Department of Parks and Wildlife

AMOSC Australian Marine Oil Spill Centre Pty Ltd

WESTERN AUSTRALIAN

OILED WILDLIFE RESPONSE PLAN

Purpose of this Document

This document provides guidance to Oiled Wildlife Response Agencies, both the Department of Parks and Wildlife (Parks and Wildlife) and the Petroleum Industry, as to the approach to an Oiled Wildlife Marine Pollution Incident (MOP) in WA.

History of this Document

This plan was written by R Marshall of Parks and Wildlife and R Bucklow of the Australian Marine Oil Spill Centre (AMOSC); it was reviewed by government and petroleum industry stakeholders and endorsed by J Sharp, Director General of Parks and Wildlife and N Quinn, General Manager of AMOSC prior to its release on 08/09/2014.

Exercise and Review periods

Exercising

This plan will be exercised at least annually in accordance with WestPlan Marine Oil Pollution and/or petroleum titleholder oil pollution emergency plans.

Review

This plan will be reviewed and updated by both the Parks and Wildlife and AMOSC initially six months after release. Then following an incident, relevant legislation changes, WestPlan updates or at least once every three years.

Version	Date		Reviewed by	Approved by
V1.1	18/08/2014			J Sharp

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ACRONYMS

AIIMS	Australasian Inter-Service Incident Management System
AMOSC	Australian Marine Oil Spill Centre
AMOSplan	Australian Marine Oil Spill Plan
AMSA	Australian Maritime Safety Authority (Commonwealth)
SDO	The Parks and Wildlife State Duty Officer
DotE	The Department of the Environment (Commonwealth)
HMA	Hazard Management Agency
IAP	Incident Action Plan
IC	Incident Controller
IMT	Incident Management Team
MOP	Marine Oil Pollution
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority (Commonwealth)
OEPA	Office of the Environmental Protection Authority
OPEP	Oil Pollution Emergency Plan
OSR	Oil Spill Response
OWA	Oiled Wildlife Advisor
OWDC	Oiled Wildlife Division Coordinator
OWR	Oiled Wildlife Response
PA	Port Authority
WAOWRP	The Western Australian Oiled Wildlife Response Plan

GLOSSARY OF TERMS

For clarity and in the context of this document:

Commonwealth Waters	Means any part of the sea, including the waters, seabed, and airspace, within Australia's exclusive economic zone and/or over the continental shelf of Australia that is not State or Territory waters.
National Plan	The National Plan for Maritime Environmental Emergencies and all policy, guidance and advisory documents produced and published in support
Oiled Wildlife Response Level	OWR is divided into 6 levels based on the number of oiled wildlife, complexity of the response (fauna type and spatial extent) and expected duration of the response.
OWR Skill Level	Means the level of training required by personnel to fill an identified function/s
Petroleum Industry	Means the oil and gas companies operating in Commonwealth and/or State waters
Responsible Party	Means the entity that has been identified as owning or having the legal responsibility for the ship or facility that caused the incident
State Waters	Means any part of the sea, including the waters, seabed, and airspace within 3 nautical miles of the territorial sea base line
WestPlan MOP	State Emergency Management Plan for Marine Oil Pollution

Other terms which may be useful are explained in the glossary of terms of the State Emergency Management Plan for Marine Oil Pollution (WestPlan MOP), The National Plan for Maritime Environmental Emergencies (National Plan), Australian Marine Oil Spill Plan (AMOSplan) and petroleum industry Oil Pollution Emergency Plans (OPEP).

QUICK REFERENCE GUIDE

	Action	Page Reference
Marine Oil Pollution (MOP) event occurs with imminent or actual wildlife impact	Go to plan activation in this plan	Page 13
Key notifications (Duty Officer numbers)	Department of Transport (DoT) (08) 9480 9924 The Department Of Parks and Wildlife (Parks and Wildlife) (08) 9219 9108 Australian Marine Oil Spill Centre (AMOSC) 0438 379 328 Australian Maritime Safety Authority (AMSA) (02) 6230 6811	
State arrangements	See Roles and Responsibilities section	Page 12
Incident Management Structure	See Incident Management Structure	Page 15
Roles and responsibilities	See Appendix A	Page 48
Stages of oiled wildlife response	See figure 3 Stages of Oiled Wildlife Response	Page 18
Resources – human	Go to sections 5, 6 and 7 in this plan and relevant regional oiled wildlife response plan	Page 40
Resources - equipment	Go to section 7 in this plan and relevant regional oiled wildlife response plan.	Page 46 References also made at each 'Stage of OWR' in section 4, page 18

1. INTRODUCTION

The Western Australian Oiled Wildlife Response Plan (WAOWRP) sets out the minimum standard required for an oiled wildlife response (OWR) in Western Australia (WA) in State waters. This plan sets out the management arrangements for implementing a wildlife response as a sub-plan of the WestPlan MOP administered by the Department of Transport WA (DoT). While the OWR plan is a sub-plan to the WestPlan MOP, it is the responsibility of Parks and Wildlife, formerly the Department of Environment and Conservation, to administer and approve the WAOWRP. Terminology used in this plan is consistent with the management arrangements set out in WestPlan MOP to ensure a coordinated and consistent response with DoT the Hazard Management Agency (HMA) for marine oil spills in State waters.

1.1 Scope

The WAOWRP applies to all instances of OWR in state waters and can be used as guidance for commonwealth waters surrounding WA for both Parks and Wildlife and petroleum titleholders. The WAOWRP details the legislative responsibilities, relationships to other plans, roles and responsibilities, wildlife division structure, standards and best practice procedures for OWR. Sitting beneath and providing a regional context and detail for the WAOWRP are the seven regional sectored operational plans:

- West Kimberley
- East Kimberley
- Pilbara
- Gascoyne / Mid-West
- Perth
- South West / Great Southern
- South East

These seven regional operational plans outline detailed ‘on ground’ regional information required to carry out an OWR, including: wildlife values, high risk wildlife areas, identified oiled wildlife facilities, equipment, resource and contact lists.

The geographical areas covered by the WAOWRP and each of the seven regional oiled wildlife plans can be seen in figure 1.

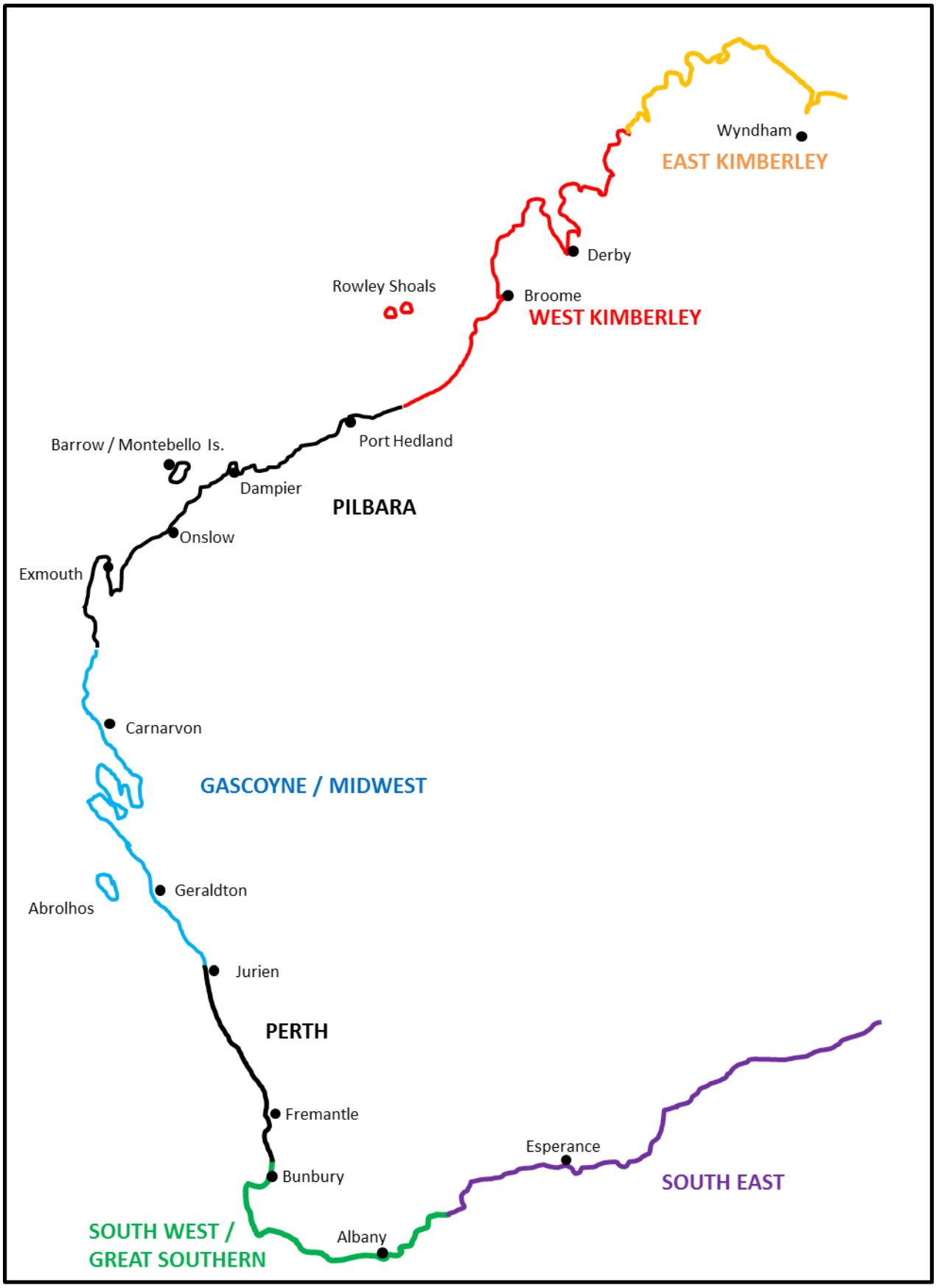

Figure 1: Regional Operational Plan Boundaries

1.2 Plan Objectives

The objectives of the WAOWRP include:

- To provide a standard for Oiled Wildlife Response within Western Australia resulting from marine oil pollution (MOP) incidents
- To develop skills and knowledge across government agencies and the petroleum industry to ensure OWR can be undertaken safely, effectively and efficiently
- Provision of procedures for the humane treatment of stranded, sick and injured marine fauna during a marine oil pollution (MOP) incident
- To provide knowledge and guidelines to facilitate the effective rescue, stabilisation and rehabilitation of wildlife during a MOP incident
- To address community and regulatory expectations for OWR during a MOP incident
- To provide the framework to integrate OWR between industry and Parks and Wildlife.

1.3 Oiled Wildlife Legislative Responsibilities

1.3.1 Commonwealth Legislation

The Australian Government Department of the Environment (DotE) administers the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. This Act provides a legal framework for the protection and management of Commonwealth marine areas. See table 1 for Commonwealth legislation relevant to OWR.

Table 1: Commonwealth Legislation Relevant to Oiled Wildlife Response

Commonwealth Legislation	**Purpose**	**Authority**
Environmental Protection Amendment Act 2003	Management of Australia's environment	DotE
Environmental Protection and Biodiversity Conservation Act 1999	Protection of Australia's environment and biodiversity values	DotE
Environmental Protection and Biodiversity Conservation Regulations 2000	Protection of Australia's environment and biodiversity values	DotE

1.3.2 State Legislation

The Department of Parks and Wildlife is the lead agency in WA for OWR. Parks and Wildlife has the responsibility and statutory authority to treat, protect and destroy wildlife as outlined in the Wildlife Conservation Act (WCA) 1950. Parks and Wildlife also has a legislative requirement to ensure the humane treatment, housing and release or euthanasing of fauna under the Animal Welfare Act (AWA) 2002. See table 2 for State legislation relevant to OWR.

Table 2: State Legislation Relevant to Oiled Wildlife Response

Legislation	Action	Authority Agency
Conservation and Animal Welfare		
Conservation and Land Management Act 1984	Manage land and waters, flora and fauna	Parks and Wildlife
Conservation and Land Management Regulations 2002	Manage land and waters, flora and fauna	Parks and Wildlife
Wildlife Conservation Act 1950	Conservation and protection of flora and fauna	Parks and Wildlife
Wildlife Conservation Regulations 1970	Conservation and protection of flora and fauna	Parks and Wildlife
Animal Welfare Act 2002	Governs the treatment and welfare of animals in	Department of Local Government and Regional Development
Environmental Protection Act 1986	Department of Mines and Petroleum (DMP) refers petroleum environment plans to the Office of the Environmental Protection Authority (OEPA) for consideration under the DMP/OEPA Memorandum of Understanding (MoU)	OEPA

1.4 Roles and Responsibilities

Table 3: Marine Oil Pollution Arrangements

Location	Spill Source	Hazard Management Agency (HMA)	Jurisdictional Authority		Control Agency
			Oil Spill Response	Wildlife	
Commonwealth Waters	Oil and Gas Facility	-	NOPSEMA	DotE	Petroleum Titleholder
	Vessel	-	AMSA	DotE	AMSA
State Waters	Oil and Gas Facility	WA DoT	DMP	Parks and Wildlife	Petroleum Titleholder
	Vessel	WA DoT	WA DoT	Parks and Wildlife	DoT
Port Authority (PA)	Oil and Gas Facility	WA DoT	PA	Parks and Wildlife	Petroleum Titleholder
	Vessel	WA DoT	PA	Parks and Wildlife	PA / DoT

1.4.1 Oiled Wildlife Response in Commonwealth Waters

For oil spills emanating from offshore petroleum operations within Commonwealth waters, the Jurisdictional Authority for wildlife is DotE, however this plan can be used as guidance in this

instance. The designated Control Agency (see table 3 above) remains the lead agency for oil spill response and therefore for OWR.

1.4.2 Oiled Wildlife Response in State Waters

For oil spills emanating from shipping incidents and petroleum operations in State waters, Parks and Wildlife are the Jurisdictional Authority for OWR. For shipping spills, DoT or the relevant port authority is the Control Agency and Parks and Wildlife are the lead agency for OWR and for petroleum operation spills, the petroleum titleholder is the Control Agency and the lead agency for the OWR. The Control Agency, whether DoT / port authority or petroleum industry, may request resources from the other party for OWR if required. In state waters where the petroleum industry is the lead agency for the OWR, the Parks and Wildlife's Oiled Wildlife Advisor (OWA) will provide advice and assistance to the petroleum industry Incident Management Team (IMT) for functions such as licensing, permits and approvals.

1.5 Relationships to Other Plans

1.5.1 National Plan

The Australian Maritime Safety Authority (AMSA) manages the National Plan for Maritime Environmental Emergencies (the National Plan). The National Plan enables effective response to marine pollution events in Commonwealth waters through an integrated arrangement between the Federal, State and Northern Territory and the petroleum industry. There are national guidelines for the development of MOP contingency plans, there is a requirement for States to develop their operational and tactical plans to deal with oiled wildlife in a State perspective. The WAOWRP represents that perspective.

1.5.2 WestPlan Marine Oil Pollution, Department Of Transport, WA

WestPlan MOP is managed by WA's DoT, and details the management arrangements for the prevention, preparation, response and recovery for MOP incidents in State waters.

The rehabilitation of oil-affected wildlife is a recognised response activity under WestPlan MOP, with OWR guidelines detailed in this plan, a "sub-plan to Westplan MOP". The WestPlan MOP indicates that both the petroleum industry and Parks and Wildlife have operational plans for OWR and these plans should align with Westplan MOP. This plan (the WAOWRP) provides guidance for an OWR for both petroleum industry and Parks and Wildlife, regardless of the spill source.

1.6 Financial Arrangements

For details on Cost recovery in Commonwealth and State waters see the National Plan and WestPlan MOP respectively.

Parks and Wildlife is not a HMA for MOP or OWR and therefore to manage its financial risk Parks and Wildlife must ensure all of its expenditure for OWR is approved by the Incident Controller (IC).

2. PLAN ACTIVATION

This plan should be activated when there is imminent or actual impact to wildlife as a result of a MOP incident.

2.1 State Waters Shipping Spill

Parks and Wildlife may activate this plan following:

- mobilisation by DoT through the activation of WestPlan MOP
- receipt of a report from the public of oiled wildlife in State waters
- receipt of a request from an Incident Controller managing a MOP incident
- receipt of a report of oiled wildlife from any other source.

Parks and Wildlife will ensure that the DoT Oil Spill Response Coordination (OSRC) team is notified of any report of an oil spill or oiled wildlife in State waters immediately through the 24 hour reporting number (08) 9480 9924.

2.2 Titleholder Spill

The petroleum Control Agency may activate this plan following:

- activation of their Oil Pollution Emergency Plan (OPEP)
- receipt of a report of oiled wildlife
- a request from an Incident Controller managing a MOP incident.

See figure 2 below for the WAOWRP activation process. If the WAOWRP is activated for a MOP incident and a wildlife response is required, the relevant regional OWR plan should also be activated which provides on ground information specific to the region such as wildlife values, siting of OWR facilities, equipment locations and local resources.

In the event of single oiled animals found where the animal can be treated using local resources (veterinaries, wildlife carers or Parks and Wildlife staff), no additional resources may be required and hence the OWR may not need to be escalated.

The level of escalation of the OWR would be determined by the incident management team (IMT).

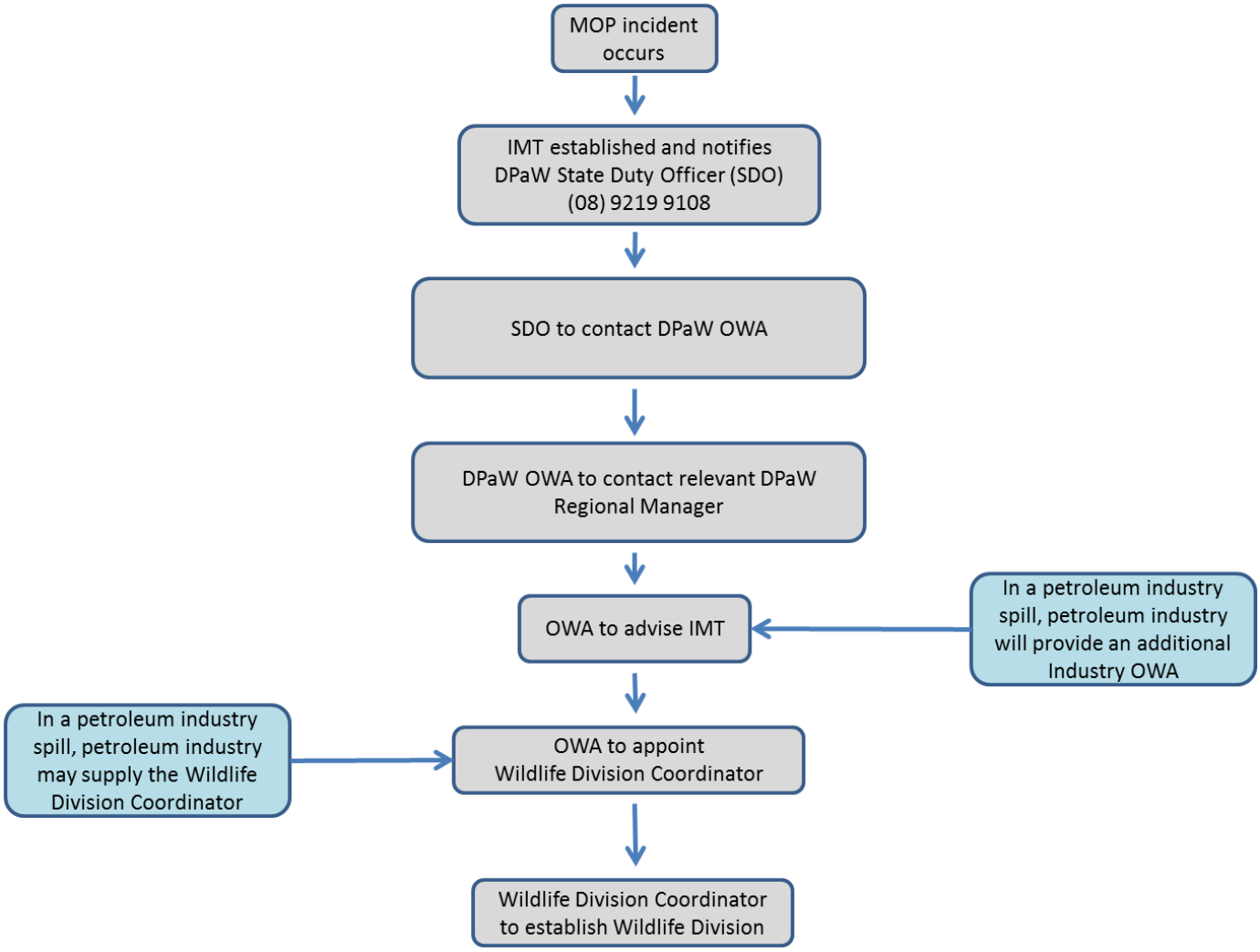

Figure 2: Flow Chart of the Activation of an Oiled Wildlife Response

When a notification of an oil spill, potential threat to wildlife or a report of an oiled animal is received, all relevant information should be obtained from the reporter including location, access, number, species, and condition of oiled wildlife and provided to the Parks and Wildlife Duty Officer (DO) as soon as possible. This report is typically undertaken by the Oil Spill Response Incident Controller (IC).

The SDO will contact the Parks and Wildlife Oiled Wildlife Advisor (OWA) so that they can provide advice to the Control Agency on the management of the OWR. Decisions on levels of response, and therefore resources (equipment/personnel) required will be made by the IMT with input and advice from the OWA(s). All of these decisions will therefore be approved by the Incident Controller (IC).

3. OILED WILDLIFE RESPONSE INCIDENT MANAGEMENT STRUCTURE

The OWR incident management structure will be consistent with the Australasian Inter-Service Incident Management System (AIIMS) and WestPlan MOP. However, it is acknowledged that the petroleum industry operates under a variety of incident response frameworks and this section details the OWR division structure only. Petroleum titleholder specific OPEP's and WestPlan MOP contain further detail into how the 'wildlife division' is positioned within the respective OSR Incident Management structures. The connection to the larger OSR and structure of the wildlife division is not prescriptive due to the different incident structures employed by petroleum titleholders and government. The numbers of individuals required to facilitate each of the identified functions is dependent on the scale of the OWR. In a minor OWR, an individual may facilitate multiple functions while in a large OWR several responders may be required for each function. However, it is important that the identified functions are facilitated and figure 3 below is a guide for that structure. Refer to table 3: Marine pollution arrangements to identify who is the control agency and therefore the IC and IMT.

The Parks and Wildlife Advisor will provide advice to the IMT through the ESC under WestPlan MOP. Under petroleum titleholder OPEP's the Industry OWA and the Parks and Wildlife OWA will report to the incident management team through the structure identified in the specific OPEP. Under both scenarios the Parks and Wildlife OWA will manage fauna licence requirements through direct contact with the IC.

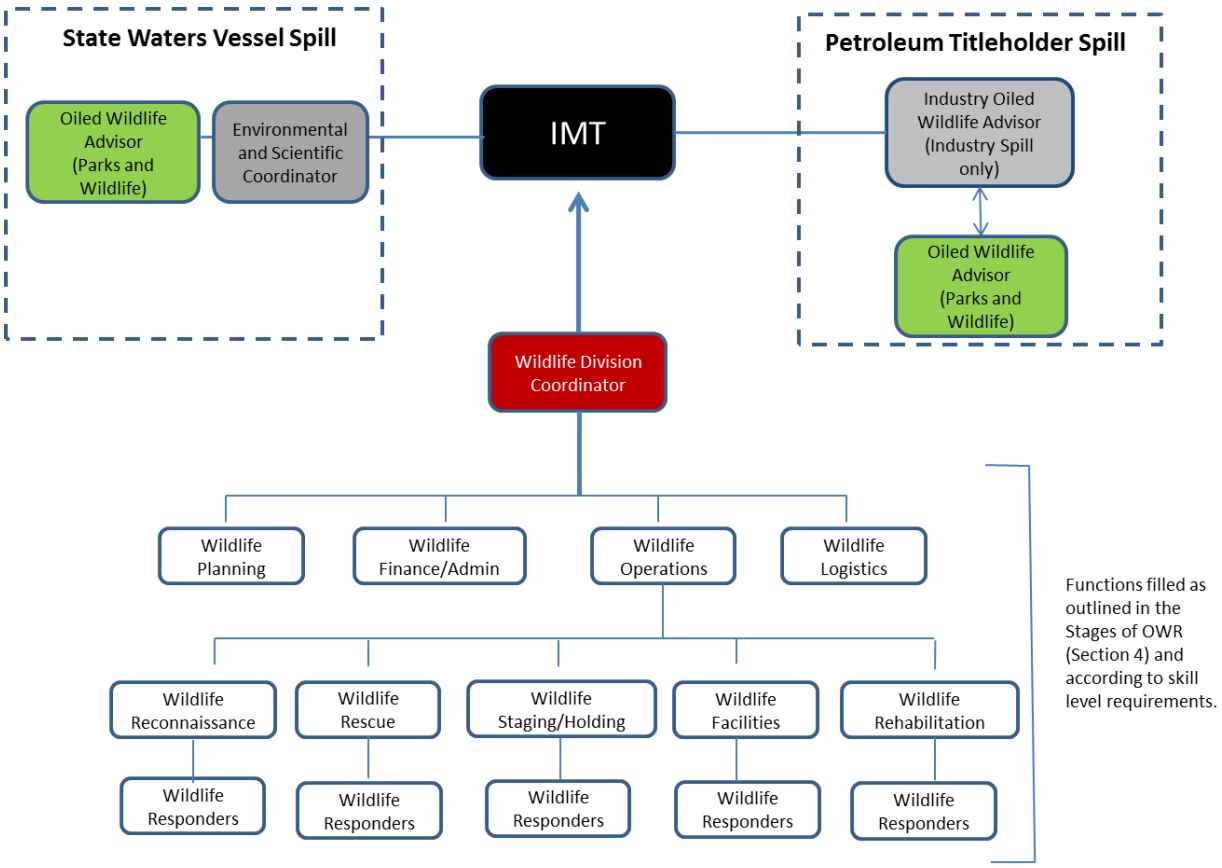

Figure 3: Suggested Functions for a Full Scale Oiled Wildlife Response Incident Management Structure

For further detail on the roles and responsibilities of the positions described above in the activation and incident management structure sections please see Appendix A of this document.

3.1 Notification

Key stakeholders, identified in the relevant regional OWR plan, should be identified and notified that a MOP has occurred. Key stakeholders will vary for each response depending on whether it is within State or Commonwealth waters in addition to the regional location of the MOP. Key stakeholders will include local councils, indigenous groups etc. Contacts are located within the relevant regional OWR plan.

4. STAGES OF OILED WILDLIFE RESPONSE

Figure 4 below shows the stages of OWR following activation of the WAOWRP. Each stage is described in further detail below.

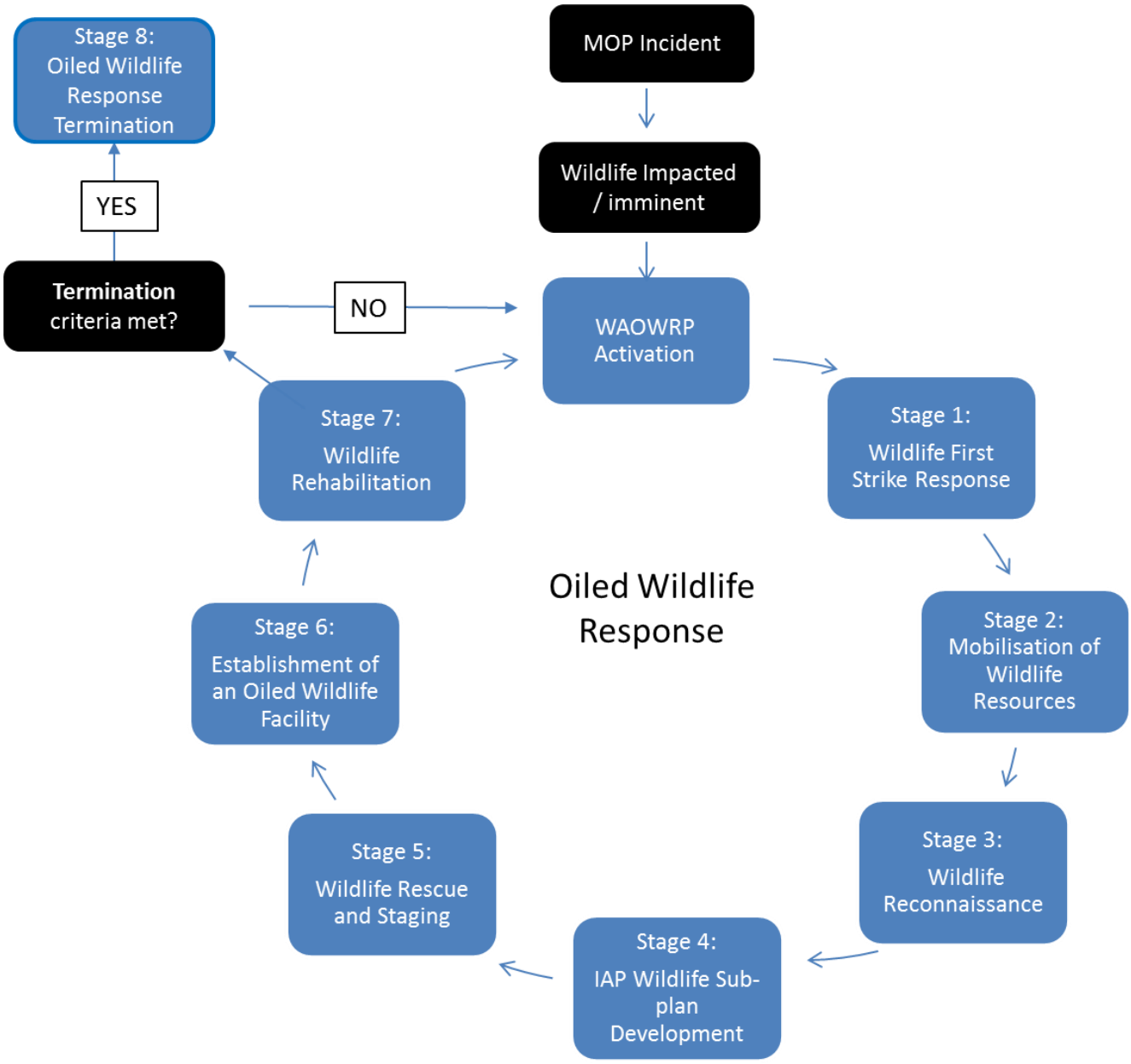

Figure 4: Indicative Stages of an Oiled Wildlife Response

4.1 Stage 1 - Wildlife First Strike Response

The first strike OWR activities provide the initial response of the wildlife division, the OWA has already been stood up at this stage, including:

- Activate relevant Regional OWRP
- Rapidly assess the situation
- Provide advice to the IMT in relation to the wildlife assets at risk
- the potential response level (1-6), determined by OWA and Wildlife Division Coordinator, based on the determined risk areas and likely numbers of oiled wildlife (see table 6 in section 5 for details of OWR levels). The response level is likely to change over the first 72 hours depending on the number of animals requiring treatment. It is the responsibility of the Wildlife Division Coordinator in conjunction with the OWA to determine the level of the response
- The Wildlife Division Coordinator is to Liaise directly with the OWA/s to determine a) resources required, b) resources available c) preparedness to escalate the response if deemed necessary
- Gather information regarding wildlife using the Regional OWR plans;
- The Wildlife Division Coordinator and OWA will discuss activation and mobilisation of First Strike OWR Equipment in anticipation of an OWR to ensure timely availability of equipment. First strike response OWR kits located in WA are listed in section 7 along with equipment that may be sourced from around the country. More detailed information on these kits is found in the respective regional OWR plans. Any activation and mobilisation of OWR equipment must be approved by the IC.

4.2 Stage 2 - Mobilisation of Resources

This stage involves the initial mobilisation of resources beyond

- The OWR personnel, equipment and facilities mobilised for any event will be determined by the circumstances of the event, however a minimum capacity must be mobilised to provide a safe and effective response capability (and critical mass). Two additional OWR personnel will require mobilisation, including:
    - Parks and Wildlife OWA
    - Industry OWA (if petroleum industry is the Control Agency)
    - **Wildlife Division Coordinator**
    - **Wildlife Planning Officer.**
- A Wildlife Operations Officer will also be mobilised to lead the mobilisation of operational resources at the scene when oiled wildlife have been observed.
- Further personnel mobilisation along with equipment, and facility acquisition needs to occur ahead of need if wildlife impact is anticipated.
- Indications of the resources needed for each stage of the OWR are outlined in this section under each relevant stage.
- The level and escalation of resource mobilisation will be determined by the incident management team (IMT) informed by advice from the OWA.

4.3 Stage 3 - Wildlife Reconnaissance

Following the initialisation of a first strike response and the mobilisation of resources, the operations of the wildlife division will be initiated beginning with the wildlife reconnaissance to determine the best means of monitoring animals (see the Fig 5 for structure of the reconnaissance unit).

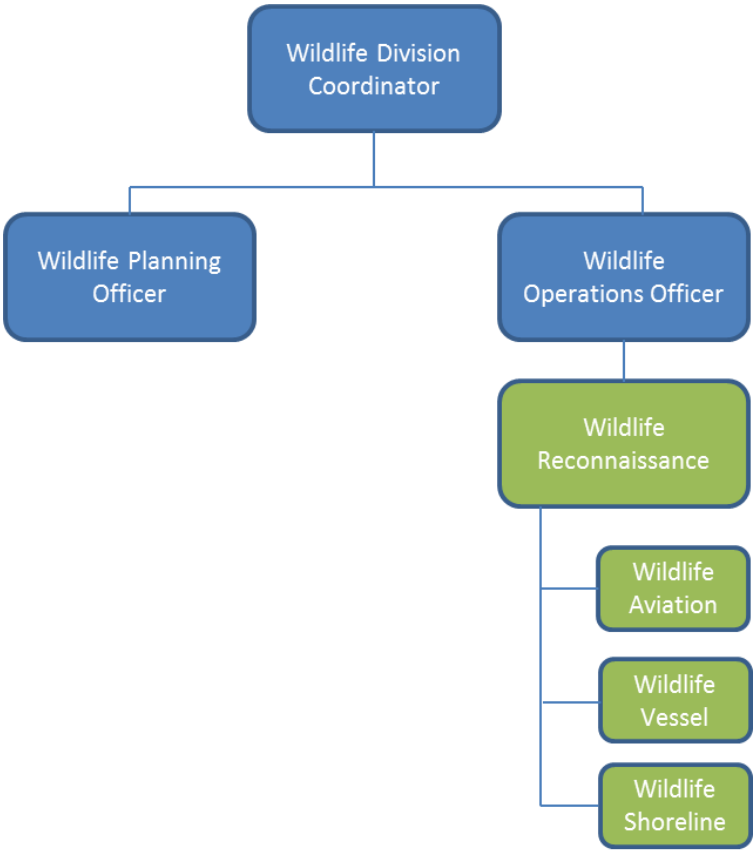

Figure 5: Indicative Structure of the Reconnaissance Unit Functions

Real-time wildlife reconnaissance is necessary to ground-truth information contained in the regional OWR plans due to seasonal and inter-annual variation in abundance and distribution of wildlife.

There are a number of methods available for reconnaissance included in table 4 below.

Table 4: Benefits and Limitations of Reconnaissance Methods

Method	**Functions**	**Benefits**	**Limitations**
Aerial Survey	Pilot observers	Large area of coverage	Altitude, visibility, wildlife disturbance
Boat Based Survey	Boat driver crew	Mobile operation and Direct access to collect and transport oiled animals	Limited area of coverage Limited line of site Potential wildlife disturbance
Shoreline Survey	Driver	Mobile operation able to move between access points Direct access to collect and transport wildlife encountered	Limited transport capacity Limited area of coverage to beach environment.

The Wildlife Division Coordinator will request access to reconnaissance through the IMT Operations Officer. The number of personal will depend on the scale of the area and logistics required.

Creating a Geo-plot; the Wildlife Planning Officer should commence a plot of all known wildlife communities in the local area that may be affected; the hazing and encounter/capture can then be determined from this plot. The WA Oil Spill Response Atlas and petroleum titleholder environmental data can be used as source data for the plot as well as information in the regional plans.

Note: Reconnaissance and capture of wildlife should be performed by people with specific expertise to ensure that uniformly reliable information is fed back to the planning section to enable informed decisions.

Wildlife reconnaissance conducted in conjunction with OSR Shoreline Clean-up Assessment Teams will provide efficient use of resources. There may however be circumstances where separate operations are desirable. Aerial observation has its limitations in wildlife reconnaissance, these include altitude, visibility and risk of disturbance to wildlife.

Personnel:

The Reconnaissance unit will be established under the Wildlife Operations section. Aviation, shoreline and vessel personnel functions are detailed in table 4.

Equipment:

The following basic equipment will be required for Initial Wildlife Reconnaissance:

- Handheld GPS unit
- Digital Camera
- Binoculars
- Spotting Scope
- Field Notebook and Pencil
- Geo-plot output including animal communities at risk.

Equipment to support this operation will be sourced from the IMT and may include:

- Quad motorbikes or 4wd vehicles
- Small vessels (less than 12m length)
- Aerial support (fixed wing or helicopter).

4.4 Stage 4 - Incident Action Plan Wildlife Sub-Plan Development

The Incident Action Plan (IAP) wildlife sub-plan will be developed by the Wildlife Planning officer in collaboration with the Wildlife Division Coordinator. Information gathered from the regional OWR plan and real time wildlife reconnaissance will inform the development of the sub-plan. The sub-plan will include the appropriate response options for oiled wildlife, including:

- wildlife priorities for protection from oiling
- deterrence measures
- Recovery and treatment of oiled wildlife (provided by Wildlife Planning Officer & Field Coordinator); resourcing of equipment and personnel.

The Wildlife Division Coordinator and OWA will discuss activation and mobilisation of OWR resources in anticipation of OWR to ensure timely availability of personnel and equipment. The OWA

will then discuss recommendations with the IC for approval of the sub-plan and mobilisation of OWR resources and personnel.

4.5 Stage 5 - Wildlife Rescue and Staging

4.5.1 Exposure Modification

Where wildlife is at risk of becoming impacted by oil, strategies to prevent this should be explored. The primary OSR objectives of containment, clean-up and preventing further discharges of oil will be the most effective actions to achieve this aim. Further strategies directly involving wildlife comprise pre-emptive capture and hazing. Pre-emptive capture requires that safe means of capturing a significant proportion of wildlife at risk be available, together with the capacity to care effectively for them in captivity, and a workable plan for re-release when risk has been eliminated. The structure of the Wildlife Rescue Unit with the Wildlife Exposure Modification Unit activated is shown in Figure 6.

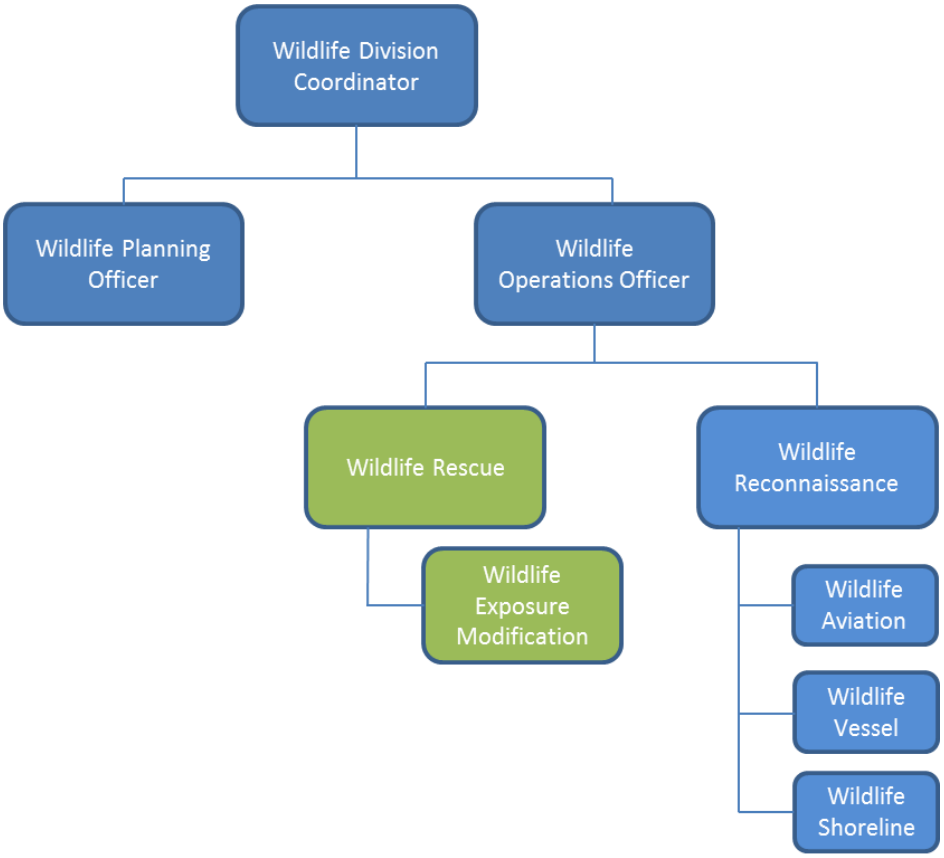

Figure 6: Indicative Structure of Rescue Unit Function Showing Exposure Modification Unit*
**Exposure modification (prevention of oiling through wildlife deterrence or pre-emptive capture)*

Strategies such as pre-emptive capture have been shown to be cost effective in protecting high value species or populations. Pre-emptive capture can be resource intensive and carries inherent risks, but can be particularly effective in achieving the best conservation outcome for high value wildlife populations. Pre–emptive capture strategies are outlined for high value species in Appendix H.

Hazing (the scaring of unoiled wildlife away from oiled habitats/areas) requires an effective deterrent system, and satisfactory alternative sites for animals deterred from at-risk sites. There are many commonly used methods and devices to haze animals including aircraft, vessels, cracker shells, gas cannons, predator recordings, and predator effigies. Careful consideration of the particular

circumstances must be given as significant deleterious effects may ensue from poorly planned or executed hazing operations.

Any deterrence/hazing/pre-emptive capture activities will require licensing authority from Parks and Wildlife through the OWA and operational approval from the Incident Controller. The Parks and Wildlife OWA enable rapid access to department licences to undertake approved activities. In a petroleum industry spill, the control agency will be required to fill these roles with adequately trained personnel. The Department of Parks and Wildlife will position advisors throughout the response to provide support and ensure the response is suitable. OWR rescue operations should determine the best combination of pre-emptive capture, hazing and the collection and management of oiled animals based on resources available.

Personnel:

The positions in the Wildlife Exposure Modification Unit should be filled and on-going assessment of the situation will determine any additional staffing requirements. If the OWR is a response to a petroleum industry MOP incident, and the positions are then filled by industry personnel, The Department of Parks and Wildlife will inject expert advisors into the response to provide assistance and guidance where needed.

4.5.2 Wildlife Rescue, Transport and Staging/Holding

The structure of the Wildlife Rescue (fully activated) and Wildlife Staging/Holding Units and the units that sit beneath them to undertake wildlife collection, stabilisation and transport are shown in Figure 7.

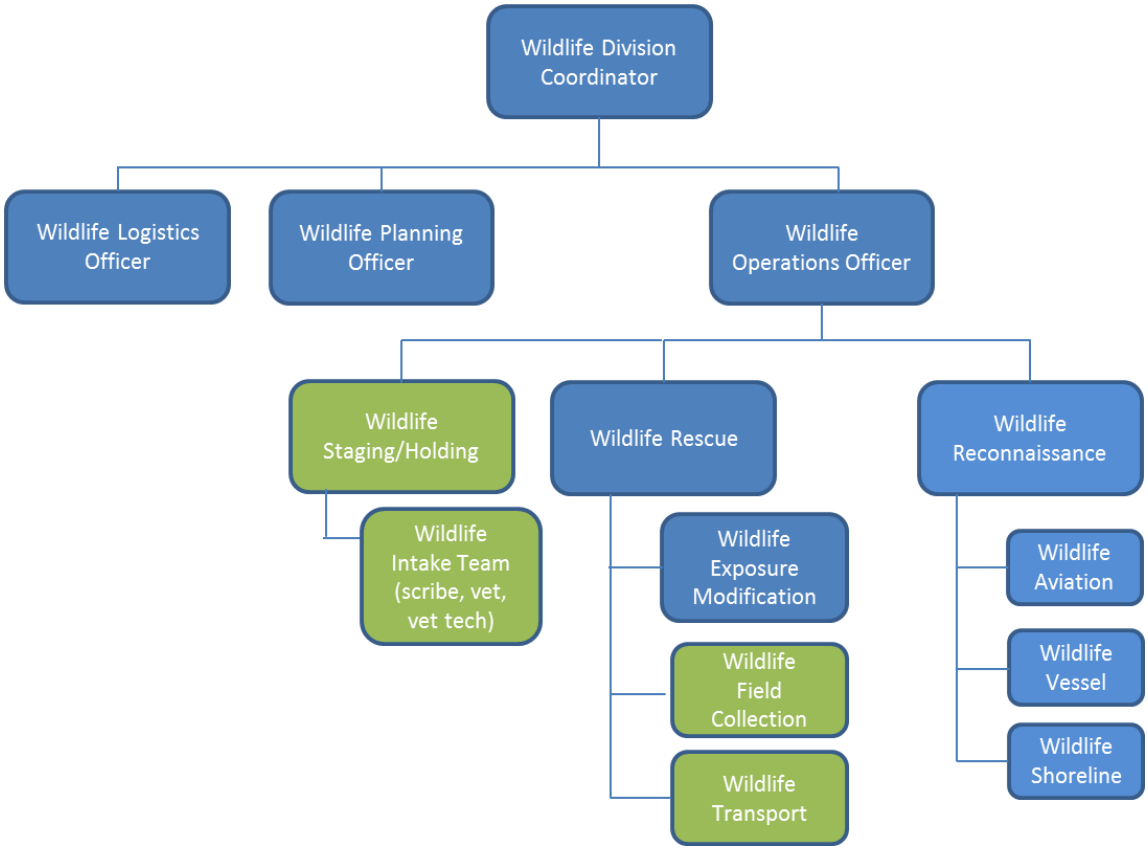

Figure 7: Indicative Structure of Wildlife Field Collection, Transport and Staging/Holding Functions.

Wildlife search operations to enable wildlife field collection are planned using input from the IAP considering triage principles, in addition to geographical areas expected to have been impacted by a MOP incident. Differentiation of the functions a) finding oiled wildlife b) capturing wildlife, and c) holding and d) transporting wildlife to oiled wildlife facilities should be made. All four functions may be performed by a single team or functions could be split into separate teams.

A staging site will provide a logistics base for search and capture teams, and shelter and quiet for animals waiting to be transported to a primary care oiled wildlife facility. Stabilisation may be initiated at the staging site if prolonged transport is anticipated. Wildlife can be held in transport cartons if suitable ventilation and protection from weather is provided.

A field collection team should comprise at least three individuals for safety and effectiveness, however teams larger than this may be more suitable depending on transport and communication requirements, the length of coastline affected, and how dispersed casualties are. Where individual animals have not become immobilised, specialised species-specific capture strategies may require large teams.

Field teams return captured wildlife to the staging site, from where the Wildlife Rescue and Staging/Holding unit leaders direct their efforts and liaise with the transport unit. A field staging site would permit stabilisation and staging for transport if staffed by a wildlife intake unit comprising a vet, veterinary technician, and a scribe.

For further detail on search and rescue operations related to specific wildlife groups, wildlife transport and holding/stabilisation at a staging site please see:

Appendix B - Search and Rescue Operations Related to Specific Wildlife Groups

Appendix C - Wildlife Transport

Appendix D - Wildlife Holding at Staging Site (Stabilisation, Triage and Quick Wash)

Public information announcements should be arranged on local television and radio to discourage participation by untrained members of the public in attempts to capture and collect wildlife and direct volunteers to an induction training location.

Personnel:

Indicative numbers of personnel required for the rehabilitation unit based on OWR level can be found in section 5. The functions identified in the Wildlife Rescue Unit and Wildlife Staging Unit should be filled and on-going assessment of the situation will determine any additional staffing requirements. At this point of mobilisation, a Wildlife Logistics Officer function is required, (see figure 7).

4.6 Stage 6 - Oiled Wildlife Response Facility

The structure of the Wildlife Facilities Unit and the units that sit beneath it when fully activated are shown in Figure 8

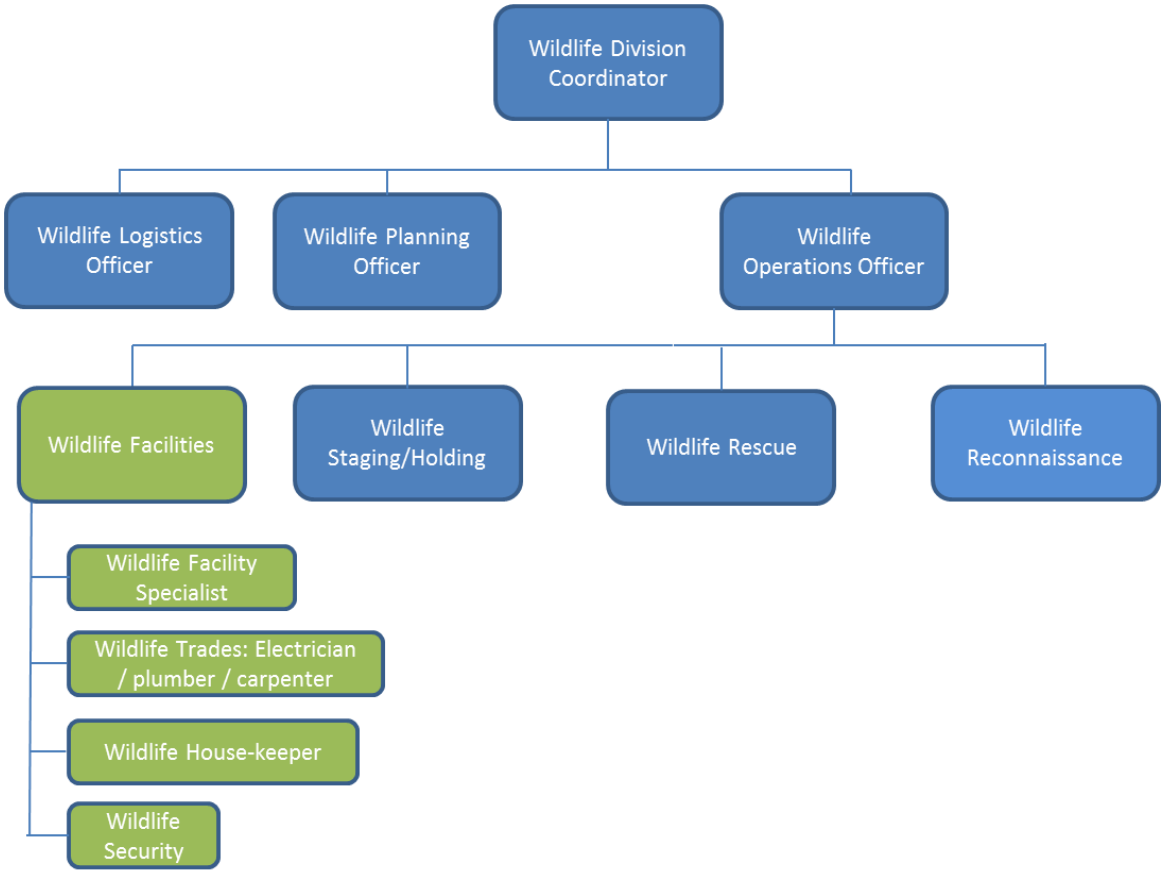

Figure 8: Indicative Structure of the Wildlife Facilities Unit and Functions.

If necessary, An Oiled Wildlife Facility will be established at a pre-identified facility site (as identified in the relevant regional plan). Access to a site for the purposes of an oiled wildlife facility will be confirmed by the Wildlife Division Coordinator following the acknowledgement of an escalation of the response by the IC and the approval of resource mobilisation.

This may require access to National Plan resources and industry resources through the current National Plan arrangements.

Priorities for establishing the Oiled Wildlife Facility during the First Strike Response period is to rapidly provide for the intake and holding capacity of oiled wildlife, with other functions added on in additional phases.

Note: An overall space requirement of approximately 2500 m2, a water flow capacity reaching 60,000 L/day and an electrical load of 200 A are conservative estimates for a centre dealing with 100 to 500 wildlife casualties at the facility at any one time.

A temporary facility management team of up to six contractors would take 1 to 3 days to develop facilities to hold, assess, and initiate cleaning in a suitable site on-scene. Development of post-cleaning rehabilitation facilities in the temporary centre would be completed over the ensuing week.

The skills required include a facility development specialist, plumber, electrician, carpenter, with assistance with local knowledge. The size of the team will reduce following the facility establishment but the skills required will remain the same.

Personnel:

The functions in the Wildlife Facilities Unit should be filled with on-going assessment of the situation to determine numbers of personnel required to fill these functions (see figure 8).

Equipment:

Locations for oiled wildlife response stock piles across the state are detailed in section 7. Detailed equipment and contractor lists can be found in respective regional plans. These are basic kits that can be deployed quickly to a spill site and contain equipment for the initial treatment of up to approximately 100 wildlife casualties. However, they do not represent a 'facility' which, depending on the location of the nominated facility in the area, will require sourcing of equipment to construct a facility that meets the needs of the response.

Procedures for the mobilisation of the oiled wildlife equipment is as follows:

Mobilisation of National Plan Equipment;

1. If the MOP is from a ship based source, then the activation and mobilisation of National Plan oiled wildlife equipment will be through WA DoT
2. If the MOP is from a petroleum industry source, then the IC may, if required, request that the National Plan is activated to support the MOP response and that National Plan OWR equipment is provided via AMSA.

Mobilisation of AMOSC Equipment;

- If the MOP is from a ship based source, then the activation and mobilisation of AMOSC oiled wildlife equipment will be through the AMSA duty officer (24 hour: (02) 6230 6811) to the AMOSC duty officer (24 hour: 0438 379 328)
- If the MOP is from a petroleum industry source, then the petroleum titleholder IC may, if required, activate AMOSC to call on extra oiled wildlife equipment.

4.6.1 Set up and Use of Oiled Wildlife Facilities

Application:

In the event of an oil spill which impacts on wildlife, treatment facilities will be required for the first-aid, cleaning and rehabilitation of affected animals. The facilities are required to be scalable to enable increases in wildlife units

Oiled Wildlife Response Kits (AMSA) and 20' OWR containers held by industry (AMOSC) are available (see section 9 for details) which can assist with an initial, rapid response and may be sufficient in the case of a spill that affects less than 150 animals over a 3 day period. The AMSA first strike response resources are intended to provide an initial treatment response only and, in the event of a large spill involving larger numbers of wildlife, additional treatment and rehabilitation facilities may need to be established either in situ or away from the spill site. The procedure for setting up and using an oiled wildlife facility is in Appendix E and assists personnel involved in the establishment of facilities for the first-aid, cleaning and rehabilitation of affected wildlife. Correct treatment processes are

covered in standard operating procedure documents (Appendix F - triage and first aid SOP and Appendix G - cleaning and drying wildlife SOP).

Resources and Equipment:

- Oiled Wildlife Response Kits, provided by the Australian Maritime Safety Authority (AMSA), are located in each State and the Northern Territory. These are basic kits that can be deployed quickly to a spill site and contain equipment for the initial treatment of up to 100 wildlife casualties. They do not represent any 'facility'
- AMOSC has 2 x 20' containers specially designed for the treatment of OW. These containers contain cleaning stations, water softeners and the ability to be self-contained
- Existing built facilities or temporarily erected/installed facilities such as marquees (at least 4m x 4m in size), air conditioned shipping containers, mobile units, site offices
- Shower and toilet blocks
- Laundry facilities – if laundering is to be undertaken on site, separate facilities are needed for personnel clothing and towels or cloths used to dry wildlife. Alternatively, consideration may be given to outsourcing the laundering of soiled materials
- Resources and equipment as listed in the standard operating procedures (SOPs):
  - Triage and First Aid (Appendix F)
  - Cleaning and Drying Wildlife (Appendix G).

Nominated Oiled Wildlife Facilities: On Land:
Pre-determined locations for land based oiled wildlife facilities are listed in the relevant regional operational plans. Each facility lists access to amenities required to establish a rehabilitation facility and indicates their suitability for level 1-6 oiled wildlife response.

An Oiled Wildlife Facility / rehabilitation centre will need to provide the following as a minimum:

- sufficient space for receiving, examination and washing of wildlife and also housing areas, rehab pens, and pools
- An administration area
- Adequate ventilation
- Temperature control
- Electricity supply
- Water of sufficient softness for washing
- Suitable animal washing apparatus (with temperature pressure and delivery control)
- Sewerage, oily waste, general waste and biological waste disposal
- Security
- Decontamination and washing facilities for workers
- Induction and Training rooms, toilets and crib rooms for workers
- Volunteer management area (including induction and training).

Refer to the regional OWR plans for resources and identified facilities that could be converted to OWR rehabilitation centres.

Oiled Wildlife Facilities: On-Water:

In scenarios where a land based holding/stabilisation facility cannot be located close to the site of collection (within 10 nautical miles as a guide), establishment of an "on-water" facility may be more

practical for the stabilisation of oiled wildlife prior to transport to a land based treatment facility. Examples would include spills in the Montebello Islands, Great Sandy Islands, Exmouth Gulf areas, Rowley Shoals, Lacepede Islands etc.

See figure 9 for an example layout of vessel based staging/holding site.

In these circumstances, vessels/barges and modified shipping containers may be required to fulfil these requirements.

Equipment:

An on-water holding/stabilisation facility may require enough space and equipment for oiled wildlife washing facilities

- Mortuary facilities for euthanised wildlife
- Triage/intake facilities with a lab bench
- wildlife Holding facilities for transport.

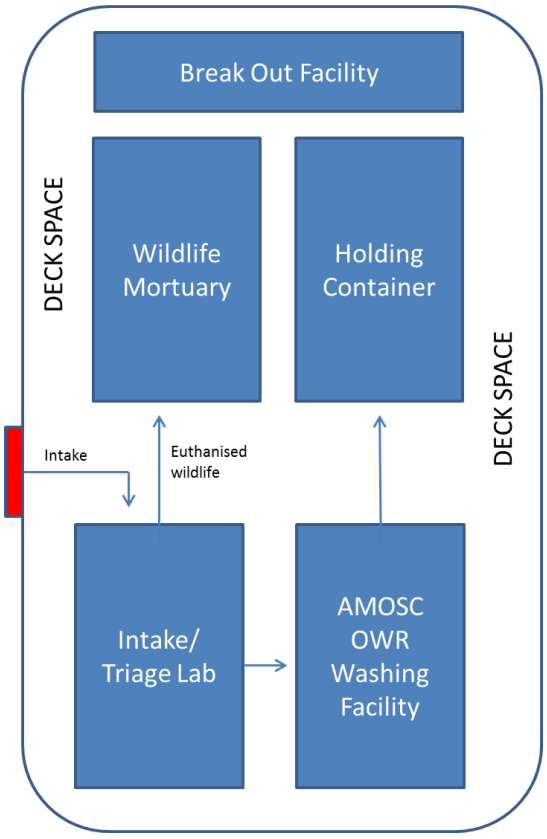

Figure 9: An Indicative Vessel Based Stabilisation/Holding Layout

Further facilities on a transfer vessel will be required to enable transport of animals from the holding vessel to the oiled wildlife treatment facility (mortuary and holding facilities).

Vessels

1) **Triage/stabilisation/holding vessel**

An ideal on-water wildlife stabilisation/holding vessel would need to have the following:

- accommodation for personnel
- suitable deck space to house required facilities
- 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 5 and figure 10 for examples of vessel requirements to accommodate a stabilisation/holding operation.

Table 5: 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 MTR2
Water	120,000 Litres
Accomodation	5 + crew Airconditioned
Pollution control	Oily water seperator or oily waste holding tanks

Figure 10: Indicative Vessel for On-Water Wildlife Triage/Holding/Stabilisation

2) Collection Vessels

If an on-water holding facility is required in an oiled wildlife response, multiple recovery vessels will be needed to locate, capture and transfer the oiled animals to the holding facility. These vessels need to be surveyed to operate independently of the holding facility.

Responsibility for the Set-Up and Management of Oiled Wildlife Response Facilities:

The Wildlife Division Coordinator is responsible for identifying and advising the OWA/s in the requirement of oiled wildlife facilities (including the amount and type of space, fixtures, fittings and services required). It is then the responsibility of the Logistics Section to source suitable existing facilities or to arrange the establishment of temporary facilities. This may require additional discussion with other Functional Areas.

The Wildlife Facilities Unit Leader is responsible to the Wildlife Division Coordinator for the operation and functioning of the oiled wildlife facilities and associated site.

For further procedural information relating to Oiled Wildlife Facility set up and use please see Appendix E - Procedure for set up and use of Oiled Wildlife Facilities

4.7 Stage 7 - Wildlife Rehabilitation

Rehabilitation Centre

Requirements for a rehabilitation centre are dependent on the region and the wildlife likely be admitted. Ideally a facility will be planned with a team including trained OWR personnel, a wildlife veterinarian, a local authority representative and an experienced builder. Longer term rehabilitation requirements may defer to more permanent facilities that can cope with reduced numbers of wildlife.

Rehabilitation personnel

The structure of the Wildlife Rehabilitation Unit and the units that sit beneath it when fully activated are shown in figure 11. See section 5 for indicative numbers of personnel required for the rehabilitation unit based on OWR level. The functions of OWR rehabilitation are shown in figure 12 below.

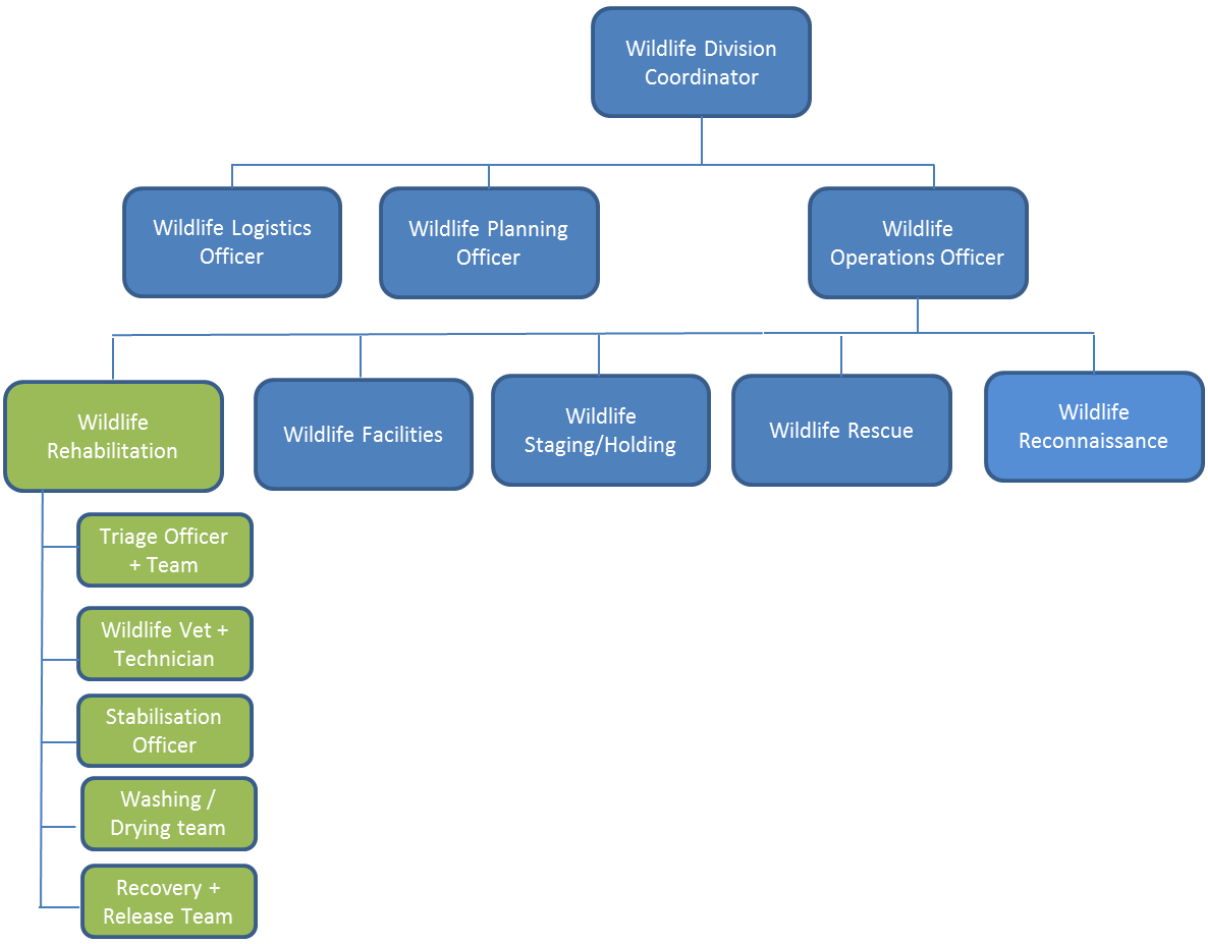

Figure 11: Indicative Structure of the Wildlife Rehabilitation Unit Functions

For further detail on rehabilitation procedures such as first aid, triage, cleaning and drying, please see:

Figure 12 – Overview of oiled wildlife rehabilitation
Appendix F – Triage and First Aid SOP
Appendix G – Cleaning and Drying Wildlife SOP.

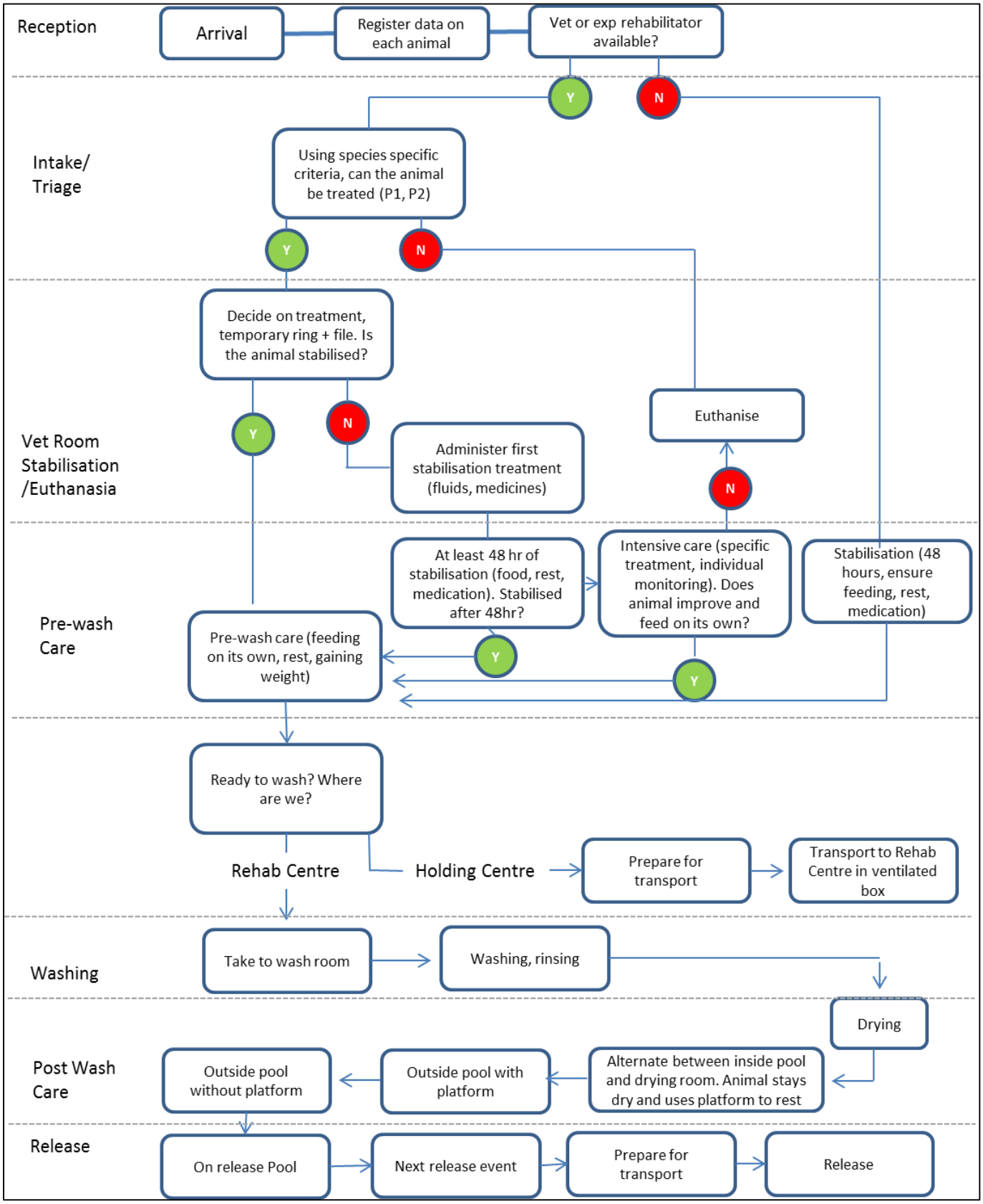

Figure 12: Indicative Overview of Oiled Wildlife Rehabilitation Process.

Wildlife Housing:

The requirements for housing and rehabilitation of wildlife will vary greatly depending on the size and circumstances of a spill. Short term requirements and small numbers of wildlife may capitalise on existing wildlife care facilities for the post washing and intensive care period of rehabilitation. For larger numbers of wildlife and longer term incidents, on site construction of facilities may be necessary.

Expert advice should be obtained in the design and set up of temporary and longer term rehabilitation housing of wildlife. The Perth Zoo is recognised as a leading State agency in wildlife housing and can provide advice is require. Basic designs can also be found in the 'OWR Manual' prepared by the Sea Alarm Foundation, accessed via the POSOW (Preparedness of Oil-polluted Shoreline Clean-up and Oiled Wildlife interventions) website: http://www.posow.org/documentation/manual/wildlife_manual.pdf.

Further information and specifications are in Appendix E – Procedures for set up and use of oiled wildlife facilities.

All rehabilitators in WA are required to comply with the 'Minimum Standards for Wildlife Rehabilitation in WA 2008' (as amended). Any design of holding areas or pens for wildlife should comply with these standards as a minimum. A copy of the standards can be found here:

http://www.nativeanimalrescue.org.au/interface/pdfs/DEC_Mininum_Standards.pdf

Wildlife Record Keeping:

Record keeping is a critical part of the management of captured wildlife whether pre-emptive or following oiling. Records must be kept from the point of capture and travel with each individual animal. On arrival at the rehabilitation centre the wildlife should be tracked through the system on the treatment record. An Australian OWR record keeping system known as the National Plan OWR Database (NPOWRD) has been developed and can be implemented for tracking wildlife during a spill event. Important components of the system are an access database, fauna data sheets, and a database manual. A copy of this system's components can be downloaded from the AMSA website under National Plan, General Information section, via the following link:

http://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/General-Information/oiled-wildlife/database/index.asp

Preventing Wildlife from being Re-Oiled:

Wildlife cannot be released until their habitats are remediated and deemed clear from further risk of oiling. In cases such as leaking uncapped wells or leaking tankers this can take months. Housing of wildlife will be required during this period. Planning for worst case scenarios should be considered from the inception of the incident to allow effective management.

Where pre-emptive capture is undertaken animals can be released once the habitat is clear of oil pollution. While it is preferable to get unoiled wildlife back to their natural habitat as soon as possible, in some cases the release of animals a long distance from the spill allowing them to find their own way back may be acceptable. However advice should be sought before proceeding. Refer to Appendix H Oiled Wildlife Response Strategy by Functional Group table.

Success Tracking:

An important part of OWR is to determine the success of strategies implemented to improve knowledge and planning of operations for similar events in the future. Methods for marking and or tracking sample groups of wildlife as soon as oiled wildlife are detected, such as banding of birds and tagging of turtles would enable the longer term monitoring of successful rehabilitation.

The attachment of satellite or radio tracking units to samples of released groups of mature animals that have been effectively rehabilitated should be considered to determine the success of rehabilitation. Specialised equipment and personnel are required for this type of task.

For further detail on aspects of wildlife rehabilitation see:

Appendix F - Triage and First Aid SOP

Appendix G - Cleaning and Drying Wildlife SOP.

4.8 Stage 8 - Oiled Wildlife Response Termination

Objectives:

Once the decision has been made to terminate oiled wildlife operations, the Incident Controller will stand down functions through the Wildlife Division Coordinator when the appropriate agencies agree that the incident/emergency has been satisfactorily controlled and the particular wildlife functions are no longer required. This is likely to involve a progressive stand down of different functions from the wildlife capture through to rehabilitation functions as appropriate.

Ongoing resourcing may be required, beyond the termination of clean-up operations, to maintain rehabilitation of some affected animals and to conduct monitoring programs after their release. Demobilisation of the wildlife response will be guided by parameters established by the Wildlife Division Coordinator at the beginning of operations and incorporated into the Incident Action Plan in consultation with the Incident Controller.

This procedure assists personnel involved in the demobilisation of a wildlife response. It does not address any other aspects of a wildlife response which are covered in separate procedural documents. Refer to other procedures listed at the end of this document

The demobilisation of a wildlife response will include dismantling temporary facilities or returning built facilities to their pre-response condition. This could involve a range of physical activities such dismantling marquees or other temporary constructions, removing electrical and plumbing installations, removing furnishings or cleaning facilities and equipment. Steps will need to be taken to minimise any hazards associated with this. Incident Action Plans need to flag the end of the response weeks ahead of time if the incident extends over a long period of time (i.e. in excess of two months).

Procedure:

Demobilisation of the wildlife response will be undertaken in accordance with parameters established in the Incident Action Plan (Termination sub-plan) and when the Wildlife Division Coordinator considers that all wildlife affected by the spill have been satisfactorily dealt with. The decision will be made in consultation with the Incident Controller, the Wildlife Advisor, and the Wildlife Division Coordinator.

Demobilisation of personnel, equipment and facilities used for the wildlife response will generally lag behind that of the wider spill response because cleaning, treatment and rehabilitation of wildlife can take longer than the spill response. Factors determining the timing of demobilisation will include:

- the numbers of affected wildlife still being found (if any) and the cut-off below which formal rescue efforts will be suspended
- the numbers and condition of captive wildlife and the need for ongoing cleaning and rehabilitation operations
- the condition of clean-up of any impacted wetlands, shorelines or islands and their capacity to support released wildlife
- sign-off by the Incident Controller (with input from the Environmental Science Coordinator) providing assurance that habitats to which wildlife are to be returned are no longer contaminated.

Animals captured late in the response may require care after other response resources have been demobilised.

In some cases, some animals will need to remain in rehabilitation longer term. Depending on the cost and feasibility of maintaining facilities established for the incident, consideration may need to be given to re-locating these animals to other facilities to complete their rehabilitation.

The Wildlife Division Coordinator is responsible for scaling back and demobilising functions and resources associated with wildlife search and rescue, triage and first aid and transport as no longer required.

Termination of the Rescue Unit:

As the numbers of affected wildlife being captured fall towards the agreed threshold for ceasing operations, the Wildlife Division Coordinator will oversee the scaling back and termination of wildlife rescue operations. This will include:

- Ensuring that all animals are accounted for and have been transferred to treatment facilities
- Standing down search and rescue resources – including vehicles, boats, hazing and other equipment which must be decontaminated, cleaned and serviced, if required, and returned to the relevant owner or custodian
- Debriefing and standing down rescue personnel
- Debriefing and standing down, or transferring, transport personnel (note: some vehicles and transport personnel may need to be retained to transport animals yet to be released or moved from the rehabilitation facility)
- De-commissioning of triage and first aid facilities. This will include ensuring that facilities are decontaminated and returned to their previous condition, including replenishing depleted stores and provisions if applicable. Temporary facilities will need to be cleaned, decontaminated, dismantled and returned to relevant owners
- Ensuring that all contaminated waste has been removed from the site in accordance with waste management procedures for the incident
- Debriefing and standing down triage/first-aid personnel
- Ensuring that completed incident records, personnel records and cost recovery paperwork have been duly authorised and forwarded to the Logistics Section for processing/archiving
- Ensuring that any requested field samples, photographs, or other evidence gathered is provided to the investigations unit.

Termination of the Rehabilitation Unit:

As rescue operations scale back, and treatment facilities are no longer required, the Wildlife Division Coordinator will oversee the scaling back and termination of rehabilitation operations.

This will include:

- Ensuring that all animals have been accounted for, meaning that all fully rehabilitated wildlife have been released back into their natural environments and that animals requiring ongoing rehabilitation are transferred to another care facility if there are too few to justify keeping rehabilitation facilities operational
- Debriefing and standing down rehabilitation personnel
- De-commissioning rehabilitation facilities, including transport, washing and drying facilities and rehabilitation facilities
- Ensuring that facilities are decontaminated, sanitized and returned to their previous condition, including replenishing depleted stores and provisions if applicable. Temporary facilities will need to be, decontaminated, sanitized, dismantled and returned to relevant owners
- Ensuring that all contaminated waste has been removed from the site in accordance with waste management procedures for the incident
- Ensuring that the contents of any OWR Kit used during the response are reviewed and replenished if required and the kits are returned to their holding locations
- Ensuring that completed animal records, incident records, personnel records and cost recovery paperwork have been duly authorised and forwarded to the Logistics Section for processing/archiving.

De-Brief:

Once the Wildlife Division has been demobilised, the Wildlife Division Coordinator will arrange a hot debrief to analyse their involvement in the wildlife response. A subsequent review of systems, including policies and procedures should be undertaken based on lessons learned during the response.

Once the major operational phase of the response is completed an ‘all agencies’ debrief/after action review of the incident/emergency response will be organised followed up with a formal report.

5. OWR INCIDENT TYPES AND PERSONNEL REQUIRED

5.1 Oiled Wildlife Response Levels

OWRs are characteristically minor (1-20 birds and <1 week response duration) or major (100+, >30 days response duration), with each response having different resource needs for personnel and equipment and variations on the duration of the response efforts. However, it is important to define the levels in between, provide a minimum number of personnel required and skill level required to fill roles within the OWR structure. Table 6 below displays levels of OWRs which should be used as a reference when examining table 6 indicating personnel numbers and skill levels required. These levels and requirements are indicative only; consideration given to the complexity of the response (spatial and temporal) as well as the resourcing required, will assist in determing the response level.

Table 6: Indicative Oiled Wildlife Response Levels

OWR level	**Duration of OWR**	**Birds general**	**Birds OWR complex #**	**Turtles - hatchlings / juveniles / adults**	**Dolphins / Whales**	**Pinnipeds**	**Mammals terristrial**	**Reptiles**	**Dugongs**
Level 1	<3 days	1-2 birds per day or < 5 total	No complex birds	None	None	None	None	None	None
Level 2	4-14 days	1-5 birds per day or <20 total	No complex birds	< 20 hatchlings no Juveniles or adults	None	None	None	None	None
Level 3	4-14 days	5-10 birds per day or < 50 total	1-5 birds per day or <10 total	< 5 juv/adults, < 50 hatchlings	None	< 5 seals	< 5	< 5 - no crocodiles	None
Level 4	>14 days	5-10 birds per day or < 200 total	5-10 birds p/day	< 20 juv/adults < 500 hatchlings	< 5 or known habitats affected	5-50 seals	5-50 mammals	5-50 reptiles	Dugong habitat affected only
Level 5	>14 days	10-100 birds per day or > 200 total	10-50 birds per day	>20 juv/adults, > 500 hatchlings	>5 dolphins	> 50 seals	> 50 mammals	>50 reptiles	Dugongs oiled
Level 6	>14 days	>100 birds for day	10-50 birds per day	>20 juv/adults, > 500 hatchlings	>5 dolphins	> 50 seals	> 50 mammals	>50 reptiles	Dugongs oiled
# Threatened species, protected by treaty, or specialist feeders									

5.2 Personnel Required for Each Level

The table below provides an indication only of the number of personnel required to fill positions relative to the scale of the response. The number of personal may change depending on the complexity response (spatial scale and variety of wildlife impacted). Additional personnel will be required as scribes/PAs for key functional positions. The skill level required is indicated as OWR 1-4, these correspond to figure 12 and table 7 below and are competency based levels that ensure personnel have adequate knowledge to effectively perform the indicated roles / functions. To give an indication in terms of International Maritime Organisation (IMO) skill levels; OWR skill level 4 aligns with IMO level 3, OWR skill level 3 aligns with IMO level 2 and OWR skill level 1 and 2 are both IMO level 1 (OWR skill level 2 falling at a higher level within that band than OWR 1). The role definitions can be found in Appendix A.

Table 7: Indicative Oiled Wildlife Response Personnel Resourcing

Category	Role	OWR Skill Level	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
Strategic	Oiled Wildlife Advisor	OWR 4	1^{+1}	1^{+1}	1^{+1}	1^{+1}	1^{+1}	1^{+1}
	Wildlife Division Coordinator**	OWR 4	1	1	1	1	1	1
	Wildlife Operations Officer**	OWR 3			1	1	1	1
	Wildlife logistics Officer	OWR 3			1	1	1	1
	Wildlife Plannning Officer	OWR 3			1	1	1	1
	Wildlife Finance/Admin Officer	OWR 3			1	1	1	1
	Wildlife Communications Officer	OWR 2		1	1	1	1	1
	Wildlife Situation Officer	OWR 2			1	1	1	1
	Wildlife Supply/Resource Officer	OWR 2			1	1	1	1
	Wildlife Safety Officer	OWR2			1	1	1	1
	Wildlife Volunteer Coordinator	OWR 2			1	1	1	1
Staging Area / Facilities	Wildlife Staging Area Manager*	OWR 2	1	1	1	1	2	2
	Wildlife Staging Area / intake Team	OWR 1			3	3	6	8
	Wildlife Facilities Manager *	OWR 2			1	1	1	1
	Wildlife Trades assistants	Specified Skill			1	2	3	3
	Wildlife housekeeper	OWR 1			1	1	2	3
	Wildlife Security	Specified Skill			1	1	1	1
Re-connaissance	Wildlife Reconnaissance Officer	OWR 2	1	1	1	1	1	1
	Wildlife Aviation Supervisor	OWR 2			1	1	1	1
	Wildlife Vessel Supervisor	OWR 2				1	1	1
	Wildlife Shoreline Supervisor	OWR 2				1	1	1
	Wildlife Reconnaissance Team	OWR 1			2	4	6	8
Rescue	Wildlife Rescue Officer	OWR 2	2	1	1	1	1	1
	Wildlife Exposure Modification Officer	OWR 2		1	1	1	1	1
	Wildlife Field Collection Team	OWR 1		3	6	9	22	22
	Wildlife Transport Officer	OWR 2		1	1	1	1	1
Rehabilitation	Triage officer	OWR 2	2	1	1	1	1	1
	Triage team	OWR 1		1	4	5	5	6
	Wildlife Vetrinarian *	Specified Skill		1	1	3	3	3
	Wildlife Vetrinarian technician *	Specified Skill			1	1	1	1
	Wildlife Stabilisation Officer	OWR 2		1	1	1	1	1
	Wildlife Rehabilitation Officer	OWR 2		1	1	1	1	1
	Facilities Team	OWR 1		3	4	6	8	8
	washing/drying personnel ***	OWR 1		4	6	10	15	15
	Recovery/release personnel ***	OWR 1		3	8	10	20	20
Total number of personnel			**6**	**26**	**59**	**77**	**116**	**122**
NOTES	* 1 person per facility	*** Volunteers can be used to make up more numbers in this category where necessary						
	** May have deputy	Note: All Supervisor/coordinator positions should employ a scribe from level 4>						
	1^{+1} = In an industry spill there may be two oiled wildlife advisors (1 DPaW, 1 industry)							

5.3 Skill Requirements

Skill requirements for personnel participating in an OWR are categorised into four competency and skill levels. The levels are based on competency based training in OWR, incident management response, and prior experience in incident response. The skill levels are wide ranging to allow for pool resourcing, where a large number of personnel trained in a level can fill numerous positions designated to that level without tailoring training to specific positions. Figure 12 below demonstrates what skill level is required to fill the roles and responsibilities under the OWR structure. Table 7 lists the competency training and skills required to meet each level.

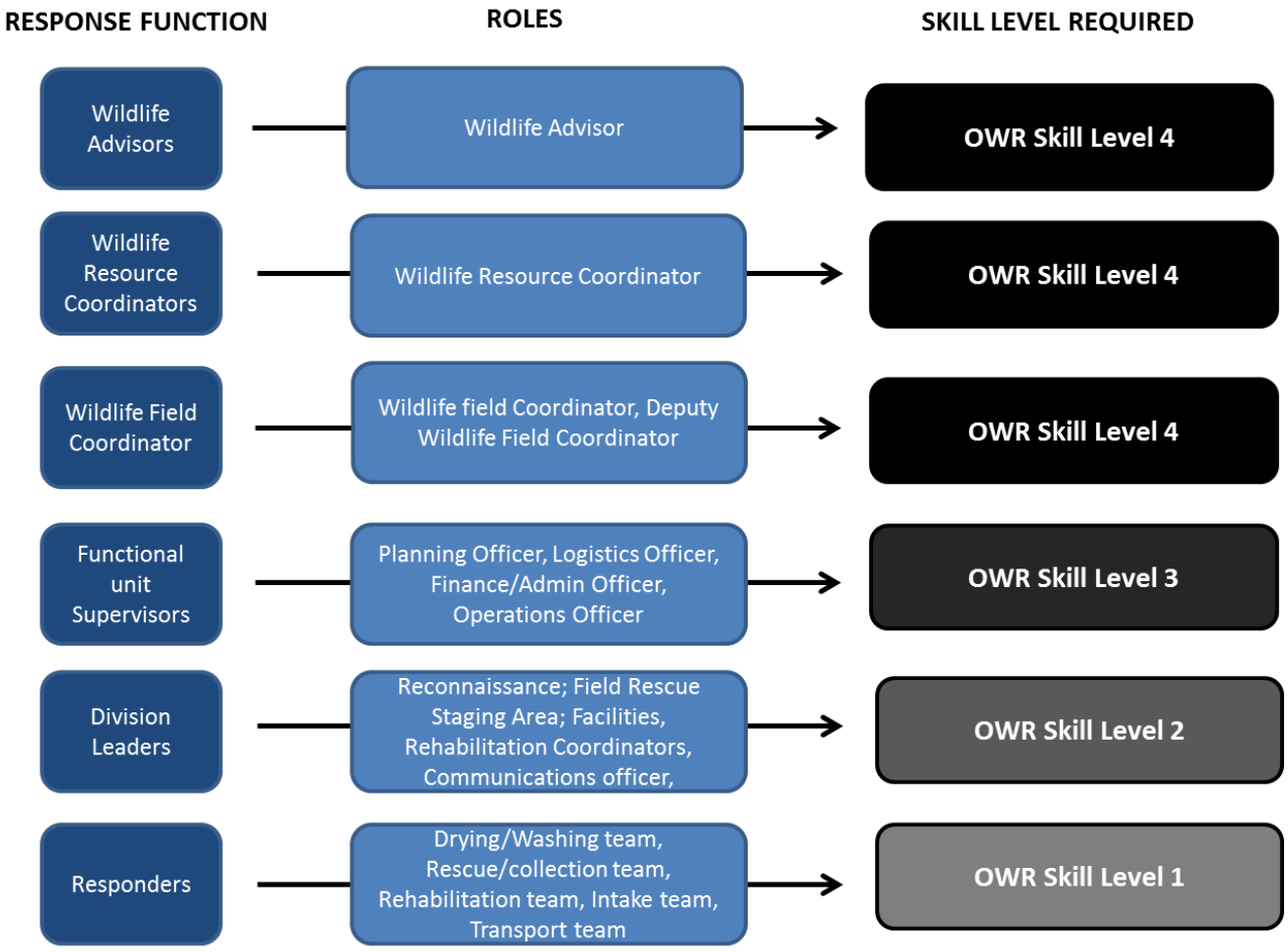

Figure 13: Skill Levels Required to Fill Functional Roles in the OWR Structure

The training and skills required to meet the criteria for Levels 1-4 OWR personnel are listed in the table 7 below.

Table 8: Competency Training and Skills Required to Satisfy each OWR Skill Level.

Note: Alternate training pathways will be assessed and deemed acceptable in lieu of Parks and Wildlife providing the training courses listed below.

TRAINING AND SKILLS REQUIREMENTS	OWR Skill Level 4	OWR Skill Level 3	OWR Skill Level 2	OWR Skill Level 1
OWR trained – Introductory Level – Respond to oiled wildlife emergencies		optional	X	X
OWR trained – Rehabilitate Native Wildlife			X	
Introduction to AIIMS (or equivalent)	X	X	X	
OWR trained – Management Level lead a team in oiled wildlife response.	X	X		
In depth understanding of OWR plans and relevant legislation	X	X		
Competent at L2 and above in incident management	X	X		
AIIMS Planning Officer L2 or AIIMS Operations Officer L2	X			

6. OPERATIONAL ASSISTANCE – VOLUNTEERS

In the event of an oil spill, volunteers may be utilised, particularly in a large or protracted spill event, to assist in the collection, cleaning and rehabilitation of wildlife, record keeping and other general Activities. Managing volunteers is one of the major components of the rescue and rehabilitation effort following an oil spill. The efficient and effective management of potentially large numbers of volunteers requires clear instructions, appropriate equipment and inductions, and regular feedback.

6.1 Wildlife Volunteer Coordinator

The role of the Wildlife Volunteer Coordinator is outlined in Appendix A and is positioned under the logistics unit. The volunteer coordinator must ensure the following:

1. Volunteers must register prior to undertaking any activity
2. For safety and legal reasons volunteers must wear a badge identifying them as registered volunteers
3. Volunteers should be physically able to undertake the activities
4. On arrival volunteers must be inducted on safety, first aid and legal requirements
5. Each section should identify their requirements for volunteers to the volunteer coordinator
6. Rosters should be established for volunteers and provided to security
7. Volunteers must sign on and off each shift
8. A dedicated phone line should be established for people wishing to volunteer. Names, addresses, skills and experience should be recorded
9. Each area leader should ensure volunteers are taking adequate breaks and meals
10. Volunteers should be briefed regularly on the status of the spill and the progress of the rescue and rehabilitation efforts.

6.2 Legal Requirements

The Department of Parks and Wildlife's Personal Accident - Voluntary Workers insurance policy is extended to include additional voluntary workers in the event of an oil spill anywhere in Western Australia.

In order to fulfil this policy several conditions must be met by the Department:

- Each volunteer must be registered prior to commencing any volunteer work with the Department. Refer to existing The Department of Parks and Wildlife Volunteer management policies and procedures. Volunteers must be registered as individuals, not organisations, and the volunteer register should be signed by the officer in charge
- A completed declaration specifying the number of volunteers used by the Department during an oil spill is to be provided to the Manager, Risk Management and Insurance as soon as possible after the completion of the volunteer work
- Volunteers must be between fit and able
- Volunteers must be supervised by Departmental personnel.

6.3 Specialist Volunteers

Veterinarians, keepers and veterinary nurses will be essential for assisting with the rescue and rehabilitation of wildlife for the duration of the rehabilitation process. These may be paid or volunteer workers. Veterinarians can provide initial assessment of affected wildlife, determine priorities for treatment, administer veterinary treatment and conduct pathology tests and autopsies. Zoo Keepers will be essential for their husbandry skills in the rehabilitation process. The Planning Officer in consultation with Wildlife Division Coordinator will determine the level of specialist assistance required.

6.4 On-Site Inductions and Training

All personnel (volunteers and staff) involved in the collection and treatment of oiled wildlife and who have not already received training must receive on-site training or an induction prior to any involvement. This is to prevent injury to both the animals and the people handling them. It is preferable that only experienced people handle wildlife and teams of volunteers are headed up by experienced handlers. Volunteers who have not received training must be directly supervised by a trained person. Volunteers must be briefed and then may be sent to a particular area and trained.

On-site training should include written and demonstrated description of handling and cleaning techniques. Each person should also sign and be provided with a written risk assessment (or JSA/JHA), and brief which covers safety, legal requirements and the importance of recording all data for any of the functions undertaken. On site inductions and safety requirements will be determined by the control agency (petroleum titleholder, DoT or Port Authority).

7. STATE WIDE RESOURCES AND ARRANGEMENTS

7.1 Personnel

Under the WA OWRP arrangement, The Department of Parks and Wildlife and AMOSC may request assistance from either party if their internal pool of trained personnel or expertise has been exhausted. Table 8 below summarises indicative personnel numbers required under varying OWR scenarios according to skill requirements, and the number of personnel available from both The Department of Parks and Wildlife and AMOSC to assist in the response. These standards are to be worked towards over the 2 years following release of this plan.

Table 9: Oiled Wildlife Response Level and Personnel Numbers

SKILL REQUIREMENT	OWR RESPONSE LEVEL & PERSONNEL NUMBERS					
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
OWR 4	1	1	3	2	2	2
OWR 3	2	0	4	4	4	4
OWR 2	4	9	15	17	18	18
OWR 1	0	14	33	47	84	90
Technicians (i.e Vets)	0	1	2	4	4	4
Other Specified Skills	0	0	2	3	4	4
Total	**7**	**25**	**59**	**77**	**116**	**122**

7.2 Equipment

The agreement described above, also applies to the equipment resources detailed below.

Existing protocols within The Department of Parks and Wildlife at Regional and District levels should be followed to acquire necessary resources such as:

- Catering equipment
- Communications equipment (radios, sat phones)
- Mapping and aerial surveying equipment
- Tents, marquees etc.
- Wildlife capture equipment
- 4x4 Vehicle resources, quad bikes
- Vessels.

Lists of available local resources are detailed in the individual OWR regional operational plans.

OWR Equipment:

Currently in WA there are 2 AMSA owned OWR kits (Fremantle and Karratha), 2 AMOSC owned OWR kits (Broome and Exmouth) and 1 AMOSC owned Oiled Wildlife Container (Fremantle). There is also a second Oiled Wildlife Container and 2 further oiled wildlife kits owned by AMOSC and based in Geelong which could be accessed, as could National Plan equipment from other parts of Australia. Individual companies and organisations also have OWR equipment which is outlined in the Regional OWR Plans.

Oiled Wildlife Response Kits

A number of First Strike Oiled Wildlife Response Kits exist around Australia and can be transported to the MOP site where required. Parks and Wildlife or the company leading the response will request the deployment of the OWR Kits upon notification of an incident involving affected animals. The veterinary component of the kit, should be requested at this time as it will generally take more time to mobilise as drugs may not be housed on site or included in the kit contents.

Where possible, local areas should have established kits of non-perishable items in storage in preparation for a spill in their region.

The OWR Kits cater for approximately 100 wildlife casualties.

Oiled Wildlife Response Containers

Each OWR Container is a washing unit that is fully equipped with water heaters, a water softener, a pressurization pump, ventilation plant and electrical distribution board; plus a large working area with water outlets, ducted air extraction, lighting and floor drainage. The container can run up to three cleaning stations and has sufficient water capacity to run more wash stations in an adjacent facility. The container can be deployed at short notice to a site which has access to water and power and can serve as the nucleus to the set-up of a remote Oiled Wildlife Facility.

Procedures for the activation and mobilisation of the oiled wildlife equipment is as follows:

Mobilisation of National Plan Equipment

- If the MOP is from a ship based source, then the activation and mobilisation of National Plan oiled wildlife equipment will be through WA DoT.
- If the MOP is from a petroleum industry source, then the IC may, if required, request that the National Plan is activated to support the MOP response and that National Plan OWR equipment is provided via AMSA.

Mobilisation of AMOSC Equipment:

- If the MOP is from a ship based source, then the activation and mobilisation of AMOSC oiled wildlife equipment will be through the AMSA duty officer (24 hour: (02) 6230 6811) to the AMOSC duty officer (24 hour: 0438 379 328).
- If the MOP is from a petroleum industry source, then the petroleum titleholder IC may, if required, activate AMOSC to call on extra oiled wildlife equipment.

8. APPENDICES

Appendix A - Roles and Responsibilities

THE DEPARTMENT OF PARKS AND WILDLIFE OILED WILDLIFE ADVISOR

The Oiled Wildlife Advisor's (OWA) role is to advise the Incident Management Team on the OWR, ensuring that the minimum standard for OWR is being adhered to whilst providing expert advice for critical decision making. The OWA's role is to carry out the following:

- Provide advice on behalf of the Department of Parks and Wildlife, the State statutory agency responsible for wildlife care and protection. This can occur through either the Environmental and Science Coordinator (state spill) or directly to the IMT (Petroleum Titleholder spill)
- Provide updates to the Incident Management Team on the OWR situation
- Serve as the link between The Department of Parks and Wildlife's Director General and the response
- Provide critical wildlife risk information to the IMT
- expidite licensing as required through Department of Parks and Wildlife for the pre-emptive capture of wildlife or for deterrence activities in state waters
- Liaise with logistics to ensure the availability and provision of resources to the wildlife response operations
- Provision of critical advice on the priority wildlife concerns and general wildlife response.

PETROLEUM INDUSTRY OILED WILDLIFE ADVISOR – FROM CONTROL AGENCY/AMOSC

In a spill involving the petroleum industry then the Control Agency will provide a suitably qualified Industry OWA. This person will maintain the interface and therefore effective communication between the petroleum industry IC and OWA representing Parks and Wildlife.

The petroleum industry OWA also provides the interface between the OWR and the Control Agencies OPEP. This person should:

- Be trained in the detail of the OWR State and Regional Plans
- Have the authority to act on the petroleum company's behalf
- Monitor compliance with the plans on the petroleum company's behalf
- Liaise with logistics to ensure the availability and provision of resources to the OWR operations.

In an OWR both OWA's will work together to ensure access to equipment and personnel.

WILDLIFE DIVISION COORDINATOR

The Wildlife Division Coordinator should have wildlife management experience and preferably experience in wildlife response Activities at oil spills. They should also have good knowledge of AIIMS. The Wildlife Division Coordinator is in charge of the Wildlife operation response and is responsible for implementing management strategies and managing staff and volunteers. The Operational phase of an incident is comprised of rescue, rehabilitation and release of oiled wildlife.
Responsibilities:

- Ensure provision of timely and humane treatment and care to affected animals

- Manage the Wildlife Unit of the incident's Operations Section
- Liaise extensively and regularly with other Sections and agencies (through Liaison Officers) throughout the incident
- Liaise with the Shoreline Coordinator to ensure efficient use of resources in the field
- Liaise with the Logistics Sections to request the establishment of required wildlife treatment facilities and infrastructure for the response. Appoint a Manager of wildlife treatment facilities
- Ensure records and information are maintained on observed and/or treated wildlife
- Establish parameters for resource deployment including scaling down and ending operations – to be included in the Incident Action Plan
- Provide advice on, and ensure compliance with, occupational health and safety regulations
- Establish law enforcement data collection procedures if requested by the Environmental Services Coordinator
- Communicate and provide updates to the Response Media Liaison Officer on wildlife issues
- Ensure sectors within the Wildlife Unit maintain detailed records of costs associated with the response for cost recovery purposes and provide these to the incident Finance and Administration Officers.

WILDLIFE OPERATIONS UNIT

The Wildlife Operations Unit is established to combat the incident and is responsible to the Wildlife Division Coordinator for the management and activities of the Wildlife Operations Unit. It is vitally important that the staff in the Wildlife Operations Unit have knowledge of their role and the management of the oiled wildlife. Coordinate operations involving the rescue, transport, treatment, rehabilitation, release, destruction and disposal of wildlife affected by the spill.

- Obtain briefing from the Wildlife Division Coordinator
- Liaise with the Wildlife Planning and Logistics sections on the spill situation and the availability of resources
- Appoint appropriate personnel to the positions within the wildlife operations section;
- Brief staff as to their responsibilities
- Manage the overall wildlife rescue and rehabilitation operations
- Identify an appropriate site for a rehabilitation centre based on the location and severity of the spill. Organise access to the site
- Request resources for rescue and rehabilitation operations through the Wildlife Logistics Officer
- Liaise with the Wildlife Planning Officer to determine search areas
- Ensure appropriate euthanasia and disposal of wildlife
- Ensure direct and continuous contact with the wildlife operations team, wildlife Logistics and Planning Officers and Wildlife Division Coordinator
- Prepare a report on operational procedures for the Wildlife Division Coordinator
- Maintain a log of events and actions.

The following roles sit within the Wildlife Operations Unit:

WILDLIFE OPERATIONS OFFICER

This Officer reports to the Wildlife Division Coordinator. Liaises with the Wildlife Planning, Logistics and Admin/Finance Unit. The Wildlife Operations Officer will usually be positioned in a forward operating base/staging area where all major operations are based from.

- Coordinate field operations for the hazing, rescue, rehabilitation and release of affected wildlife
- Plan and coordinate wildlife operations, including participating in the development of the Incident Action Plans
- Ensures field information is being reported to the Wildlife Division Coordinator in an efficient timeframe.

WILDLIFE RESCUE OFFICER

This officer deals with on-site coordination and management of the capture, initial first-aid and transport of oiled wildlife.

- Obtain briefing from Wildlife Operations Officer
- Assess extent of resources required and request staff, volunteers and equipment from Wildlife Operations Officer
- Determine search areas in conjunction with the Wildlife Operations Officer and Wildlife Planning Officer
- Organise search teams to be headed up by experienced staff
- Organise off-shore collection of wildlife
- Establish initial assessment centres if necessary
- Coordinate veterinarians with respect to the initial assessment of wildlife
- Organise vehicles, boats, operators and drivers to transport wildlife from collection sites to rehabilitation centre
- Ensure that all volunteers including specialists have been registered and briefed by the volunteer coordinator and provided with on-site training or induction
- Ensure all wildlife is tagged or banded and that accurate records of the location and destination of each animal are collected
- Ensure the safety of personnel and volunteers involved in the search and collection of wildlife
- Submit report to Wildlife Operations Officer
- Maintain log of events and Actions.

WILDLIFE REHABILIATION OFFICER

The Wildlife Rehabilitation Officer is responsible for managing the rehabilitation process for affected wildlife, including veterinary assessment, washing, drying, husbandry and release.

- Obtain briefing from wildlife Operations Officer
- Request access through Wildlife Operations Officer to an appropriate rehabilitation centre
- Organise the functional set-up of the rehabilitation centre
- Assess extent of facilities, equipment, staff and volunteers required and allocate accordingly
- Request assistance from veterinarians and keepers through the Wildlife Operations Officer
- Establish and manage teams of personnel for tagging, veterinary care, washing, drying, husbandry and release of affected wildlife

- Authorise requests for equipment and materials as required from team leaders
- Request volunteers through Wildlife Planning Officer to ensure appropriate numbers of volunteers are available for each section
- Ensure that all volunteers including specialists have been registered and briefed by the volunteer coordinator and provided with on-site training or induction
- Ensure that accurate records are kept for **each individual animal** at each treatment phase
- Liaise with the Wildlife Safety Officer to ensure the health and safety of staff and volunteers involved
- Advise Media Liaison Officer of permitted access for the media, through the Wildlife Operations Officer
- Coordinate closure and cleaning of treatment facilities
- Submit reports to Wildlife Operations Officer
- Maintain log of events, Actions and staff involved.

WILDLIFE RECONNAISSANCE OFFICER

The Wildlife Reconnaissance Officer is responsible for collecting and managing the ground truth on documented wildlife resources at risk in the known expected zone of impact of the spill.

- Organise the collection of reliable information and ensure it is fed back to coordinators promptly
- Organise vessel, aircraft or on foot reconnaissance Activities
- Ensures shoreline reconnaissance is conducted in concert with shoreline clean-up assessment teams to provide efficient use of resources
- Ensure the safety and welfare of those conducting reconnaissance in the field.

WILDLIFE FACILITIES OFFICER

The Wildlife facilities officer (or manager) is responsible for establishing the oiled wildlife facility. Ideally, facilities for the collection, holding and isolation of affected animals should be established within 24 hours of the spill. Cleaning and rehabilitation facilities should be operational within 48 hours. The location of the spill and the location, numbers and species of animals affected may determine the type of facilities used. (See Facilities Section)

- Organise regular waste collection services
- Organise regular cleaning of facilities
- ensure security of wildlife facilities
- arrange any running maintenance of the facilities
- establish personnel checking-in and checking-out systems
  developing staff rosters and maintaining timesheets
- data entry and collation of records (animal records, personnel records, cost recovery records)
- support the implementation of Work Health and Safety (WHS) procedures
- Provide requests to the Logistics Officer for resourcing of equipment for animal enclosures and rehabilitation
- Liaise with vet experts to ensure adequate care is being provided during washing, drying and rehabilitation of the wildlife
- Liaise closely with the logistics unit to request resources (both equipment and personnel) as required

- Coordinate contractors and their site inductions (electricians, carpenters etc.).

WILDLIFE STAGING/HOLDING OFFICER

The Staging Area is a designated area where people, vehicles, and equipment gather in preparation to their being assigned at the incident. It is also the area where off-going crews muster prior to departing to the scene and for incoming crews to undergo decontamination and sign off. The staging area may also serve as a primary holding area for oiled wildlife prior to being transported to the OWF (Oiled wildlife facility). There are a number of functions undertaken at a Staging Area and are the responsibility of the Wildlife Staging/Holding Area Officer, who is responsible to the Wildlife Operations Officer, these include:

- Logging the names and call signs of all proceeding and responding crews
- Logging the names of the crews and vehicles/vessels departing the incident
- Liaise closely with the planning unit and situations officer and gather information (maps) showing access routes, sector locations, conditions etc.
- Brief incoming crews
- De-brief outgoing crews
- Maintain communications contact with units
- Establish a meeting point for media, VIPs etc.
- Establish a separate area for the intake and triage of animals if they cannot be immediately transported to the OWF, or the OWF is more than 1 hour drive away and the animals require initial stabilisation.
- Identify an area separate but close to the staging area for catering, ablutions, and other welfare services
- Arrange for the servicing of the welfare and other facilities outside of peak activity times.
- There may be a need for the Staging Area Manager (or staff) to communicate with the Incident Management Team, or with the units en-route between the incident and the Staging Area. When choosing the site for the Staging Area consideration is to be given to whether or not it can support the communications arrangements as specified in the Communications Plan for the incident.

WILDLIFE PLANNING UNIT

The Wildlife Planning Officer (WPO) is appointed by the Wildlife Division Coordinator, and is responsible for the collection, analysis and dissemination of incident information, the management of resources, the collection and reporting of scientific data as well as keeping members of the incident informed of developments and predictions. The Wildlife Planning Unit must provide much of the documentation that the members of the Wildlife Unit require to perform their respective functions.

The Wildlife Planning Unit is responsible for the collection, analysis and dissemination of incident information; ongoing assessment and predictions of the extent and severity of the spill and the resources required; the allocation and management of human resources; and the collection and reporting of scientific data.

The Wildlife Planning Officer should have extensive experience in the AIIMS and preferably local knowledge and experience in oil spills. The following roles sit within the Wildlife Planning Unit

WILDLIFE PLANNING OFFICER

This officer is responsible for coordinating the planning response, and liaising with the Wildlife Division Coordinator, Operations and Logistics sections and external agencies.

- Obtain briefing from the Wildlife Division Coordinator
- Identify the situation and predict the impact on wildlife. Notify the Incident Controller and Operations Officer accordingly
- Appoint personnel to the Resources Officer, Situation Officer, Media Officer and Volunteer Coordinator positions as required
- Determine resource requirements from both within and outside the Department to effectively undertake the Department's responsibilities
- Establish priorities for the allocation of resources
- Arrange for collection, analysis and dissemination of incident information
- Provide information to staff on the type of substance(s) involved in the spill
- Authorise requests for specialist assistance to aid in the identification, handling and treatment of injured wildlife
- Consult with Media Officer and approve media releases to be referred to the Incident Controller for authorisation
- Maintain log of events and actions
- Submit report to Incident Controller.

WILDLIFE RESOURCES OFFICER

The Resources Officer is responsible for the development of staff rosters, ensuring the provision of adequate staff numbers and contacting and acquiring specialist resources as required.

- Contact staff and allocate to areas according to skills, experience and requirements of each section
- Establish staff rosters and maintain time sheets for each staff member
- Contact and arrange for assistance from veterinarians, zoo keepers and other specialist organisations following approval from Planning Officer. Ensure veterinarians and keepers are registered as volunteers
- Develop and maintain rosters and time sheets for specialists
- Ensure rosters are adhered to
- Ensure staff work according to the provisions set out in Public Service Award 2002
- Provide Operations, Planning and Logistics team members with identification badges
- Maintain accurate records of hours for staff and specialists
- Maintain log of events and actions.

WILDLIFE SITUATION OFFICER

This officer is responsible for the collection of data and information under direction from the Planning Officer.

- Assemble and disseminate information on:
    - the extent and impact of the spill on wildlife and wildlife habitat
    - weather forecasts
    - Predicted movement of the spill and potentially threatened habitats and species.

- Prepare information on the significance (environmental, cultural and historical) of threatened areas
- Ensure that all areas are keeping accurate records - provide areas with record sheets identification bands etc.
- Collect and collate wildlife record sheets from field officers
- Prepare register of wildlife, both live and dead
- Prepare report on data on all wildlife involved in the incident and submit to the Planning Officer. The report should include information on:
    - wildlife - species and numbers involved
    - collection locations
    - treatment received and success rate
    - rehabilitation
    - release
- Maintain log of events and actions.

WILDLIFE MEDIA OFFICER

This officer is responsible for coordinating media requirements from the Department and the media.

- Obtain briefing from the Planning Officer
- Communicate with the Wildlife Division Coordinator and the Media Liaison Officer from the State or Regional Marine Oil Spill Committee
- Establish media team as required
- Establish cooperative working relationship with the media
- Establish media briefing areas and notify press
- Ensure all authorised media are provided with identification
- Advise field staff of media protocol
- Ensure welfare of wildlife is not compromised by media presence
- Draft press releases on wildlife issues, have them approved by the Planning Officer, the Wildlife Division Coordinator and The Department of Parks and Wildlife's official spokesperson
- Arrange interviews with the media and The Department of Parks and Wildlife official spokesperson
- Brief media <u>on wildlife issues only</u>. Inquiries regarding the source, extent and content of the spill should be addressed to the relevant authority. The media may be briefed on foreshore/beach clean-up issues only where The Department of Parks and Wildlife is directly responsible for the management of the land or has taken the lead where a committee of management exists;
- Ensure that there is a media liaison person at each site of activity
- Maintain log of events and actions.

WILDLIFE VOLUNTEER COORDINATOR

This officer is responsible for managing and coordinating volunteers to assist in the rescue and rehabilitation of oiled wildlife.

- Obtain briefing from Planning Officer
- Liaise with Planning and Operations staff to determine available resources and volunteer requirements
- Identify and contact nominated volunteer organisations to request volunteers

- Arrange briefing location for all volunteers
- Establish volunteer registry and ensure that all volunteers are registered. **If a volunteer is not registered they will not be covered by the relevant agency/company's insurance policy**
- Ensure that all volunteers are briefed fully with respect to safety and legal considerations and operational procedures
- Establish on-site training or induction facilities for volunteers and staff
- Ensure that no volunteer assists in operational Activities unless they have been given on-site training or are directly supervised by a trained person
- Establish volunteer rosters for each area and ensure that the arrival and departure of all volunteers is logged
- Ensure that the communications staff do not refer volunteers direct to the site but take names and numbers. Establish recorded message if necessary
- Ensure that any injuries received by volunteers are attended to by a qualified first-aid officer no matter how minor
- Document any first-aid received by volunteers
- Submit report to the Planning Officer
- Provide Risk Management and Insurance Unit with volunteer registry information
- Maintain log of events and actions.

WILDLIFE LOGISTICS UNIT

The Wildlife Logistics Officer (WLO) is appointed by the Wildlife Division Coordinator, and is responsible for the provision of personnel, facilities, services and materials in support of the incident. It is a demanding role that caters for the needs of the incident, the operational staff and a large number of volunteers. As with any AIIMS role, an individual or multitude of tasks can be delegated to another officer if the workload exceeds the span of control or other procedural limitation of the Incident Control Officer.

The Wildlife Logistics Unit is responsible for supplying facilities, service and materials and providing a safe working environment for all personnel involved in the implementation of this plan. The following roles sit within the Wildlife Logistics Unit:

WILDLIFE LOGISTICS OFFICER

The Wildlife Logistics Officer is responsible for coordinating facilities and equipment, security, safety, communications and administrative services for the wildlife division.

- Participate in briefing and debriefing from supervisor
- Action logistics requests made by the Wildlife Division Coordinator or assigned Divisional Commander through the response Logistics Section
- Provide specialist logistics support for the wildlife response, including assisting in the day-to-day management of wildlife treatment facilities, such as:
- organising regular waste collection services
- organising regular cleaning of facilities
- ensuring security of wildlife facilities
- arranging any running maintenance of the facilities
- acquisition of stores and equipment as required
- providing/sourcing resources in accordance with the Incident Action Plan

- sourcing casual personnel (through the Logistics Section) as directed by the Wildlife Division Coordinator or Divisional Commander
- establishing personnel checking-in and checking-out systems
- providing personnel with required personal protective equipment and clothing
- developing staff rosters and maintaining timesheets
- sourcing and providing catering and accommodation for wildlife response personnel through Logistics Section
- data entry and collation of records (animal records, personnel records, cost recovery records)
- compiling data for media releases and sitreps
- arrange for and oversee waste management facilities (including oily water), through the DoE;
- answering telephones
- maintaining information and bulletin boards
- maintaining logs of activities
- supporting implementation of Work Health and Safety (WHS) procedures.

WILDLIFE SUPPLY OFFICER

Responsible for the provision of equipment and supplies to the operation and planning sections.

- Arrange for access and distribution of stored equipment or kits
- Obtain requested equipment and supplies
- Set protocol for requests for equipment and supplies
- Ensure all requests for supplies have been authorised
- Restore supplies on completion of the operation
- Maintain inventory
- Collate all invoices
- Investigate major losses of equipment
- Submit report to Logistics Officer
- Maintain log of events and actions.

WILDLIFE COMMUNICATIONS OFFICER

Develop a communications plan containing relevant contact phone numbers, mobile and trunk numbers;

- Oversee provision of communications equipment - request if necessary the increase of cells for mobile phones and the upgrading of THE DEPARTMENT OF PARKS AND WILDLIFE's status on the trunk network
- Set up communications centre
- Maintain communication links with operations, planning and logistics personnel
- Assist in collation and distribution of information
- Provide support for the reception and supply of information to the public
- Maintain log of events and actions.

WILDLIFE SAFETY OFFICER

This officer is responsible for ensuring a safe environment for staff and volunteers.

- Obtain chemical data sheets on chemicals involved in the spill
- Obtain appropriate safety equipment and distribute to staff and volunteers
- Contact St John Ambulance and request their assistance on site
- Ensure that a Level 2 First Aid person is on site at all times when St. John's is not present
- Arrange for First Aid Kits to be available at all locations
- Ensure all accidents are reported and all injuries treated no matter how minor
- Arrange for a Doctor to come on site to administer tetanus injections where necessary
- Establish standard procedures to minimise the risk of the spread of infection from wildlife to people
- Provide fire extinguishers to relevant areas
- Develop a safety plan including:
    - site plans for each operational location
    - contact numbers for local medical practitioners
    - emergency contact numbers
    - information on substances involved
    - location of first aid kits and safety equipment
    - names of qualified first-aid staff
    - quarantine procedures
    - hygiene procedures
    - evacuation procedures
    - safety procedures.
- Undertake regular safety audits
- Maintain log of events and actions and prepare and submit report to the Logistics Officer.

Appendix B - Search and Rescue Operations Related to Specific Wildlife Groups

Seasonal conditions and the fluctuation of food availability can cause substantial variation to wildlife populations ranging from causing massive local aggregations, to abandonment of habitats. One of the most important tasks to be undertaken once a spill has occurred is the real-time assessment of wildlife at risk. The most effective assessments are conducted in the field and take account of the wildlife feeding grounds, aggregation areas and include areas that wildlife may pass through to get to one of these locations.

The determination of whether an animal is affected by oil can be difficult depending on the type of oil. However, when oiled with condensate, diesel or light crude, the effects on wildlife can be difficult to detect. In such cases birds will appear wet, have messy feathers, or may not exhibit typical physical appearance or behaviour Spills of light hydrocarbons such as condensate and diesel are highly volatile and will spread, evaporate and breakdown quickly. It is commonly thought that light oils do not cause problems for wildlife due to the lack of visible oiling, however current understanding is that these oils cause more severe burns and are still toxic to turtles and birds.

To enable adequate assessment and detection of wildlife affected by light crudes, fuels or condensate experienced and/or trained observers of oiled wildlife are needed.

Animals that are captured will need to be taken to a sheltered and quiet place as soon as possible and a sequence of transfers to holding/stabilisation points may need to be planned on the way to a rehabilitation centre.

Minimising stress at all stages of the OWR is critical for the survival of wildlife. Care needs to be taken to minimise handling noise, and other disturbance at all times.

SEARCH AND COLLECTION OF BIRDS – COASTAL AND ISLANDS

Wildlife often aggregate at particular times and/or locations and searches can be planned to optimise searches at these times. However weather, tides and sea states can constrain access to sites. For seabirds that hunt at sea visually, such as terns and boobies, dusk and dawn is often the optimal search time. For shorebirds, searches at high tide are optimal as high tides concentrate the birds into roost locations.

Any commotion causing birds to move position makes surveys and assessments difficult, hence searches need to minimise disturbance wherever possible. For each area to be surveyed adequately, a careful strategy needs to be planned and implemented to minimise disturbance. Responders should keep a low profile, observe animal behaviour and adjust their actions accordingly.

All searchers will carry basic assessment equipment such as binoculars/telescope, effective zoom camera and a notebook. Safety equipment including Personal Protective Equipment (PPE) specified by the Job Safety Analysis (JSA) will also be carried or present at the search site. If it is likely that oiled wildlife will be found, capture and holding equipment should be available. Consideration should be given to the provision of basic care of wildlife in the field such as wiping oil from the head area and the administration of electrolytes to treat dehydration.

Birds that are oiled are often weak and either cannot fly or do so poorly. In these cases, collection by hand or with pole nets is possible. When birds are located near water the favoured method of capture is to approach from opposite directions angling the birds inland and away from the water where they will be easier to capture. Capturing a bird that can fly is difficult and so in these cases

should be photographed or noted and left alone. Birds should only be captured by experienced staff with proven skills in capture. While volunteers can assist, all capture teams should be led by an experienced person whom has caught and handled those birds previously.

Where pre-emptive capture of unoiled birds is proposed, specialist capture techniques will almost certainly be required. Capture of healthy free flying birds is challenging and presents a risk to the animals. A risk assessment should be undertaken to determine the potential risk posed to the animals from the proposed strategy and should generally be restricted to species of national or international conservation significance.

MARINE MAMMALS

There is little direct evidence that cetaceans are affected by oil spills however there are records of above-average mortalities occurring during some spill events. There is little in the way of demonstrated effective strategies available to responders. Aerial surveillance followed by herding and chasing (hazing) of marine mammals by vessels or aircraft from slick areas may be viable and should be attempted particularly if dugongs are found to be at threat of oiling. The use of towed arrays of seismic survey equipment using soft start procedures may be effective if cetaceans are observed in spill areas.

For strategy details for dealing with cetaceans refer to Appendix F - OWR Strategy Considerations and Options table.

MARINE TURTLES

WA has some of the highest value turtle populations and breeding areas in the world. If a spill was to affect prime nesting beaches during peak nesting times, the OWR required would be unprecedented. The size and weight of marine turtles makes capture, handling and transport a challenge. Any OWR should focus on protecting and conserving adult breeding animals as a priority, however, this should not preclude efforts to manage oiled hatchlings or undertake pre-emptive capture.

For determining response strategies for marine turtles refer to Appendix F Oiled Wildlife Response Strategy Considerations and Options table.

MARINE REPTILES OTHER THAN TURTLES

Marine reptiles such as seas snakes and crocodiles are at risk from oil spills. Intervention with both of these species is hazardous particularly with crocodiles.

Sea snakes come to the surface to breathe and bask and are particularly susceptible to oiling. Capture should only be attempted by trained and experienced snake handling personnel. Cleaning and rehabilitation should be attempted.

Crocodiles are extremely dangerous, and can be difficult to catch. In areas that are deemed to be a crocodile control zone, crocodiles should be captured and removed (areas of the Pilbara and Kimberley). For oiled animals found outside a control zone, attempts should be made to capture, clean and relocate the animal. For oiled animals found within a control zone consideration should be given to the availability of resources and viability to capture, clean, and transport the animal to a crocodile farm. There may be situations where euthanasia of oiled crocodiles is the only method of preventing undue suffering.

MARINE MEGA-FAUNA SUCH AS WHALE SHARKS AND MANTA RAYS

Whale sharks and manta rays are charismatic marine mega-fauna with high social and community values. They are common from Ningaloo in the south of the Pilbara to the Kimberley. Both species are susceptible to oil coating and ingestion due to their occasional surface feeding behaviour. Animals found in an oil spill area should be monitored and tagged if possible. Any animal deaths should be investigated for possible effects from hydrocarbons, and include the taking of photographs and tissue samples for evidence as required.

Appendix C - Wildlife Transport

Post capture holding and transport time until stabilisation or arrival at a rehabilitation centre should be minimised and is recommended to be a maximum of 5 hours and ideally no more than 2 hours before intervention (rehydration at least).

Transport should wherever possible be in accordance with the The Department of Parks and Wildlife Standard Operating Procedure 11.1 for the Transport and Temporary Holding of Wildlife. A copy of the procedure can be found on the DEC website here:

http://www.dec.wa.gov.au/publications/doc_download/3655-sop-11-1-transport-and-temporary-holding-of-wildlife.html

Where the OWR field operation is not close to a service centre, field stabilisation points will be required and rotary or fixed wing transport from these to rehabilitation centres are likely to be required.

Maintaining fresh air flow to boxes and control of temperature will be critical. To achieve this storage and transport should as a minimum:

- minimum distance of 50mm between boxes – recommended 100mm
- 2 sides of the box exposed to circulating air
- stacking boxes should be avoided, but if stacking is necessary boxes should be placed no more than 3 high
- temperatures should be controlled between 25-28°C
- low light to reduce stress
- minimal noise to reduce stress
- wildlife should be checked every hour during transport.

Preventing overheating of captured wildlife in the event of a spill is seen as one of the most critical challenges for OWR in the northern parts of WA with extreme heat conditions prevailing for much of the year.

Animals transport vehicles must provide adequate speed, a smooth ride, but above all provide a well-ventilated load area for holding properly ventilated transport cartons, but without risking exposure from too much wind. Cartons must not be stacked or packed in together tightly. Timber baulking can be used to preserve a gap of approximately 10 cm between boxes. A truckload should have a tarpaulin cover. If the load bed is open at the rear, some measure should be taken to prevent exhaust gases from being drawn into the load area through venturi low pressure effects.

WILDLIFE TRANSPORT BOXES

Waxed cardboard boxes should not be used as the wax can coat the animal inside. Holes for air circulation and heat exchange should be a maximum of 25mm in size and should be located on all four sides of the boxes (there should not be holes on the top or the bottom of boxes). Boxes need to be in a range of sizes to capture all local wildlife that could be oiled (including pelican sized).

Standard hard plastic pet transport carriers are not ideal but can be used provided that adequate shading of the front door and sides with towels or sheets is implemented. Soft, vinyl, collapsible pet transport carriers are available in different sizes including sizes suitable for larger animals like pelicans.

With all box types, appropriate flooring needs to be placed inside. Soft materials and ideally suspended knotless netting is recommended for seabirds.

All regions engaged in marine work should have some stocks of boxes that could be used immediately in the event of an OWR or other situation.

Appendix D - Wildlife Holding at Staging Site (Stabilisation, Triage and Quick Wash)

Stabilisation of wildlife entails the use of intervention or treatment to prevent the continued deterioration of health or condition of a compromised or oiled animal. The timing of initiating stabilisation depends upon the circumstances of capture, and the time since the animal was oiled. Preliminary stabilisation can occur in the field or at stabilisation points remote from rehabilitation centres.

Stabilisation is required when transport of wildlife to rehabilitation centres takes longer than recommended. Stabilisation in the field may be required when the interval between collections of wildlife is greater than 24 hours or feedback analysis of rehabilitation arrivals shows that earlier stabilisation is required.

In the case of birds collected in the field, the first step includes wiping of the gross oil from the beak head and eyes in the field prior to boxing. The bird should be placed in appropriate transport holding boxes and then be given electrolyte rehydration as soon as circumstances allow. Rehydration is stressful for birds and should be done immediately on capture if possible. The birds can then settle while boxed.

At the stabilization centre temperature control, hydration, feeding, and washing to limit chemical burns should be achieved as a minimum. It is likely that due to heat and transport distances, OWR in the Pilbara and Kimberley will require the establishment of staging and or remote stabilisation areas.

Figure 13 shows a layout schematic of a forward holding centre.

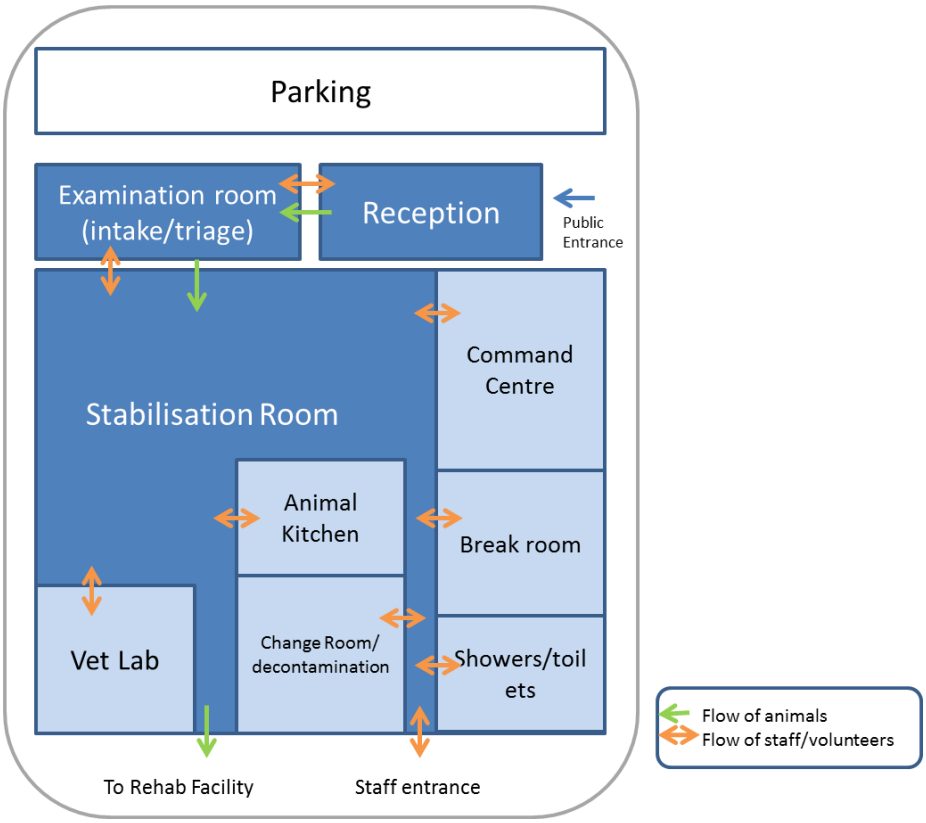

Figure 14: Suggested Layout for a Holding/Stabilisation Facility

TRIAGE

When applied to animals, triage is a process of assessment to determine;

- chances of survival with or without treatment
- the viability of the animal for eventual release to the wild
- the conservation or community significance of the animals.

A score that determines the priority of an animal for attention is allocated in a Priority (P1, P2 or P3) format.

- P1 – Treat and Rehabilitate first
- P2 – Treat after Priority 1
- P3 – Wildlife to be euthanised.

Triage is ideally carried out on arrival at a rehabilitation centre. However in situations where you are overwhelmed with wildlife at the collection area, or stabilisation point, or when transport resources are limited, or transport times to rehabilitation facilities are excessive triage may need to be carried out in the field and priority given to the P1 wildlife. Ensure that requests for the required resources are directed up the management chain if insufficient.

To effectively carry out triage examiners should first determine the species they are dealing with and complete a range of tasks which may be specific to that species. Tasks include physically examining the bird, calculating weight, body temperature and completing blood analysis. Expert veterinarian assistance or supervision is required to complete some of these tasks. If triaging in the field, the species, demeanour and behaviour may be your only guide. Where extensive treatment and rehabilitation is required which may entail undue suffering, or where release to the wild is determined unsuitable, then euthanasia is the appropriate option.

WILDLIFE QUICK WASH PRIOR TO TRANSPORT

Like triage, cleaning generally takes place at the rehabilitation centre. However if animals are heavily oiled or coated in oils that cause chemical burns (diesel and lighter oils), or if transport times are excessive, a quick wash may be required as part of the stabilisation process.

In the early stages of washing different detergents should be used to determine which is most effective. Some feedback assessment system of the effectiveness of detergents used should be sought to determine the best type for cleaning of the particular spill oil. Detergent must be efficient to minimise washing time (and stress) while still reducing residue remaining on the bird after washing. Brands such as Blast, Dawn, and Biosolve and Suma Star D1 from Diversey have been shown to be effective in past spills.

Washing should be undertaken by trained personnel as per procedures, training and manuals listed in Appendix E. There are critical equipment requirements for effective fauna washing such as:

- soft water supply < 50mg of $CaCO_3$ per litre
- effective detergent such as Blast, Dawn, Biosolve or Suma Star D1 from Diversey
- electric or gas water heater with electronic temperature control blending to achieve 39-41°C
- final temperature readout sensor visible from washing basin
- long flexible delivery hose that can move around animals
- positioning of hose over a large sink that can contain the animal and that is of comfortable height for the handler

- a pressure regulator (or booster) for the wash head to achieve 45-65 PSI
- a diffuser and thumb trigger is needed on the wash head for delivery
- oily water disposal systems (either fixed or into temporary reservoirs).

Water softness is critical to effective washing and to determine the design of washing apparatus.

Note: the AMOSC OWR container washing units have integrated water softening equipment.

When drying animals the air may need to be dehumidified, and warmed air should never be blown directly onto wildlife.

Appendix E - Procedure for Set Up and Use Of Oiled Wildlife Facilities

Warnings

Contaminated Wastes

The cleaning process for oil or chemical affected wildlife produces large amounts of contaminated waste which requires disposal. This includes but is not limited to:

- Contaminated water from washing and rinsing animals
- Pool water
- Contaminated towels, rags, paper, transport boxes etc.
- Used syringes, gloves, coveralls
- Carcasses (unless these are being kept for investigative purposes)
- Plastics, food scraps and other wastes from human Activities.

Temporary storage will be required on-site for the different waste products and arrangements made for regular collections for disposal by the Waste Management Unit. Ongoing close liaison with the Waste Management Unit is required to ensure appropriate management and disposal of wastes.

See also the AMSA website for information on Management and Disposal of Oil Spill Debris and the WA Marine Oil Pollution Waste Management Guidelines on the DoT website.

Disposal of Dead Wildlife

Dead wildlife poses a contamination risk to other wildlife and to humans. Immediate refrigeration is recommended so that samples and specimens may be taken for pathology. Following necropsy, carcasses may be frozen, if facilities are available, pending disposal. Analysis of animal tissue or necropsy may be needed for investigations purposes and/or for scientific values.

Carcasses and organic waste suspected of being contaminated must be disposed of by the Waste Management Unit. Contaminated carcasses must not be fed to other animals.

Consultation, via the Waste Management Unit, should be undertaken with local councils and relevant waste management authorities to ensure proper disposal of carcasses.

Hygiene and Quarantine

When wildlife are confined in close proximity to each other there is an increased risk of the spread of disease from animal to animal or to/from humans. Any animal that is suspected of carrying an infectious disease should be immediately quarantined from others.

All personnel should be informed of quarantine guidelines and appropriate explanatory signage displayed. Facilities for staff to disinfect clothing and equipment should be deployed early in any wildlife response.

Footbaths with antiseptic (Halasept ® or similar) should be positioned at entry points and doorways of buildings where wildlife are held. These areas should be restricted to authorised personnel only and should display appropriate signage to that effect. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should also be available. Care must be taken to ensure that pool areas are not contaminated with antiseptic solution.

Personal hygiene facilities for staff, such as portable toilets, hand washing areas and showers are required. It is essential that all staff wash thoroughly before eating, drinking or smoking. These areas

should be established away from the main wildlife quarantine, cleaning, treatment and rehabilitation areas.

Personnel with impaired immune systems and those with colds/flu should not be permitted near affected wildlife.

Personnel and other Safety Issues

During the initial deployment, most personnel will be operating in an unfamiliar environment and under considerable pressure. Steps need to be taken to minimise any hazards associated with the following:

- Manual handling – the moving of equipment, furniture, boxes of stores etc. must be undertaken using the correct techniques and equipment

- Unfamiliar operating environment – personnel will be unfamiliar with many of the facility's features e.g. location of electrical switches, evacuation procedures etc. and should be adequately familiarised with their surroundings and procedures during induction and reminders given during briefings.

- Over-work – fatigue-related injuries may occur if personnel over-extend themselves. Rosters must limit shifts to a suitable length for the type of work. Adequate rest breaks must be taken and on-going assessment made of the ability of personnel to continue in their roles. Adequate accommodation and facilities that allow people to recover from their duties is essential

- Slips, trips, falls etc. – assembling the initial work area will involve considerable activity by many people who are working around oiled animals and where washing is being undertaken. This could present hazards that could lead to slips, trips and falls. Hazards should be identified and rectified as soon as practical. First-aid facilities for personnel will be established for the incident. The location of these facilities will be determined by the medical plan and first-aid plan for the incident

- Vehicle movements in/out of facilities, especially at shift changeover, have the potential to disrupt local traffic and need to be managed to reduce the risk of accidents.

Procedure

Responsibility for Setting up and Management of Treatment Facilities

The Wildlife Division Coordinator is responsible for identifying and advising the OWA/s of the required wildlife treatment facilities (including the amount and type of space, fixtures, fittings and services required). It is then the responsibility of the Logistics Section to source suitable existing facilities or to arrange the establishment of temporary facilities. This may require additional discussion with other Functional Areas.

If facilities are co-located, day-to-day management responsibility of wildlife treatment lies with either Rescue or Rehabilitation Divisional Commander as determined by the Wildlife Division Coordinator.
Where the facilities are spread over a number of sites, day to day management of the individual facilities will be the responsibility of the Divisional Commander responsible for the procedures being carried out at the particular facility. The Divisional Commanders will be assisted by Logistics Support

personnel from the Wildlife Unit to achieve the effective management of the facilities. Refer to the role descriptions in section 3.

Timing and Criteria for Setting up Treatment Facilities

Ideally, facilities for the collection, holding and isolation of affected animals should be established within 24 hours of the spill. Cleaning and rehabilitation facilities should be operational within 48 hours. The location of the spill and the location, numbers and species of animals affected may determine the type of facilities used. Options may include permanent facilities if any exist nearby; temporary facilities set up in existing buildings; or mobile units/tents brought in and/or erected nearby. Facilities should be located as close as possible to the field of operations; preferably within one hour of travelling time.

- Built facilities capable of accommodating animal treatment facilities should be identified in advance of any spill occurring and should be reviewed/updated annually as part of regional incident planning
- The following criteria need to be considered when identifying adequate facilities:
- Availability for an extended period (possibly months, depending on the scale of the operation)
- Parking - adequate and easy access for unloading animals and waste disposal
- Location - close enough to the spill site to avoid prolonged travelling (preferably less than 1 hour away)
- Water - access to an unlimited supply of water, which requires heating. This is crucial as it takes 600-1000 litres to wash and rinse one wildlife casualty and additional water is required for pools, general cleaning, showers, food preparation and so on
- Ventilation - facilities must be adequately ventilated (poor ventilation is linked to disease in animals and personnel). Personnel should be monitored for exposure to toxic fumes
- Heating/cooling – facilities must be able to be heated/cooled as required
- Communication - telephones and good communications systems can be established
- Services – gas (preferably gas instantaneous hot water situated away from combustible fume areas) and electricity services must be accessible - preferably a mains supply however large generators may be the only alternative in isolated locations
- Size - large enough to accommodate small through to large incidents and there should be sufficient space for:
    - An admissions area
    - Areas for incident control/administration, communications, media liaison, induction/training, meetings, briefings
    - Facilities for personnel – lunch rooms, ablution blocks, first aid etc.
    - Storage for equipment and stores
    - Triage & first aid (vet hospital) with a quarantine area, intensive care area
    - Separate indoor animal holding areas (pre-washing, during drying and for sick animals)
    - Washing and drying stations and drying rooms (e.g. shipping containers, tents, buildings etc.)
    - Rehabilitation (post-wash)facilities including:
        - animal food preparation and storage (including mobile cool rooms and freezers)
        - indoor and outdoor housing for wildlife
        - pools (either available or there is potential to erect portable pools)

- Security – it must be possible to secure facilities from both people and animals (e.g. dogs, cats, foxes, raptors and vermin)
- Contaminated waste storage - collection/disposal will need to be arranged (http://www.transport.wa.gov.au/mediaFiles/marine/MAC-MOP-WasteMgmtGuide.pdf)
- Accommodation and service providers are nearby – e.g. catering, first-aid.

Space Required

Facilities will be required for the first aid, cleaning and rehabilitation of affected animals and the size of the facilities required will depend on the numbers and species of animals affected. As a rough guide, if all of the required facilities were to be co-located, the following space would be needed for an incident involving 500 oiled wildlife casualty:

- 3,000 square metres of indoor space to accommodate:
  - Wildlife holding rooms for 500 wildlife casualties (approx 900 sq metres). This will be dependent on the animals involved – see tables at 5.4.2, 5.4.3.2 and 5.5.3 for suggested minimums)
  - Washing and rinsing areas (approx 240 sq metres)
  - Wildlife food preparation and storage (approx 180 sq metres)
  - Admissions area
  - Triage/first aid facilities
  - Quarantine
  - Rooms for incident control, administration, induction/training, communications/media, meetings, dining room, toilets/showers
- 2,000 square metres of outdoor space to accommodate:
  - 6 pools (5x3m)
  - Miscellaneous cages/enclosures
  - Wash down area
- Additional space would be required for parking vehicles/equipment
- Waste storage.

Admissions Area

During a large spill, there may be large numbers of wildlife arriving at the treatment facilities and it is important to have an admissions area where the crates or boxes containing the animals can be sorted and arranged systematically to ensure that animals are admitted in the order of their arrival. This is important to ensure that waiting periods are minimised.

The admissions area needs to be readily accessible to vehicles transporting animals to and from the facility. It should be large enough to accommodate desks for several people and have space to accommodate numbers of boxes and crates. The amount of space required will depend on the size of the spill and the numbers and species of wildlife affected. A quiet, well-ventilated area is required and the temperature should be maintained at around 25 °C. Boxes and crates should be spaced to allow adequate ventilation and arranged in a way that provides easy access for handlers.

If treatment facilities are not co-located, a separate admissions area will be required at each facility.

Triage/First-Aid Facility

It is preferable to have a triage/first-aid facility on-site, as close as possible to the impacted wildlife, so that initial assessment/triage can be conducted as soon as possible. This should be done away

from the main activity and noise and would ideally be located between the admissions areas and the rehabilitation area.

If built facilities are not available, large marquees (at least 4m x 4m) should be erected at the first-aid site. Separate holding cages are required for untreated animals and treated animals awaiting transfer to the cleaning and drying facility.

Table 10: A Guide for Minimum Temporary Enclosure Sizes

TEMPORARY HOLDING ENCLOSURES	
Birds	**Size - Length x Width x Height (metres)**
Small passerines, parrots and pigeons - finches and wrens	0.3 x 0.2 x 0.2
Large passerines, parrots and pigeons - magpies and cockatoos	0.5 x 0.5 x 0.5
Small waterbirds – ducks and grebes	0.4 x 0.4 x 0.4
Large waterbirds – swans and herons	0.7 x 0.7 x 0.7
Small seabirds – gulls, cormorants, terns and penguins	0.4 x 0.4 x 0.4
Large seabirds – albatrosses and pelicans	0.7 x 0.7 x 0.7
Small raptors – kestrels and hobbies	0.5 x 0.5 x 0.5
Large raptors – eagles, hawks and falcons	1 x 1 x 0.5
Brush turkeys and emu chicks	0.7 x 0.4 x 0.5
Adult emus	1.5 x 0.7
Other Animals	**Size - Length x Width x Height (metres)**
Water rat	0.5 x 0.3 x 0.3
Small turtles	0.5 x 0.3 x 0.3
Large turtles	1.0 x 0.6 x 0.5
Seals (other than leopard seals)	1.5 x 1.8 with solid walls 1.0m high
Leopard seals	Dependent on the size of the animal but must be large enough to allow it to fully stretch in all normal postures.
Cetaceans	Triage of cetaceans would be undertaken on the beach

Holding areas for wildlife need to be well-ventilated and able to be maintained at a constant temperature suitable for the particular species.

In addition to holding space for animals, the first-aid facility will require:

- Enough working space for up to 5 first-aid teams for a large incident (e.g. involving more than 50 pelican-sized animals); each team consisting of a veterinarian plus a vet nurse or an experienced wildlife rehabilitator. Each team needs a treatment table plus shelving for drugs and equipment
- An area set aside for intensive care for weak or debilitated animals
- An isolation area, with its own separate ventilation, for animals suspected of having an infectious disease
- Access to refrigerators and freezers should be available nearby for storage of carcasses pending disposal

- Storage facilities for liquid and solid contaminated waste (with easy access for waste disposal collection).

Cleaning and Drying Facilities

Cleaning Facilities

Cleaning and drying facilities should be co-located. The cleaning facility should be indoors or under cover (tent, shed, etc.), however if the weather is warm and fine, animals can be washed outside during the day providing there is shade or shelter (and under lights at night).

Suitable containers are required near the cleaning facility to store contaminated waste such as water and used towels, pending appropriate disposal as determined by the Waste Management Unit.
The amount of space required will depend on the number of and species of animals to be washed but should be large enough to accommodate several large sinks, several large washing tables and several rinsing stations with sufficient working space at each one to allow at least 2 people to hold an animal.

Drying Facilities

The drying facility for wildlife should be indoors or in a closable tent or space that can be heated to about 28°C.

The facility needs to be large enough to accommodate solid-bottomed drying enclosures which, in combination with warm air blowers, provide a suitable environment for most sea birds, shore birds and some fresh water birds. The floors of the enclosures should be covered with clean absorbent material.

Birds must have sufficient space to allow them to flap their wings and preen and to move away from any heat source. The size of the enclosure required will vary depending on the species concerned but the following should be considered as minimum sizes. In very still, warm weather, birds can be placed outside in the sun to dry (with shade available).

Table 11: A Guide for Minimum Drying Enclosure Sizes

Birds	**Size - Length x Width x Height (metres)**
Small passerines, parrots and pigeons - finches and wrens	0.6 x 0.45 x 0.45
Large passerines, parrots and pigeons - magpies and cockatoos	1 x 1 x 1
Small waterbirds – ducks and grebes	0.6 x 0.6 x 0.6
Large waterbirds – swans and herons	1 x 1 x 1
Small seabirds – gulls, cormorants, terns and penguins	0.6 x 0.6 x 0.6
Large seabirds – albatrosses and pelicans	1.5 x 1 x 1
Small raptors – kestrels and hobbies	2 x 2 x 1
Large raptors – eagles, hawks and falcons	3 x 3 x 1
Brush turkeys and emu chicks	2 x 2 x 0.5
Adult emus	5 x 5

Drying Facilities for Marine Animals

For marine mammals, such as seals, drying is not generally required for healthy adults who can be placed directly into outdoor enclosures and allowed to dry naturally.

Drying using cool air blowers is recommended for unweaned pups and for debilitated individuals, who should be housed in enclosures which are long enough for them to stretch out – 1.5 x 1.8 metres is usually adequate. The ambient temperature of the drying area should be 10-12°C but this may be varied depending on veterinary advice.

Rehabilitation Facility

Once animals have been cleaned and dried they are moved to rehabilitation facilities to recuperate. Indoor and outdoor facilities may be required, depending on the species concerned, and must be escape-proof, maximise safety for the species being held and minimise visual and auditory distress. They should be located away from areas of human activity. They need to be able to be divided so that different species and animals in different States of health and condition can be kept separate from one another.

Indoor Housing for Birds

Indoor housing enclosures for individual birds are as per the tables above. Gregarious species should be exposed to members of the same species or family and a pen measuring 2.5 x 2.5 metres can hold up to 10 medium-sized gregarious birds. The temperature should be maintained at around 25-28°C. As birds become stronger, temperatures can be matched to outside temperatures in preparation for moving them to outdoor housing. Facilities for provision of food and water must also be available.
Indoor enclosures can be constructed of cloth or canvas/ tarpaulin-covered wire, plywood, fibreglass or other available materials. Hessian and jute materials should NOT be used. Netting or shade cloth can be used to cover the top of the pen.

Uncovered bird wire can cause damage to wild birds and should not be used.

Enclosures can be constructed in all shapes and sizes but must:

- be large enough to allow birds to stand up and stretch wings and neck freely
- have no sharp protrusions inside or out
- protect the animal from rain, draughts and predators
- allow for adequate ventilation and light
- contain appropriate food and water
- be able to be cleaned easily to prevent disease
- have suitable flooring that will not damage the birds' feet.

Outdoor Housing for Birds

Outside facilities are required for birds that need to build up condition and muscle tone and regain waterproofing. These facilities need to be larger than the indoor facilities and should consist of an appropriate number of enclosures/cages with water access.

Cages should be large enough to allow birds to stretch and flap their wings, with the exception of large pelagic birds such as albatrosses, gannets or boobies which are unlikely to fly in captivity. Suitable sizes and the number of birds that can be housed are shown below.

Table 12: A Guide for Outdoor Bird Enclosure Sizing

OUTDOOR BIRD ENCLOSURES		
Birds	**Size - Length x Width x height (metres)**	**No of birds**
Small passerines, parrots and pigeons - finches and wrens	3 x 2 x 1	8
Large passerines, parrots and pigeons - magpies and cockatoos	5 x 2 x 2	4
Small waterbirds – ducks and grebes	4 x 2 x 2	2
Large waterbirds – swans and herons	6 x 2 x 2	2
Small seabirds – gulls, cormorants, terns and penguins*	4 x 2 x 2	2
Large seabirds – albatrosses and pelicans	6 x 3 x 2	1
Small raptors – kestrels and hobbies	5 x 3 x 3	1
Large raptors – eagles, hawks and falcons	15 x 10 x 4	1
Brush turkeys and emu chicks	5 x 3 x 2	2
Adult emus	10 x 10 x 2	2

*Penguins may be held together in 'flocks' of up to 10 in a 6 x 3 metre enclosure

All birds need to be able to access a pool of some sort to allow them to wade or swim. Children's swimming pools can be used for smaller species like ducks, gulls and terns. Larger pools are required for birds such as gannets, albatrosses and swans. Pools can be constructed from plywood with heavy duty plastic as a lining but they must be covered so that birds cannot escape or predators get in. Pool water should be reticulated, filtered and kept clean. Access ramps in and out of the water should be provided to prevent the risk of waterlogged birds drowning.

Depending on species, the following should be provided:

- high perches for species such as sea-eagles, bitterns and herons
- submerged logs and perching branches for ducks, cormorants and darters
- artificial burrows on land for penguins
- emerging rocks for smaller waders and some ducks.

At least 6 large pools are recommended for testing of birds' waterproofing (for treating 500 birds). Each one should be approximately 10 metres in diameter.

Indoor Housing for Marine Mammals

Generally marine mammals do not require indoor housing. Once they have been washed they are placed in outdoor enclosures to dry. For individual animals considered to need indoor housing (sick or emaciated individuals) considerations are as follows:

- They should be established quiet areas which have good ventilation but are free from draughts
- Access passageways and 1 metre wide gates are required to allow safe access for handling of the animals.

Enclosures:

- Should be 2 x 2 metres with walls 0.6 m high
- Should have a pool area able to be flooded to a depth of about 0.4m
- All surfaces able to be cleaned with a pressure hose
- Floor covered with a pallet of smooth moulded plastic slats or non-slip rubber
- Localised heat source (e.g. infra-red lamp) should be available if required
- Cetaceans and/or dugongs < 5 metres may be held by approved facilities after triage.

Housing for Seals

Requirements will vary depending on the animals concerned but, as a guide, the following would be required for seals.

- A large pen (approx. 3.4 by 2.1m) able to be filled with water to a depth of at least half a metre
- Access to a pool area with at least 16 square metres surface area, plus haul-out areas
- Visual barriers to protect the animal from the sight of humans walking past
- Adequate shade/shelter from weather.

Housing for Turtles

- Turtles that are unable to swim, or weak turtles that cannot lift their heads to breathe should be placed on moist foam pads and covered with wet towels, or placed in a shower box
- Turtles that can swim must be held in a pool that allows plenty of room to swim and dive. Marine turtles can cope well with exposure to freshwater (at the right temperatures) for up to 6 days, but long term (months) exclusion from salt water results should be avoided (Limpus, 2000). Where possible, marine turtles should be kept in salt water. Chlorine can be added at less than 1ppm to reduce bacterial and algal growth but higher levels will irritate the eyes
- Any substrate on the bottom of the tank must be of sufficient size that it cannot be ingested. Gravel should be avoided for hatchlings. Hatchlings may need to be provided with rafting material so they can trap food. This rafting material should not be ingestible. Abrasions from rough sides on cement tanks have been reported
- Water temperature must be maintained between 25-29.5ºC. Even though this temperature may be higher than local waters, it is the optimum range for rehabilitation. Fluctuations in temperature should be avoided; necessary changes of more than 1-2º should take place over several days. Prior to release, turtles should be gradually acclimatised to the temperature of local waters
- Overcrowding can lead to biting among turtles. Loggerhead, Hawksbill and flatback turtles will bite other turtles when confined, so separation is required. Green turtles are not usually aggressive to other turtles.

Housing for Sea Snakes

- Sea snakes are venomous and must only be caught, handled and treated by persons experienced in snake handling
- Bites from sea snakes can be life threatening so enclosures must be secure and escape-proof
- Tropical marine tanks are required for the captive maintenance of sea snakes and those intended to house sea kraits (family Laticaudidae), need to be provided with some land area where they can leave the water
- Maintenance of water quality is important and aquaculture technology offers a range of filtering and water treatment options. Expert advice should be sought

- One adult sea snake (<1m total length) requires a marine aquarium at least 100cm by 40cm by 60cm high; 50 percent more area will be required for each additional adult of similar size. Individual sea snakes >1m will require proportionally larger cages at least 120cm long
- Olive sea snakes, *Aipysurus laevis*, and other demersal (bottom-dwelling) reef species will benefit from the provision of shelter sites on the floor of the tank as these snakes behave remarkably like their terrestrial counterparts in seeking shelter beneath solid cover
- Yellow-bellied sea snakes are pelagic, that is, snakes of the surface waters of the open ocean, and will probably fare best in a tank without shelter structures.

Food Preparation Area

Provision needs to be made for feeding wildlife during rehabilitation and this will require:

- Storage facilities for several days' worth of food, unless daily supplies can be guaranteed
- Refrigerators, freezers and airtight containers (some animals will need fresh food)
- Tables for food preparation
- Sinks with cold and hot running water
- Shelves to store buckets, medications, food dishes, knives and serving utensils
- Garbage bins.

As a guide, an area of between 100 to 200 square metres may be required

Laundry Facilities

Towels and cloths used for cleaning and drying animals or lining small cages need to be washed between uses. It is more convenient if this can be done on site, especially during a large-scale response, and will require access to commercial washers and dryers. Separate facilities will be required for washing personnel clothing. If it is not feasible to set up laundry facilities, access will be required to a commercial laundry company nearby.

Appendix F - Triage and First Aid SOP

Adapted from NSW Department of Primary Industries

Application / Scope

The aim of a wildlife response following an oil or chemical spill is to rescue and rehabilitate as many animals as possible and return them to their natural environment in a healthy condition.

In the event of a major spill, where large numbers of wildlife are affected and require care, it will not be possible to treat every individual animal immediately. To deal effectively with large numbers, a system of triage will be required in order to quickly evaluate and prioritise animals for treatment and identify those which should be euthanised. The decision to euthanise may be based on the poor likelihood of survival of particular individuals or on the basis of inadequate resources to treat such large numbers and the need to focus resources to best effect.

This procedure assists personnel involved in the initial triage, first-aid and stabilisation of wildlife captured during search and rescue operations of a wildlife response at an oil or chemical spill. It does not relate to any other aspects of the wildlife response.

Abbreviations / Definitions

- PCV - packed cell volume - the fraction of the total blood volume made up of red blood cells
- Triage - a process for sorting oil/chemical affected wildlife into groups based on their need for or likely benefit from immediate medical treatment so that care and resources can be focussed on those most likely to survive.
- SWMS – safe work method Statement (equivalent to a Job Safety Analysis - JSA).

Resources / Equipment

- A minimum of two marquees or tents (4x4 metres) with sides if facilities are to be established at the rescue site
- Cardboard boxes, or other suitable containers depending on animal species, with lids and breathing holes
- Appropriate personal protective equipment for crew members
- Rags, gauze, swabs, cotton buds, absorbent cloth or paper to wipe excess oil/chemical from animals
- Water based eye drops
- Thermometers for tasking cloacal temperatures
- Trestle tables (not wooden)
- Cotton ponchos (pillow cases with corners cut out) or cloths to put over animals
- Bins and plastic bags to hold contaminated rags for either disposal or laundering
- Gastric tubes suitable for birds and mammals (e.g. 3mm, 5mm and 8mm gauge for birds)
- Buckets
- Scissors
- Syringes (1ml, 2ml, 5ml, 10ml, 20ml and 50ml)
- Sharps containers
- Scales to weigh animals – species dependant (100g to 100kg)
- Oral rehydration fluids
- Lethobarb for euthanising animals (must be stored in a locked cabinet, use restricted and usage recorded)

- Record sheets and pens
- Facilities for personnel to disinfect clothing and equipment
- Footbaths with antiseptics to set up outside buildings housing wildlife
- Personal hygiene facilities (toilets and showers) for staff.

Warnings

Contaminated waste

The cleaning process for oiled wildlife can produce large amounts of contaminated waste requiring specialist disposal procedures. This must be done in consultation with the incident's Waste Management Unit.

See AMSA website for detailed information on Management and Disposal of Oil Spill Debris.

Disposal of carcasses

Carcasses pose a contamination risk to live wildlife and to humans. Immediate refrigeration is recommended so that samples and specimens may be taken for pathology studies. After necropsies have been conducted and appropriate samples taken, carcasses may be frozen, if facilities are available, until disposal.

Museums and universities may be interested in obtaining specimens for research. If there is no scientific interest, carcasses must be disposed of in consultation with the incident's Waste Management Unit.

Hygiene and quarantine

When large numbers of birds and/or other animals are confined in close proximity to each other the spread of disease is possible from animal to animal or to/from humans. Any animal that is suspected of carrying an infectious disease should be immediately quarantined from others.

Personnel with impaired immune systems and those with colds/flu should not be permitted near affected wildlife.

All personnel should be informed of quarantine requirements and appropriate signage installed. Facilities for disinfecting clothing and equipment should be set up early in any wildlife response.

Footbaths with antiseptic (such as Halisept ®) should be set up outside buildings housing wildlife. These areas should be restricted to authorised personnel only and should display appropriate signage to that effect. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should also be available.

Personal hygiene facilities for staff, such as portable toilets and hand washing areas are required. It is essential that all staff wash thoroughly before eating, drinking or smoking. These areas should be set up away from the wildlife, quarantine, cleaning, treatment, and rehabilitation areas.

Other hazards

- Wildlife can be aggressive and may bite or scratch. Washing and drying should only be undertaken by personnel trained in animal handling. Personnel handling animals are to have a current tetanus vaccination
- Precautions should be taken in wash areas, such as the installation of rubber mats, to reduce the risk of personnel slipping on wet floors

- Personnel may experience back strain, overheating, dehydration and exhaustion and should be rostered to take adequate rest breaks and provided with regular drinks
- Assessment of the environmental conditions should be undertaken and include consideration of the air temperature, air flow, ventilation, toxic fumes etc.
- Personnel should be monitored for exposure to toxic fumes.

Procedure

Initial triage assessment

Rescued wildlife need to be assessed to determine whether rehabilitation is feasible or whether euthanasia is required. Initial assessment may be conducted at facilities set up at the rescue scene or at an established first aid facility depending on the distances involved.

A Triage Crew will assess each animal on the basis of physical condition and conservation significance, recommend appropriate treatment and assign one of the following priorities for treatment

PRIORITY 1
• Species listed on the schedules of the Threatened Species Conservation Act 1995 • Culturally significant species • Animals with a good chance of rehabilitation as assessed by a Veterinarian or species specialist
PRIORITY 2
• Animals showing severe signs of toxicity such as convulsions • Animals with additional injuries such as fractures • Common Species
PRIORITY 3
• Animals with a low or no chance of survival requiring euthanasia by a veterinarian or person qualified for euthanasia

- The Triage Crew will contain a veterinarian (preferably with avian expertise), vet nurses or appropriately trained individuals. Crew members are to be trained in animal handling and at least one member should have good wildlife identification skills
- The Triage Crew will complete details of species, condition, recommended first-aid treatment and any drugs administered on a Wildlife Rescue and Release Form
- The Triage Crew will ensure that animals are temporarily marked with a number or have identification tags or bands attached, to facilitate tracking while they are in care, and that number, tag or band details correspond to details on the Wildlife Rescue and Release Form
- The Triage Crew may undertake euthanasia of wildlife if required and record details, bag and store animals in freezer prior to disposal.

Basic treatment

First Aid Crews are to treat animals in the order of priority determined by the Triage Crew and should provide the following basic treatment for each animal:

- Clear eyes, nostrils and mouth of oil or any other foreign material using gauze swabs or cotton buds

- Flush eyes with ophthalmic irrigation fluid and apply water based antibiotic/anti-inflammatory drops if eyes are inflamed
- Wipe oil/chemical and water from the animal using absorbent cloth or paper
- Weigh the animal
- Take the animal's cloacal temperature
- Provide oral fluids
- Cover animal with a cloth or poncho and ensure it is warm and stabilised before it is transported to the Wildlife Treatment Centre for cleaning and rehabilitation.

Stabilisation prior to transporting / cleaning

If there are large numbers of wildlife casualties and it is decided that wildlife should be stabilised prior to transportation to washing and treatment facilities, then an on-site treatment (stabilisation) centre should be set up.

Stabilisation of birds

Before a bird is subjected to the stressful experience of being washed it is important that it is has been stabilised and is assessed as being fit to withstand this extra stressor. Often, 48 hours of stabilisation treatment may be required before birds are in a fit State.

Criteria for washing:

- Birds should be bright, alert and responsive, and need to meet established criteria for core body temperature, weight, hydration level and blood values, as well as absence of apparent infectious disease
- Packed cell volume (PCV) of at least 30% and total proteins of at least 25 g/L on a blood sample taken within 24 hours of the proposed wash
- For birds with PCV below 30% and/or total proteins of less than 25 g/L individual examination and clinical judgment by a veterinarian experienced with oiled birds is required
- Normal core body temperature, suggesting that the bird is in a stable condition i.e. 39-40.5°C
- Normal hydration status
- Weight within the range for the species, age and sex.

In certain circumstances a quick wash may be given to individuals that have not been stabilised: Birds arriving oiled with highly toxic oil such as diesel or jet fuel may be given a "quick-wash" soon after arrival to remove the bulk of the oil and thus the fumes from the oil, but without trying to restore waterproofing.

Note: a quick wash and rinse in these circumstances should only take about one to three minutes.

Stabilisation of marine reptiles

For stabilisation of marine reptiles seek specialist advice through Liaison Officers.

Stabilisation of mammals

The process of being cleaned is stressful to an animal and giving the individual a chance to recover strength after capture before being washed is beneficial.

A veterinary examination should be conducted prior to cleaning, considering the animal's general physical condition and strength, alertness, blood parameters and any abnormalities noticed on general physical examination. Only animals passing this assessment should be subjected to cleaning.

It is recommended that oiled marine mammals should be given supportive care, including treatment to restore normal body temperature, to correct dehydration and to provide nutrition, for at least 24 hours before being washed. However, with heavily oiled animals, or those covered with fresh oil, washing as soon as possible is suggested to reduce exposure to petroleum hydrocarbons by absorption or with ingestion associated with grooming.

Preparing animals for transportation to cleaning facility

First Aid Crews will ensure animals have retained their identification tags and place them in well ventilated, secured containers ready for transporting to the Wildlife Treatment Centre for cleaning and rehabilitation. When selecting suitable containers, consideration should be given to the safety of the animals and the handlers.

Cardboard boxes with ventilation holes are suitable for most birds but must be big enough to allow the bird to turn around inside. For larger birds plastic pet carriers may be suitable but should be lined with non-slip material on the bottom. Cages may also be used but wire ones should be avoided, or covered with cloth, because of the risk of birds catching their feathers.

Good ventilation is required for pinnipeds, such as seals. Smaller ones can be transported in boxes or plastic airline kennels but, for larger ones, lightweight (e.g. aluminium) cages with doors at either end are recommended. Lift points for winch attachments would be useful for lifting cages into vehicles.

To minimise stress, animals should be kept in a warm, quiet place while they are awaiting transport.

Crews are to ensure that the Wildlife Rescue and Release Form accompany the animals to the wildlife treatment facility

Blood Assessment

Bloods should be ideally sampled at 4 stages:

1. At intake
2. Before Washing
3. After Washing
4. Before Release.

Pack Cell Volume (PCV)

PCV is simply a measure of the percentage of red blood cells which is a measurement for anaemia. Normal levels are:

- Avian spp generally 33-55%
- Seabirds 48-52%
- Ducks, Grebes, Loons normally mid 40s%.

PCV >60% - Very dehydrated bird, apply hydration therapy, monitor Daily

PCV <30% - Give iron dextran at 10mg.kg every 4 days, apply using intramuscular injection, administer until PCV reaches 30%.

PCV <12% - Reaching critical levels. At this level the bird may benefit from a whole blood transfusion.

Be aware that too much fluid can lower PCV.

Total protein (TP)

Total protein should be at levels between 3-6g/dl

- TP <2.0g/dl Indicates that there may be food digestion problems or liver failure, therefore do not feed complex foods (which will sit in the stomach and rot)
- TP > 6.0g/dl the bird is either dehydrated or having an acute protein response. Hydrate the animal and modify the food type.

Blood Glucose (BG)

- The level of Glucose in the blood
- Normally >8.8mmol/l or 160mg/dl
- BG: Between 5.5-8.8 mmol/l (100-160mg/dl), administer 5-10% dextrose orally to raise blood glucose levels
- BG: <5.5mmol/l (<100mg/dl), administer an intravenous infusion of a 50% dextrose solution at 2ml/kg
- Note: Always monitor for dehydration after giving dextrose.

Reference

See Department of Primary Industries NSW procedure – Oil/Chemical Spill Wildlife Response – Triage and First Aid:

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/432094/Oil-Chemical-Spill-Wildlife-Response-Triage-and-First-Aid-V1.pdf

Short, M (2011) Michael Short OWR training Module.

Appendix G - Cleaning and Drying Wildlife SOP

Adapted from NSW Department of Primary Industries

Application / Scope

The aim of a wildlife response following a major oil or chemical spill is to rescue and rehabilitate as many affected animals as possible with a view to releasing them back into their natural environment once their health has been restored and their habitat is free of oil or chemicals.

The cleaning process is crucial to successful rehabilitation and needs to be undertaken as soon as the animal is stable in order to minimise the amount of time the animals are exposed to oil or chemicals.

The cleaning of large numbers of wildlife is resource and labour intensive and the success of the operation will be depend on access to facilities with adequate space, large quantities of hot water and sufficient numbers of people capable of assisting.

This procedure assists personnel involved in the cleaning and drying of rescued wildlife once they have received initial triage and first aid and have been stabilised. It does not address the rescue or triage/first aid processes, or the subsequent rehabilitation and release processes which are covered in separate documents. Refer to other procedures listed at the end of this document.

Abbreviations / Definitions

- AMSA – Australian Maritime Safety Authority
- Cetaceans – marine mammals of the order Cetacea, comprising whales, dolphins and porpoises
- Hyperthermia – having a body temperature greatly above normal when the body produces or absorbs more than it can dissipate
- Pinnipeds (meaning fin-footed in Latin) include all seals, sea lions and walrus (the latter being native to the Northern hemisphere)
- Thermo neutral water – water that that neither requires nor gives off heat from/to its surroundings.

Resources / Equipment

- Suitable personal protective equipment
- Feeding tubes
- Food supplies for animals
  Canola oil, light olive oil, mayonnaise, vegetable oil or similar
- Access to large quantities of hot water
- Buckets, hoses
- Tubs for washing birds; sizes will depend on species
- Mild detergent – recommended brands are Dawn ®, BioSolve ® and Suma Star D1 from Diversey
- Water softener – if required (water softeners use sodium to help replace or reduce the concentration of calcium and magnesium ions which make water ‘hard’ and difficult to dissolve detergents in)
- Cotton wash cloths, ladles
- Shower nozzles or similar
- Cotton buds

- Gauze swabs, artificial tears (saline eye drops)
- Sheets, towels, cloths, paper towels
- Heat lamp or blow heaters
- Cool air blowers
- Thermometers to monitor air temperature and washing water
- Drying Pens – species dependent
- Pools appropriate to species
- First aid kit
- Personnel - for washing, drying and monitoring wildlife – this will vary depending on species and degree of oiling but, as a guide, it will take 2 people about an hour to clean one bird, i.e. 20 people to clean 100 birds in a 10 hour shift.

Warnings

Personnel health and safety

A range of personnel health and safety hazards need to be considered when washing and drying wildlife. Refer to the safe work method Statement – Handling of animals.

- Wildlife can be aggressive and may bite or scratch. Washing and drying should only be undertaken by personnel trained in animal handling
- Personnel risk exposure to zoonotic diseases and disease vectors and must be provided with adequate personal protective equipment including safety goggles, gloves, waterproof outer clothing and suitable footwear
- Precautions should be taken in wash areas, such as the installation of rubber mats, to reduce the risk of personnel slipping on wet floors and reduce back strain
- Personnel may experience back strain, overheating, dehydration and exhaustion and should be rostered to ensure appropriate shift lengths and adequate rest breaks and provided with regular drinks/food
- Personnel may experience mental and emotional stress and fatigue during major incidents that result in the death or injury of large numbers of wildlife. Processes are required to provide support to personnel who experience stress or trauma
- Personnel need to be aware of the risk of exposure to toxic vapours or substances. Appropriate personal protective equipment must be worn and shifts managed to minimise exposure.

Waste disposal

The cleaning process for oiled wildlife can produce large amounts of contaminated waste, including contaminated water, requiring specialist disposal procedures. This must be done in consultation with the incident's Waste Management Unit.

See AMSA website for detailed information on Management and Disposal of Oil Spill Debris.

Disposal of dead wildlife

Dead wildlife poses a contamination risk to other wildlife and to humans. Immediate refrigeration is recommended so that samples and specimens may be taken for pathology studies. After necropsies have been conducted and appropriate samples taken, carcasses may be frozen, if facilities are available, until disposal. Details of dead animals are to be entered on a Wildlife Rescue and Release Form.

Museums and universities may be interested in obtaining specimens for research. If there is no scientific interest, dead carcasses must be disposed of in consultation with the incident's Waste Management Unit.

Hygiene and quarantine

When large numbers of birds and/or other animals are confined in close proximity to each other the spread of disease is possible from animal to animal or to/from humans. Any animal that is suspected of carrying an infectious disease should be immediately quarantined from others.

All personnel should be informed of quarantine requirements and appropriate signage installed. Facilities for disinfecting clothing and equipment should be set up early in any wildlife response.

Footbaths with antiseptics should be set up outside buildings housing wildlife. These areas should be restricted to authorised personnel only and should display appropriate signage to that effect. Separate and dedicated clothing, gum boots, gloves and other personal protective equipment should be also available.

Personal hygiene facilities for staff, such as portable toilets and hand washing areas are required. It is essential that all staff wash thoroughly before eating, drinking or smoking. These facilities should be set up away from the wildlife, quarantine, cleaning, treatment and rehabilitation areas.

Personnel with impaired immune systems and those with colds/flu should not be permitted near affected wildlife. Health status will be recorded as part of the induction process to ensure personnel are assigned to appropriate roles.

Procedure

Cleaning and drying birds

To clean a bird generally requires two people and may take up to an hour. Therefore, to clean one hundred birds in a ten hour shift will require a minimum of twenty people.

It is essential that oiled birds are washed and rinsed thoroughly as residual oil or detergent will affect waterproofing and insulation.

The washing and drying of birds will be undertaken by Cleaning and Drying Crews once the birds have been stabilised (see procedure Wildlife Response – Triage and First Aid). Crews will receive written instructions from the Triage and First Aid Crews and should seek advice from a veterinarian with avian expertise as needed.

Pre-wash Preparation

- Ensure birds have been given fluids prior to washing. Individuals should have received at least one gavage (feeding tube) with rehydration solution. Experts or veterinary staff should undertake this or be consulted about appropriate doses
- Pre-treat heavy tarry deposits of oil with an oil such as canola, light olive oil, vegetable oil or baby oil. Oil is warmed to 35-38°C then manually worked into the tarry areas (very carefully so as not to damage the feather structure) and left for about 30 minutes before the bird is washed
- It would be ideal to do a blood assessment before and after washing to monitor pack cell volume, total protein and blood glucose (see triage and first aid procedure for guidelines).

Washing Birds

- Washing is stressful to birds. To minimise the time taken for the cleaning procedure, prepare supplies, including tubs of hot water, in advance. Use of personnel with appropriate expertise can greatly increase the overall chance of survival of oiled birds
- Excess noise should be avoided and the washing of each bird completed quickly and efficiently
- Signs of stress include excessive struggling and open-mouth breathing. Birds showing these signs, or lethargy and shivering, should be rinsed quickly and allowed to rest in a warm quiet area
- Several tubs of water and detergent may be required to wash one bird. Use warm water (39-40 degrees C) with mild detergent. Recommended detergents are Dawn ®, BioSolve ® and Suma Star D1 from Diversey. The concentration of detergent required will vary depending on the type of oil, degree of weathering and water hardness. For a severely oiled bird a concentration of 5% may be used in the first tub of water, reducing to 3% for the second tub and 1% for the third and subsequent tubs
- Immerse the bird, except for its head which should be kept with the bill pointing downwards slightly, to keep water from running into the nares
- In teams of 2 (or more for large or aggressive birds) one person should hold the bird, while the other person gently agitates the feathers through the water, squeezing the water out in the same direction as the lie of the feathers
- Water is ladled over the bird and agitated under the bird
- A wash cloth may be used to help force detergent into contact with the feathers, always stroking in the direction of feather growth
- Gentle massage of the feathers, in the same direction as the feather shafts, is used to work the oil free of the feathers
- A standard routine should be followed to ensure that all areas are washed:
    - use cotton buds to remove oil in the nostrils and inside the bill
    - use a jet of water to clean the head, neck and body directing it up under the feathers, on low pressure
    - Roll the bird to one side and then the other to clean the wing and flank on each side
    - Lift the bird up to wash the areas from its breast down to the underside of its tail feathers
- When the water becomes oily, excess water is gently squeezed out of the feathers, over the rump, before the bird is moved to a new tub of water

- Once all oil has been removed (the wash water is no longer becoming discoloured, no oily residue is left on the water and the bird appears to be clean) the bird is ready for rinsing
- The feel of the feathers between the fingers as well as visual inspection is used to assess cleaning
- If detergent gets into the bird's eyes during cleaning, they should be washed and artificial tears applied
- Any oil contaminated water, towels or ponchos are to be collected and disposed of in accordance with the instructions of the Waste Disposal Unit.

Rinsing Birds

Thorough rinsing is essential in order to remove detergent from the bird. It is important not to underestimate the amount of hot water needed and the requirement for appropriate high-pressure shower nozzles.

- Working surfaces and the hands and clothes of the holder and washer must be free of detergent
- Separate buckets and hoses should be used for providing clean water, which do not come into contact with water contaminated with oil or detergent
- Rinsing generally takes 15-30 minutes but may take longer
- Rinsing may be started by placing the bird in a tub of clean water at 39-40°C, and ladling clean water over it, moving it between tubs until no detergent residue is seen in the water before rinsing with a pressurised shower head (39-40°C) until the water beads up and rolls off the feathers leaving them looking dry - the down feathers should fluff up and appear dry
- Rinsing should start at the head and work down the neck, back, wings, breast, abdomen and tail to keep pushing detergent off the bird in one direction
- The holder must ensure that the bird is positioned so that the detergent contaminated water flows away from areas of the bird that have already been rinsed
- Any contaminated water or materials are to be collected and disposed of in accordance with the requirements of the Waste Disposal Unit.

Drying Birds

Following washing and thorough rinsing the bird must be dried. A separate area should be set aside to allow birds to dry with minimum disturbance following the stressful washing and rinsing experience.

Note: Plumage does not return to its normal water repellent State after washing and rinsing until it has fully dried.

- The bird may be patted dry and gently squeezed with clean dry towels before being placed in a drying pen. The feathers should not be rubbed.
- The eyes should be flushed again before the bird is placed in the drying pen
- Ensure birds are well hydrated before placing them in pens and make sure they have access to fresh drinking water
- Drying pens should be solid-bottomed and covered with clean absorbent material such as rubber or towels. In combination with warm air blowers, these provide a suitable environment for most water birds

- Drying pens should be heated with heat lamps or hot air blowers to an ambient temperature of about 35-40°C. The temperature should be monitored carefully using thermometers
- In very still warm weather, birds could be placed outside in the sun to dry (with shade available)
- Sheets or towels may be used to cover pens to minimise visual disturbance
- Overcrowding should be avoided so that birds can move away from the heat source if they get too hot
- Note that it can take up to 10 days for washed birds such as pelicans to regain their waterproofing.

Monitoring of birds

- Most birds will start to preen once they are placed in the drying pens and will dry quite quickly
- Drying may take only 30 minutes for a small bird but as long as three hours for larger birds
- Check birds frequently (e.g. every ten minutes) for signs of overheating, such as an increased respiratory rate, open-mouthed breathing/panting or wings held away from the body, and for shivering, indicating that the birds are too cold
- Birds can be checked for dryness by carefully parting the contour feathers and checking the down feathers are dry over areas such as the breast
- Once birds are dry and stable and the temperature is appropriate to the species, move them to outdoor holding enclosures
- Dry birds should be provided with fluids before being moved to a holding pen overnight.

Assessment of waterproofing after washing

Once birds have been dried and are to be moved to pre-release accommodation it is important that they are assessed for their waterproof status.

To test waterproofing of aquatic birds, birds are placed in a clean swimming pool of water that tests at 30-50 mg of calcium carbonate per litre (water softeners may need to be installed on taps to achieve this) and observed closely for signs that water is reaching the skin.

Birds may not be fully waterproof if:

- they sit lower in the water than other individuals of their species
- they droop their tail into the water
- they show reluctance to remain on the water and repeatedly attempt to leave the water
- they appear wet
- they shiver
- they show excessive preening
- water does not ‘bead’ off the feathers
- down feathers are wet.

Birds that are waterproof may be moved to outside housing. Birds that are not waterproof need re-evaluation or must be housed on warm water pools.

Cleaning and Drying Mammals

Cleaning and Drying Cetaceans and Pinnipeds

Cetaceans

Capturing cetaceans to clean them is not generally feasible and attempts to do so may cause more harm than the impacts of the spill. If cetaceans become stranded during a spill, in-situ treatment is likely to be the only realistic option although consideration may be given to taking smaller cetaceans (less than 5 metres) into captive care.

Pinnipeds

Note: Handlers must be experienced as pinnipeds can be very dangerous.

- Cleaning should be carried out immediately for individuals covered with fresh oil, in order to reduce exposure to inhaled vapours
- In other circumstances, maintenance for 24 hours, allowing evaluation of the animal's overall condition, is recommended prior to cleaning
- A general physical examination should be carried out by a veterinarian prior to cleaning to assess the animal's overall condition
- Physical restraint may be sufficient for cleaning of smaller seals but sedation or full anaesthesia may be required for larger ones
- Heart rate, respiratory rate and temperature should be monitored during the wash, particularly in anaesthetised animals
- For large areas of tar, pre-treatment with mayonnaise may be useful. The mayonnaise is worked into the fur and left for 30 minutes before washing
- Thermo neutral water (about 37°C) should be used for washing. A 1:16 dilution of Dawn 'regular'® or BioSolve® or Suma Star D1 from Diversey detergent with water has been recommended although higher ratios may be necessary for heavy oiling. For harbour seal pups (Phoca vitulina - Common seal) oiled during the Exxon Valdez oil spill, dilute detergent (Dawn®) was ineffective, but lathering with full-strength detergent, following by rinsing with fresh water, repeated until no more oil was visible on the seal or in the rinse water, was effective
- Rinsing can be started at the pre-wash station with the animal under restraint, but finished with the animal unrestrained in a pen, using a pressure nozzle. This reduces the time of restraint
- Rinsing should continue until no oil or detergent is visible in the rinse water coming off the animal
- Water may be thermo neutral or, if there are signs of hyperthermia, cold water may be used
- Absorbent paper towels or clean cotton towels are most effective for removal of the bulk of the water, replacing towels as they become moist. Drying may not be required for healthy adults who can be placed directly into outdoor pens and allowed to dry naturally
- Drying using cool air blowers is recommended for newly-born animals and for debilitated individuals

- Once the animal has a stable core body temperature, is eating, and is showing normal grooming behaviour, it can be transferred to a pen with an appropriate pool for monitoring.

Cleaning other small mammals

Small mammals such as water rats can be washed in water (35 °C) with 1% detergent (Dawn 'regular'®,BioSolve® or Suma Star D1 from Diversey) (or more if required) followed by rinsing with a high pressure nozzle and drying using pet driers, with or without initial towel drying.

Cleaning and drying other animals

Cleaning and drying turtles

- The turtle's shell may be cleaned using a 1-2% Dawn ®, BioSolve ® or Suma Star D1 from Diversey detergent solution wiped over the shell with a clean cloth or sponge, repeating until the oil is removed
- Cleaning of the head and oral cavities can be done with dampened cloths or cotton buds
- Cleaning of the skin and inside the shell may be carried out by bathing in 1-2% detergent solution then scrubbing using a sponge, pushed into the spaces between the shell and the head, legs and tail, and twisted and moved around as required, followed by irrigation with detergent solution using a water jet. Scrubbing with the sponge and irrigation with solution are repeated as necessary
- Once the oil is removed the areas between the shell and the head, legs and tail are irrigated with clean water using a water jet, before the animal is rinsed in a clean water bath
- Following cleaning and rinsing, the turtle may be dried with absorbent paper towels or soft cotton cloths
- Cotton buds can be used to clean oil residues from the mouth
- If all of the oil has not been removed at the first cleaning, the process may be repeated at intervals of 24 to 48 hours.

Cleaning sea snakes and other wildlife

Cleaning oiled sea snakes is NOT recommended unless the animal can be transported to a facility that can house and care for venomous reptiles. These facilities should determine if they are able to clean such species given the potential risk to staff whilst handling a venomous reptile.

Where other wildlife is affected, seek specialist advice through Liaison Officers.

Reference

See Department of Primary Industries NSW procedure – Oil/Chemical Spill Wildlife Response – Triage and First Aid:

http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0007/432097/Oil-Chemical-Spill-Wildlife-Response-Cleaning-and-Drying-Wildlife-V1.pdf

Appendix H - Oiled Wildlife Response Strategy by Functional Group

Species	Life cycle	Risk period	Strategy Considerations	Strategy options
Migratory and resident shorebirds	Foraging	Peak for migratory shorebirds is Sept to Mar. Resident shorebirds and a small proportion of migrants (juveniles) remain year-round.	Habitat and survey maps and pre oiling surveys important to determine species and densities present in an area. Preferred foraging areas are extensive intertidal flats. Foraging times are tide dependant feeding on molluscs and worms exposed in intertidal zones during mid to low tides. Birds tend to spread out over suitable feeding habitat. Feeding response to different types of oil is unknown. Birds oiled during feeding may not be able to fly back to roosts when tide rises so in water patrols of feeding areas and shorelines for capture should considered.	Oiled birds can be captured using hand nets, cleaned and rehabilitated For small areas of oiling, hazing can be attempted with ongoing monitoring of success. Pre-emptive capture of unoiled birds is largely impractical due to individuals dispersing to feed.
Migratory and resident shorebirds	Roosting	Peak for migratory shorebirds is Sept to Mar. Resident shorebirds and a small proportion of migrants (juveniles) remain year-round.	At high tide periods birds roost at favoured sites until the falling tide allows for foraging at intertidal habitats. Favoured roost site locations are critical information for OWR. Capture of unoiled birds is likely to be difficult and capture of all birds quickly is unlikely.	Oiled birds can be captured using hand nets cleaned and rehabilitated. For small shoreline areas affected by oil, hazing can be attempted with ongoing monitoring of success. Pre-emptive capture and transport of birds in areas under threat. Pre-emptive capture and holding of birds in areas under threat. Capture techniques for unoiled birds include noose mats (preferred) and cannon nets.
Resident shorebirds	Nesting	Peak nesting August to February Note: migratory shorebirds do not nest in Australia.	Resident shorebirds nest on coastal beaches, wetland fringes and islands. Nest above the high water mark. Nestlings and eggs can be oiled by contact from adults. Hatchlings are precocial and can forage by themselves after hatching but stay in family groups for some time. Surveys need to be undertaken to determine nest locations adjacent to and along impacted shorelines. Priority should be on capture and rehabilitation of adult birds.	Oiled birds can be captured using hand nets, cleaned and rehabilitated. Nest building birds can be hazed or disturbed from projected oil impact zones.
Seabirds - Sea	Foraging	Year-round	Seabirds will dive through oil on the surface if fish or	Searches for and collection of birds required in areas

foragers that utilise islands and coasts such as terns, gulls, boobies gannets, noddies, shearwaters			other prey can be seen. This should be considered as possible for light crude, diesel and condensate spills. Seabird numbers can be highly variable seasonally and from year to year as they follow food resource abundance (affected by El Nino, etc.) and can forage long distances from nesting and roosting sites. Pre oiling surveys are critical to ascertain current status. Birds oiled during feeding may not be able to fly back to shore so in water patrols of feeding areas and shorelines for capture should be considered.	where oil is located, and at roosts. Oiled birds can be captured in water using hand nets, cleaned and rehabilitated. Free-flying birds cannot be readily captured in marine environments.
Seabirds- Sea foragers that utilise islands and coasts such as terns, gulls, noddies, shearwaters	Roosting	Year-round	Seabirds often show a preference for sandy points, spits and low rocky bars near the ocean. Birds lightly oiled or coated with light oils oiled may be able to fly back to roosts where monitoring should occur and shore-based capture should be considered.	Searches for and collection of wildlife required in areas where birds roost up to 50km from oiling. Oiled birds can be captured on land using hand nets, cleaned and rehabilitated. Free flying birds cannot be readily captured in marine environments.
Seabirds- Sea foragers that utilise islands and coasts such as terns, gulls, noddies, shearwaters	Nesting	September to March	Seabirds nest on islands or the mainland coast either on the surface (e.g. terns), rock crevices, in vegetation (e.g. cormorants) and in burrows (e.g. shearwaters). Nestlings and eggs are at risk of oiling from body contact with adults.	Adults and nestlings should be monitored for oiling impacts. Oiled adults and nestlings should be captured by hand nets or other available means. Pre-emptive capture of chicks and hand raising should be considered for high conservation species.
Seabirds Cormorants and darters all species	Foraging	Year-round	Are predisposed to oiling as they will readily swim through heavy oils. May travel large distances from roosting sites but feed close to shore. Cormorants saturate their feathers to hunt and will look wet (indicator of light oils) after foraging when drying wings for flight	Oiled birds can be captures on land or in water. Strong birds will dive to escape capture
Seabirds Cormorants and darters all species	Roosting	Year-round	Roosting sites may vary according to wind conditions and food availability. Cormorants prefer roost on elevated coastal headlands or trees to assist take off.	Oiled birds can be captured on land or in water. Strong birds will dive to escape capture
Seabirds Cormorants and darters all species	Nesting	Year-round	Nest on elevated coastal headlands and vegetation or in vegetation in freshwater swamps.	Oiled birds can be captures on land or in water. Strong birds will dive to escape capture. Nestlings should be monitored and only captured for cleaning rehabilitation if abandoned or parent birds are oiled.

Waterbirds	Foraging	Year-round	Herons and Egrets tend to forage amongst mangroves and on intertidal flats or shallow pools near roosting sites. Pelicans prefer shallow protected waters for feeding. Pelicans can travel very large distances from roost or breeding sites to foraging areas.	Oiled birds can be captured on land or in water.
Waterbirds	Roosting	Year-round	Can be found in freshwater brackish and coastal habitats. Herons and egrets common in suitable coastal and offshore island and mangrove habitats.	Oiled birds can be captures on land or in water.
Waterbirds	Nesting	Year-round	Herons and egrets nest sparsely in coastal vegetation. Pelicans nest in colonies on inland lake and coastal islands.	Oiled birds can be captured on land or in water. Nestlings should be monitored and only captured for cleaning and rehabilitation if abandoned or parent birds are oiled.
Marine birds of prey	Foraging	Year-round	Ospreys often plunge into water to hunt fish, while WB Sea Eagle plucks fish from water on the wing. Brahminy Kite commonly takes crabs. All of these birds are likely to hunt mammals on Barrow Island at times.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.
Marine birds of prey	Roosting	Year-round	Elevated perch with view of ocean are preferred. Some perches offering protection may be used in some conditions.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.
Marine birds of prey	Nesting	Year-round	Make large nests comprised of sticks on tall structures (trees, mangrove, manmade) or rocky headlands.	Monitoring of local raptors should be undertaken, focusing on known nest sites and perches. Only specialist or experienced personnel should capture or handle these species for safety.
Green Turtles	Foraging	Year round Feed on seagrass and algae habitats	In-water oiling via ingestion, inhalation and contact risks. Note that even light hydrocarbons such as diesel and condensate cause burns to turtles even	Adults are a large powerful turtle, and so in-water capture generally unviable except in expanses of shallow water. Captures of compromised adults on the

			though oiling may not be apparent. Sea turtles do not appear to display any avoidance behaviour on encountering a slick. Males and females at risk. All animals relatively widely dispersed through foraging habitats in near shore coastal bays. .	surface would be possible with walley nets or large hoop nets. Capture of adult females on shore can be done by hand and using turtle stretchers for transport. Juveniles 40cm+ appear in coastal waters and could possibly be rodeo-ed or captured with long handled nets. Any captures need to be removed from the area and duration of oiling (see below).
Green Turtle	Mating	Peak September to December at Barrow Island and NW cape	In-water oiling via ingestion, inhalation and contact risks. Adult males and females at risk while milling in coastal shallows. Distinct aggregation areas preferred in mating season and are priority areas for oiling protection.	Adults are a large powerful turtle, and so in-water capture generally unviable except in expanses of shallow water. Captures of compromised adults on the surface could be possible with walley nets or large hoop nets. Capture of adult females on resting shore can be done by hand and using turtle stretchers for transport. At very low tides in mating season adult males and females can be captured on large expanses of flats such as Bandicoot Bay at Barrow Island. Any captures need to be removed from the area and duration of oiling (see below).
Green Turtles	Nesting	November to January (The Department of Parks and Wildlife peak)	Greens nest on deep sandy beaches usually on exposed coasts. Adult females primarily at risk while milling in shallows and during beach egress. In-water and beach oiling via ingestion, inhalation and contact. Females at risk of oiling from oil that has landed on beaches. On Barrow Island data shows an inter-nesting cycle of 5 years. 3 nests per season with a 12 day intra-nesting interval	Females can be captured on shore using standard tagging techniques. Oiled turtles should be captured immediately to prevent contamination of beach and sand layers) Where a beach is threatened pre-emptive capture of all animals should be considered. Any captures need to be removed from the area for the duration of oiling. There are two options 1 transport and holding of captured animals in enclosures or 2 transports away from field of oiling as far as required to prevent oiling. In both cases a minimum of 5 individuals or 5% of managed animals should be tracked to gather data on strategy efficiency.
Green Turtles	Nests	Peak November to January	While nests are usually located above the high tide mark spills can occur as a result of an extreme weather event which can cause oiling of nest areas. The zone above the nest is important for gas exchange and coating with oil can prevent this process occurring resulting in suffocation of	Remove surface oiling manually from nests where it occurs. Removal of eggs for incubation probably impractical on a large scale. Research programs on effects are important. Aims and methodology should be determined prior to spill event

			eggs/hatchlings. It would also create a barrier for hatchlings to swim to the surface. Tests have shown that eggs impacted by fresh oil early during incubation show deformities and eggs oiled in the last half or quarter have a significant decrease in survival. The effect of oil that has naturally weathered for a few weeks prior to impact to shorelines may have little effect on nest or eggs. Use of heavy machinery or vehicles will compact nests and compromise hatchlings. Relocation of eggs needs to occur within 12 hours of laying or after 14 days (Limpus) as embryo development membranes are vulnerable to rupture.	
Green Turtles	Hatchlings	Peak January to March	In-water and beach oiling via ingestion, inhalation and contact risks. Hatchlings are at much greater risk of oiling as they spend more time near the surface, being stuck in heavier or weathered oils. They tend to be found detected in tidal current convergence zones. Hatchlings are suspected to quickly move offshore. Hatchlings may be compromised if captured and held for long periods. Funnel fencing and pit traps techniques could be used to capture emerging hatchlings providing nesting females did not compromise trapping or were placed at risk of entanglement.	Low drift fencing and pit traps techniques could be used to capture hatchlings remotely providing nesting females did not compromise trapping or were placed at risk of entanglement. If females are still nesting then hand capture of hatchlings should be attempted this would require stationing of personnel every 1-200m along a beach patrolling through the evening and early morning to detect and collect hatchlings. Hatchlings would need very fast transport to a suitable release site. Air transport to release site within 12hrs is essential.
Flatback Turtle	Foraging	Year round	In-water oiling via ingestion, inhalation and contact risks. Males and females at risk. Relatively widely dispersed through foraging habitats of turbid coastal and continental shelf environments.	Adults are a moderately sized but more aggressive (prone to biting) turtle, in-water capture generally unviable.
Flatback Turtle	Mating		In-water oiling via ingestion, inhalation and contact risks. Adult males and females at risk. Distinct aggregation areas preferred. In water capture	As per Green Turtles

			probably unviable, may be possible to capture some females resting on beaches. At Barrow Island the Flatback mating and nesting aggregation is centred around the proposed LNG tanker jetty area.	
Flatback Turtle	Nesting		Flatback Turtles nest on medium to shallow sandy beaches usually on protected beaches. In many areas of the Pilbara they are restricted to nesting during mid to high tides. Adult females primarily at risk while milling in shallows and during beach egress. In-water and beach oiling via ingestion, inhalation and contact. Females at risk of oiling from oil that has landed on beaches. Inter-nesting intervals of 1.7-3 years, 3 nests per season intra-nesting period of 16 days years.	As per Green turtles
Flatback Turtle	Nests		While nests are usually located above the high tide mark spills can occur as a result of an extreme weather event which can cause oiling of nest areas. The zone above the nest is important for gas exchange and coating with oil can prevent this process occurring resulting in suffocation of eggs/hatchlings. It would also create a barrier for hatchlings to swim to the surface. Tests have shown that eggs impacted by fresh oil early during incubation show deformities and eggs oiled in the last half or quarter have a significant decrease in survival. The effect of oil that has naturally weathered for a few weeks prior to impact to shorelines may have little effect on nest or eggs. Use of heavy machinery or vehicles will compact nests and compromise hatchlings.	As per Green turtles
Flatback Turtle	Hatchlings		In-water and beach oiling via ingestion, inhalation and contact risks. Hatchlings are large and vigorous (Pendoley per com from tracking trials hatchlings) are suspected to move to inter-island or coastal habitats. Hatchlings are suspected to quickly move offshore.	As per Green Turtles. Flatback Turtles are relatively large and anecdotal advice is that they are more vigorous than Green Turtle Hatchlings

			Hatchlings may be compromised if captured and held for long periods.	
Hawksbill Turtle	All		Found around reefs coastal areas and lagoons. Feeds on sponges, anemones and crustaceans. Very high protection priority as is endangered in an international context. Inter nesting period 3-5 years. Hatchlings are quite small compared to Green and Flatback Turtles.	As per Green Turtles
Loggerhead Turtle	All		Found on shallow continental shelf and coastal bays. Feeds on molluscs and crustaceans. A high protection priority	As per Green Turtles
Leatherback Turtle	Foraging		Pelagic ocean species. Sightings have occurred from WA coastal and offshore waters. Their massive size makes in water capture extremely difficult.	
Dugong	Foraging swimming	Year around	Dugongs are relatively common in protected coastal waters that less than 10m in depth. Population data is limited. Exmouth Gulf has been identified from aerial surveys to hold a significant population with most sightings at the southern and eastern end of the gulf adjacent to mangrove areas. At Barrow Island surveys show significant numbers in Bandicoot Bay and near the Southern Barrow Shoals however is sighted all around the island. It is likely that similar habitats in the Pilbara will hold similar numbers of Dugongs.	Dugongs can be captured by in water methods from vessels in certain conditions. They have been known to succumb to stress from temporary holding. Pre-emptive capture and transport is not considered viable. Hazing/herding away from oil slicks is a possible strategy but may only be viable in spills of small to moderate size. Aerial spotting with an aircraft and herding using vessels should be attempted if Dugongs are at risk of oiling.
Cetaceans Humpbacks	Migrating		WA Population (“D”) estimated to number over 33,000 individuals in 2011. () estimated Northern and southern migration follows a predictable but complicated progression of age and sex classes (C & M Jenner, R McCauley 2010). Northern migration generally occurs between 150-350m depth contours averaging 50km offshore. Sub adults with lactating females lead migration, mature males and females following, with near term pregnant females at the	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME).

			rear. The same pattern occurs heading southward with animals typically 35km offshore. Whales are observed passing NW Cape by mid-June and continue north. Exmouth Gulf is recognised resting and staging area for the southern migration with numbers drastically increasing from mid-September onwards.	
Cetaceans Humpbacks	Calving & resting		Calving has been observed from NW cape northward but primarily occurs in Kimberley waters between Broome and the Camden sound (CWR 2011). . Survey data from the South West Pilbara (Exmouth to Barrow) indicates pods with calves are observed onward from the last week in July and whales tend to move closer to the mainland shore, until waters warm up in early September and in the case of Exmouth Gulf waters late September.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME).
Cetaceans other Baleen whales			Brydes Whales have been observed to aggregate to feed off anchovy schools south of Coral Bay. Pygmy Blue whales have been observed in surveys in deep water offshore areas. Minke whales have been seen in Ningaloo marine park	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME). There are no viable rescue strategies for oiled large cetaceans. Any indications of oiling should be documented and any dead or ill animals should be sampled for hydrocarbons.
Cetaceans Dolphins			Aerial surveys indicate dolphin species can be found widely from inshore coastal to offshore areas. Bottlenose and Indo Pacific Humpback dolphins are commonly seen inshore.	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME). Difficult to capture in water and are fast swimming
Cetaceans Orcas			Orcas are usually observed in winter months and are known to predated on Humpback whale calves off NW Cape	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME). In water capture unviable
Cetaceans toothed whales			Sperm whales are occasionally seen in surveys well offshore. False Killer Whales and other unidentified species have been observed in aerial surveys	Acoustic hazing using towed seismic arrays under soft start protocols may be viable (consult with SME). There are no viable rescue strategies for large oiled large cetaceans whilst in water. Any indications of oiling should be documented and any dead or ill animals should be sampled for hydrocarbons.
Whale Sharks	Migrating		Whale Sharks are known to occur seasonally from	Unknown

	and feeding		March to July along the Ningaloo Reef and aggregations of large numbers are found at Black Rock near Pt Cloates in May and the Yardie Creek to Tantabiddi area in June. Whale Sharks can feed from surface krill balls and have been observed surface skimming food. Oil avoidance behaviour unknown. At risk of ingesting floating oil while surface feeding and coating when on the surface. At risk of ingestion of oil emulsions, and dispersant treated oil in the water profile.	
Manta Rays	Migrating & Feeding		Manta rays can be seen in large numbers in January and February at Bateman Bay. Yardie creek to Tantabiddi in June and July and in the Exmouth gulf in October – November. The feed on crustaceans and larvae on the sea floor, mid water, or by skimming the water surface. Manta rays are believed to avoid water laden with small coelenterates and may similarly avoid oiled areas. They are at risk of ingesting floating oil while surface feeding and coating when on the surface. At risk of ingestion of oil emulsions, and dispersant treated oil in the water profile.	Unknown
Sea snakes			Most sea snakes are venomous but are not generally considered aggressive (except when covered in oil). Sea snakes appear to be susceptible to oiling from spills	Capture and cleaning of oiled animals is possible. They should be cleaned in a similar process to birds.
Estuarine crocodile			Estuarine crocodile is considered dangerous to humans. Numbers of animals located in the Pilbara is considered to be low but they may be present anywhere in the Pilbara from Exmouth Gulf north particularly in mangrove habitats.	Capture and cleaning of oiled animals is possible
Quolls			Believed to predate on turtle hatchlings during turtle nesting season. Not believed to be at significant risk of oiling.	Monitor beaches for tracks indicating presence.
Boodie			Relatively common on Barrow and Boodie Island.	If beaches are oiled normal trapping techniques should

			Warrens can occur within 100m of beaches on rocky headlands. Can forage or travel along beaches, are known to forage along weed rack, and may predate on hatchlings. Some risk of oiling during turtle season.	be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Spectacled Hare-Wallaby			On Barrow and Montebello Islands, may travel on beaches on occasions. Some risk of oiling during turtle season	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Golden Bandicoot (Barrow Island)			On Barrow and Middle Island. Translocated to Doole and Hermite Islands. Bandicoots predate on eggs and hatchlings from during turtle laying and hatching periods. Bandicoots also hunt for and feed on ghost crabs in intertidal areas of beaches at other times. During turtle nesting season some beaches can be covered with tracks from the water line to the primary dunes. This mammal species is the highest risk of oiling in terms of numbers on Barrow Island. Quarantine risks from transferring animals between islands. Bandicoots likely to be affected from an oil spill all year around Cleaning holding and rehabilitation should be carried out in situ on home island.	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Euro			Euros are often sighted on beaches adjoining Ningaloo Marine Park. On Barrow island Euros tracks on beaches are occasionally observed. If beach oiling occurs during spring tides they would be at risk of being affected. During the Sanko Harvest oil spill, kangaroos from Cape Le-Grande National Park were oiled resulting in capture and cleaning of the animals.	Small kangaroos can be captured by hand by experienced persons and larger animals can be darted with anaesthetic drugs. All large macropods should be anaesthetised during cleaning to prevent stress
Brush-tailed Possum			On Barrow Island tracks show regular movement along beaches particularly in summer time. Over 10 sets of tracks can be seen below the HWM in some areas during turtle season. If beach oiling occurs during spring tides they would be at considerable risk of being affected. Quarantine risks from	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.

			transferring animals between islands. Cleaning holding and rehabilitation of Barrow Island animals should be carried out in situ on home island.	
Water Rat			Water rats This animal has a widespread range along coastal beaches, mangroves, and headlands in the Pilbara but is rarely rare within its range. Barrow Island is estimated to have a population of around 200. Quarantine risks from transferring animals between islands. Cleaning holding and rehabilitation of Barrow Island animals should be carried out in situ on home island. Likely to be affected all year around from a spill	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning.
Other native rats mice and dasyurids			Rare visitors to beaches should be at low risk of oiling	Capture and cleaning of oiled animals is possible. They should be cleaned in a similar process to birds.
Perentie		November to March	Perentie are common beach visitors where they predate on turtle nests and hatchlings. On Barrow Island there can be a Perentie every 1-200m of beach in prime nesting areas. If beach oiling occurs during spring tides they would be at considerable risk of being affected.	If beaches are oiled normal trapping techniques should be employed there and adjacent habitats to capture animals for assessment and or cleaning. Hand capture is possible using pole nooses or refuge traps (Chevron has produced a refuge trap design).
Land snakes			Land snakes are known to visit on turtle hatchlings on beaches at Barrow Island and tracks are seen on turtle nesting beaches in Ningaloo Marine Park	Capture and cleaning of oiled animals is possible. They should be cleaned in a similar process to birds.
Ghost crabs			Areas of Ningaloo Marine Park can have thousands of beach crabs per km is some areas (Jane's Bay). Capture and cleaning of oiled crabs was conducted at the recent Christmas island oil spill from the vessel MV Tycoon.	Capture and cleaning of oiled animals is possible. They should be cleaned gently using small brushes in a similar process to birds.
Emus			Emus are occasionally seen swimming in the lagoon waters of Ningaloo Marine Park and Exmouth Gulf. This places emus at risk of oiling if present in the area.	Emus are difficult to catch

Appendix I - Coastal Bird Species by Functional Group

The following lists have been compiled from a WA State-wide coastal species search generated from the BirdLife Australia Atlas of Australian Birds database (accessed 23 August 2013). Species listings are current at 23 August 2013. Functional groups are arbitrary based on the ecology, habitat preferences and taxonomy. Some species included in the list are vagrants.

Key to listings: **EPBC** - Listed threatened fauna under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwth).
WA – Listed under Schedule 1 – Fauna that is rare or likely to become extinct of the *Wildlife Conservation (Specially Protected Fauna) Notice 2012 (2)* (WA).
JAMBA/CAMBA/RoKAMBA – Listed under the *Japan/China/Republic of Korea and Australia Migratory Bird Bilateral Agreement 1974/1986/2007*.
IUCN – Listed threatened species under the IUCN (International Union for Conservation of Nature) Red List.

Seabirds

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Antarctic Petrel	*Thalassoica antarctica*						
Arctic Jaeger	*Stercorarius parasiticus*			J		R	
Arctic Tern	*Sterna paradisaea*						
Australasian Gannet	*Morus serrator*						
Black Noddy	*Anous minutus*						
Black-browed Albatross	*Thalassarche melanophris*	VUL	1				E
Black-faced Cormorant	*Phalacrocorax fuscescens*						
Blue Petrel	*Halobaena caerulea*	VUL					
Bridled Tern	*Onychoprion anaethetus*			J	C		
Brown Booby	*Sula leucogaster*			J	C	R	
Brown Skua	*Stercorarius antarcticus*						
Cape Petrel	*Daption capense*						
Caspian Tern	*Hydroprogne caspia*				C		
Common Noddy	*Anous stolidus*			J	C		
Common Tern	*Sterna hirundo*			J	C	R	
Crested Tern	*Thalasseus bergii*			J			
Fairy Tern	*Sternula nereis*	VUL	1				V
Flesh-footed Shearwater	*Ardenna carneipes*			J		R	
Franklin's Gull	*Leucophaeus pipixcan*						
Great Cormorant	*Phalacrocorax carbo*						
Great Frigatebird	*Fregata minor*			J	C		
Great-winged Petrel	*Pterodroma macroptera*						
Gull-billed Tern	*Gelochelidon nilotica*						
Hutton's Shearwater	*Puffinus huttoni*		1				E
Kelp Gull	*Larus dominicanus*						
Leach's Storm-Petrel	*Hydrobates leucorhoa*			J	C		
Lesser Crested Tern	*Thalasseus bengalensis*				C		

Seabirds continued

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Lesser Frigatebird	*Fregata ariel*			J	C	R	
Lesser Noddy	*Anous tenuirostris*	VUL	1				
Light-mantled Sooty Albatross	*Phoebetria palpebrata*						NT
Little Black Cormorant	*Phalacrocorax sulcirostris*						
Little Penguin	*Eudyptula minor*						
Little Pied Cormorant	*Microcarbo melanoleucos*						
Little Shearwater	*Puffinus assimilis*						
Little Tern	*Sternula albifrons*			J	C	R	
Masked Booby	*Sula dActylatra*			J		R	
Northern Giant-Petrel	*Macronectes halli*	VUL					
Pacific Gull	*Larus pacificus*						
Pied Cormorant	*Phalacrocorax varius*						
Pomarine Jaeger	*Stercorarius pomarinus*			J	C		
Red-tailed Tropicbird	*Phaethon rubricauda*						
Roseate Tern	*Sterna dougallii*						
Royal Albatross	*Diomedea epomophora*	VUL	1				V
Short-tailed Shearwater	*Ardenna tenuirostris*			J		R	
Shy Albatross	*Thalassarche cauta*	VUL	1				NT
Silver Gull	*Chroicocephalus novaehollandiae*						
Slender-billed Prion	*Pachyptila belcheri*						
Soft-plumaged Petrel	*Pterodroma mollis*	VUL					
Sooty Shearwater	*Ardenna grisea*			J	C		NT
Sooty Tern	*Onychoprion fuscata*						
Southern Fulmar	*Fulmarus glacialoides*						
Southern Giant-Petrel	*Macronectes giganteus*	EN					
Streaked Shearwater	*Calonectris leucomelas*			J	C	R	
Wandering Albatross	*Diomedea exulans*	VUL	1				V
Wedge-tailed Shearwater	*Ardenna pacifica*			J			
Whiskered Tern	*Chlidonias hybrida*						
White-chinned Petrel	*Procellaria aequinoctialis*		1				V
White-faced Storm-Petrel	*Pelagodroma marina*						
White-fronted Tern	*Sterna striata*						
White-headed Petrel	*Pterodroma lessonii*						
White-tailed Tropicbird	*Phaethon lepturus*			J	C		
White-winged Black Tern	*Chlidonias leucopterus*			J	C	R	
Wilson's Storm-Petrel	*Oceanites oceanicus*			J			
Yellow-nosed Albatross	*Thalassarche chlororhynchos*		1				E

Migratory Shorebirds

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Asian Dowitcher	*Limnodromus semipalmatus*			J	C	R	NT
Baird's Sandpiper	*Calidris bairdii*			J			
Bar-tailed Godwit	*Limosa lapponica*		1	J	C	R	
Black-tailed Godwit	*Limosa limosa*			J	C	R	NT
Broad-billed Sandpiper	*Limicola falcinellus*			J	C	R	
Common Greenshank	*Tringa nebularia*			J	C	R	
Common Redshank	*Tringa totanus*				C	R	
Common Sandpiper	*Actitis hypoleucos*			J	C	R	
Curlew Sandpiper	*Calidris ferruginea*		1	J	C	R	
Double-banded Plover	*Charadrius bicinctus*						
Eastern Curlew	*Numenius madagascariensis*		1	J	C	R	V
Great Knot	*Calidris tenuirostris*		1	J	C	R	v
Greater Sand Plover	*Charadrius leschenaultii*		1	J	C	R	
Grey Plover	*Pluvialis squatarola*			J	C	R	
Grey-tailed Tattler	*Tringa brevipes*			J	C	R	
Lesser Sand Plover	*Charadrius mongolus*		1	J	C	R	
Little Curlew	*Numenius minutus*			J	C	R	
Little Ringed Plover	*Charadrius dubius*				C	R	
Little Stint	*Calidris minuta*					R	
Long-toed Stint	*Calidris subminuta*			J	C	R	
Marsh Sandpiper	*Tringa stagnatilis*			J	C	R	
Oriental Plover	*Charadrius veredus*			J		R	
Oriental Pratincole	*Glareola maldivarum*			J	C	R	
Pacific Golden Plover	*Pluvialis fulva*			J	C	R	
Pectoral Sandpiper	*Calidris melanotos*			J		R	
Red Knot	*Calidris canutus*		1	J	C	R	
Red-necked Phalarope	*Phalaropus lobatus*			J	C	R	
Red-necked Stint	*Calidris ruficollis*			J	C	R	
Ruddy Turnstone	*Arenaria interpres*			J	C	R	
Ruff	*Philomachus pugnax*			J	C	R	
Sanderling	*Calidris alba*			J	C	R	
Sharp-tailed Sandpiper	*Calidris acuminata*			J	C	R	
Terek Sandpiper	*Xenus cinereus*			J	C	R	
Whimbrel	*Numenius phaeopus*			J	C	R	
Wood Sandpiper	*Tringa glareola*			J	C	R	

Resident Shorebirds

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Australian Pied Oystercatcher	*Haematopus longirostris*						
Australian Pratincole	*Stiltia isabella*						
Banded Lapwing	*Vanellus tricolor*						
Banded Stilt	*Cladorhynchus leucocephalus*						
Beach Stone-curlew	*Esacus magnirostris*						NT
Black-fronted Dotterel	*Elseyornis melanops*						
Black-winged Stilt	*Himantopus himantopus*						
Bush Stone-curlew	*Burhinus grallarius*						
Hooded Plover	*Thinornis rubricollis*						V
Masked Lapwing	*Vanellus miles*						
Red-capped Plover	*Charadrius ruficapillus*						
Red-kneed Dotterel	*Erythrogonys cinctus*						
Red-necked Avocet	*Recurvirostra novaehollandiae*						
Sooty Oystercatcher	*Haematopus fuliginosus*						

Marine Birds of Prey

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Brahminy Kite	*Haliastur indus*						
Eastern Osprey	*Pandion cristatus*						
White-bellied Sea-Eagle	*Haliaeetus leucogaster*				C		

Waterbirds

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Australasian Darter	*Anhinga novaehollandiae*						
Australasian Grebe	*Tachybaptus novaehollandiae*						
Australasian Shoveler	*Anas rhynchotis*						
Australian Pelican	*Pelecanus conspicillatus*						
Australian Shelduck	*Tadorna tadornoides*						
Australian Spotted Crake	*Porzana fluminea*						
Australian White Ibis	*Threskiornis molucca*						
Australian Wood Duck	*Chenonetta jubata*						
Black Bittern	*Ixobrychus flavicollis*						
Black Swan	*Cygnus atratus*						
Black-necked Stork	*Ephippiorhynchus asiaticus*						NT
Black-tailed Native-hen	*Tribonyx ventralis*						

Waterbirds continued

Common Name	Scientific Name	EPBC	WA	JAMBA	CAMBA	RoKAMBA	IUCN
Blue-billed Duck	*Oxyura australis*						NT
Brolga	*Grus rubicunda*						
Buff-banded Rail	*Gallirallus philippensis*						
Cape Barren Goose	*Cereopsis novaehollandiae*	VUL	1				
Cattle Egret	*Ardea ibis*			J	C		
Chestnut Rail	*Eulabeornis castaneoventris*						
Chestnut Teal	*Anas castanea*						
Dusky Moorhen	*Gallinula tenebrosa*						
Eastern Great Egret	*Ardea modesta*			J	C		
Eastern Reef Egret	*Egretta sacra*				C		
Eurasian Coot	*Fulica atra*						
Glossy Ibis	*Plegadis falcinellus*				C		
Great Crested Grebe	*Podiceps cristatus*						
Great-billed Heron	*Ardea sumatrana*						
Grey Teal	*Anas gracilis*						
Hardhead	*Aythya australis*						
Hoary-headed Grebe	*Poliocephalus poliocephalus*						
Intermediate Egret	*Ardea intermedia*						
Little Egret	*Egretta garzetta*						
Magpie Goose	*Anseranas semipalmata*						
Musk Duck	*Biziura lobata*						
Nankeen Night-Heron	*Nycticorax caledonicus*						
Northern Mallard	*Anas platyrhynchos*						
Pacific Black Duck	*Anas superciliosa*						
Pied Heron	*Egretta picata*						
Pink-eared Duck	*Malacorhynchus membranaceus*						
Plumed Whistling-Duck	*Dendrocygna eytoni*						
Purple Swamphen	*Porphyrio porphyrio*						
Royal Spoonbill	*Platalea regia*						
Spotless Crake	*Porzana tabuensis*						
Straw-necked Ibis	*Threskiornis spinicollis*						
Striated Heron	*Butorides striata*						
Wandering Whistling-Duck	*Dendrocygna arcuata*						
White-browed Crake	*Amaurornis cinerea*						
White-faced Heron	*Egretta novaehollandiae*						
White-necked Heron	*Ardea pacifica*						
Yellow-billed Spoonbill	*Platalea flavipes*						

Appendix J - Oiled Wildlife Response Forms

J.1 Wildlife SITREP (from DoT Oil Spill Contingency Plan)

J.2 Wildlife Status (from DoT Oil Spill Contingency Plan)

J.3 Wildlife Rescue and Release Form

J.4 Fauna Admission Form - Perth Vet Department

WILDLIFE SITREP

WILDLIFE	Status as at Date/Time:

Found				Held for Cleaning			
Species	Location	No. Alive	No. Dead	Species	Location	No. Held	No. Released

STATUS UPDATE: WILDLIFE STATUS

WILDLIFE	Status as at Date/Time:

Found				Held for Cleaning			
Species	Location	No. Alive	No. Dead	Species	Location	No. Held	No. Released

WILDLIFE RESCUE AND RELEASE FORM

Instructions: **Animal ID/Tag No._____**

1. This form is to accompany the animal from the time it is rescued until it is released or euthanised
2. Rehabilitation Observation forms are to be attached to this form during the rehabilitation phase. At the completion of the incident all forms must be filed in Registry within the Logistics Section
3. Where an animal is cleaned, transported etc. multiple times, complete additional forms and attach
4.

Incident Name:

Rescue Details

Rescue date: Time:	Species:
Location found (map GR (AMG/GDA) and name of area if known or Latitude/Longitude):	Habitat type: □ Boat Ramp □ Beach □ Rock Platform □ In water □ Shoreline vegetation □ Other ……
Photo taken: Y / N Photo No: Name of Photographer:	Oil/Chemical sample taken: Y / N Sample No:
Comments:	
Name of Rescue Team Leader/Rescuer:	

Triage Priority

Priority: 1 / 2 / 3	Reason for priority:
Name of Examiner:	

Medical Examination and First Aid Treatment

Date of Examination:	Time of examination:
Respiration:	Musculo-skeletal:
Neurological signs:	Skin Condition:
Degree of oiling/chemical affect: None / light / moderate / heavy	Cloacal temperature: Weight: Oral fluids:
Other treatment given:	Examiner Name:

Transport Details

Date:	Pick up time:
Destination:	Distance:
Container details:	No of animals in container:
Comments:	
Time of arrival at destination:	Driver Name:

Cleaning/Drying Details

Cleaning date:	Time:
Detergent used:	Concentration:
Comments:	
No. washes:	Water Temperature
Drying Method:	Washer/Drier Name:

Release (refer to detailed data on Rehabilitation Observation form)

Release Site:	Release date: Time:
ABBBS Band / Tag No:	Release authorised by:
Release weight:	Released by:
Comments (weather conditions, released with other animals etc.):	

Necropsy and carcass disposal details

Date of death:	Date of Necropsy:
Performed by:	
Provisional diagnosis (necropsy report be attached)	
Date of disposal:	Authorised by:
Method of disposal:	Location:

Sampling Details

Samples taken: □ Pathology □ Blood chemistry □ Tissue □ Histology □ Other – indicate ……..

FAUNA ADMISSION FORM
PERTH ZOO VET DEPARTMENT

THE DEPARTMENT OF PARKS AND WILDLIFE / NON-THE DEPARTMENT OF PARKS AND WILDLIFE **(please circle)**

Enclosure _____

Species_____ ID No _____

Age_____ Sex_____ Date _____

Rescuer/Wildlife officers name: _____

Contact number (am/pm) _____ Mobile_____

HISTORY

What is wrong with the animal (any obvious injuries)? _____

_____

Date that the rescuer found the animal? _____

What was the animal doing when found - i.e. - lying curled up, flapping frantically but not flying, lying on its back, not standing, etc.)? _____

_____

Exact location animal was found (include details of what park, beach or street, in a backyard, building site, footpath, etc.) _____

_____

Has any medical treatment been given, if so what?

_____

Has the animal been seen by a vet, if so, which one? _____

Has the animal been fed? If yes - what was it fed, how was it fed, when was the last time it was fed - did it eat or was food just left in with the animal? _____

_____

How has the animal been housed? (e.g. quietly, heating supplied)? _____

_____

Are you willing to pick the animal up for release if needed? _____

NOTE: *Wherever possible we will treat any sick or injured wildlife and aim for its eventual release. However, the Perth Zoo reserves the right to euthanize the fauna if, after a medical examination, it is thought to be best for the animals welfare.*

Signature of donor _____