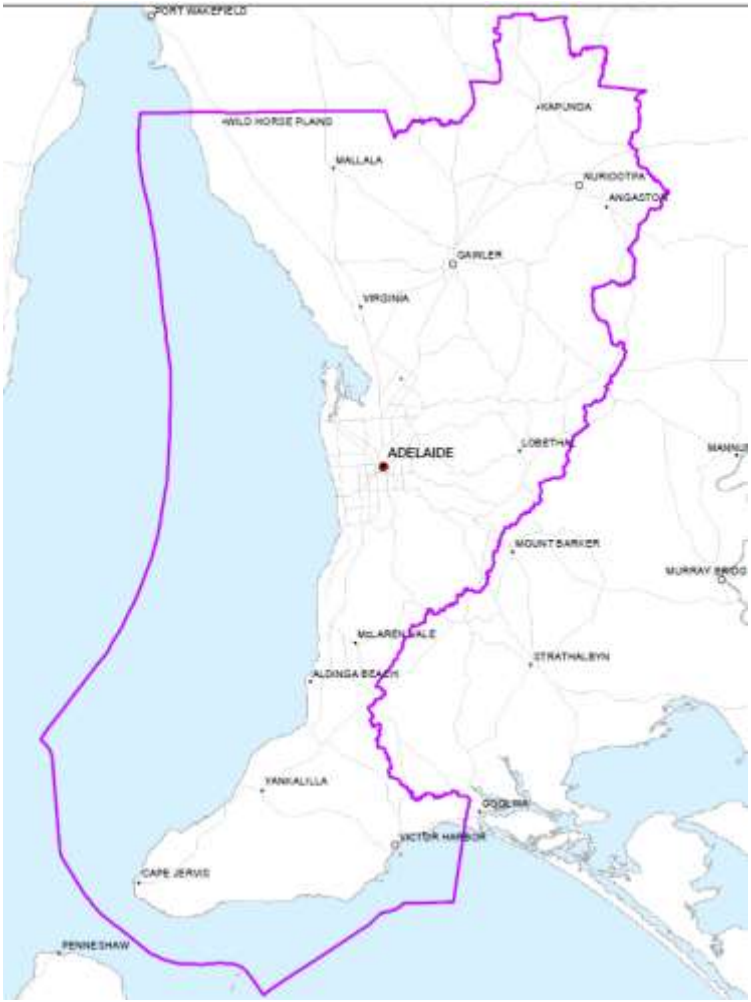
10.1.1 Purpose of this plan

The purpose of the *Adelaide and Mount Lofty Ranges Oiled Wildlife Response Plan* is to provide guidance to operational staff who respond to wildlife which have been injured or oiled by a marine based spill in the Adelaide and Mt Lofty Ranges region. This plan sits beneath the South Australian Oiled Wildlife Response plan and provides regional context to it. Each region within South Australia has, or is developing, a similar regional operational plan. This plan forms an addendum to the State plan in the form of a 'Chapter' and both should be activated if an oil spill impacts wildlife in the region. The method of activation is detailed in section 2 of the State Plan.

10.1.2 Scope

The Adelaide and Mount Lofty Ranges (AMLR) region is one of eight natural resources management (NRM) regions established in South Australia under the Natural Resources Management Act 2004. It includes metropolitan Adelaide and the western side of the Mount Lofty Ranges, extending from Mallala and the Barossa in the north, to the Fleurieu Peninsula in the south (Figure 10.1). The region also extends up to 30 km into the marine environment. Of its total area of approximately 11,200 square kilometres, 59% is land and 41% marine waters.

Figure 10.1: Map of Adelaide and Mount Lofty Ranges Region



10.1.3 Management Objectives and Outcomes

Specific objectives include:

- Safe and efficient operational responses to oiled wildlife incidents by response teams
- Control and consistency of capturing, handling and treating oiled wildlife
- Ethical and total regard for the welfare of injured or oiled wildlife resulting from a marine oil pollution incident
- Guidance for decisions by the Incident Management Team on prioritising habitats on DEW managed reserves and wildlife aggregation areas
- Development of skills and knowledge within the AMLR region across government and industry to ensure oiled wildlife response can be undertaken safety, effectively and efficiently
- Knowledge and guidelines to facilitate the rapid rescue, stabilisation and rehabilitation of susceptible wildlife found in the AMLR region
- Detail existing resources in the AMLR region to respond to oiled wildlife response.

10.1.4 Geographical and Cultural Settings

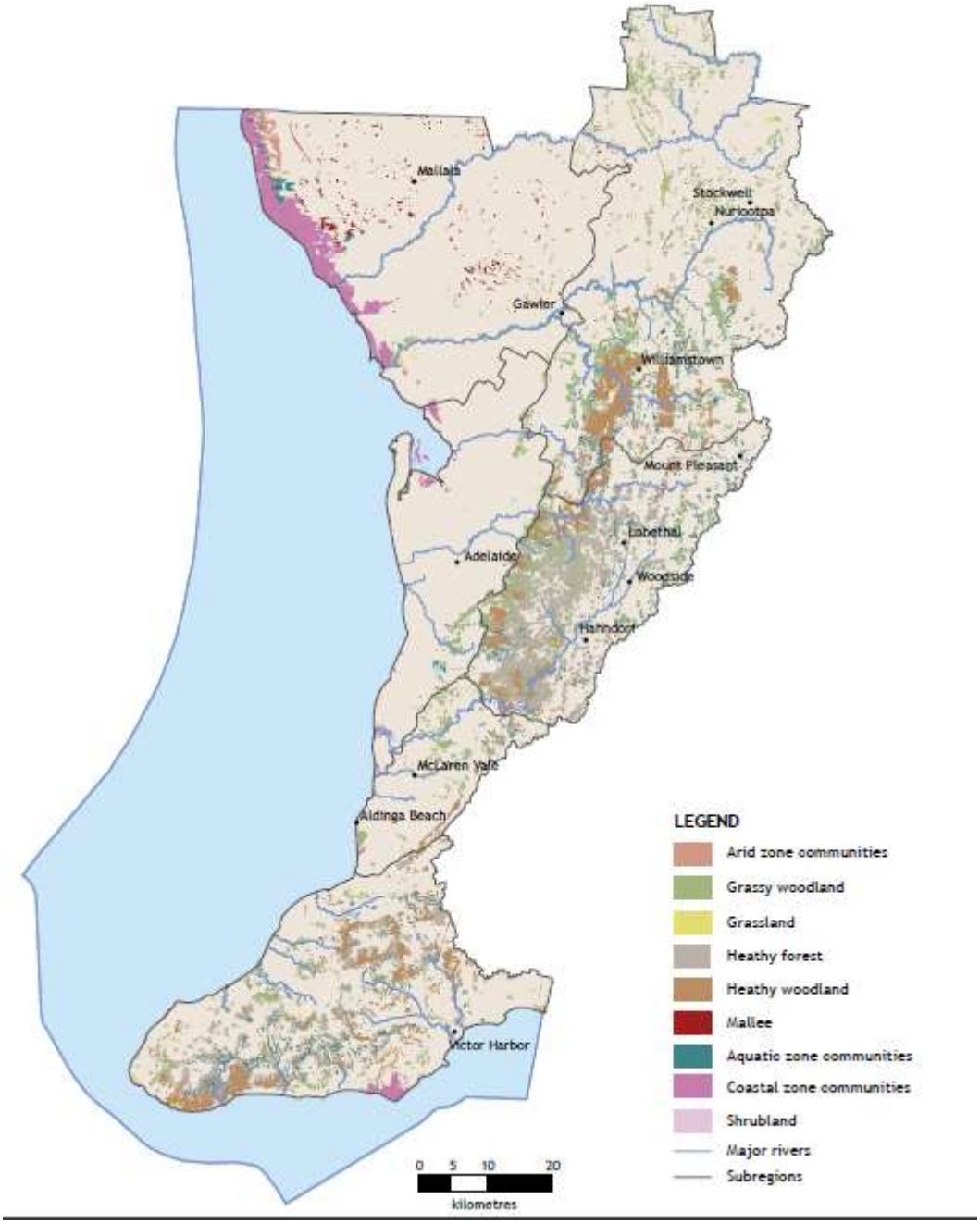
The region supports a diverse mosaic of landscape types, including remnant bushland, agriculture and horticulture, urban areas, beaches, spectacular coastal scenery and marine environments. It is the most complex landscape in the state. The population and landscapes in the region support diverse industries which make a significant contribution to the state's economy.

This most biologically diverse region in South Australia is home to half of the state's species of native plants and three-quarters of its native birds. It also contains some of the state's most productive primary industries supplying local and international markets and contributing to South Australia's economic and social wellbeing.

The region is under continual pressure as metropolitan Adelaide grows, and land use changes. In the last 10 years urban development has increased at the northern and southern edges of metropolitan Adelaide and agricultural land use has changed to rural residential land, particularly in the north of the region and in the Fleurieu. Primary production land has also been changing from agricultural to horticultural uses, particularly adjacent to existing horticultural areas. These changes reflect intensification of land uses which may impact on the natural resources of the region.

With approximately 1.3 million people, the region contains almost 80% of the state's population. The extremely diverse population lives and works in rural landholdings and primary industries, rural townships and peri urban areas, and metropolitan Adelaide. In general the region's population is ageing; population growth is slowing and household sizes are decreasing while the number of households is increasing. These and other socio-demographic characteristics such as education levels, degree of home ownership, language spoken at home, income levels and family status all influence the ability of people to be involved and actively take part in natural resources management

Figure 10.2: Map of Adelaide and Mount Lofty Ranges Region



The terrestrial landscapes of the region support a diverse range of uses that underpin environmental health, economic productivity and social wellbeing in the region. The value of services provided by the soils, flora and fauna are incalculable – they generate oxygen and remove carbon dioxide from the atmosphere, filter water for drinking, recycle nutrients, maintain habitat, provide recreational spaces and support tourism. Maintaining and protecting strong, healthy, functioning landscapes are fundamental to social and economic wellbeing (Adelaide and Mount Lofty Ranges NRM Board 2008).

The coastal ecosystems in the region range from samphire flats and mangrove forests in the north through broad sandy beaches and dunes in the metropolitan area to cliff top and sandy beach communities in the south. These diverse ecosystems give enormous value to our society. The mangrove/samphire flat system in the north is economically important as it is critical habitat for breeding of a number of commercial fish and crustacean species. The samphire flats are also the final

destination for a number of migratory birds which travel annually from Siberia to escape the northern winter. The sandy beaches of the coast not only make a popular recreational landscape they are also a valuable protection barrier from coastal inundation and damage of private homes and public infrastructure. The steep cliff system in the south has magnificent viewscapes and provides important habitat for rare and endangered species including the Yellow-tailed Black-cockatoo. Each of these ecosystems is under increasing pressure from the high number of diverse recreational users, pest plant and animal invasion, recreational and commercial developments, and changing climatic conditions.

Marine waters are a significant component of the region, making up approximately 41% of its total area. Most of the region's marine waters are in Gulf St Vincent, with the boundary extending to the south into Backstairs Passage and the more exposed waters of the southern Fleurieu Peninsula. The marine waters are shared with three other NRM regions, Northern and Yorke, Kangaroo Island and South Australian Murray–Darling Basin, and management of the marine area needs to be considered jointly with these regions. The marine waters of the region are covered in part by the Encounter Marine Park, the Upper Gulf St Vincent Marine Park and the Adelaide Dolphin Sanctuary. Management plans have been developed for each of these marine parks. The Adelaide International Bird Sanctuary also protects tidal coastal wetland habitats north of Adelaide and interfaces with the Adelaide Dolphin Sanctuary and the Upper Gulf St Vincent Marine Park.

Marine biodiversity in Gulf St Vincent is typical of cool temperate biota but with significant levels of species uniqueness or endemism for many algae, fish and marine invertebrates. The gulf has extensive seagrass meadows, mangroves, and samphire or saltmarsh, as well as significant sandy and soft bottomed habitats and reef areas (Adelaide and Mount Lofty Ranges NRM Board 2008). Dominant habitats in near shore subtidal waters (<15 m) include seagrass, rocky reefs and unvegetated soft sediment (Edyvane 1999a). The seagrass meadows along the metropolitan coast are mostly *Posidonia* and *Amphibolis* communities. The mixed *Posidonia* and *Amphibolis* communities of the past are now being dominated by *Posidonia*.

Outside the metropolitan areas, coastal seagrass meadows appear to be relatively healthy with continuous and extensive dense seagrass still in Encounter Bay. Recent mapping of the southern Fleurieu found eight species of seagrass (Adelaide and Mount Lofty Ranges NRM 2008). The region's subtidal temperate reefs are dominated by large seaweeds or macroalgae and invertebrates such as sponges, bryozoans, ascidians, hydroids, echinoderms, molluscs and crustaceans. Structure and species composition is related to wave action and other physical influences. Below the brown algal canopy are a number of understoreys, comprising smaller green, brown or red algae. The species composition of these understoreys appears to be variable at different sites (Adelaide and Mount Lofty Ranges NRM Board, 2008).

In addition to its intrinsic value, a healthy marine aquatic environment supports a substantial commercial and recreational fishing industry, nursery habitat for resident and migratory species, protection against storms, sediment trapping and stabilisation, beach protection and the tourism industry. Marine aquatic health has been assessed (Gaylard et al. 2013) based on the habitat status of:

- seagrass cover and condition
- reef condition.

Near-shore waters are exposed to a range of external pressures which can adversely affect their condition. These wide and varied pressures include short-term pulsed inputs such as stormwater, through to constant discharges such as those from sewage treatment plants. The impacts on marine aquatic health can be temporary and localised or can be permanent and wide ranging. The major impact of stormwater is long term as it is a source of elevated nutrients (into a naturally low nutrient

system), contaminants and erosion sediments. Both near-shore and off-shore habitats can also be impacted by a range of marine based activities such as dredging (Gaylard et al. 2013).

Studies have shown that for South Australian marine waters even small increases in nutrient concentrations can have disproportionate degenerative effects. These include increasing epiphyte loading on seagrass, potentially leading to seagrass loss, and shifting from canopy macro-algal reef systems to turf dominated reef systems. When habitats shift to less productive, less diverse systems they are generally seen as being in poor condition. A system in poor condition can lead to not only loss of ecological value but economic losses as well. Consistent with the findings of other similar large–scale studies, the Adelaide Coastal Waters Study (Fox et al. 2007) identified modification and degradation of Adelaide's coastal marine environment as a result of many years of near-continuous inputs of nutrient rich, turbid and coloured water and wastewater. All the evidence points to the key role of nitrogen loads causing nutrient enrichment of coastal waters, growth of epiphytes, and (perhaps) direct effects on the seagrasses. There is no evidence from the study to show that toxicants or other nutrients play a key role in the ecosystem dynamics (Fox et al. 2007).

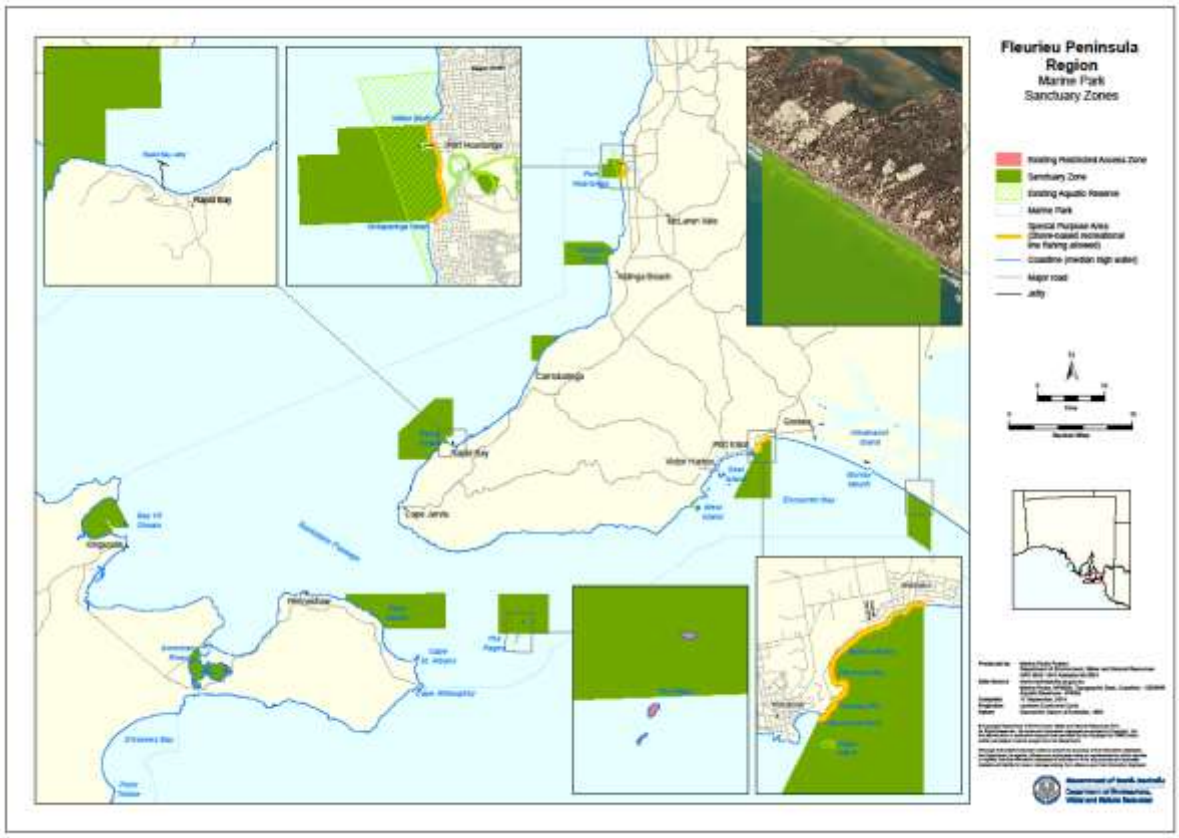
The subregions for the Adelaide and Mount Lofty Ranges region are:

- Metropolitan Adelaide
- Northern Coast and Plains
- Northern Hills
- Central Hills
- Willunga Basin and Fleurieu Peninsula
- Marine.

Of these, the following incorporate sections of coastline so are incorporated into this plan:

- Metropolitan Adelaide
- Northern Coast and Plains
- Willunga Basin and Fleurieu Peninsula.

Figure 10.3: Map of Encounter marine park sanctuary zone



10.2 REGIONAL OILED WILDLIFE RESPONSE PREPAREDNESS

Although pre-planning and organisation are important for successful management of an incident, assessment of the unique conditions and determination of specific strategies pertinent to an event is critical. There are numerous examples of effective wildlife rescue and rehabilitation in spill events, however there are few examples of successful operations in remote areas during periods of extreme heat. A large scale marine oil pollution incident requiring capture and remediation of birds, marine mammals, or shoreline foraging mammals and reptiles would be unprecedented in Australia and is likely to present many challenges.

Environmental information pertaining to the region should be available in readiness for an oil spill. This should include maps of species distribution and seasonality, population information, and critical habitat data such as breeding, feeding, and/or roosting areas. Surveys provide detailed information but there can be variability in wildlife populations from year to year and hence, if possible, a survey should be conducted immediately on advice that an incident has occurred. This may be critically important to the success of oiled wildlife response.

10.2.1 Regional Values

The Mount Lofty Ranges Region Priorities for Protection are summarised in Table 1. These are based on published information and scored against the consequence of an oil spill outlined in Table 2 Factors used to assess the consequence of a spill event on wildlife include the following:

- Conservation status of wildlife on a local, Regional, State, National, or international context is a prime consideration.

- Marine and terrestrial conservation reserves. These areas are identified as important for maintaining species and ecosystem function and are a priority for protection.
- The importance of the all-natural habitats for flora, fauna, species and ecosystem function including those outside of the DEW managed reserves.
- The long term consequence of oiling or wildlife deaths in the area.

Priorities can be determined based on species, ecological communities, across all lands and waters and on social values for the area. Priorities may also be determined as a combination of these factors. However priorities for protection will differ with differing circumstances that may manifest in an incident. Table 10.1 shows the highest priority areas in the region and is a summary of the more detailed information provided in the Operational Sectors section in this document. The priority scores have been allocated using the information outlined in Table 10.2 in tandem with published literature and DEW field data supplemented with input from the Petroleum Industry. The scores are for guidance and will be reviewed as part of the plan's twelve month review process.

Table 10.1: Adelaide Mount Lofty Ranges Region Priorities for Protection Summary

PRIORITY	SECTOR	LOCATION	REASON	PRIORITY SCORE
1	18	Outer Harbor north to Parham (limit of AMLR Region) including Port River and Barker Inlet	- Fragile tidal coastal wetland habitats and adjacent shallow subtidal seagrass habitats. Highly ecologically important area. Of state, national and international significance (Wetlands of National Importance; part of East Asian-Australasian Flyway, multiple conservation listed marine mammal and bird species), Adelaide Dolphin Sanctuary (ADS), Adelaide International Bird Sanctuary, Upper Gulf St Vincent Marine Park. - Resident population of bottlenose dolphins, haul out site for Long nosed fur seals and Australian sea lions in ADS. Significant Black-faced Cormorant breeding site. Barker Inlet and northern coast provides critically important fish nursery supporting fish populations beyond the region's boundaries (supports ecology of whole of Gulf St Vincent).	Very High
2	18	Metropolitan coast of Adelaide (North Haven to Hallett Cove	Very high social and economic values. Approximately 30km of unbroken sandy beaches backed by extensive urban development. Significant economic and recreational (social) asset for city of Adelaide (approximately one million people). Nationally listed vulnerable Hooded Plover Beach nesting habitats (Seacliff, Hallett Covet and Port Stanvac).	Very High
3	18 & 19	Southern Adelaide and western Fleurieu Peninsula coastline	- Very high social values as a recreational asset for the population of metropolitan Adelaide and Fleurieu Peninsula (>1million people). Economic values from industries (e.g. tourism and fisheries) for southern Adelaide and regional centres of the Fleurieu Peninsula. - Environmental values: Sanctuary zones and restricted access zones (core conservation areas) within the Encounter Marine Park including Port Noarlunga Reef; Onkaparinga River estuary; Aldinga Reef; Carrickalinga Cliffs; Rapid Head; The Pages Islands; Encounter Bay; West Island. Sanctuary zones contain representative habitats characteristic of the region, maintain critical ecological processes and protect multiple flora and fauna species of conservation importance e.g. the nationally listed vulnerable Hooded Plover beach-nesting habitats (multiple sites – Hallett Cove, Seacliff and Port Stanvic) . - Coastal habitats fringing the Deep Creek, Newland Head and West Island Conservation Parks and Granite Island Recreation Park are of very high ecological, social and economic importance. Beaches, fringing reefs and dense seagrass meadows off the large regional centre of Victor Harbor are of very high ecological, social and economic importance.	Very High

PRIORITY	SECTOR	LOCATION	REASON	PRIORITY SCORE
4	18 & 19	Other Southern Adelaide and western Fleurieu Peninsula coastline (Habitat Protection Zones – Encounter Marine Park)	- Coastal 'habitat protection zones' (significant habitats supporting ecosystem function) within Encounter Marine Park include: - Christies Beach (sandy beach backed by urban development); Seaford (rocky coast backed by urban development and accredited National Surfing Reserve); Moana Beach (sandy beach backed by urban development and Moana Sands Conservation Park); Maslin Beach, Port Willunga, Silver Sands and Sellicks Beach (sandy beaches with peri-urban residential development); Myponga Beach (sandy beach backed by small regional community, adjacent coastal cliff, reef and seagrass habitats); Carrickalinga and Normanville beaches (important sandy beach, intertidal shore platforms/reef habitats and regionally significant seagrass habitats. Also significant social and economic values as the regional townships of Yankalilla, Carrickalinga and Normanville are large residential and tourism centres on the Fleurieu Peninsula; Marina Adelaide/Wirrina (economic and social values associated with a large marina. Ecological values associated with adjacent rocky reef shoreline and seagrass habitats; Second Valley to Rapid Bay (social and economic importance as regional coastal townships and tourism destinations, ecological values with sandy beaches, cliffs, reefs and seagrass habitats); Cape Jervis (significant social values as a regional township and transport link to Kangaroo Island for tourism and goods/services. - Tunkalilla Beach, Parsons Beach and Waitpinga Beach are of high ecological value supporting conservation listed bird species and of high ecological value supporting marine species associated with high energy open surf beaches. - Goolwa beach to the Murray Mouth (adjacent the AMLR region but still within Encounter Marine Park) is of high social and economic importance due to the fisheries it supports and ecological importance due to the marine mammal and bird species supported, as well as being the entrance to the largest estuarine system in South Australia in the Coorong National Park.	High

Table 10.2: Allocation of Priority Based on the Consequences of Spill in Identified Location

POSSIBLE CONSEQUENCE OF SPILL	Priority from protection and response
Localised and short term (<1 year) effects on common wildlife or habitats outside of conservation reserves. Some oiled wildlife but no wildlife deaths.	**Low**
Localised and short term effects on habitats within conservation reserves. Some deaths <5% of a common species population outside of conservation reserves. Oiling of some common species inside conservation reserves.	**Medium**
Localised moderate term (<2 years) effects or widespread short term habitat effects (<6 months). On habitats Oiling of common species within a conservation reserve, or <10% of a local species population, oiling of >5% of local population of threatened species or detectable change in breeding capacity. Oiling or loss of any wildlife protected by treaty. Short term detectable loss of breeding capacity of any species.	**Significant**
Widespread significant regional habitat loss or moderate to long term (2-5 years) ecological effects (multiple species) of habitats or over 50% of shoreline or islands in a conservation reserve. Oiling of up to 10-50% of a Regional common species or deaths of <20% of regional or conservation reserve species population. Oiling of >10% or, deaths of <10% of WA threatened species population. Minor (5%) moderate term (<2 years) loss of breeding capacity for any species.	**High**

POSSIBLE CONSEQUENCE OF SPILL	Priority from protection and response
Significant long term ecological effects >5 years (affecting many species) on ecosystem function on a bioregional or conservation land unit scale. Deaths of >20% of a regional or conservation reserve population. Oiling of over 20% of a WA threatened, species or deaths of >10% threatened species population. Loss of breeding capacity of a regional threatened species population. Significant >5% Moderate term (2-5 years) loss of breeding capacity.	**Very High**

A current list of South Australian Endangered Species can be found in the South Australian Oiled Wildlife Response Plan or in Schedule 7 of the *National Parks and Wildlife Act 1972.* Petroleum industry companies must have an approved Oil Pollution Environment Plan (OPEP) and Environmental Plan (EP). Sensitive areas within the potential spill area are identified in this documentation. These plans should be used in conjunction with this oiled wildlife response plan and the SAOWRP to determine values and priorities for protection.

10.2.2 Prioritised Ecological Values

Coastline, vegetation and habitat data in the SA Oil Spill Response Atlas Web Mapping Application are generally well populated and do not change quickly. Data on species at risk of oiling or impact to species habitat sites are however insufficient and currently being improved in the OSRA system. This plan provides a brief description of the landforms and coastal marine environment, and the broad environmental values for each of the predetermined sectors. Each sector is described including details of important wildlife populations.

10.2.3 Zone of Confidence (ZoC)

To populate the environmental sensitivities this plan utilises data contained in:

- DEW Biological Databases of South Australia (BDBSA)
- DotEE, National Conservation Values Atlas of BIAs
- Atlas of Living Australia
- Published surveys, reports and scientific papers.

Note: At the time of writing this plan the SA OSRA WMA database was still in development.

The above datasets have varying degrees of confidence. In order to provide the IMT with the capacity to guage the currency and accuracy of the data, regional DEW wildlife ecologists will be contacted.10.3. RESOURCES - EQUIPMENT

10.3.1 Oiled Wildlife Response Equipment

A list of portable oiled wildlife response equipment in South Australia is included in the State Plan. The Australian Maritime Safety Authority (AMSA) oiled wildlife response first strike response kits contents can be found on the AMSA.

Further equipment and supplies will be required to establish facilities and rehabilitation care. Specialist and general oiled wildlife response equipment suppliers and contractors accessible to the region are listed below.

Table 10.4: Sources of oiled wildlife response equipment

Product	Purpose	Company/Agency	Location	Phone
1 unit - Response Trailers	Oil Spill Response	DPTI	No. 1 Wright Road, Waikiri Height	Todd Graham M: 0428 1047 83 L: (08) 8260 0554

Further oiled wildlife response equipment can be sourced nationally in other jurisdictions from AMOSC and National Plan stockpiles, see Section 7 of the South Australian Oiled Wildlife Response Plan for further information (State Wide Resources and Arrangements).

10.3.2 Communications

A Communications Support Unit forms part of the oil spill response. Within the oiled wildlife response structure, a Wildlife Communications Officer/unit role is also designated. The Communications Officer in the Logistics Unit is responsible for maintaining effective communication between the various response groups operating during the oiled wildlife response. In accordance with the Australasian Inter-service Incident Management System (AIIMS), a communications plan for the incident will be prepared. If the field of operations for oil spill response and oiled wildlife response overlap, a single communications plan is preferred. The oiled wildlife response operations area may differ greatly to the oil spill response field and, if so, separate communications plans may be required. If a separate oiled wildlife response communications plan is put in place it should overlap at appropriate points in the AIIMS structure with the oil spill response communications plan.

10.3.2.1 Communications when DEW is Coordinating Oiled Wildlife Response

If DEW is coordinating the oiled wildlife response, the communications plan in the South Australian Oiled Wildlife Response Plan should be followed. DEW radio networks, satellite phones, and mobile phones are commonly used for normal DEW operations in the AMLR Region. Fixed communications are located in vehicles, vessels and some offices and work centres.

10.3.2.2 Communications when Petroleum Industry is Coordinating Oiled Wildlife Response

If the Petroleum Industry is leading the oiled wildlife response, the wildlife division should integrate into the existing communications structure of the oil spill response. Further communication resources are available through DEW if required.

10.3.2.3 Ship to Ship/Ship to Shore Communication

Typically, ship to shore communication will be via VHF and secondarily through mobile phones where reception is available. Permanent VHF stations are located: Adelaide Ch 16 and Myponga Ch 80. Workboats all have VHF and along with all other vessels will have a listening watch on channel 16. The communication channel during the response will be specified by the Communications Officer to all functional units when developing the communications plan.

10.3.2.4 Ground to Ground Communication

In the event of shoreline wildlife capture, good communications is essential. A number of VHF and GRN units are held by the Marine Parks Office at Port Adelaide. DEW South Australian Government Radio Network Channels (SAGRN) for ***the AMLR Region (Zone C)*** *is* ***C04-NR-AMLR1.***

10.3.2.5 Outside Communications

A log should be kept of all calls and emails/fax messages as is consistent with command and control requirements of incident response. To assist in this task, consideration should be given to the use of voice recorders to use during emergencies when notes cannot be taken.

10.3.2.6 Communication Plan

As the oiled wildlife response is escalated, communication systems will need to meet the demands of the increasing number of responders and spatial complexities of the response effort. The Communications Officer in the logistics unit is responsible for developing and maintaining the communications plan through the response.

10.3.3 Vessels

10.3.3.1 Parks and Wildlife Vessels

DEW operates six vessels within the AMLR Region. All of these vessels are trailer-able. Vessels include:

- one MPV Encounter (6.1m fibreglass marine parks patrol boat)
- one Yambo (5.7m rigid hull inflatable marine parks patrol boat)
- one TK Arnott (7.4m aluminium marine science boat)
- one Swift (3.4m rigid hull inflatable marine parks patrol/whale disentanglement boat);
- one Stacer (4.4m aluminium coastal survey boat, and
- one Rapid (8.5m aluminium catamaran hull survey and dive boat).

10.3.3.2 Industry Vessels

Industry has no vessels in the AMLR Region but this may change if oil exploration is undertaken. These may be identified in the petroleum industry OPEPs and the logistics section of their Oil Spill Response Plans.

10.3.3.3 Other vessels available for hire

SA DPTI maintains lists of all Surveyed Passenger Vessels (SPV) and the DEW licensing system can be interrogated to find local tour operators. PIRSA Fisheries has registers of commercial fishers operating in the region which may be available if the need arises.

10.3.3.4 Vessel Launch Sites

Site Name	General Location GPS Co-ordinates	Vessel Size Estimates	Description of Launch Area and Comments
Parham	34.43°S, 138.26°E	< 5m	Beach launch, difficult
Thompson Beach	34.49°S, 138.29°E	< 5m	Beach launch, difficult
Middle Beach	34.61°S, 138.41°E	< 5m	Beach launch, difficult
Webb Beach	34.44°S, 138.26°E	< 5m	Beach launch
Port Gawler	34.67°S, 138.44°E	< 5m	Beach launch, difficult
St Kilda	34.74°S, 138.54°E	Max trailerable	Concrete ramp with pontoons
North Haven	34.79°S, 138.49°E	Max trailerable	Concrete ramp with pontoons
West Beach (Adelaide Shores)	35.00°S, 138.50°E	Max trailerable	Concrete ramp with pontoons
Sellicks Beach	35.03°S, 138.52°E	< 5m	Beach launch
O'Sullivan Beach	35.12°S,138.47°E	Max trailerable	Concrete ramp with pontoons
Port Noarlunga	35.15°S, 138.47°E	< 5m	Beach launch, difficult
Moana	35.20°S, 138.47°E	<5m	Beach launch, difficult
Aldinga Beach	35.29°S, 138.44°E	<5m	Beach launch
Sellicks Beach	35.33°S, 138.44°E	<5m	Beach launch
Myponga Beach	35.37°S, 138.39°E	<5m	Beach launch
Normanville	35.45°S, 138.31°E	<5m	Beach launch

Site Name	General Location GPS Co-ordinates	Vessel Size Estimates	Description of Launch Area and Comments
Marina St Vincent (Wirrina)	35.50°S, 138.24°E	Max trailerable	Concrete ramp with pontoons
Cape Jervis	35.60°S, 138.09°E	Max trailerable	Concrete ramp with pontoons
Bluff Boat Ramp, Victor Harbor	35.58°S, 138.60°E	Max trailerable	Concrete ramp with pontoons
Kent Reserve, Victor Harbor	35.56°S, 138.61°E	<5m	Beach launch
Victor Harbor	35.56°S, 138.62°E		Beach launch
Port Elliot	35.54°S, 138.67°E	<5m	Beach launch

Tide prediction for all the above locations are available at: http://www.bom.gov.au/australia/tides/#!/sa

10.3.4 Aerial

10.3.4.1 Aircraft Resource List

Operator	Aircraft	Capability	Availability	Key Contact for Release
Adelaide Airport	Commercial airlines	Commercial planes		Adelaide Airport : (08) 8308 9211
Parafield Airport Limited	Private operators	Private planes	• Charter flights • Flight training schools	True Aviators: 0416 460 866
				Banksia Adventures: (08) 8285 5033
				Parafield Airport Limited: (08) 8307 5700
				Renaissance Air: (08) 8281 6144
				Helistar (Helicopter): (08) 8258 9040
	Flinders University	-	• Flinders Centre for Airborne Research, Flinders University	(08) 8182 4000

10.3.4.2 Aircraft Landing Strips

Airfield	Length (m)	Latitude South		Longitude East	
		Degs.	Dec. Mins	Degs.	Dec. Mins
Adelaide Airport	311	34.56.41.99S	34.945000	138.31.51.62E	138.531006
Aldinga	338	35.17.24.00S	35.290001	138.29.24.02E	138.490005
Parafield	322	34.47.35.88S	34.793301	138.37.58.78E	138.632996
Goolwa	315	35.28.54.12S	35.481701	138.45.07.19E	138.751999
Murray Bridge	322	35.04.00.12S	35.066700	139.13.37.22E	139.227005

10.4. RESOURCES – PERSONNEL

10.4.1 Trained personnel

The training required for those participating in an oiled wildlife response is explained in Section 5 of the South Australian Oiled Wildlife Response Plan (Oiled wildlife Response Incident Types and Personnel Required). This level informs the number of oiled wildlife response personnel and the skills they require. The State Plan also provides:

- Descriptions of each of the roles in detail can be found in Appendix A.
- A description of the oiled wildlife response incident structure and how responders interact is outlined in Section 3 (Oiled Wildlife Response Incident Management Structure)
- The stages of an oiled wildlife response in Section 4 (Stages of Oiled Wildlife Response)

Through a best endeavours approach between DEW and AMOSC, a state wide capacity to respond to an oiled wildlife response event will be maintained. DEW and AMOSC maintain a list of trained personnel and resources available. Either party may request assistance from the other if their internal pool of trained personnel or expertise has been exhausted.

10.4.2 Wildlife Carers

There are many wildlife carers in the Adelaide Mt Lofty Ranges Region. It is likely that, in the event of an oil spill, wildlife from other regions would be relocated to Adelaide for long term rehabilitation.

Table 10.5: AMLR Carers Contacts

Name	Carer Group Name	Species accepted	Location	Contact Details
Aaron Machado	Australian Marine Wildlife Rescue and Research Organisation	Seals, seabirds, pinnipeds and sea turtles	Torrens Island, Port Adelaide	0411 057 551
N/A	Fauna Rescue	Birds	Various	(08) 8289 0896
N/A	Adelaide Koala and wildlife hospital	Marsupials, reptiles, birds	Plympton	(08) 8297 2455
N/A	Bird Care & Conservation Society South Australia Inc	Birds	Level 1, 157 Franklin Street, ADELAIDE SA 5000	0409984910 (08) 8390 3254

10.4.3 Veterinarians

There are many veterinarians in the Adelaide Mt Lofty Ranges Region. In the event of an oiled wildlife incident, professional veterinarian advice may be provided by an Adelaide Zoo or University of Adelaide veterinarian with experience in wildlife emergencies in cooperation with a regional wildlife officer (DEW or industry) until specialist wildlife veterinarian support can be provided if necessary. After an emergency, the South Australian Veterinary Emergency Management Inc. (SAVEM) can be contacted on mb: 0427 707 044 or email: info@savem.org.au for veterinary care for all animals.

Table 10.6: AMLR Local Specialist Contacts

Category	Business name	Contact	Oiled Wildlife Response Availability
Dr Ian Smith	Adelaide Zoo	0413 946 613	Available
Dr Lucy Woolford	Adelaide University	(08) 8521 2632	Available
Dr Wayne Boardman	Adelaide University	(08) 8313 1246	Available
Allison Crawley	Biosecurity SA, Primary Industry and Regions SA (PIRSA)	Veterinary Officer, Biosecurity Officer (Animal Health).	(08) 8429 0866 0459 888 133
Emergency Animal Disease Watch Hotline	PIRSA	-	1800 675 888

10.4.4 External Agencies and Emergency Volunteer Groups

Various local government agencies could be involved in emergency response scenarios in the AMLR Region and may be required to assist in an oiled wildlife response. These agencies and their contact numbers are listed in Table 10.7.

Table 10.7: AMLR Local Government Agencies

Agency	Location	Contact Number
Police	Mallala	(08)8527 2065
	Hamley Bridge	(08)8528 2169
	Kapunda	(08)8566 2266

Agency	Location	Contact Number
	Freeling	(08)8525 2052
	Nuriootpa	(08)8568 6620
	Two Wells	(08) 8520 2309
	Gawler	(08) 8522 0400
	Williamstown	(08) 8524 6288
	Mount Pleasant	(08) 8568 2023
	Gumeracha	(08) 8389 1007
	Elisabeth	(08) 8207 9411
	Sailsbury	(08) 8207 9900
	Golden Grove	(08) 8282 2700
	Port Adelaide	(08) 8207 6444
	Holden Hill	(08) 8207 6000
	Henley Beach	(08) 8424 2700
	Hindley Street	(08) 8303 0525
	Adelaide	(08) 7322 4800
	Norwood	(08) 8207 6800
	Netley	(08) 8463 7200
	Glenelg	(08) 8295 2136
	Sturt	(08) 8207 4700
	Stirling	(08) 8339 2422
	Woodside	(08) 8389 7277
	Christies Beach	(08) 8392 9000
	Aldinga	(08) 8556 6541
	Normanville	(08) 8558 2014
	Victor Harbour	(08) 8552 2088
Fisheries	Largs North	(08) 8226 0900
Council	Alexandrina	(08) 8555 7000
	Victor Harbour	(08) 8551 0500
	Yankallila	(08) 8558 0200
	Onkaparinga	(08) 8384 0666
	Marion	(08) 8375 6600
	Holdfast Bay	(08) 8229 9999
	West Torrens	(08) 8416 6333
	Charles Sturt	(08) 8408 1111
	Port Adelaide Enfield	(08) 8405 6600
	Sailsbury	(08) 8406 8222
	Playford	(08) 8256 0333
	Adelaide Plains	(08) 8527 0200
State Emergency Service (SES)	Lynton	132 500
	Noarlunga	132 500
	Regency Park	132 500
	Netley	132 500
	Coromandel Valley	132 500
	Campbelltown	132 500
	Norwood	132 500
	Northfield	132 500
	Sailsbury	132 500
	St Agnes	132 500
	Port Elliot	132 500
	Yankallila	132 500
List any other relevant agencies	DPTI -Marine Safety	(08) 8260 0088
	Environment Protection Authority (EPA)	(08) 8204 2004

10.5. OILED WILDLIFE FACILITY LOCATIONS AND CONTACTS

There are no dedicated oiled wildlife washing or rehabilitation centres in South Australia. Therefore existing facilities (i.e. sports clubs, showgrounds, ovals and warehouses) that are suitable for provision

of a supporting role in oiled wildlife response need to be identified prior to an incident and permissions sought for their use in the event of an incident. Washing and rehabilitation centres are usually combined or located adjacent to each other and collectively known as Oiled Wildlife Facilities.

Oiled wildlife response containers are available to be transported and set up as washing facilities at suitable locations forming the nucleus of a larger Oiled Wildlife Facility. They have air conditioning and ability to soften and temperature control washing water. They require a water source, electricity source and suitable storage / drainage system for waste water. These oiled wildlife response containers were used during the Rena incident in New Zealand in 2011. For location and quantity of these oiled wildlife response containers please see the Section 7 of the State Plan page 41 (State Wide Resources and Arrangements).

A critical requirement for oiled wildlife response facilities in the Adelaide Mt Lofty Ranges Region is people management – volunteers, spectators and media.

Table 10.8: Staging Sites within the AMLR Region

Site Purpose	Location	Contact
Staging	Fort Glanville	AMLR-Central Hills: (08) 8336 0901
Staging	Black Hill	AMLR-Central Hills: (08) 8336 0901

10.5.1 Potential Facilities in the AMLR Region

Potential facilities have been identified to suit a range of situations including small response (1-5 birds per day and up to 20 birds), medium response (5-10 birds per day and up to 20-200 birds), and large or complex response (more than 10 birds per day, more than 200 total, and or terrestrial mammals, pinnipeds or other mega-fauna). The criteria to determine Resource Readiness of Proposed Treatment Facilities listed in Section 5 is provided in Table 10.9 and represented by colour coding. The current population numbers for each location are provided against the location name in the following section. This will provide the reader with an initial understanding of capacity of the location to support a level 6 OWR event or a protracted incident.

Table 10.9: Resource readiness in proposed Treatment / Holding Facilities

	Facilities have the prescribed resources in place with little or no modification necessary to make them operational.
	Facility could be equipped with prescribed resources with minor resourcing/modifications (<5 days).
	Facility could not meet prescribed resources without major modifications or expense (>5 days).

10.5.2 Land Based Oiled Wildlife Facility in AMLR Region

10.5.2.1 Adelaide

Adelaide is the largest city in SA and the most equipped for the establishment of a Treatment Facility. While Adelaide is central to Operation Sector 18 (Appendix A), it could service Operational Sectors 15 to 20 in the advent of a large scale event. The locations of the proposed OWR Facility areas are provided in Table 10.10.

Table 10.10: Identified Oiled Wildlife Facilities in Adelaide

	Phone	Power	Water	Hot Water	Ventilation	A/C	Wash-down	Toilets	Change Rooms	Office Space	Lay Down Area	Security	Waste Disposal	Size	Marine Access
Coast Guard															
	Australian Volunteer Coast Guard - Rescue Squad on Southern Myth Drive in North Haven is ideally situated for the setup of a large Treatment Facility. It is adjacent to North Haven Marine providing excellent marine access. The sheds (only 200 m²) are utilised to housing rescue vessels which may be utilised as part of the response and recovery effort. There is ample parking area that could be cordoned off to house containers and establish further security. ***Contact on (08) 8248 4994.***														
Adelaide Zoo															
	Adelaide Zoo is centrally located on Frome Road in North Adelaide and would be an ideal location to establish large scale Treatment Facility. There is ample shed space, human and physical resources. While it has no marine access there are minimal marine sensitivities around Adelaide. ***Contact on (08) 8267 3255.***														
Shed 17 (Flinders Ports)															
	Shed 17 lies within the inner harbor of Flinders Port. It has a large shed and good marine access. Contact Flinders Port at 296 Vincent Street, Port Adelaide or **phone** ***(08) 8447 0622.***														
RSPCA															
	RSPCA runs a shelter in Lonsdale which has a large shed (375 sq. meters) and is approximately 5 km from a public boat ramp on Marine Drive. Contact the ***RSPCA*** Lonsdale at 25 Meyer Rd or ***phone 1300 4 777 22.***														

10.5.2.2 Victor Harbor

While Victor Harbor is only 83 km from Adelaide which can sustain a more resourced oiled wildlife response facility, the proximity of Victor Harbor to an abundance of environmental sensitivities means that a small oiled wildlife response facility should be a viable option for the incident management team.

Table 10.11: Identified Oiled Wildlife Facilities in Victor Harbor

	Phone	Power	Water	Hot Water	Ventilation	A/C	Wash-down	Toilets	Change Rooms	Office Space	Lay Down Area	Security	Waste Disposal	Size	Marine Access
DEW Office															
	The DEW Victor Harbour District Office is located at 41 Victoria Street. This office has minimal shed space however it is only 500 meters from Oval Park (below) which could help to mitigate the space issues with the DEW Office. Both facilities are close to boat launching facilities and Granite Island which supports <600 Little Penguins. Contact ***DEW*** *on* ***(08) 8552 0300.***														
Oval Park															
	Oval Park is a 16,000 sq. meter oval located in close proximity to double lane boat ramp/jetty and 500 meters from DEW Office. If adequately resourced it could house the primary Treatment Facility for Victor Harbor. Oval is for hire at $240 per day by contacting **Economic Projects Coordinator** at the **City of Victor Harbor** on ***(08) 8551 0500.***														

	Phone	Power	Water	Hot Water	Ventilation	A/C	Wash-down	Toilets	Change Rooms	Office Space	Lay Down Area	Security	Waste Disposal	Size	Marine Access
Granite Island															
	Granite Island is connected to Victor Harbor by a causeway and is a 'High Priority' for Reconnaissance and Recovery. It has a large jetty, lie down area and coffee shops/toilet. There are no large sheds available and all OWR resources must be brought in by boat. Security is good as causeway could be closed. Contact Granite Island ***Gift Shop and Café*** on ***(08) 8552 7555*** or ***City of Victor Harbor*** on ***(08) 8551 0500***.														

10.5.3 On-Water Oiled Wildlife Triage/Stabilisation

On islands and remote locations, where a treatment or holding/stabilisation facility cannot be located close enough to the site of collection to be acceptable in terms of wildlife welfare, an "on-water" facility may be established to enable stabilisation of oiled wildlife prior to transport to a treatment facility. In these circumstances, it is recommended that companies, who operate in these areas, consider resourcing vessels or barges that could fulfil these requirements.

10.5.3.1 Vessels

An ideal on-water wildlife triage/stabilisation vessel would:

- Accommodate a minimum of 5 oiled wildlife responders
- Have suitable deck space to house at least one oiled wildlife response Container and air-conditioned holding containers.
- Have an ability to safely load/unload wildlife to/from adjacent vessels (i.e. through rescue hatch or hiab).
- Facilitate some wash-down of animals and have the ability to store oily waste, or have an oily water separator and holding tanks for waste oil)

See Table 10.12 for indicative specifications and examples of on-water holding/stabilisation vessels.

Table 10.12: Indicative Specifications for On-Water Holding/Stabilisation Vessels

Vessel Specifications	
Length overall	38 metres
Beam	10.6 metres
Machinery	2 engines
Operating speed	10knots
Hull	Bow ramp configured to acccomodate toll-on-roll-off loading of 20ft shipping containers
Deck Area	200 m^2
Water	120,000 Litres
Accomodation	5 + crew Airconditioned
Pollution control	Oily water seperator or oily waste holding tanks

10.6 AMLR REGION OPERATIONAL SECTORS

The oiled wildlife response may be a localised, contained operation, or it may extend to hundreds of islands or kilometres of coastline. The AMLR Region coastline and island groups have been divided

into predetermined coastal compartments and sectors, each with a proposed staging/coastal access point. The sectors have been determined in consideration of available, central staging points and of the distances that vessels or vehicles could travel to, engage in operations and return within one operational day (in good to moderate conditions). The sectors are indicative only and should be adapted as conditions require. The nomenclature of the sectors and coastal compartments continue the Western Australian numbering system to ensure that the state plans are compatible and to minimise confusion in the event of an oil spill impacting both jurisdictions.

The sectors are further broken down, utilizing Coastal Compartments (CC) designed by Geoscience Australia. Coastal Compartment offer a consistent framework for regional planning and coastal management by defining natural management units. There are primary, secondary and tertiary compartments. This plan utilises the secondary (regional planning) compartments, which are based predominantly on landform associations such as extensive tracts of coast with continuous beach or dune field formations (Elliot I, 2011). Utilisation of prescribed coastal compartments and their boundaries means that this plan will align with other state OWR plans and other national marine planning documents and strategies. Each secondary compartment can be identified which its own unique Feature Identification (FID) number which corresponds to the FID from the GIS shapefile for that compartment.

10.6.1 Population centres GPS locations and postcodes

10.6.1.1 Northern Hills coast and Plains

Sector	Compartment (FID#)	Location	Coordinate South (Dec. Deg.)	Coordinate East (Dec. Deg.)	Post Codes
18	187	NYP Boundary	34.34° S	138.23° E	5501
18	187	Parham	34.43° S	138.26° E	5501
	187	Thompson Beach	34.48° S	138.28° E	5501
	187	Port Prime	34.51° S	138.32° E	5501
	187	Middle Beach	34.61° S	138.42° E	5501
18	187	Adelaide and Central Hills Boundary	34.73° S	138.52° E	5501

10.6.1.2 Adelaide and Central Hills

Sector	Compartment (FID#)	Location	Coordinate South (Dec. Deg)	Coordinate East (Dec. Deg.)	Post Codes
18	187	Northern Hills Coast and Plains Boundary	34.73° S	138.52° E	5501
18	187	St Kilda	34.74° S	138.53° E	5110
	187	Point Grey	34.74°S	138°5E	5110
	186	Hallett Cove	35.07° S	138.50° E	5158
18	186	Fleurieu and Willunga Basin Boundary	35.09° S	138.48° E	N/A

10.6.1.3 Fleurieu and Willunga Basin

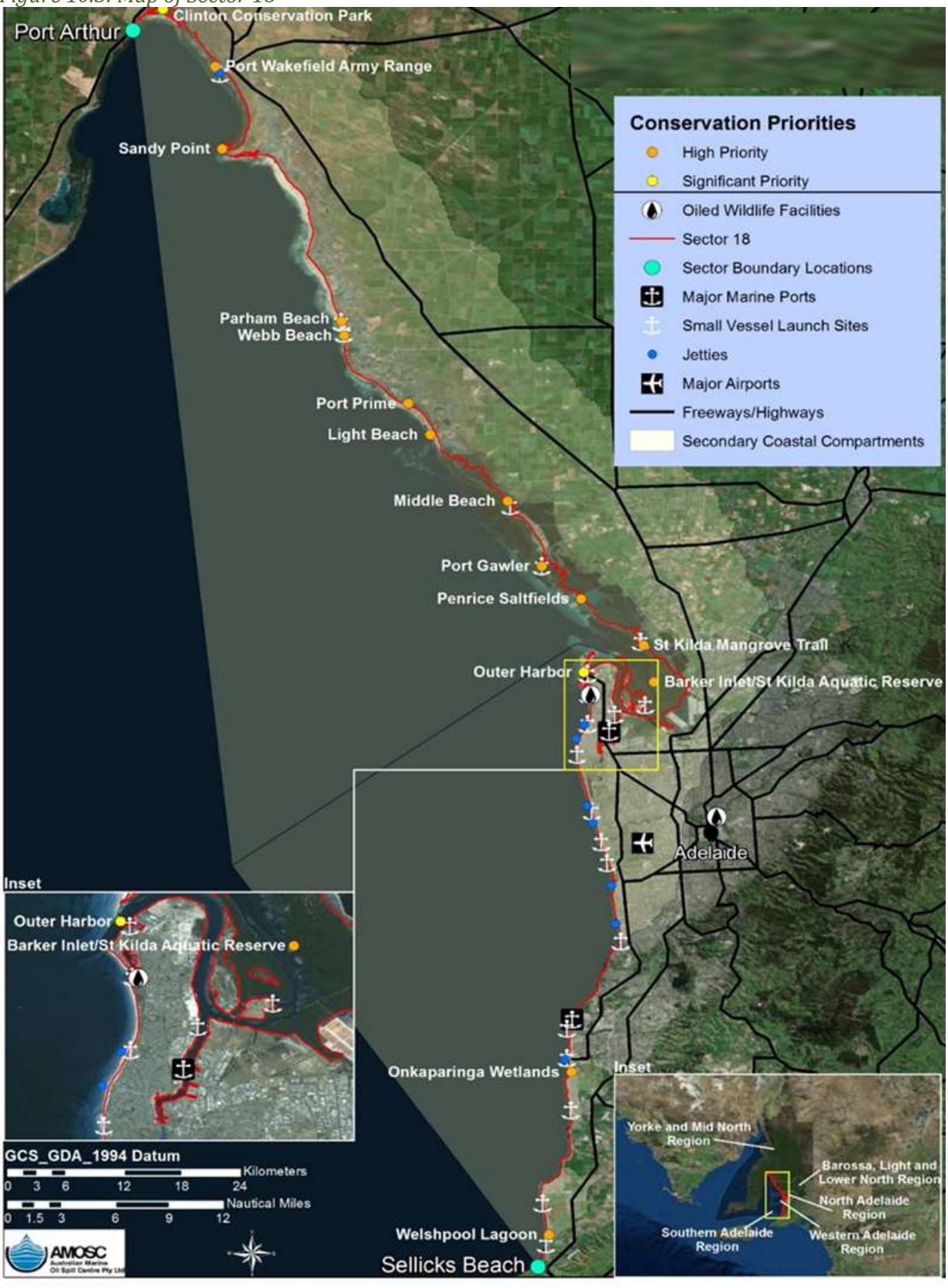
Sector	Compartment (FID#)	Location	Coordinate South (Dec. Deg.)	Coordinate East (Dec. Deg.)	Post Codes
18	186	Adelaide and Central Hills Boundary	35.09° S	138.48° E	5114
18	186	Sellicks Beach	35°20.9'S	138°26.6'E	5174
19	185	Sellicks Beach	35°20.9'S	138°26.6'E	5174
	185	Cape Jervis	35°36.5'S	138°05.9'E	5204
	179	Cape Jervis	35°36.5'S	138°05.9'E	5204
	179	Newland Head	35°38.3'S	138°31.440'E	5211
	178	Newland Head	35°38.3'S	138°31.440'E	5211
	178	Middleton Point	35°30.9'S	138°42.576'E	5213
20	177	Middleton Point	35°30.9'S	138°42.576'E	5213
20	177	Murray Darling Basin Boundary	35.50 ° S	138.8° E	5340

Each sector identifies the fauna susceptible to oiling by secondary coastal compartments within the South Australian portion of the EMBA. Where quantitative data exists regarding the abundance and seasonal nature of fauna it is provided in the column 'Species susceptible to oiling'.

10.6.2 Sector descriptions and contingency plans

10.6.2.1 Sector 18: Port Arthur to Sellicks Beach (CC187 and 186)

Figure 10.3: Map of Sector 18



10.6.2.1.1 Terrestrial overview

Wetlands supporting mangrove communities and shorebirds are representative of the north of this sector while the metropolitan hub of Adelaide lies in the south of the sector. Land tenure is largely freehold with some UCL in the north.

10.6.2.1.2 Marine Overview

This sector features the marine parks of the Upper Gulf St. Vincent Marine Park and the Adelaide Dolphin Sanctuary in the north of the sector and the Encounter Marine Park in the south. From Gillman north, the whole coast of this sector is characterised by low-lying, coastal tidal saltmarsh wetlands, fringed in many places by mangrove forests and adjacent subtidal seagrass meadows. The entire coast is highly ecologically significant, supporting wetlands of national importance and multiple bird species of conservation significance, protected under international treaties and national legislation. The coastal and adjacent shallow subtidal habitats are also of critical importance as a nursery for many species of fish, crustaceans and other marine species.

The Adelaide Dolphin Sanctuary covers an area of 118 sq. km and protects a population of Bottlenose dolphins and the Port River and Barker Inlet environment. It stretches from the inner port to Port Gawler. The area is significant for many bird species, a haul out site for Australian sea lions and long nosed fur seals. The mangrove forests provide important habitat for many recreational and commercial fish species.

The Adelaide International Bird Sanctuary (AIBS) lies between Barker Inlet and Parham in the north of the sector. It intersects with both the Adelaide Dolphin Sanctuary and the Upper Gulf St Vincent Marine Park, extending conservation management inland into the low coastal saltmarsh communities. Protects shorebirds, many migrating each year between Australia and the northern hemisphere. It is now officially recognised as a globally significant site as part of the East Asian-Australasian Flyway network. The bird sanctuary offers a landscape where local communities, volunteers, government, non-government organisations, and land managers can work together towards shorebird conservation, enhancing community and ensuring that tourism is also protecting this valuable place.

10.6.2.1.3 Environmental Values

Table 10.13: Environmental Values for Sector 18

Coastal Compartments	Coastal Area Unit	Tenure	Species susceptible to oiling	Priority	ZoC
Port Arthur to Point Grey (187)	Port Gawler & Buckland Park Lake	AR	Wetland: Declared Wetland of National Importance (Criteria 1,3,5 and 6) supporting a diversity of intertidal mangrove communities and Waderbirds. Birds: There is one Declared Coastal Waderbird Site: - Penrice Salt Fields (>5000) And one Seabird Site: - St Kilda mangrove (Pied Cormorant 201-300)	High	3
	Barker Inlet and St. Kilda	SW	Wetland: Declared Wetland of National Importance (Criteria 1,3,5 and 6) St Kilda mangrove. Birds: Declared Seabird site at St Kilda Saltfield (2001-3000). Declared Waderbird Site at Port River (<1000) and Greenfields Wetland (2001-3000).	High	3
	Outer Harbour and Bird Island	SW	Birds: Caspian Tern (11-50), Crested Tern (101-200). Pinnipeds: Australian sea lions and Long-nosed fur seals at Outer Harbor breakwater. The Outer Harbour breakwater is an important	High	3

Coastal Compartments	Coastal Area Unit	Tenure	Species susceptible to oiling	Priority	ZoC
			breeding grounds for the Black-faced Cormorant, Fairy Terns and the Australian Pelicans.		
Point Grey to Sellicks Beach (186)	Washpool Lagoon		Wetland: Declared Wetland of National Importance (Criteria 1) with intertidal samphire mudflats supporting a diversity of waterfowl and shorebirds.	High	3
	Port Noarlunga Reef	MP (SZ)	Seabirds, shorebirds, pinnipeds	High	3
	Aldinga Reef	MP (SZ)	Seabirds, shorebirds, pinnipeds	High	3
	Onkaparinga Wetland	MP (SZ)	Wetland: Declared Wetland of National Importance (Criteria 1 and m^3) with wetland marsh supporting a diversity of shorebirds.	High	3

10.6.2.1.4 Recommended Response Strategies

10.6.2.1.4.1 Prevention

Implement the relevant Tactical Response Plans to prevent oiling of estuarine fauna. Various hazing techniques may also be useful for moving wildlife out of at risk areas.

10.6.2.1.4.2 Personnel Deployment

Personnel in this sector would be deployed from Adelaide and can be forward staged to Port Wakefield in order to access the Clinton Wetlands.

10.6.2.1.4.3 Wildlife Reconnaissance and Wildlife Recovery

Aerial reconnaissance will help to further prioritise the response effort throughout this sector. Wildlife can be collected from the beach at opportunistic Staging Sites. Most of the Coastal Area Units are terrestrially based. Reconnaissance and Recovery of birds in the shallows and mangrove communities of the Clinton Wetland can utilise a shallow draft vessel launched from Port Wakefield which has a double lane boat ramp and pontoon.

10.6.2.1.4.4 Logistics Options for Facility Establishment

As per the SAOWRP this sector would be managed by the Adelaide and Lofty Ranges Region whose head office is based in Adelaide, SA. Adelaide is the largest metropolitan hub and port in SA and is central to this sector. All forward staging will be deployed from Adelaide to the rest of the sector. This sector has no identified sensitivities on off shore islands with all areas being accessible by vehicle and foot along the whole of the coastline. Staging sites will be set up at opportunistic locations based on feedback from aerial surveillance and the nature and scale of the event.

Table 10.14: Staging Sites for Sector 18

Site Purpose	Location	Contact
Staging Sites	Adelaide	DEW - (+61 8) 8204 1910
	Port Wakefield	DEW - (+61 8) 8204 1910
Temporary Holding Facilities	Port Wakefield	DEW - (+61 8) 8204 1910
Oiled Wildlife Facilities	Adelaide	See Oiled Wildlife Facilities in Section 5

10.6.2.1.4.5 Equipment

The nearest First Strike OWR Equipment stockpile for this operational area is located in Adelaide. See 'Appendix B' for travel times.

10.6.2.2 Sector 19: Sellicks Beach to Middleton Point (CC185 and 179-178)

Figure 10.4: Map of Sector 19

10.6.2.2.1 Terrestrial overview

This sector takes in the Fleurieu Peninsula which consists of several Conservation Parks. There is agriculture and UCL in the east of the sector.

10.6.2.2.2 Marine Overview

This sector contains the waters surrounding the Fleurieu Peninsula between Adelaide in the west and the mouth of the Murray River in the East. The Encounter Marine Park lies at the centre of this sector which contains the Pages Island Group which features the second largest Australian Sea Lion colony in the world and account for 25% of the pup production for this species. Granite Island near Victor Harbor has in recent times supported some of the largest Little Penguin colonies in South Australia. Strong tidal influences deliver nutrients through the Backstairs Passage providing food for a diversity of marine fauna (Scientific Working Group, 2011).

10.6.2.2.3 Environmental Values

Table 10.15: Environmental Values for Sector 19

Coastal Compartments	Coastal Area Unit	Tenure	Species susceptible to oiling	Priority	ZoC
Sellicks Beach to Cape Jervis (185)	Rapid Head	MP (SZ)	White-bellied sea eagle (EN) breeding site Pinnipeds: Australian sea lion and long nosed fur seal haul out site (no data)	High	3
Cape Jervis to Newland Head (179)	North Pages Island	MP (SZ)	Pinnipeds: ASL breeding site (>1000 count (177-312 pups)). AFS haul out site (<10). NZFS haul out site (11-50). Birds: Little Penguin (11-50), Crested Tern (601-1000), Hooded Plover (Tunkalilla Beach)	Very High	2
	South Pages Island	MP	Pinnipeds: ASL breeding site (>1000 count (197-331 pups)). Birds: Little Penguin (101-200) and Crested Tern (2001-3000)	Very High	2
	SSW Reef (Pages Islands)	MP	Pinnipeds: ASL breeding site (101-200)	Very High	2
	Newland Head	MP	Birds: White-bellied sea eagle (EN) breeding site; Grey-headed Albatross (EN - 1983), Southern-giant Petrel (EN), Yellow-nosed Albatross (VU) and Northern Giant Petrel (VU), Far-eastern Curlew (CR)	High	3
Newland Head to Middleton Point (178)	West Island	MP	Pinnipeds: Long nosed fur seal haul out Site (No data). Birds: Fairy Tern (11-50), Caspian Tern (51-100) and Crested Tern (1001-2000)	High	2
	Wright Island	MP	Birds: Fairy Tern (11-50)	High	3
	Seal Island	MP	Pinnipeds: NZFS haul out site (No data)	High	3
	Granite Island	MP	Birds: Little Penguins (20)	High	3
	Waitpinga Creek Entrance	MP/CP	Wetland: Catchment fed inlet supporting diversity of shorebirds.	Significant	3
	Hindmarsh River Entrance	MP	Wetland: Catchment fed inlet supporting diversity of shorebirds.	Significant	3
	Inman River Entrance	MP	Wetland: Catchment fed inlet supporting diversity of shorebirds.	Significant	3
	Basham Beach	MP (SZ)	Southern right whale nursery area from May to October.	Very high	3
	Pullen Island	MP (SZ)	Pinnipeds: Long nosed fur seal.	High	3

Note: *Hooded Plover nest sites: Real time data on all Fleuireu Hooded Plover, and some red capped plover and Oystercather nesting is available via the BirdLIfe Australia Beach Nesting Bird portal coverage for other NRM regions is less consistent. Until the abolition of AMLR NRM Baord there will be consistent coordination and updating of this data base during nesting season August – May* https://portal.mybeachbird.com.au/

10.6.2.2.4 Recommended Response Strategies

10.6.2.2.4.1 Prevention

- Implement the relevant Tactical Response Plans to prevent oiling of estuarine fauna
- Various hazing techniques may also be useful for moving wildlife out of at risk areas.
- Pre-emptive capture of Little Penguins from identified colonies.

10.6.2.2.4.2 Personnel Deployment

Personnel in this sector would be deployed from Victor Harbour which is 84 km from Adelaide.

10.6.2.2.4.3 Wildlife Reconnaissance and Wildlife Recovery

Aerial reconnaissance will help to further prioritise the response effort throughout this sector. Wildlife can be collected from the beach at opportunistic Staging Sites. The offshore islands can be accessed from Victor Harbor.

There are substantial high priority sensitivities at the Pages Islands:

- Australian sea lion colonies (<2000),
- Little Penguin (<250), and
- Crested Tern (<3000) seasonally.

These can be accessed by launching from Victor Harbor (2 hours at 10 knots) or Cape Jervis (1.5 hours at 10 knots).

10.6.2.2.4.4 Logistics Options for Facility Establishment

Victor Harbour is centrally located in this sector Staging sites will be set up at opportunistic locations based on feedback from aerial surveillance and the nature and extent of the event. The Pages Islands can be easily accessed from Victor Harbour.

Table 10.16: Staging Sites for Sector 19

Site Purpose	Location	Contact
Staging Sites	Victor Harbour	DEW - (+61 8) 8204 1910
	Cape Jervis	DEW - (+61 8) 8204 1910
Temporary Holding Facilities	Victor Harbour	DEW - (+61 8) 8204 1910
Oiled Wildlife Facilities	Adelaide	See Oiled Wildlife Facilities in Section 5
	Victor Harbour	See Oiled Wildlife Facilities in Section 5
	Kingscote (KI)	See Oiled Wildlife Facilities in Section 5

10.6.2.2.4.5 Equipment

The nearest First Strike OWR Equipment stockpile for this operational area is located in Adelaide. See 'Appendix B' for travel times.

10.6.2.3 Sector 20 - Middleton Point to Cape Banks Lighthouse (CC 177-176)

Figure 10.5: Map of Sector 20

10.6.2.3.1 Terrestrial overview

Much of the terrestrial portion of this sector lies within Coorong National Park. The Murray River mouth lies in the west of the sector with farm land in the east of the sector.

10.6.2.3.2 Marine Overview

This sector contains the eastern portion of the Encounter Marine Park and most of the Upper South East Marine Park. Represented by a diversity of habitats ranging from high-energy sandy beaches backed by sand dune, fringing limestone reefs, seagrass beds and kelp forests. It is strongly influenced by the Bonney Upwelling which helps drive the region's high biological productivity.

The nutrients it brings stimulate the whole food chain, from plankton to whales (DENR, 2010). Baudin Rocks (the only island group in the Upper South East) provide an important breeding and haul-out site for seal species including the vulnerable Australian Sea Lion and Australian Fur Seals.

Baudin Rocks is also an important roosting and breeding site for seabirds and coastal wader species (Baker, 2004). The Coorong National Park is a Wetland of International Importance (Ramsar site). The region is also considered to be a highly important nesting location for the state listed vulnerable hooded plover in the south east (Baker, 2004).

10.6.2.3.3 Environmental Values

Table 10.17: Environmental Values for Sector 20

Coastal Compartments	Coastal Area Unit	Tenure	Species susceptible to oiling	Priority	ZoC
Middleton Point to Cape Jaffa (177)	Northern Channels	MP (SZ)	Birds: Declared Coastal Waderbird Site (>5000)	Significant	3
	Murray River Entrance	MP	Wetland: Declared Wetland of National Importance (criteria 1,2,3,4,5,6) supporting a diversity of mangrove communities and associated birds.	Very High	3
	Mundoo Channel	MP	Birds: Declared Seabird Site supporting Caspian Terns (51-100)	Significant	3
	Murray Mouth	MP	Birds: Declared Seabird Site supporting Fairy Terns (no data). Long-nosed Fur Seal site.	Significant	3
	Northern Channels - Murray Mouth to Pelican Point	MP (SZ)	Birds: Declared Coastal Waderbird Site supporting diversity of shorebirds (>5000)	Significant	3
	North Lagoon - Pelican Point to the Needles	MP	Birds: Declared Coastal Waderbird Site supporting diversity of shorebirds (>5000)	Significant	3
	The Coorong	CP	Wetland: Wetland of International Importance and RAMSAR Site. Back barrier lagoon consisting of interconnected basins partially fed by Murray River. Marginally intertidal. Supports a diversity of seabirds and waderbirds. The area also supports the EPBC listed Subtropical and Temperate Coastal Saltmarsh Threatened Ecological Community. Birds: Features ten (10) Declared Coastal Seabird Sites supporting Caspian Terns, Fairy Terns, Crested Terns, Pied Cormorants and more and one (1) Declared Coastal Waderbird Site (>5000). These sites are just inland of Southern Ocean. Due to the transient nature of seabirds it is likely that they may become exposed to oiling so these sites and adjacent beach need to be monitored	Very High	3
Cape Jaffa to Cape Banks Lighthouse (176)	Baudin Rocks	MP	Pinnipeds: ASL haul out site (<10). Birds: Declared Seabird Site supporting Little Penguins (101-200), Pied Cormorants (11-50), Black-faced Cormorant (51-100), Fairy Tern (11-50), and Crested Tern (601-1000)	High	2
	Robe to Beachport	MP/CP	Birds: There are eight (8) Declared Seabird sites along this coast supporting primarily Fairy Tern (<50 per site) and Black-faced Cormorant (<10 per site). This areas also contains Margaret Brock Reef, where there is located a lighthouse platform upon which the only known colony of Australasian Gannets Breed in SA.	Significant	3

Coastal Compartments	Coastal Area Unit	Tenure	Species susceptible to oiling	Priority	ZoC
	Cape Martin	CP	Birds: Little Penguin (<10), Fairy Tern (11-50)	High	3
	Penguin Island	CP	Birds: Declared Seabird Site supporting Crested Tern (1001-2000), Short-tailed Shearwater (301-600) and Black-faced Cormorant (No data).	Significant	3

10.6.2.3.4 Recommended Response Strategies

10.6.2.3.4.1 Prevention

- Various hazing techniques may be useful for moving wildlife out of at risk areas.
- Pre-emptive capture of Little Penguins and shorebirds along the Coorong Coast.

10.6.2.3.4.2 Personnel Deployment

Personnel in this sector would be deployed from Robe to access the SE of the Sector and Victor Harbour in the NW of the sector.

10.6.2.3.4.3 Wildlife Reconnaissance and Wildlife Recovery

Aerial reconnaissance will help to further prioritise the response efforts throughout this sector. Wildlife can be collected from the beach at opportunistic Staging Sites. Nearly all of this sector will be focused on seabirds along the coasts. Opportunistic staging points can be established along the coast and delivered to either a Holding Facility in Robe or directly to the Treatment Facility in Victor Harbor.

10.6.2.3.4.4 Logistics Options for Facility Establishment

Victor Harbor is an ideal location to stage wildlife response from in this sector. Although Victor Harbor is actually in Sector 19, it is situated only 85 km from Adelaide and would be the most resourced coastal community to host a Treatment Facility.Teams can be forward deployed from Victor Harbor along the coast towards Robe as required. Due to the distance from Robe (at the SE termination of this sector) to Victor Harbour (350 km) it would be ideal to have a Holding Facility or small Treatment Facility situated in Robe as well.

Table 10.18: Staging Sites for Sector 20

Site Purpose	Location	Contact
Staging Sites	Victor Harbor	DEW - (+61 8) 8204 1910
	Robe	DEW - (+61 8) 8204 1910
Temporary Holding Facilities	Robe	DEW - (+61 8) 8204 1910
Oiled Wildlife Facilities	Victor Harbor	See Oiled Wildlife Facilities in Section 5
	Kingscote (KI)	See Oiled Wildlife Facilities in Section 5
	Adelaide	See Oiled Wildlife Facilities in Section 5

10.6.2.3.4.5Equipment

The nearest First Strike OWR Equipment stockpile for this operational area is located in Adelaide. See 'Appendix I' for travel times.

10.7 Adelaide and Mt Lofty Ranges Coastal Species by Functional Group and Location

The following lists from a South Australian State-wide coastal species search generated from the BirdLife Australia Atlas of Australian Birds database on 17 March 2016.

Conservation Acts and Agreements		Key to conservation status level		Key to Postcodes			
EPBC	Listed threatened fauna under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).	**CR**	Critically endangered	5501		Parham Webb Beach	Thompson Beach Port Gawler
NPW	Status under the Threatened Species Schedules of the *National Parks and Wildlife Act 1972*	**EN**	Endangered	5015		Torrens Island Outer Harbour	Port Adelaide
JAMBA	Listed under the *Japan and Australia Migratory Bird Bilateral Agreement 1974*.	**RA**	Rare	5016	Largs Bay		Port Kenny
CAMBA	Listed under the *China and Australia Migratory Bird Bilateral Agreement 1986*	**VU**	Vulnerable	5019	Semaphore		
RoKAMBA	Listed under the *Republic of Korea and Australia Migratory Bird Bilateral Agreement 2007*	**NT**	Not threatened	5045	Glenelg		
IUCN	Listed threatened species under the IUCN (International Union for Conservation of Nature) Red List.	**LC**	Least concern	5169	Seaford		Moana
		UP	Unprotected	5170	Maslin Beach		
		MA	Marine	5204	Carrickalinga Normanville Cape Jervis Wirrina Cove		Second Valley Rapid Bay Silverton Deep Creek
		MI	Migratory	5213	Middleton		

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Grebes PODICIPEDIFORMES																
Great Crested Grebe	*Podiceps cristatus*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hoary-headed Grebe	*Poliocephalus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australasian Grebe	*Tachybaptus novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Penguins SPHENISCIFORMES																
Little Penguin	*Eudyptula minor*	-	-	-	-	-	LC						✓	✓	✓	✓
Tube-Nosed Seabirds PROCELLARIIFORMES																
Flesh-footed Shearwater	*Ardenna carneipes (Puffinus carneipes)*	-	RA	Listed	-	Listed	LC						✓	✓	✓	✓
Short-tailed Shearwater	*Ardenna tenuirostris*	-	-	Listed	-	Listed	LC						✓	✓	✓	✓
Southern Fulmar	*Fulmarus glacialoides*	-	-	-	-	-	LC						✓	✓	✓	✓
Kerguelen Petrel	*Lugensa brevirostris (Aphrodroma brevirostris) (Pterodroma brevirostris)*	-	-	-	-	-	LC						✓	✓	✓	✓
Southern Giant-Petrel	*Macronectes giganteus*	EN	VU	-	-	-	LC						✓	✓	✓	✓
Northern Giant-Petrel	*Macronectes halli*	VU MA MI	-	-	-	-	LC						✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Wilson's Storm-Petrel	*Oceanites oceanicus*	-	-	Listed	-	-	LC						✓	✓	✓	✓
Slender-billed Prion	*Pachyptila belcheri*	-	-	-	-	-	LC						✓	✓	✓	✓
Fairy Prion	*Pachyptila turtur*	VU	-	-	-	-	LC						✓	✓	✓	✓
Mottled Petrel	*Pterodroma inexpectata*	-	-	-	-	-	NT						✓	✓	✓	✓
White-headed Petrel	*Pterodroma lessonii*	-	-	-	-	-	LC						✓	✓	✓	✓
Great-winged Petrel	*Pterodroma macroptera*	-	-	-	-	-	LC						✓	✓	✓	✓
Fluttering Shearwater	*Puffinus gavia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hutton's Shearwater	*Puffinus huttoni*	-	-	-	-	-	EN						✓	✓	✓	✓
Shy Albatross	*Thalassarche cauta (Diomedea cauta cauta)*	VU MA MI	VU	-	-	-	NT						✓	✓	✓	✓
Yellow-nosed Albatross	*Thalassarche chlororhynchos (Diomedea chlororhynchos)*	-	EN	-	-	-	EN						✓	✓	✓	✓
Black-browed Albatross	*Thalassarche melanophris (Thalassarche melanophrys) (Diomedea melanophrys impavida)*	VU MA MI	VU	-	-	-	NT						✓	✓	✓	✓
Cormorants, Gannets and Pelicans PELECANIFORMES																

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Australasian Darter	*Anhinga novaehollandiae (Anahinga melanogaster)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Little Pied Cormorant	*Microcarbo melanoleucos*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australasian Gannet	*Morus serrator*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Pelican	*Pelecanus conspicillatus*	-	-	-	-	-	LC		✓	✓	✓	✓	✓	✓	✓	✓
Great Cormorant	*Phalacrocorax carbo*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black-faced Cormorant	*Phalacrocorax fuscescens*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Little Black Cormorant	*Phalacrocorax sulcirostris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pied Cormorant	*Phalacrocorax varius*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Herons, Ibises and Storks ARDEIFORMES																
Cattle Egret	*Ardea ibis (Bubulcus ibis) (Ardeola ibis)*	-	RA	Listed	Listed	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Intermediate Egret	*Ardea intermedia (Egretta intermedia)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eastern Great Egret	*Ardea modesta*	-	-	-	-	-	NE	✓	✓	✓	✓	✓	✓	✓	✓	✓
White-necked Heron	*Ardea pacifica*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Little Egret	*Egretta garzetta*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
White-faced Heron	*Egretta novaehollandiae (Ardea novaehollandiae)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Eastern Reef Egret	*Egretta sacra*	-	RA	-	Listed	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yellow-billed Spoonbill	*Platalea flavipes*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Royal Spoonbill	*Platalea regia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian White Ibis	*Threskiornis molucca*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Straw-necked Ibis	*Threskiornis spinicollis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Swans, Geese and Ducks ANSERIFORMES																
Domestic Goose								✓	✓	✓	✓	✓	✓	✓	✓	✓
Chestnut Teal	*Anas castanea*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grey Teal	*Anas gracilis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Northern Mallard	*Anas platyrhynchos*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australasian Shoveler	*Anas rhynchotis (Spatula rhynchotis)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pacific Black Duck	*Anas superciliosa*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Musk Duck	*Biziura lobata*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cape Barren Goose	*Cereopsis novaehollandiae*	VU	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Wood Duck	*Chenonetta jubata*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black Swan	*Cygnus atratus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pink-eared Duck	*Malacorhynchus membranaceus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Blue-billed Duck	*Oxyura australis*	-	RA	-	-	-	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Freckled Duck	*Stictonetta naevosa*	-	VU	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Shelduck	*Tadorna tadornoides*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardhead	*Aythya australis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Birds of Prey ACCIPITRIFORMES																
Collared Sparrowhawk	*Accipiter cirrocephalus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brown Goshawk	*Accipiter fasciatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wedge-tailed Eagle	*Aquila audax*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Swamp Harrier	*Circus approximans*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spotted Harrier	*Circus assimilis*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black-shouldered Kite	*Elanus axillaris*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brown Falcon	*Falco berigora*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nankeen Kestrel	*Falco cenchroides*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	-	EN	-	Listed	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whistling Kite	*Haliastur sphenurus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Square-tailed Kite	*Lophoictinia isura*	-	EN	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eastern Osprey	*Pandion cristatus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Megapodes and Allies GALLIFORMES																

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Black-tailed Native-hen	*Tribonyx ventralis (Gallinula ventralis)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Waders, Plovers, Terns and Gulls CHARADRIFORMES																
Common Sandpiper	*Actitis hypoleucos (Tringa hypoleucos hypoleucos)*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ruddy Turnstone	*Arenaria interpres*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sharp-tailed Sandpiper	*Calidris acuminata*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sanderling	*Calidris alba (Crocethia alba)*	MA MI	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red Knot	*Calidris canutus*	-	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Curlew Sandpiper	*Calidris ferruginea*	CR MA	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pectoral Sandpiper	*Calidris melanotos*	-	RA	Listed	-	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red-necked Stint	*Calidris ruficollis*	-	-	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Long-toed Stint	*Calidris subminuta*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Great Knot	*Calidris tenuirostris*	-	RA	Listed	Listed	Listed	EN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Double-banded Plover	*Charadrius bicinctus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Greater Sand Plover	*Charadrius leschenaultii*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lesser Sand Plover	*Charadrius mongolus*		RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red-capped Plover	*Charadrius ruficapillus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Whiskered Tern	*Chlidonias hybrida*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
White-winged Black Tern	*Chlidonias leucopterus*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Silver Gull	*Chroicocephalus novaehollandiae (Larus novaehollandiae)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Banded Stilt	*Cladorhynchus leucocephalus*	-	VU	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black-fronted Dotterel	*Elseyornis melanops*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red-kneed Dotterel	*Erythrogonys cinctus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eurasian Coot	*Fulica atra*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Latham's Snipe	*Gallinago hardwickii*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dusky Moorhen	*Gallinula tenebrosa*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Gull-billed Tern	*Gelochelidon nilotica*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sooty Oystercatcher	*Haematopus fuliginosus*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Pied Oystercatcher	*Haematopus longirostris*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black-winged Stilt	*Himantopus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Caspian Tern	*Hydroprogne caspia*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pacific Gull	*Larus pacificus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Broad-billed Sandpiper	*Limicola falcinellus (Calidris falcinellus)*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓				

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Bar-tailed Godwit	*Limosa lapponica*	-	RA	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Black-tailed Godwit	*Limosa limosa*	-	RA	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eastern Curlew	*Numenius madagascariensis*	CR	VU	Listed	Listed	Listed	EN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whimbrel	*Numenius phaeopus*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pacific Golden Plover	*Pluvialis fulva*	-	RA	-	-	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Grey Plover	*Pluvialis squatarola*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Purple Swamphen	*Porphyrio*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Spotted Crake	*Porzana fluminea*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Baillon's Crake	*Porzana pusilla (Zapornia pusilla)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spotless Crake	*Porzana tabuensis (Zapornia tabuensis)*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red-necked Avocet	*Recurvirostra novaehollandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Australian Painted Snipe	*Rostratula australis (Rostratula benghalensis)*	EN MA	VU	-	Listed	-	EN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Brown Skua	*Stercorarius antarcticus (Catharacta antarctica)*	-	-	-	-	-	LC						✓	✓	✓	✓
Arctic Jaeger	*Stercorarius parasiticus*	-	-	Listed	-	Listed	LC						✓	✓	✓	✓
Pomarine Jaeger	*Stercorarius pomarinus*	-	-	Listed	Listed	-	LC						✓	✓	✓	✓
Common Tern	*Sterna hirundo*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Arctic Tern	*Sterna paradisaea*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
White-fronted Tern	*Sterna striata*	-	-	-	-	-	LC						✓	✓	✓	✓
Little Tern	*Sternula albifrons (Sterna albifrons)*	-	EN	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fairy Tern	*Sternula nereis (Sterna nereis)*	VU	EN	-	-	-	VU	✓	✓	✓	✓	✓	✓	✓	✓	✓
Crested Tern	*Thalasseus bergii (Sterna bergii)*	-	-	Listed	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hooded Plover	*Thinornis rubricollis (Charadrius rubricollis)*	VU MA	VU	-	-	-	VU						✓	✓	✓	✓
Grey-tailed Tattler	*Tringa brevipes (Heteroscelus brevipes)*	-	RA	Listed	Listed	Listed	NT	✓	✓	✓	✓	✓	✓	✓	✓	✓
Wood Sandpiper	*Tringa glareola*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Common Greenshank	*Tringa nebularia*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marsh Sandpiper	*Tringa stagnatilis*	-	-	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Masked Lapwing	*Vanellus miles*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Banded Lapwing	*Vanellus tricolor*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Terek Sandpiper	*Xenus cinereus*	-	RA	Listed	Listed	Listed	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parrots and Cockatoos																
Rock Parrot	*Neophema petrophila*	-	RA	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Owls STRIGIFORMES																
Southern Boobook	*Ninox novaeseelandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓

Common Name	Scientific Name	EPBC	NPW	JAMBA	CAMBA	RoKAMBA	IUCN	5501	5015	5016	5019	5045	5169	5170	5204	5213
Eastern Barn Owl	*Tyto javanica (Tyto alba javanica)*	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓	✓
Kingfishers and allies CORACIFORMES																
Sacred Kingfisher	*Todiramphus sanctus*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Perching Birds PASSERIFORMES																
Australasian Pipit	*Anthus novaeseelandiae*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Little Raven	*Corvus mellori*	-	UP	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
White-fronted Chat	*Epthianura albifrons*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Singing Honeyeater	*Lichenostomus virescens*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fairy Martin	*Petrochelidon ariel (Hirundo ariel)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tree Martin	*Petrochelidon nigricans (Hirundo nigricans)*	-	-	-	-	-	LC	✓	✓	✓	✓	✓	✓	✓	✓	✓