



Procedure - Oil/Chemical Spill Wildlife Response – Cleaning and Drying Wildlife

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Prepared by	NSW DPI Emergency Management Unit NSW NPWS Reserve & Wildlife Conservation Branch		
Contact Officer	Deputy AASFAC		

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1. 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 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.

2. 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
- NPWS – National Parks and Wildlife Service
- 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 neither requires nor gives off heat from/to its surroundings

3. 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 ® and BioSolve ®
- 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, ie 20 people to clean 100 birds in a 10 hour shift.

4. Warnings

4.1. 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.

4.2. 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](#).

4.3. 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.

4.4. 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.

5. Procedure

5.1. 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.

5.2. 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.

5.3. 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 ® and BioSolve ®. 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.

5.4. 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.

5.5. 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.

5.6. 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.

5.7. 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.

5.8. Cleaning and drying mammals

5.8.1. 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. For procedures see the NPWS Marine Wildlife Management Manual.

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® or BioSolve® 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, followed 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.

5.8.2. Cleaning other small mammals

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

Content for Section 5 of this procedure was copied or adapted from the [Wildlife Information Network and Wildpro](#) website May 2011.

5.9. Cleaning and drying other animals

5.9.1. Cleaning and drying turtles

- The turtle's shell may be cleaned using a 1-2% Dawn® or BioSolve® 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.

5.9.2. 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.

6. References

Procedures

- [Wildlife Response – Pre-emptive action](#)
- [Wildlife Response – Rehabilitation of Wildlife](#)
- [Wildlife Response – Release of Wildlife](#)
- [Wildlife Response – Scaling Down and Demobilisation Response](#)
- [Wildlife Response – Search and Rescue](#)
- [Wildlife Response – Set up and Use of Wildlife Treatment Facilities](#)
- [Wildlife Response - Transporting Wildlife](#)
- [Wildlife Response – Triage and First Aid](#)

Forms

- [Wildlife Rescue and Release Form](#)

Safe Work Method Statements / Job Safety Analysis

- [Handling of animals](#)

Role descriptions

- [Rehabilitation Division](#)

- [Rescue Division](#)
- [Wildlife Coordinator & Logistics Support](#)

Information

- Field manual – Rescue and Rehabilitation of Oiled Birds, Erna Walraven, June 2004
- [Management and Disposal of Oil Spill Debris](#)
- NPWS Marine Wildlife Management Manual
- [Wildlife Information Network and Wildpro®](#)

Legislation

- [National Parks and Wildlife Act 1974](#)
- [Threatened Species Conservation Act 1995](#)
- [Environment Protection and Conservation Act 1999](#)
- [Work Health and Safety Act 2011](#)
- [Work Health and Safety Regulation 2011](#)

7. Appendices