POSOW

Preparedness for Oil-polluted Shoreline cleanup and Oiled Wildlife interventions

OILED WILDLIFE RESPONSE MANUAL

in partnership with

POSOW is a project co-financed by the EU under the Civil Protection Financial Instrument developed in cooperation with ISPRA, *Cedre*, Sea Alarm and CPMR and coordinated by REMPEC a regional Centre of the Barcelona Convention

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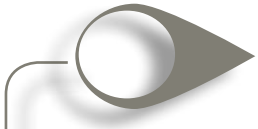

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OILED WILDLIFE RESPONSE MANUAL

Authors: The Oiled Wildlife Response Manual has been prepared by the Sea Alarm Foundation in consultation with all project partners. The authors are grateful for the contribution of the CVFSE (*Centre Vétérinaire de la Faune Sauvage et des Écosystèmes*), France and WWF (World Wildlife Fund), Finland.

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Presentation of the project

The project for Preparedness for Oil-polluted Shoreline cleanup and Oiled Wildlife interventions – POSOW, coordinated by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) was co-financed by the European Commission under the Civil Protection Financial Instrument, to improve preparedness and response to marine pollution in the Mediterranean region.
By providing training courses and material to civil protection professionals and volunteers, in cooperation with local competent authorities, the project aims at improving the effectiveness of emergency response to shoreline pollution following an oil spill in European coastal countries of the Mediterranean Sea.
It is implemented by REMPEC and the following partners: the Centre of Documentation, Research and Experimentation on Accidental Water Pollution (Cedre), the Institute for Environmental Protection and Research (ISPRA), Sea Alarm Foundation, and the Conference of Peripheral Maritime Regions of Europe (CPMR).

Purpose of the manual

This manual is one of 4 manuals produced in the framework of the POSOW project (the others are Oiled Shoreline Assessment, Oiled Shoreline Cleanup and Oil Spill Volunteer Management).
This manual is designed to help teams of volunteers to understand and implement field wildlife response operations which have been assigned to them by authorities in charge of the response. The document is divided in two parts:
Part 1: background, general principles of oiled wildlife response and presentation of wildlife response actions and tasks which can be undertaken by volunteers
Part 2: technical sheets to be used in the field and on the work floor
The manual is designed for volunteers and all wildlife responders who:
→ are working at onshore wildlife response operational sites
→ have little or no previous knowledge of wildlife response
→ may undertake certain wildlife response activities on land and on the shoreline
→ may potentially be in contact with oil and wild animals.
A number of oiled wildlife response activities should not be undertaken by volunteers as they require more in-depth training and experience to be conducted safely and effectively. Throughout this manual, it will be made clear which wildlife response tasks POSOW-trained volunteers may undertake and where they may need to work under supervision of trained experts.

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PART 1

GENERAL PRINCIPLES

Oiled wildlife response

Volunteers being briefed on arrival

Some marine animals, such as marine and coastal birds, sea turtles, seals and otters are extremely sensitive to oiling. This is because these animals use the water surface (where oil floats) to rest, dive through from above to feed, or to break through from beneath to breathe. The effects of oiling may be lethal and many animals affected by the oil will die at sea. However, a certain number of oiled animals (dead or alive) may arrive at the nearest coast. Depending on the circumstances this could range from only a few animals to hundreds or thousands if the oil spill occurs in the middle of an important habitat and season. Large numbers of animals arriving ashore may cause a serious challenge to the affected country and this needs special consideration as part of the oil spill response activities. It needs an integrated oiled wildlife response which is best is planned within the framework of a local or national oil spill contingency plan. An oiled wildlife response includes any activity that can be undertaken to deal with wild animals that are/may be affected by oil following a marine oil spill:

→ Pro-active measures to minimise the impact on wildlife (removing the oil before it reaches sensitive areas, protecting these areas by keeping the oil out, or taking animals, nests or eggs away from the threatened areas, by disturbing through hazing or capturing/collecting them).

→ Measures to mitigate the effects of oil on animals (attempting capture, cleaning and rehabilitation in specialised facilities, or alternatively ending suffering by euthanasia). Sometimes, circumstances and weather conditions do not allow active mitigation, or health and safety considerations (which come first at all times) can even prevent activities from being undertaken at all.

Amongst the greatest challenges of wildlife response is the question of how many animals will be affected, at what scale resources (manpower, experts, equipment...) will have to be mobilised, and how to deal with public/media expectations. Especially in the first days after the spill, important decisions have to be made and it will take time before a wildlife response can become operational. If in those days animals already start coming ashore, they need to be taken care of by nearby responders. These responders could include volunteers, if well-coordinated and supervised.

This manual describes what a group of volunteers could establish and how to do so in the case of live animals coming ashore during an oil spill, focusing on birds as these are likely to be affected in larger numbers. This manual and associated training will lead to basic knowledge and skills that volunteers should have to be able to respond in self-coordinated groups or work under supervision of professional wildlife responders. This material can be used to start developing local capability in countries that aim to establish some level of wildlife response preparedness.

The use and position of response volunteers

Volunteers being instructed in a temporary wildlife rehab centre

The work of volunteers is crucial for the labour intensive activities of a wildlife response. The more trained volunteers are, the more valuable their contribution to the success of an operation will be. Therefore it is always worthwhile to invest in volunteer training programmes before an incident happens.

Depending on the level of pre-spill planning and preparedness, there are two main settings that need to be considered with regards to the position of wildlife response volunteers:

1. **The response is led by experienced and qualified oiled wildlife responders** – experts will oversee the response and create the environment in which volunteers can operate effectively under supervision. Volunteers are taken care of and do not have to worry about the important decision-making, coordination and logistics of the whole operation they are working in.
2. **Experienced responders are not there or have not (yet) arrived** – this situation may occur in the first few days following the incident. Although experts may be on their way, animals are probably already arriving on the coast and need to be collected, transported and cared for. This sometimes means that (a group of) volunteers need to organise themselves to take care of these tasks, and make sure the animals stay alive until further assistance has arrived.

Volunteers need the same knowledge and skills in both situations, but in the second situation one or two volunteers from the group need to take a leadership role to ensure that all activities are at least well-coordinated and resources are used optimally, in close cooperation with, and under supervision of the authorities in charge.

If not yet identified within the national or local contingency plan, authorities should designate a competent person to supervise volunteer support. Because the success of any wildlife response is strongly dependent on the activities of volunteers, they should be respected and treated well. Whoever is in charge of a group of volunteers should be a good communicator and try to organise and motivate them to work together and in teams. Volunteers should also be registered and receive clear instructions as to where they are expected to work and who will supervise them. They need to understand what their particular role is and how their individual activities contribute to the bigger picture. They must receive appropriate health and safety instructions, personal protective equipment (PPE), and must be provided with drinks, snacks and other food during breaks in designated areas. As for volunteers they must communicate well with their supervisors, other volunteers and those who are responsible for their wellbeing. This will help to prevent misunderstandings and frustrations and work towards greater success of the operation. Refer to POSOW Oil Spill Volunteer Management Manual for guidelines on general management issues for volunteers.

Jobs for volunteers

Volunteers can carry out a wide range of jobs as part of the wildlife response. Not all tasks are "hands-on" (working with animals), but each single task does in the end contribute to the wellbeing of the animals, and a successful response.
It is therefore important that those who want to volunteer in a response are aware of their personal qualities, talents, skills and preferences. A volunteer coordinator will use this information to find the best match so that volunteers can do what interests them most and where they can make the greatest contribution. An example of jobs that are needed and can be undertaken by volunteers in a wildlife response (situation 1, situation 2, see previous section) can be found in the tables below.

Example of hands-on (working with animals) and not hands-on jobs that volunteers can carry out, both indoors and outdoors

1

Response led by experienced and qualified responders

	Outdoor activities		Indoor activities	
	Search and collection	Transport	Animal facilities	Administration
Hands-on	Capturing live animals Collecting dead animals	Rehydration of animals on long trips	Reception Triage assistant Stabilisation & pre-wash care Wash assistant Pool assistant Preparation of animal food	Record keeping assistant
Not hands-on	Communication Support to capture teams	Driving	House keeping Building/construction Record keeping Coordination Catering	Financial administration Documentation Secretary Logistics administrator

2

Response by (a group of) volunteers on their own

	Outdoor activities		Indoor activities	
	Search and collection	Transport	Animal facilities	Administration
Hands-on	Capturing live animals Collecting dead animals	Rehydration of animals on long trips	Reception Stabilisation & pre-wash care Preparation of animal food	Record keeping assistant
Not hands-on	Communication Support to capture teams	Driving Logistics coordinator	Facility coordination House keeping Building/construction Record keeping Catering	Financial administration Documentation Secretary Logistics administration Response coordination

This Manual gives guidance for volunteers on operating in both situations, with a particular focus on situation 2 in which volunteers may have to undertake tasks on their own without assistance from experts.

Vulnerable wildlife in the Mediterranean

Audouin's Gull

The Mediterranean Sea has a high ecological importance for its unique marine biodiversity. It is home to a high number of endemic species, migratory species common to larger areas of Europe, Africa or the Middle East, and provides important areas for the reproduction of many marine species. Being a semi-enclosed sea bordered by 21 countries, the Mediterranean is vulnerable to pollution, including pollution by oil spills and illegal oil discharges. This section gives information on what types of animals are most at risk from oil spills in the Mediterranean and which species volunteers and responders may come across in an oiled wildlife response. General effects of oil on wild animals are also presented.

Seabirds and coastal birds

Only ten species of strictly marine birds breed in the Mediterranean. This low diversity and relative low abundance (compared to the North Atlantic) is a very important feature of Mediterranean seabirds: most are represented by endemic species that are found nowhere else in the world. So any threats birds are subject to within the Mediterranean, including oil pollution, could potentially bring about severe consequences for the population on a global scale. A marine oil spill can also affect a larger number of bird species that breed on coastal wetlands and sandy shores as well as seabirds that breed outside the Mediterranean and are only present there during the migration or wintering seasons. A peculiarity of the Mediterranean is that of being an almost tide-less sea, with just two notable exceptions: the northern Adriatic corner and the Gulf of Gabés in Tunisia. Here, on vast tidal mudflats along the shoreline, the largest overwintering flocks of shorebirds concentrate between November and March. Internationally important numbers are present of many species, even the most common ones such as Dunlin (*Calidris alpina*) being present, with populations of a different geographical origin to those at Western European sites. These localised tidal areas, close to industrial harbours, are particularly vulnerable to oil spills.

Not all species of birds are equally sensitive to oil spills. Birds that dive or rest on the water surface are more sensitive to oil pollution than coastal birds that feed at the shoreline. The external effects of oil on birds are the most noticeable and immediately debilitating. By disrupting the interlocking structure of feathers, oil destroys the waterproofing properties of external feathers and soaks the downy insulating layer.

This in turn can lead to:

→ Hypothermia by reducing or removing feather's insulation and waterproofing properties

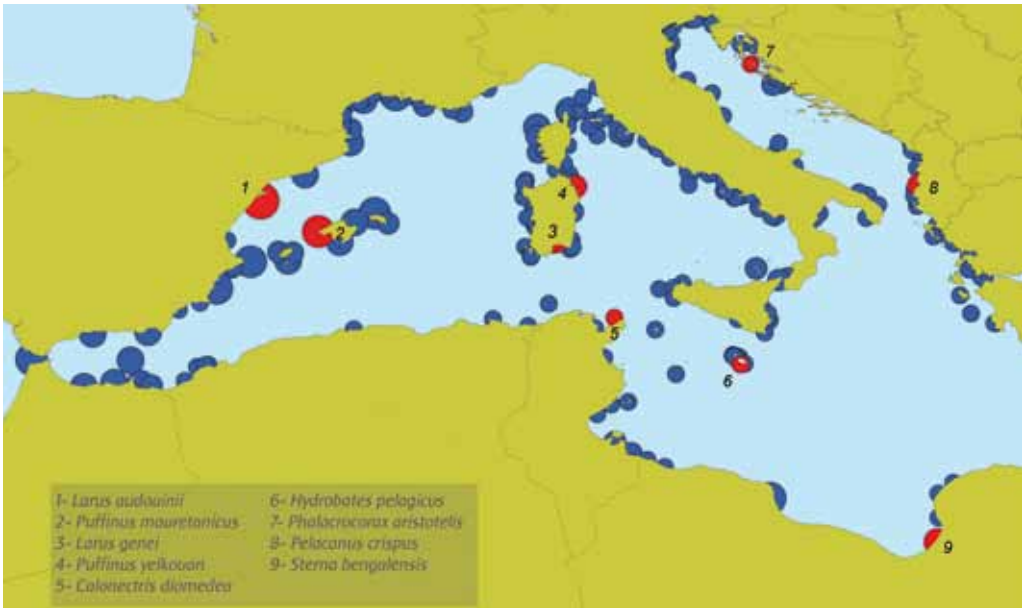
→ Sinking or drowning as oiled feathers weigh more and cannot trap enough air to keep birds buoyant

→ Increased risk of predation, as feathers matted by oil decrease a bird's ability to fly away.

The internal effects of oil on birds can be equally life-threatening. Birds can ingest or inhale oil as they try to preen oil from their feathers. Ingestion of oil often results in injury to the gastrointestinal tract, causing dehydration and starvation from diarrhoea and from less time spent diving and swimming for food.

Oil can also cause irritation of other mucosal surfaces (eyes and inside the mouth), damage to red blood cells (anaemia), damage to kidneys and the immune system. The oil may also affect a bird's ability to reproduce, through effects on breeding and incubating behaviour, number of eggs laid, fertility and survivability of those eggs.

Geographical distribution of 227 marine/coastal important bird areas and special protection areas (Birds Directive 2009/147/EC) in the western and central Mediterranean, as obtained from various published inventories (e.g. Arcos & al 2009). Symbol size is proportional to surface area. Red symbols show the top breeding sites of nine representative species (see inset)



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Examples of Mediterranean bird species likely to be encountered during an oil spill. Note that birds' appearance and plumage can vary according to age and season.

	Species	Distribution and behaviour	Conservation status*
	Scopoli's Shearwater *Calonectris diomedea*	Mostly found on islands in Sicilian Channel, but small-medium colonies also found across the basin, including Adriatic Sea. Population is migratory between the Mediterranean and Atlantic.	Barcelona annex
	Yelkouan Shearwater *Puffinus yelkouan*	Mainly breeding on coasts of Italy and France. Forms large floating flocks ('rafts') in front of breeding colonies and forages in coastal waters. Present almost year-round although many move to Black Sea for moulting from July to September.	Vulnerable and Barcelona annex
	Balearic Shearwater *Puffinus mauretanicus*	Breeding distribution restricted to the Balearic Islands and foraging areas extending along the coastal waters of Catalonia. After breeding moves to Atlantic waters.	Critically endangered and Barcelona annex
	Mediterranean Storm Petrel *Hydrobates pelagicus melitensis*	An inconspicuous, nocturnal seabird breeding in large colonies in coastal caves and along rocky coasts of rat-free islands. Little is known about seasonal movements.	Barcelona annex
	Mediterranean Shag *Phalacrocorax aristotelis desmarestii*	Vulnerable due to its strict ties with coastal waters. Breeds early (nesting by mid-winter). Present year-round with discontinuous range (e.g. absent across south of Italy, Sicily and Malta). Breeds in small-medium sized colonies, forms large gatherings for social foraging and outside breeding season.	Barcelona annex
	Mediterranean Lesser Crested Tern *Sterna bengalensis emigrata*	Extremely localised distribution (breeds in dense colonies only at a few Libyan sites). Breeds from June to August and overwinters in West Africa.	Barcelona annex
	Black Tern *Chlidonias nigra*	A migratory species that seasonally behaves as a typical seabird. It crosses almost the entire Mediterranean basin (East to West) and is often visible offshore. Rapid decline in recent years.	
	Audouin's Gull *Larus audouinii*	Flagship species as the majority of the global population is situated in the Mediterranean (most important country: Spain). Present mainly between March and August, more localised during the rest of the year (e.g. North African coast).	Near-threatened and Barcelona annex

	Species	Distribution and behaviour	Conservation status*
	Yellow-legged Gull *Larus michahellis*	The most widespread and abundant breeding seabird in the Mediterranean. Although it is an endemic species too, it is not regarded as a conservation priority. Many birds leave the Mediterranean after breeding for central and northern Europe, but the species remains common year round.	
	Little Gull *Hydrocoloeus minutus*	Non-breeding visitor. Mainly marine habits outside spring/ summer. Overwinters with modest numbers along coasts or in wetlands. Large wintering flocks have been recorded in the past in in distinct offshore sectors. Photo shows an oiled individual.	
	Slender-billed Gull *Larus genei*	Highly social and near-endemic. Breeds in a few large colonies, usually in lagoons on most parts of the Mediterranean and feeds in adjacent marine waters. Winters along the North African coast.	Barcelona annex
	Northern Gannet *Morus bassanus*	Relatively large numbers enter the Mediterranean through Gibraltar, for wintering mainly along the North African coast.	
	Black-necked Grebes *Podiceps nigricollis*	A diving bird which forms large flocks in coastal waters near or inside harbours. Uneven distribution through the non-breeding season from September to April. The large numbers recorded in the Mediterranean are of high global value.	
	Great Crested Grebes *Podiceps cristatus*	Uneven distribution through the non-breeding season from September to April. Found in coastal waters and lagoons.	
	Atlantic Puffin *Fratercula arctica*	A winter visitor. Scarce information on distribution and numbers. It formed the majority of casualties in a recent oil spill incident in the Northern Mediterranean.	
	Dalmatian Pelican *Pelecanus crispus*	Breeding at a few coastal wetlands along the eastern Mediterranean, Adriatic included. A short distance migrant.	Vulnerable and Barcelona annex
	Kentish Plover *Charadrius alexandrinus*	A typical Mediterranean wader, breeds in saline lagoons, and forages on adjacent shorelines. Also present in large numbers in winter on most Mediterranean beaches. Numbers decreasing.	Barcelona annex

* Classifications near-threatened, vulnerable and endangered refer to IUCN Red List, Barcelona Annex refers to Annex II of the Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean.

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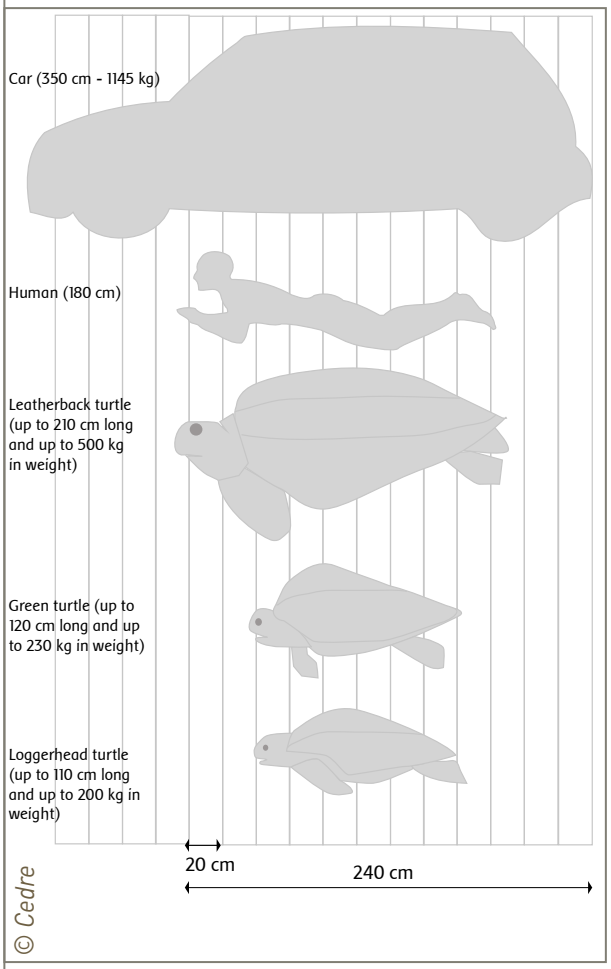
Sea turtles

Size of turtles vs man



The loggerhead turtle (*Caretta caretta*) and the green turtle (*Chelonia mydas*) are both commonly found in the Mediterranean Sea, and have developed a local population there. Both are considered endangered and protected by the IUCN and are also included in the list of endangered and threatened species of the Barcelona Convention.

The loggerhead is the most widespread sea turtle in the Mediterranean Sea and the only one which habitually breeds along its coasts. This species is found in all areas of the Mediterranean basin although its numbers can differ depending on season and location. Nesting sites are mostly in the central and eastern parts, particularly in Greece, Turkey, Cyprus and Libya, and to a lesser extent in Italy. The green turtle is not found year-round in the Mediterranean Sea and it is restricted to the south-eastern part of the basin where it nests, particularly on the coasts of Turkey, Cyprus, Syria, and Israel.

Distribution of Sea Turtles in the Mediterranean (2006)

© www.Euroturtle.org

The loggerhead and green turtle have similar life cycles. They are defined by a first development stage of some years spent moving between coastal and offshore waters. During the non-breeding season from June to August, adults move along migration routes between feeding and overwintering areas and gather in shallow water (less than 50 m depth). Adults move closer to the coast for breeding and nesting, when females lay their eggs on sandy beaches.

Sea turtles are especially vulnerable to threats from human activities, including oil spills, because of the prolonged time required for them to reach sexual maturity and the high mortality rates of eggs and juveniles. The potential impacts of an oil spill on sea turtle populations will vary depending on the season. Nesting females could be susceptible to disturbance and contamination during the breeding season and turtle hatchlings are particularly at risk if nesting beaches become oiled.

The presence of oil and the resulting cleanup activities also cause destruction and encroachment of sea turtle habitats discouraging nesting, sometimes for long periods. Related boat traffic can also injure or kill turtles when boats collide with them at or near the surface.

Sea turtles do not instinctively avoid oil slicks, putting them at greater risk of being exposed when they surface for air. Juveniles and adults also sometimes mistake tar balls for food and will directly ingest the oil. The effects of oil on sea turtles include:

→ Burning in mucous membranes of the eyes and mouth

→ Irritation or inflammation of the skin

→ Gastrointestinal inflammation, ulcers, bleeding, poor digestion

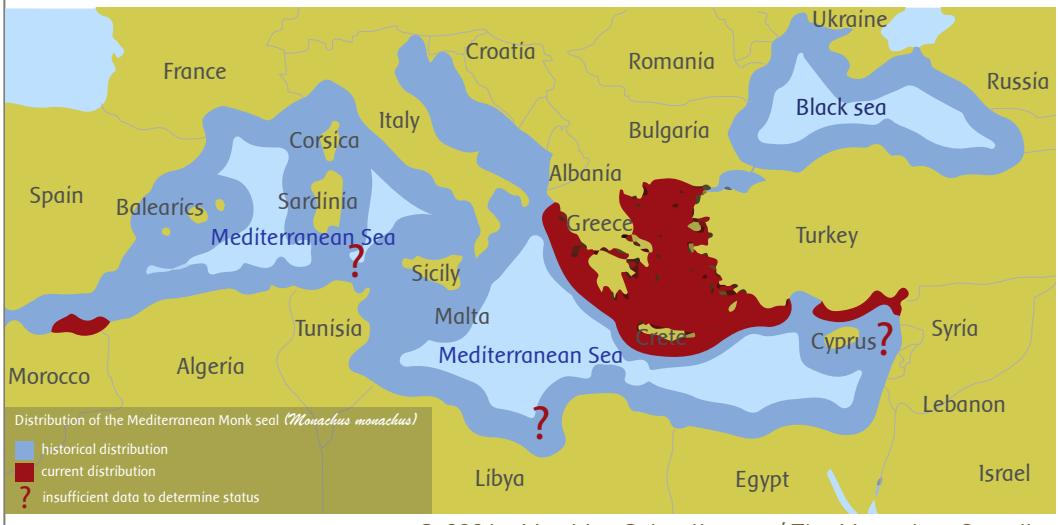
→ Respiratory irritation, inflammation, pneumonia, emphysema

→ Organ damage, suppression of the immune system, reproductive failure.

Seals

The Mediterranean monk seal (*Monachus monachus*) is the world's second-rarest pinniped and one of the most endangered mammals in the world. The strongest foothold in the Mediterranean basin is along the coasts of Greece and Turkey and a small colony is present in northern Cyprus. The overall population is now estimated at only 330-500 individuals and the species is classified by the IUCN as critically endangered.

Distribution of the Mediterranean monk seal (*Monachus monachus*)



Adult males are capable of travelling up to 30 miles from the coast daily where they dive depths of 45 – 70m to reach foraging grounds for fish and molluscs. Seals use coastal habitats (normally coastal caves) for birthing, lactation, moulting and resting activities. Births have been recorded from May to December, with most births occurring during autumn.

If Mediterranean monk seals are exposed to oil, this can cause many problems, including:

→ Hypothermia in pups by reducing or destroying the insulation of their fur

→ If oil sticks flippers to their bodies, making it hard for them to escape predators

→ Pups drown if oil sticks their flippers to their bodies

→ Loss of body weight when they cannot feed due to contamination of their environment by oil

→ Interference with scent that pups and mothers use to identify each other, leading to rejection, abandonment and starvation of seal pups

→ Interference with breeding

→ Oil ingestion can cause ulcers or bleeding in the stomach

→ Inhalation of oil vapours and exposure of the mucous membranes can be toxic (particularly in the closed quarters of marine caves where monk seals are found)

→ Conjunctivitis and blindness, hindering the ability to find food and sometimes causing starvation

→ Damage to and suppression of the immune system, sometimes causing secondary infections.

Mediterranean monk seal in rehabilitation

Otters

The Eurasian otter (*Lutra lutra*) can be found in rivers, lakes and streams across the Mediterranean, particularly in the southern part of the Italian peninsula. Although a freshwater species, the Eurasian otter is also sometimes found in marine habitats along the coast so could potentially be at risk from an oil spill. The effects of oiling on a Eurasian otter would be similar to those for a monk seal pup, since otters are also dependent on their fur for insulation.

Health and safety for volunteers

Always wear your full PPE

There is a big difference between health and safety in everyday life and during an oiled wildlife response. The response environment has a number of risks, but volunteers can protect themselves by understanding the health and safety issues relating to their work and by using appropriate control measures. General health and safety information for volunteers is given in the POSOW Oil Spill Volunteer Management Manual. The organisation coordinating volunteers must ensure that all activities comply with relevant legislative health and safety requirements in the affected country. This may include suspending wildlife response operations if necessary from a health and safety viewpoint. Supervisors should ensure that a risk assessment is conducted for each work site or task and that each volunteer is informed about the identified risks and the behaviour required to manage them. Remember – health and safety of volunteers always comes first: if activities cannot be carried out safely, they should not be carried out at all.

IMPORTANT RECOMMENDATIONS FOR VOLUNTEERS IN WILDLIFE RESPONSE	
Age	All wildlife response volunteers MUST be over 18 years of age.
Pregnancy	Pregnant women should NOT take part in wildlife response work.
Medical conditions	People with suppressed immunity and/or taking immune related medication, those allergic to feathers or suffering from asthma, should NOT take part in hands-on wildlife response work.
Physical ability and fatigue	Work can be physically demanding, with long shifts, much bending and lifting. Volunteers should not feel pressured into working very long hours over a prolonged period – take regular breaks, eat and drink enough, and get enough sleep. Serious fatigue is unsafe.
Stress	Working in a situation where animals are in distress can be traumatic and can put pressure on anyone. Take regular breaks and talk to colleagues or supervisors.
Personal Protective Equipment (PPE)	Basic PPE consists of gloves, goggles, and protective overalls. Always wear PPE as directed, including suitable footwear and make sure it is fastened/fitted correctly. Used PPE should be disposed of properly. Refer to POSOW Oil Spill Volunteer Management Manual.
Clothing	The working environment can be hot or cold and smelly. Wear clothes which you don't mind getting dirty and wear suitable clothing for the conditions (layering is ideal).
Injuries	Report all injuries or serious illnesses immediately as they may compromise your effectiveness as a volunteer (Refer to POSOW Oil Spill Volunteer Management Manual accident/near miss report technical sheet). First-aid services must be available on site.
Hygiene	Keep areas tidy, wash your hands properly and regularly, keep animals separate from human activities. No smoking eating or drinking is allowed inside a wildlife rehabilitation facility. Do not wear rings or bracelets.
Stay alert	Keep up-to-date with all written information and notices issued by supervisory staff. Follow instructions and listen carefully to briefings – they are for your own safety. Use your common sense at all times: health and safety is everyone's responsibility, including you and those around you.

Wildlife response volunteers should always work in pairs on the beach

Health and safety on the oiled shoreline

Search and collection requires volunteers to go out along the shoreline to find oiled animals, pick them up and put them into containers to be taken to a rehabilitation facility. This brings about a number of risks related to the capture and handling of wild animals, all of which are potentially dangerous and could cause serious injury. Search and collection could also be taking place at the same time as shoreline cleanup or assessment operations, adding to the level of activity on the beach and therefore the potential risks.

RISKS		CONTROL MEASURES
Bites, cuts and scratches, stab wounds from sharp bills/beaks	✓	Wear PPE as directed. See 'Search and collection of animals' and 'Dealing with live oiled sea turtles' for proper handling procedures. DO NOT attempt to capture or handle seals or otters – this should only be done by trained experts.
Serious lacerations, broken bones (large birds, turtles, seals, otters)	✓	
Zoonotic diseases and parasites	✓	Follow instructions for disease control. Maintain separation and hygiene procedures (see below).
Back damage (lifting heavy animals)	✓	When lifting, keep your knees bent and back straight, keep the load close to your body. Get help for very heavy loads.
Hyperthermia (including: heat stress, heat stroke, sunburn)	✓	Heat stress can occur in very hot/humid conditions, particularly when wearing non-breathable protective clothing. Take sufficient rest breaks (shaded areas or climate-controlled areas preferable) and drink fluids regularly. Use a sunhat and sun cream.
Hypothermia (cold exposure)	✓	Wear warm clothing, ideally in several layers (together with PPE provided as necessary). Use gloves and a hat to avoid heat loss from hands and head. Heated shelters/rest areas should be provided. Take regular breaks.
Slips, trips and falls (cuts, breaks, concussion)	✓	Be vigilant to potential hazards when moving around the shoreline, be careful on rocky/slippery surfaces.
Toxic fumes (early on when oil is still fresh, in confined spaces etc.)	✓	No smoking. If in doubt, do not enter an area where fumes are present. Supervisors should carry out gas monitoring activities and advise on which areas volunteers can enter.
Drowning (including work in tidal areas, on jetties and harbours)	✓	If working in or near the water, a life jacket is recommended.
Unauthorised visitors (e.g. passers-by, media)	✓	Be aware that persons not involved with the response may interfere or get in the way of your work. Use common sense to try and avoid accidents. Volunteers should generally not speak with the media – supervisors will advise on security and media arrangements.
Machinery/vehicles for shoreline cleanup	✓	Stay aware of traffic and follow instructions given. Supervisors should advise which areas of the coastline volunteers can enter (check if in doubt).

Health and safety in a rehabilitation facility

Provide proper waste disposal

Always wear gloves

A wildlife rehabilitation facility can be a complex operation, in a hectic working environment with many people and animals.

RISKS		CONTROL MEASURES
Bites, cuts and scratches, stab wounds from sharp bills/beaks	✓	Wear PPE as directed. See sections on search and collection and sea turtles for proper bird handling procedures. DO NOT attempt to capture or handle seals – this should only be done by trained experts.
Serious lacerations and broken bones (large birds, turtles, seals)	✓	
Zoonotic diseases and parasites	✓	Follow instructions for disease control. Maintain separation and hygiene procedures (see below).
Skin allergies (latex, feathers ...)	✓	Always wear gloves (if allergic to latex, use alternatives e.g. surgical gloves).
Back damage (lifting heavy animals)	✓	When lifting, keep your knees bent and back straight, keep the load close to your body. Get help for very heavy loads.
Slips, trips and falls	✓	Take care on wet/slippery floors and wear footwear with a good grip. Walk, don't run.
Chemical spillages and exposure to fumes	✓	Cleanup spills as soon as possible (check information on packaging). Good ventilation is important. No smoking.
Injuries from medical equipment (needles, syringes)	✓	Volunteers should not be using needles (trained personnel only or under veterinary supervision), but be aware of sharps when cleaning or assisting others. Dispose of used equipment properly and safely.
Electrical injury and thermal burns	✓	Take care when operating electrical equipment in a facility where lots of water is being used (e.g. for animal washing). Seek first-aid for serious burns. Supervisors should ensure that fire extinguishers (suitable for all types of fire) are available.

Benefits from separation and hygiene measures in a facility

Animals: to prevent disease transmission, animal groups should be segregated according to their condition. Oiled and clean animals should be kept separate. Animals under intensive veterinary care should be separated. All equipment used in these separate areas must be assigned to and kept within each designated area. Disinfectants and sterilisers should be used according to local/national legal requirements or advice. Keep clean and dirty equipment separate.

Animals and volunteers: kitchen facilities, eating areas and those used for relaxation by responders, volunteers, visitors and everyone else must be kept separate from animal areas. There must be no common equipment between animals and humans e.g. towels, blankets, knives, forks, spoons, electrical appliances must not be shared. Do not eat or drink in the animal areas.

General hygiene: keep areas as clean and tidy as possible without causing significant additional disturbance to animals in care. Put all tools and equipment away cleaned and ready for their next use and keep them in their designated places. Report any damaged equipment or tools at the first opportunity.

Hand washing: frequent and efficient hand washing is important – whether you have been wearing gloves or not. As a minimum, wash your hands with soap or antiseptic handwash between jobs, before and after preparing animal food, or eating food and before leaving the premises/site.

A clean and well organised facility makes a safer workplace

Signs can encourage better hygiene

Search and collection of animals

Search and collection is a demanding activity as it will require spending many hours on the beach and walking long distances sometimes in bad weather. Apart from capturing live animals, volunteers can contribute by searching for dead animals, carrying collected animals or taking on other supporting tasks.

For the search and collection operation to be safe and effective, it needs to be well planned including the briefing of field teams, the availability of PPE and all necessary safety and collection equipment. No search and collection attempts should be made without explicit authorisation from the command centre. Safe access to beaches needs to be guaranteed and planned in such a way that wildlife activities do not disturb other shoreline response activities and vice versa. Decontamination zones should be set up and respected to avoid secondary pollution. Transportation for both people and animals must also be arranged. Volunteers must realise that using vehicles on oiled beaches may make shoreline cleanup more difficult by spreading contamination or driving oil into the sand.

A field coordinator should coordinate the work of the different field groups, organise the required vehicles for transportation (boats, cars for volunteers, vans for bird transportation), provide PPE and equipment and gather information from salvage, shoreline cleanup or assessment teams. For a successful capture and for safety reasons, people should always work in pairs as a minimum and be overseen by a supervisor.

Oiled bird on the beach

Don't capture a stranded gannet without proper equipment

Write all collection data on the box or bag

Live animals

A successful attempt to rescue and rehabilitate oiled animals starts with a quickly organised and effective search and collection operation. The faster a debilitated animal receives appropriate treatment in a rehabilitation centre, the better its chances of survival will be. Capturing live animals quickly from the shoreline will also stop them from moving inland, spreading the pollution to a clean environment.

Team work is essential for the successful capture of oiled birds. If possible, ornithologists or biologists with sound knowledge of the affected species and their behaviour should be included in the teams.

Most catching will be done from the shore. In some cases, when proper equipment and trained personnel are available, catching operations can also be conducted by boat. In areas where the shoreline is rocky and steep, this is the only available option. Early morning is often the best time for capturing oiled seabirds on the beach.

On arrival, teams must first get a good overview of the area. If they spot target animals, they should see how the terrain can be used to their advantage. Tactics normally aim to catch an animal by surprise so that it does not use its last remaining energy trying to escape. The movement of a team should not scare the target animal before the attempt has started.

If capturing a bird, first make sure it cannot escape into the sea. Walk slowly and quietly towards the bird along the shoreline (not straight towards the animal!) using the features of the shoreline (breakwaters, shrubs, rocks...) to conceal yourself where possible. Your goal is to place yourself between the bird and the water. Never approach the bird from the shore and drive it towards the sea as once back in the water, it will probably be impossible to catch. When you are level with the bird, you can attempt a catch with your net. Refer to Datasheet n°2.

Remove the bird from the net very carefully. Even though you should be wearing goggles, make sure to keep your face at a safe distance from the bird's beak since the birds may peck at your eyes or nose. Always handle birds using a firm grip, keeping the wings and, when necessary feet and beak, under control. Refer to Datasheet n°7.

Whilst on the shoreline, it is possible to transport the captured birds in pillow cases, duffle bags... For transportation to a facility by car, it is best to put them in boxes. Write crucial information on each transport box as indicated below. If more than one animal is placed in the same box, make sure that this is clearly indicated on the box.

Write on each box containing a live animal:

- → Species
- → Location collected
- → Date and time collected
- → Received rehydration at
- → Name and contact details of finder
- → Arrival date and time

Dead animals

The systematic collection of dead animals from the shore is very important for a number of reasons:

→ Prevention of scavenging from corpses (foxes, ravens, eagles, gulls...), causing secondary oil contamination

→ Impact assessment: enables a reliable scientific assessment of the total mortality caused by the oil spill on different species of fauna. Bringing them into a laboratory will allow a more reliable determination of species, sex ratio, age groups, and various biometrics. All these data will allow the mortality to be related to different breeding populations

→ Individual data collection of scientifically ringed birds

→ In some countries systematic collection is needed to provide legal evidence.

Corpses on the beach are sometimes completely covered in oil and it takes a trained eye to spot them (a hump in a slick of oil). If a corpse is found it needs to go into a plastic bag. One bag per corpse is needed: the corpses should be kept deep frozen shortly after collection and if individually bagged they can be more easily processed by a scientist. If samples are required for evidence collection, one in every 100 animals (or if possible one from every beach) should be kept in aluminium foil as plastic bags can contaminate the sample.

Once placed in an individual bag, all collected animals from the same stretch of beach can go into one large bag for transportation (keep them as cool as possible during transport). These large bags should to be labelled as indicated below.

Write on each large bag containing dead animals
(one large bag for each beach)

→ **Number of corpses**

→ **Species included (if recognised)**

→ **Scientific ring numbers**

→ **Location collected**

→ **Date and time collected**

→ **Name and contact details of finder**

Dead birds collected on the shore

Animal transport

Volunteers can fulfil an important task in animal transport. Driving safely between the location where animal collected points and a forward holding centre or rehabilitation facility, collecting and transferring animals and essential information are important responsibilities.

For the rescue of oiled animals, time should not be wasted after their capture. The faster an oiled animal arrives at a forward holding centre or rehabilitation facility, the better its chances of survival will be. Animals that will be transported for more than 2 hours should receive warm fluids (36-38°C) before their departure (see Stabilisation section), to support their body functions.

To reduce stress and the risk of damaging skin or plumage, proper transport containers should be used, such as cardboard boxes, or pet carriers. It is important that the transport boxes have adequate ventilation holes and that they are not packed too tightly in the vehicle and not stacked on top of each other.

Make sure that each transport container is large enough and allows sufficient ventilation. As a general rule, the box should be large enough to allow the bird to stand, but small enough that it is not able to flap its wings. Line the bottom of the container with corrugated paper, newspaper or a towel to ensure that the bird does not slip during transport.

Each container has to be marked with the required data (see text box on p.23), and also each bag with dead birds (see text box on p.24). Ensure that these data are recorded at the time of transport; otherwise try to obtain the information.

In the transport vehicle, place the boxes on solid ground and slightly apart from each other to enable air to circulate. A closed and well-ventilated vehicle is preferable (not an open pick-up), with a separated driver cabin. Ideal temperatures during transport will depend on the condition of the animals: wet oiled animals need warmer temperatures (22°-26°C); dry oiled animals may be transported at slightly cooler temperature (18-22°C). Keep bags with corpses as cool as possible.

Keep different species separately. Generally, only one individual should be transported per box. In case of non-aggressive, social bird species, two or three individuals can be transported together, if the size of the box allows this.

Drive cautiously and try to avoid heavy side to side motion or sharp breaking. Do not use a radio in the car, do not smoke, and keep voices down.

Birds should be transported directly to a forward holding centre (where they can be given pre-wash care) or directly to a rehabilitation facility where they can also undergo washing and post-wash care (see technical datasheets). Always call ahead to inform the centre or facility of the number and the species of birds you are transporting, as well as the estimated time of arrival. This allows the centre or facility to plan ahead.

Well ventilated boxes ready for transport

Animal arrival and reception

Volunteers can be placed at the reception of a facility, and the job of receptionist is ideal for those who combine administrative skills, lifting (boxes containing animals), communication skills, ability to work consistently and systematically, sometimes under stressful conditions.

The reception is where the transported animals can be handed over to the forward holding centre or rehabilitation facility. Here it is important that a first count is made of the animals arriving, of which species they are, where they came from, when they were captured and by whom.

People working in the reception area must ensure that all available information for each animal is checked and that this information stays with that animal when it enters the facility. Proper data collection and transfer is very important as it helps in decision-making for further treatment and providing the data for impact assessment. If no information is provided on the box, the receptionist must get the essential information from the transporter before he leaves. The transporter should also tell the receptionist whether the animals have already received any treatment (e.g. fluids) which should be documented.

The information provided should be transferred to a medical record form for each individual animal (Refer to Datasheet n°6).

The receptionist keeps a count of animals that have arrived (a tally per species, preferably on display e.g. on a white board) and lines up the boxes for intake and stabilisation (see pre-wash care section). Priority should be given to the animals that are most in need of assistance, i.e. the animals that travelled the furthest distance and are probably most dehydrated. By the end of the day, the reception area must be empty: all animals should have moved through into the next stage of care. Labelled bags with dead birds should be stored in freezers for impact assessment later on. If the reception area is not empty, the receptionist should report this to the facility manager before he/she leaves. Refer to Datasheet n°5.

Sometimes reception can be flooded with arriving animals

Intake and triage

Intake and triage are activities that must be performed by experienced rehabilitators or vets. Volunteers can assist with administrative tasks. If trained personnel are not (yet) available, this step is best postponed until they are, so all animals immediately go to pre-wash care and stabilisation.

Intake and triage aim to ensure that each animal accepted into the rehabilitation facility has a track record (of treatment) and receives the kind of treatment that best fits its needs, so giving it the best chance of survival.

In an incident, when many animals are arriving at a rehabilitation facility, intake and triage can help to invest limited resources (expertise, manpower, medicines, food...) into animals expected to make the best recovery. An animal that arrives in a very poor body condition will probably die, even if it receives the best possible treatment. Experienced rehabilitators or veterinarians can make this judgement. Such an animal is best euthanised, and not subjected to additional suffering. The policy on triage should be defined by veterinarians according to national legislation, including for protected or endangered species.

All animals accepted for treatment need to be registered as patients - the process called intake. During intake each animal receives a ring/band with a unique patient number, and a record (form) in which the results of the first examination and subsequent treatment are documented.

Triage is the process in which all arriving animals are divided into different groups for treatment, on the basis of their health status. Animals that are too weak for treatment will be immediately euthanised by veterinarians according to the chosen policy; animals that need a lot of attention to survive will go into intensive care, and animals that will probably improve rapidly will be put into standard care. All dead animals should be properly stored for processing and eventual disposal.

Intake and triage are carried out together as part of a clinical examination, ideally shortly after an animal's arrival under the supervision of a veterinarian. The following data are recorded on a form that stays with the animal throughout its journey through the facility:

→ species, age and sex
→ weight
→ temperature
→ body condition and behaviour
→ illnesses or injuries

Sometimes it may be necessary during intake to collect evidence (photo or feather sample) of the birds' oiling.

After intake and triage each accepted animal will go through a stabilisation treatment. The first treatment for stabilisation is already provided during intake: birds receive a tube feed (tubing) with rehydration fluids or ORS (50 ml/kg, warm 37-38°C) before they go to the stabilisation area. Euthanised birds should be stored in labelled bags in freezers for impact assessment later on.

During intake, different medical parameters are registered by experts

Pre-wash care and stabilisation

Volunteers are very useful in the pre-wash care stage. Teams work in a dirty (oil contaminated) environment where they must follow the proper procedures consistently and with patience, which is physically demanding. Main tasks for volunteers are cleaning cages, providing food and tubing the birds with rehydration fluids.

Pre-wash care is undertaken immediately after an oiled animal's intake into a dedicated forward holding centre or rehabilitation facility. The first focus of standard pre-wash care is to **stabilise** the animal to ensure that its condition is not getting any worse. Once the animal is stabilised, continued **pre-wash care** aims to ensure that the animal will become fit and strong enough to be washed. **Intensive care** can be provided to animals with a poor body condition on arrival, or animals that do not make the expected progress via standard care. Birds that die during this phase should be stored in labelled bags in freezers for impact assessment later on.

Stabilisation (first 48 hours)

The process of stabilisation aims to stop the declining health state of an animal. This is achieved by providing essential assistance to the animal, including a warm environment (to increase body temperature), rehydration (to re-establish the water balance), food (to re-establish energy balance), quiet environment (to reduce stress levels) and medicines (to combat any other identified problem). If these treatments are provided, an animal will quickly improve to a state in which it can continue to gain weight and restore body functions that are needed for withstanding the stress of washing. The table on page 29 explains stabilisation treatment for birds.

Pre-wash care for stabilised animals (after 48 hours)

Some animals can be washed or transported immediately after their successful stabilisation. Others need additional time and care to make further improvement. Stabilised animals are often still low in body weight. Providing food and rest in a quiet environment will normally bring them to the point at which they eat by themselves and allow their condition to improve to the required level. This may take 1-7 days, depending on the individual animal and on the species. The table on page 30 explains pre-wash care for stabilised birds.

Intensive care

If animals do not improve under the standard care regime, they can be placed under an intensive care regime. They go to a separate intensive care area on the work floor where they receive individual treatment and monitoring from a veterinarian. Intensive care can only be provided if the resources (people, equipment, space, medicines, food...) are available to do so.

Feeding of birds during stabilisation phase

Providing stabilisation care (the animals' first 48 hours in the facility)

Work schedule

See Datasheet n°9 on stabilisation

Proper housing	It is very important to keep animals in a quiet, well ventilated environment. Housing (usually net-bottom cages for birds) must provide enough space for the animal to feel comfortable and be kept clean.
Dealing with the loss of body temperature	Due to the loss of insulation of oiled feathers, cold weather can have a serious impact on a bird's body temperature. Sea-water, rain and wind will cause the animal to lose body heat and become hypothermic. Bringing the bird into a dry warm area with an extra heat source (heat lamp or mat) is usually enough to bring the body temperature back to normal within 24 hours, if combined with rehydration and food. Conversely, warm weather and high temperatures may cause overheating of the body (hyperthermia). Bringing the bird into a dry cooler sheltered area is usually enough to bring body temperature back to normal within a few hours.
Dealing with dehydration	Due to lack of food, diarrhoea caused by oil-damaged intestines and sometimes due to the effects of sun and wind, an oiled bird is usually (highly) dehydrated. Normal body functions work slower or fail when the body is suffering from dehydration. It is possible to rehydrate orally within 48 hours if enough fluids are provided several times per day. Use warm (36-38°C), isotonic rehydration fluids and use one stomach tube per bird (can be reused if washed and disinfected). Administer 40-50 ml per kg of bodyweight (i.e. a 500 g bird will be given 20-25 ml each time). For initial rehydration, the birds need tube feeding 3 times per day at equally spaced intervals throughout the day.
Dealing with starvation	Animals often lose their ability to catch prey after oiling and therefore become deprived of food and water. Provide enough good quality food at all times that is appropriate to the species. Offer fresh fish in bowls with fresh water. Sometimes birds need to be encouraged to eat by tossing a fish in front of them. During the night, some bird species tend to eat a lot more, so provide enough food to last until the morning.
Dealing with stress	Oiled animals are stressed because of the disturbing effect of oil pollution, human interaction (humans look like giant predators), the unnatural environment and the noise. This stress has a negative influence on the immune system and healing process. Wherever possible, unnecessary disturbance should be avoided. Some effective ways to reduce stress are: → Minimise the surrounding noise and activities → Cover cages with light-coloured sheets to reduce visual interference → Cover the birds' heads with a towel every time they are handled → Minimise the number of times a bird is handled: clean cages and change food while at the same time tubing the birds → Allow enough hours of rest between tubings → Leave the birds to rest at night → Social species should be kept in groups of 2-5 individuals.

Normally after a period of circa 48 hours of stabilisation treatment, animals are fit enough to be feeding on their own again and quickly improve on their health condition.

Their stabilisation is achieved when:

→ They have a stable, normal (41°C) body temperature

→ They are rehydrated.

Providing pre-wash care to stabilised birds (after 48 hours)

Work schedule

See Datasheet n°10 on pre-wash care of stabilised birds

Proper housing	It is very important to keep animals in a quiet, well ventilated environment. Housing (usually net-bottom cages for birds) must provide enough space for the animal to feel comfortable and be kept clean.
Providing food	Regularly offer plenty of fresh food that is adequate for the species, ideally matching their natural diet.
Minimising disturbance	The interaction with the animals should be minimal, especially when they have started feeding on their own. The less stressed they are, the more they will eat.
Frequent observation	If an animal does not benefit from the minimum level of care at this stage, its body condition may further decline. Therefore animals in this department must be regularly observed. Animals that get worse must be taken out and placed under an intensive care regime.
When ready to be washed?	Animals that have clearly regained their body weight and fitness and are feeding on their own may be ready to be washed. This must be confirmed by a veterinarian or expert. An animal is ready to be washed when the following criteria are fulfilled: → Has been in the facility for a minimum of 48 hours and stabilised → Demonstrates natural wild behaviour and is bright, alert and responsive → Body weight is at an appropriate level, and not decreasing → Blood value analysis provides a minimum score.

Rehydration of a bird during stabilisation

The washing process

search and collection
transport
arrival and reception
intake and triage
pre-wash care (stabilisation)
washing
post-wash care
release

Oiled birds should only be washed by trained and experienced people – volunteers should not attempt it by themselves. Volunteers who have demonstrated useful skills in other parts of the rehabilitation centre can assist in the wash room.

Washing aims to remove all the oil and other dirt (fish oil and faeces) from the skin, fur or feathers. This de-oiling is a crucial step in the rehabilitation of an animal. It is also extremely stressful, which is why the animal has to go through pre-wash care first and meet important criteria before being selected for washing.

The successful washing of a bird will bring the feathers back to their clean natural condition and restore the potential for barbs and barbules to perfectly hook into each other. It is this restructuring of cleaned feathers which enables a bird to float on the water, which is achieved by the bird itself when it is placed on the pool shortly after washing and starts preening its feathers. If washed incorrectly or inadequately, the bird will not be able to regain its waterproofing. It will need to be washed again, or else euthanised. That is why only trained and experienced persons should wash oiled animals.

Washing of large numbers of birds will need huge amounts of running hot water (at least 42°C) that must be available on demand without interruption and with sufficient pressure. The correct disposal of waste water (water, oil and detergent) should also be organised prior to starting washing.

Washing a small bird by hand is carried out by two people, one of whom (the assistant) holds the animal and the other (qualified washer) cleans the animal systematically and precisely. The bird is held in a tub filled with hot (42°C) water and an approved detergent. The washing process should be done as fast as possible in order to minimise handling stress (generally 15-60 minutes per bird).

Once the bird is completely de-oiled, it must be rinsed with 42°C water under pressure until all detergent is rinsed away. This may take another 10-15 minutes. If rinsing is not carried out well and detergent is not rinsed off completely, problems will occur with waterproofing in the post-wash care stage.

After washing, an animal spends some time in a drying room – basically a clean net bottom cage with a ventilator that blows warm air which helps the feathers to dry. When sufficiently dry, the animal must be placed on a pool to start the waterproofing process. If no pools are available, a washed bird will very quickly loose its cleanliness and have to be washed again. Therefore the number of birds that can be washed per day is not only dependent on the number of washers, but also on the number of available pools.

Successful washing is only achieved by experienced professionals

Post-wash care and waterproofing on pools

Pool management is another job that is best performed by trained and experienced people. Volunteers can assist with filling and cleaning the pools.

After washing, a bird's feathers are clean, however their overall structure may not be fully waterproof. Waterproofing needs the barbs and barbules of each feather to link into each other, which is something only the bird can do through "preening" – the behaviour by which the animal perfects and maintains its plumage.

Once it is placed on a pool, a bird will start to preen, but it takes some time before fully waterproof plumage is regained. During this time, cold water will get to the animal's skin cooling it down, and it will struggle to stay afloat. A pool manager needs to monitor these animals continuously and remove them when they become too wet or show prolonged signs of distress. When birds demonstrate an active, voluntary use of the platform (a ledge that is fixed at water level, which allows the animal to step out of the water to have a rest), they can be left alone for longer. An animal may need repeated trips between the drying room and the pool until it is able to get itself out of the pool onto a platform.

Living on water again has a positive effect on their wellbeing, and if provided with enough food, their recovery can be rapid. Continuous preening will improve the waterproof qualities of the plumage, and this will allow the animal to stay on the water for longer and make it less dependent on the platform. Food should be provided in the water, to stimulate diving behaviour.

Birds on pools should further increase their body weight and fitness and their blood values will achieve levels that are close to those recorded in the wild. This means that they will soon be considered as fully rehabilitated, and fit for release. The decision to declare a bird "ready for release" is taken by a veterinarian or experienced rehabilitator after a pre-release check against a number of criteria. The bird must have been 24-48 hours on a pool without a platform.

High quality pool management is crucial to ensure that pools have a clean water surface at all times. Floating oil from food and faeces can re-contaminate the feathers and be detrimental to the bird's waterproofing. If this happens, it is likely that the bird will need to be washed again which will dramatically decrease its chances of survival. To keep the water in the pools as clean as possible, the surface should be skimmed continuously. Also droppings and old fish should be removed from platforms and the bottom of the pools on a daily basis.

Juvenile gannets regaining waterproofing on a pool

© WRCO

Release

- search and collection
- transport
- arrival and reception
- intake and triage
- pre-wash care (stabilisation)
- washing
- post-wash care
- release

The decision to release animals at the end of the rehabilitation procedure is an important one, and can only be taken by an experienced rehabilitator or vet. Once the decision is taken, volunteers can assist with preparing the animals for release, their transport to the release site and the opening of the boxes to let the animals go. Participating in the release events is a very rewarding experience and important for the morale of volunteers and staff to continue their hard work.

The ultimate goal of oiled wildlife rehabilitation is to release de-oiled, healthy birds back into their natural environment allowing them to continue their place and function in the ecosystem. Released animals therefore must be fit for survival, as if had they never been oiled.

This is why strict criteria have been developed that a bird must meet before it is to be released. The bird should:

→ be 100% waterproof
→ demonstrate normal behaviour: it eats, dives and swims, social species generally remain within the group
→ have a normal weight
→ have no diseases or injuries
→ have blood values within normal ranges of a wild bird
→ have been banded with a permanent official leg band/ring.

It is important that a rehabilitated animal is released in or near to its natural habitat, taking into consideration its migration behaviour and the time of the year. The release site must be free of oil so that the risk of recontamination is minimised. Also it is recommended that the way the animal is released should reflect its normal social behaviour, determining whether they are best released individually or in groups, depending on the species and/or season.

Banding (ringing) of the animals before their release is crucial as it makes it possible to keep track of their individual survival. Most of them will go to places where they cannot be followed by man but where they could be monitored e.g. breeding colonies, where scientists can read the band numbers. Sightings provide crucial information about whether rehabilitation has been successful in the long term and to assist in improving the quality of the rehabilitation methodology that was applied.

Releasing healthy birds is the ultimate goal of rehabilitation

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What to expect as a volunteer

One of the most important issues in an oiled wildlife response is managing expectations. What is expected as an outcome? Will the response be successful? As a volunteer, the expectation of how successful your own contribution will be is an important thing to manage.

Being part of a wildlife response can be a very positive experience. However this is very much linked to the response being successful, which is often measured by the number of clean and healthy animals that are released into the wild after rehabilitation. In reality, success is dependent on very many variables, many outside of anyone's control, even if best practices are being applied. Losing animals despite everyone's hard work is difficult to accept, so being aware that this might happen helps to be prepared for such a disappointment.

Volunteers are badly needed to assist with the labour intensive care of animals and therefore have a key contribution to the success of the operation, but they cannot all be expected to be involved full-time for weeks on end. Volunteers should be aware that the longer they can be involved, the more satisfactory their contribution will be. Longer term involvement will offer an opportunity to know the job well, and even to take more responsibilities after some time. So a volunteer who is available for longer can make a more significant contribution than someone who can only join the response for a few days at most.

The system set up to register, train and manage volunteers will be important in meeting expectations. Under ideal circumstances a volunteer will arrive at the registration point and feel that everything is well organised i.e. he/she can choose from a range of different jobs and will receive the necessary instructions and training to do that job. Under these circumstances there will be a clear working environment where volunteers are taken care of and expectations can be well-managed.

Under less ideal circumstances, a supporting structure for volunteers is not (yet) in place. This can be the case in the early days of an incident, when coordinators are working hard to put a response system in place; meanwhile oiled animals may already begin coming ashore. The absence of a clear structure and leadership may leave volunteers to interpret and improvise on their own, which could potentially lead to misunderstandings, competition and frustration.

There are several ways to maximise the satisfaction that everyone gets out of a response:

→ developing a pre-spill defined wildlife response plan that provides a structure for the involvement and management of volunteers
→ organising national pre-spill training, workshops and exercises for volunteers and volunteer groups
→ providing training and instructions to volunteers as soon as they have registered
→ attending international workshops and conferences where oiled wildlife response is discussed.

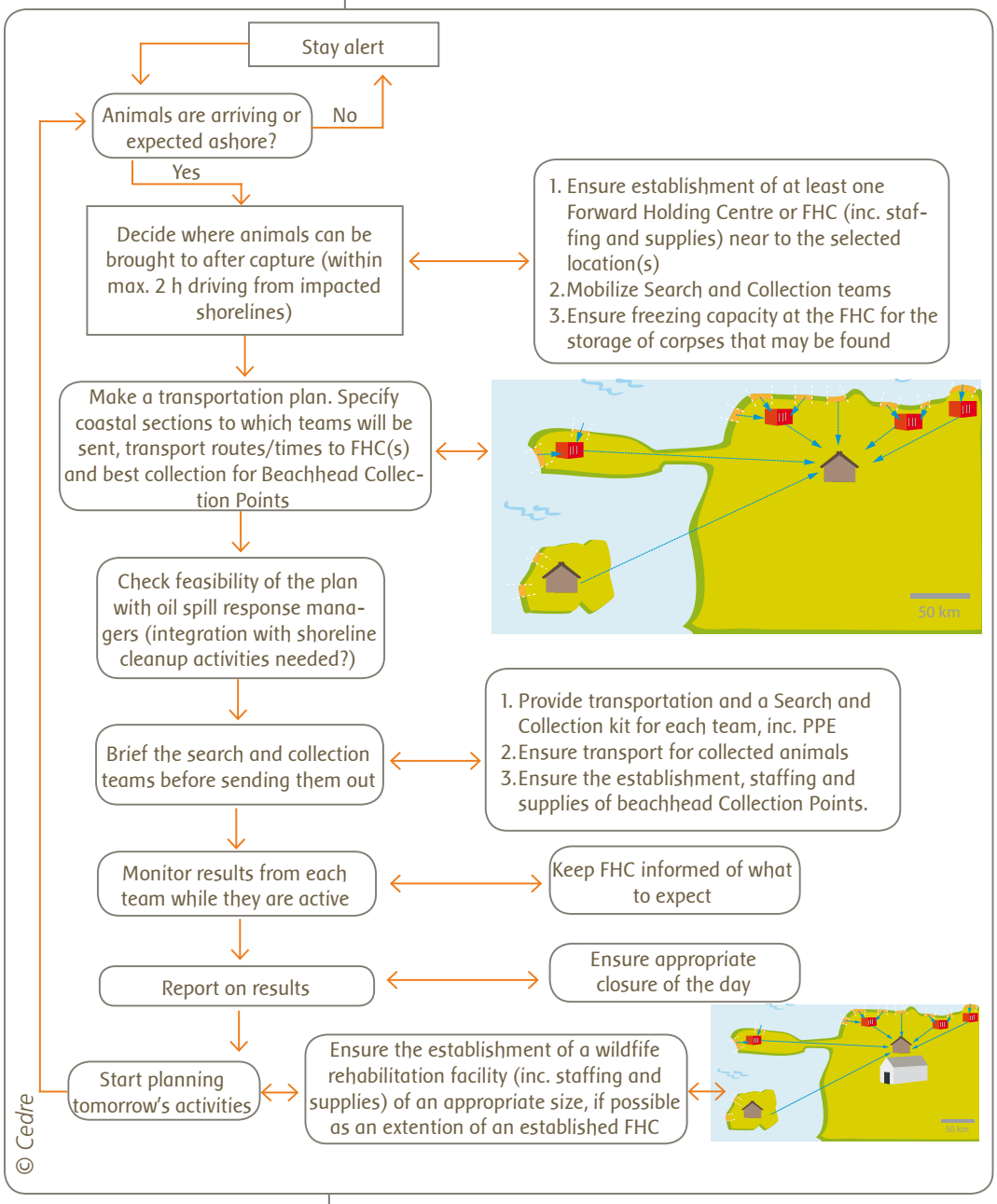
Building pools

PART 2

FORMS AND GUIDANCE DATASHEETS

Managing the early days of a wildlife response

When an oil spill is reported, animals may already have started arriving on the shoreline. This sheet provides guidance as to how to start up an effective response: ensuring that animals are picked up safely and transported to facilities where they receive care for several days before being washed.



Types of facilities (explaining symbols in figures)

Beachhead Collection Point (BCP)

A warm and ventilated place where live animals can spend a few hours before they can be transported. No animal stays here overnight!

Forward Holding Centre (FHC)

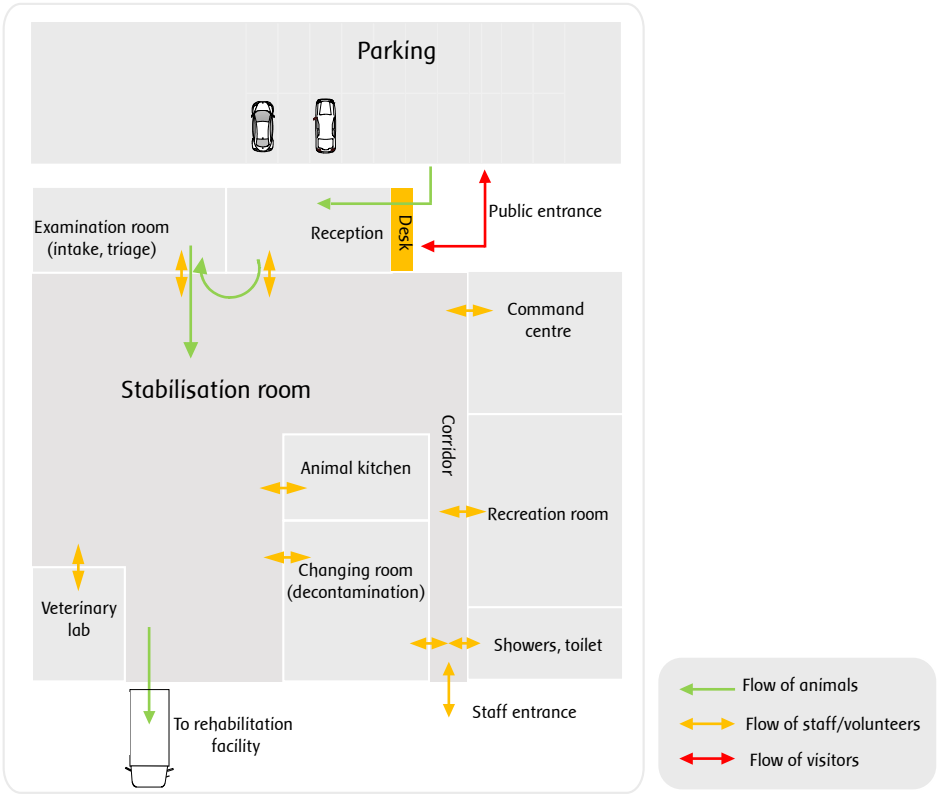
A facility where animals can be provided with pre-wash care (see technical datasheets for set up, layout and procedures). Animals can stay here for many days, but are not released from here. Refer to Datasheet n°3.

Wildlife Rehabilitation Facility

A facility that is in fact a Forward Holding Centre extended with adequate washing and post-wash care capabilities. Setting up and running a Wildlife Rehabilitation Centre needs the involvement of qualified experts!

Capturing live animals

Setup and layout of a forward holding centre



Checklist of most important characteristics and equipment

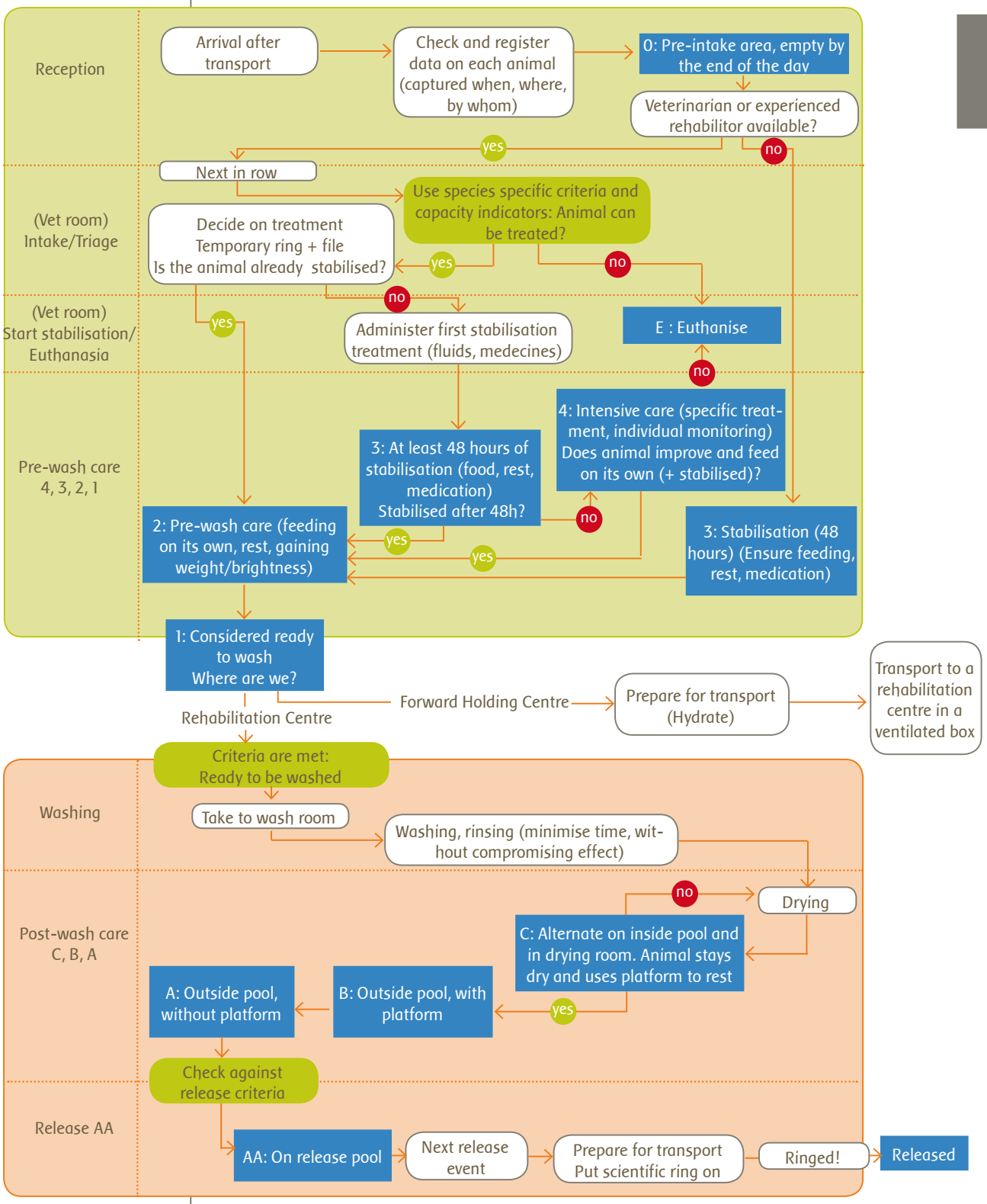
Reception
Desk
Space to put bird boxes
White board
Examination room (if vet available)
Water, electricity
Table
Cupboard with medical equipment, medicine
Scales
Stabilisation room
Clean working environment
Good ventilation
Net bottom cages and pens
Dressing room
Benches and hooks
Lockers for personal belongings
Signs with instructions

Corridor
Connecting all indicated rooms
Signposts
Office/Command Centre
Refer to datasheet n°11
Veterinary lab (if vet available)
Desk, chair
Computer
Centrifuge
Freezer (for dead animals)
Animal kitchen
Hot/cold water
Work tables
Fridge, freezer
Microwave, mixers

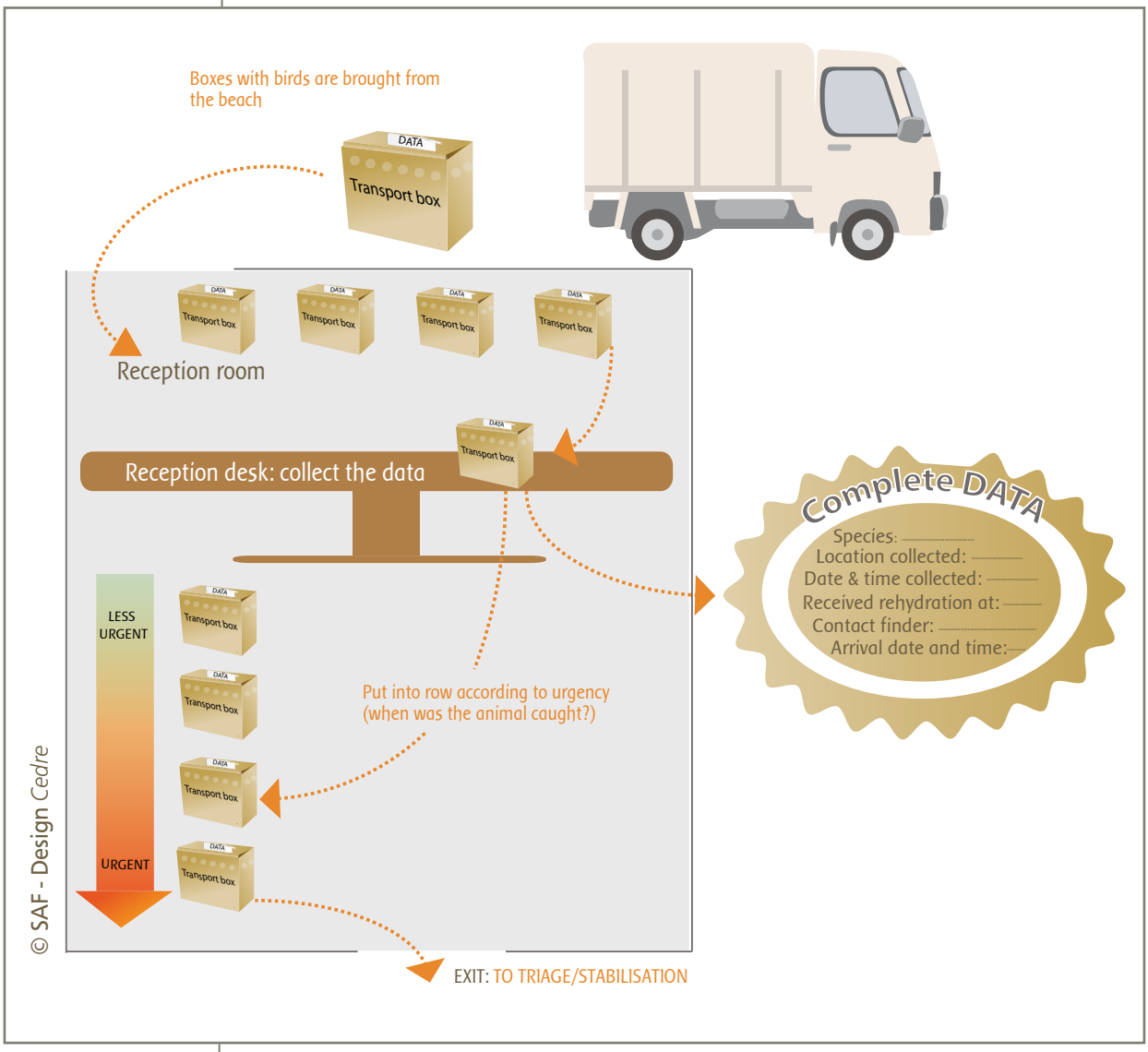
Showers, toilet
For women
For men
Hot/cold running water
Benches/chairs
Coat hooks
Recreation room
Table(s), chairs
White board
Mugs, plates, cutlery
Fridge with snacks
Microwave
Parking
Parking space
Security checkpoint
Signposted
Waste storage containers
Facility as a whole
Existing building or party tents
Hot & cold water, electricity
Climate control (+ventilation)
Space & flexibility
Near city/ main roads

Overview of oiled wildlife rehabilitation

The diagram below summarises the flow of animals through a Forward Holding Centre (green box) and a Rehabilitation Centre (green and red boxes together).



Working in the arrival and reception area



An improvised reception desk

Medical record form

Medical record

Oil spill: ..... Centre: .....

Intake n°: ..... Internal ring n°: ..... Official ring n°: .....

Species: ..... Data collected: .....Time collected: .....

Place collected: ..... Transported by: ..... Intake by: .....

FIRST EXAMINATION

Sex: ☐ Female ☐ Male ☐ Unknown

Age: ☐ Juvenile ☐ Subadult ☐ Adult

Initials/vet: .....

Plumage: ☐ Summer ☐ Winter ☐ Moulting

Temp in C°: .....

Oil in %: .....☐ Waterline ☐ Above body ☐ In parts

Weight in g: .....

Dehyd in %: ..... Lungs: .....

Body condition: ☐ Very thin ☐ Thin ☐ Medium ☐ Fat

Behaviour: .....

Injuries: .....

Head: .....

Body: .....

Wings: .....

Legs: .....

NOTES: .....

.....

WASHING

Date: ..... Start: ..... End: ..... Washer: .....

NOTES: .....

.....

END RESULT

Date: ..... ☐ Released ☐ Dead ☐ Euthanised ☐ Transfered to: .....

Behaviour at release

☐ Swim/flies < 100m ☐ Flies 100 - 1000m ☐ Flies out of sight

NOTES: .....

.....

Holding a bird

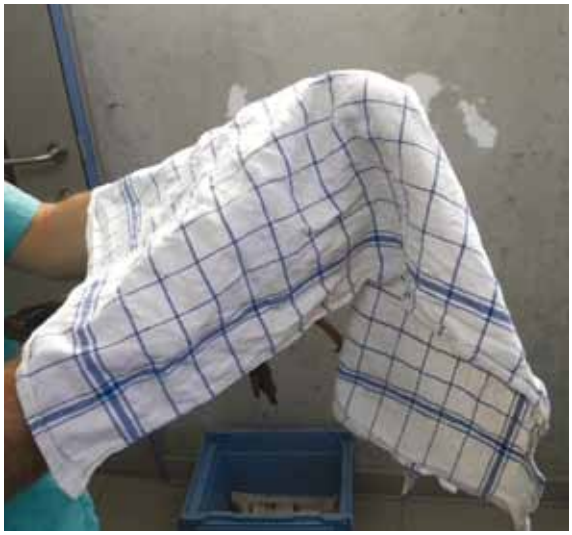
1

Grab and hold the bird firmly over the wings

7

2

A partner covers the bird's head with a towel



3

Wrap the towel over the bird's head and the bird stays calm in your hand

Photographs © SAF

Tubing a bird for rehydration

1

Take a tube that is long enough to reach the stomach (approximately the middle of the belly)

2

A partner brings the bird, wrapped in a towel

3

Uncover the head

4

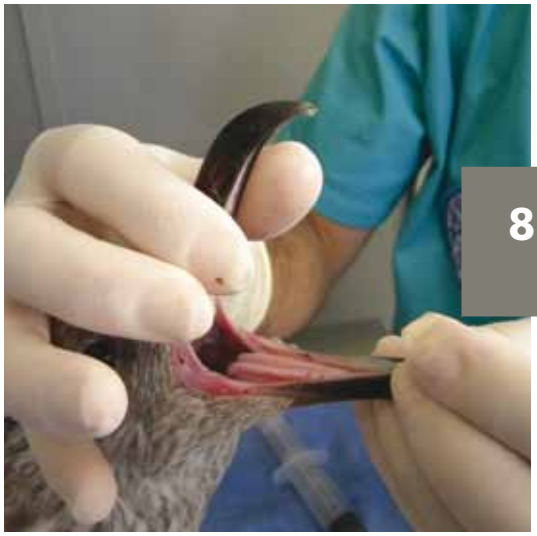
Open the beak firmly

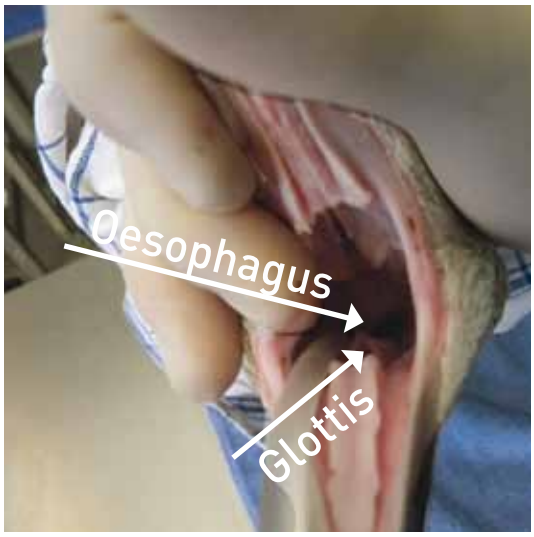
5

Stretch the neck and bring the tube in on the left side of the glottis (the bird right side)

6

Check that the tube is in the oesophagus and that the glottis is free to breathe





Photographs © SAF

8

Tubing a bird for rehydration (continued)

7

Bring the tube into the stomach and slowly give the calculated amount of fluids

8 & 9

Watch attentively that fluids do not come back up into the throat, in order to avoid excess fluids entering the glottis

Pinch the tube and pull it out

8

10

Hold the head of the bird slightly lower than the body to prevent excess fluids entering the glottis

11

Cover the head of the bird again so that your partner can take it back

Photographs © SAF

Daily routine - stabilisation

To reduce handling and stress for the animals, combine different actions! Approximately 2 people are needed per 20 birds

Example of daily time schedule for the first 48 hours after birds' arrival

	8am	9am	10am	11am	12am	1pm	2pm	3pm	4pm	5pm	6pm
Prepare rehydration fluids and cleaning tools											
Start rehydration at 50 ml/kg and cleaning the cages. Put the rehydrated birds in a cleaned cage and let them rest											
Put food in the cages; do not cause any other disturbance											
Lunch break for volunteers											
Prepare rehydration fluids											
Rehydration at 50 ml/kg bodyweight											
Put food in cages											
Rehydration at 50 ml/kg bodyweight											
Put double the amount of food in the cages for the night											

9

Tubing a bird with fluids is a crucial step in the stabilisation

In between the activities, do not disturb the birds for checking, removing a dead bird or anything else.

This schedule offers enough time between rehydration and feeding for the birds to digest their food and rest. It also provides time for the volunteers to prepare animal food, do dishes, study, rest and eat.

Once the experienced rehabilitators arrive, other tasks will be performed on the birds like weighing, examining, taking blood samples... as part of intake and triage. These activities will again be combined as much as possible.

Daily routine – pre-wash care of stabilised birds

To reduce handling and stress for the animals, combine different actions! Approximately 2 people are needed per 40 birds

Example of daily schedule in the pre-wash care area

	8am	9am	10am	11am	12am	1pm	2pm	3pm	4pm	5pm	6pm
Prepare animal food and cleaning tools											
Start cleaning the cages											
Put food in the cages; do not cause any other disturbance											
Lunch break for volunteers											
Put food in cages											
Put double the amount of food in the cages for the night											

In between the activities, do not disturb the birds for checking, removing a dead bird or anything else.

This schedule offers enough time between feeds for the birds to digest their food and rest. It also provides time for the volunteers to prepare animal food, do dishes, study, rest and eat.

Once the experienced rehabilitators arrive, the selection of birds to be washed will be determined through weighing, blood sampling etc. These activities should again be combined as much as possible.

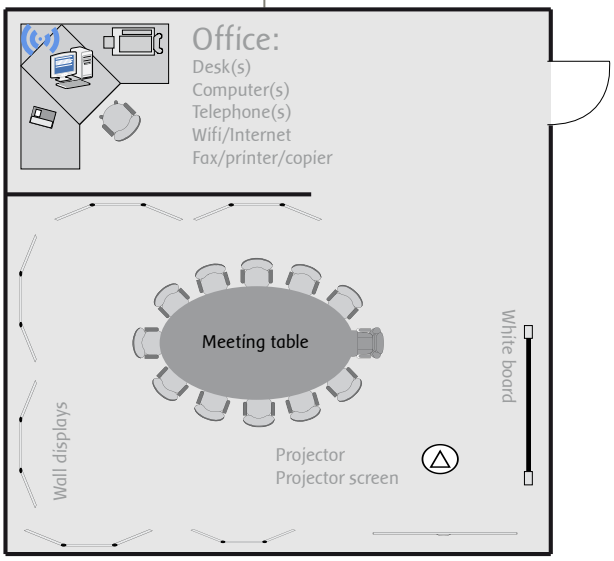
10

Stabilised birds need a lot of food and rest

Setting up and running a command centre

Example of the physical set-up of the command centre with a checklist of its equipment

The command centre is an important place in the wildlife operations. It must be set up as an integrated part of the overall spill management, so that decisions can be made overseeing all the relevant information on both sides.



	Office
	Desk (s) and chairs
	Office tools (paper, pens, tape, stapler, hole punch...)
	Computer
	Internet connection (wifi)
	Telephone land line(s)
	Fax/printer/copier
	Meeting room
	Meeting table and chairs
	Wall displays (or empty walls)
	Flip chart with paper and pens
	Whiteboard with pens and cleaner
	Projector
	Projector screen (or white wall)

Suggestions for organising the information on display in the meeting room

Heading	Information presented (printed documents or hand written on flip chart sheets)
Spill history	The source of oil, date of spill, exact location, oil type, amount and properties, future issues and contact information for the spill advisor
Species information	Information on species affected, habitat, distribution, identification photos, life history, previous oil spill knowledge (post-release survival data) and care/washing information if available
Rehabilitation Process	Description of process (with photos), triage policy and euthanasia policy
Key facts (Media)	Media lines, bird numbers (overview), news articles
Training programme	List of roles and trainers (with photo) for allocation of trainees
Maps	Showing oil spill area, sensitive areas, collection points and rescue facilities
Facility layout	Room plan and copy of health and safety protocols
Team information	Name, organisation, role and contact number with coordinators highlighted (can be arranged by organisation or by role)
Facility operations	Lists the number of birds in each part of the facility, updated twice daily. It helps to include a list of daily tasks, which can be ticked off when complete
Field operations	Shows who is in the field, their role and contact information, updated twice daily
Equipment requests	Central point for gathering requests, highlighted if urgent, to be checked daily

Equipment for pre-wash care and stabilisation

Equipment needed the first few days of care for approximately 100 birds

FOR REHYDRATION

→ 50 plastic/rubber stomach tubes: 40 to 50 cm long, 5 mm diameter

→ 50-60 ml syringes, with catheter tip

→ Measuring cup 1-2 litre

→ Disinfectant

→ Ingredients to prepare 30 litres of isotonic rehydration fluids

→ Alternative: 9 grams of non-iodised table salt (NaCl) in 1 litre of water

→ Bucket to keep syringes in (to keep fluids warm until use)

→ Towels to handle the birds.

50 ml syringes and stomach tubes are needed for oral rehydration

FOR OFFERING FOOD

→ About 30 food bowls

→ Several buckets to distribute the food in.

Different sized pet food bowls are suitable

FOR CLEANING

→ Newspaper

→ Sponges, brushes, hot water, disinfectant.

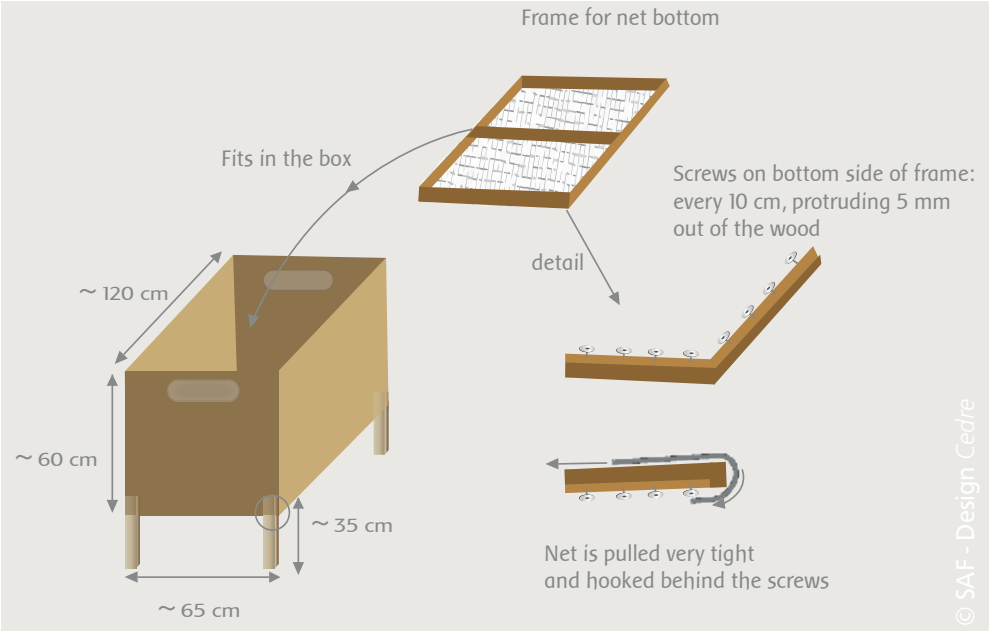
Animal housing

Building schedule for a net bottom cage – basic materials:

→ 16 mm plywood, square timber, minimum 4 cm x 4 cm

→ nylon fishing net without knots, 10 mm mesh

→ screws: longs ones for construction, short ones for tightening the net



Net bottom cage

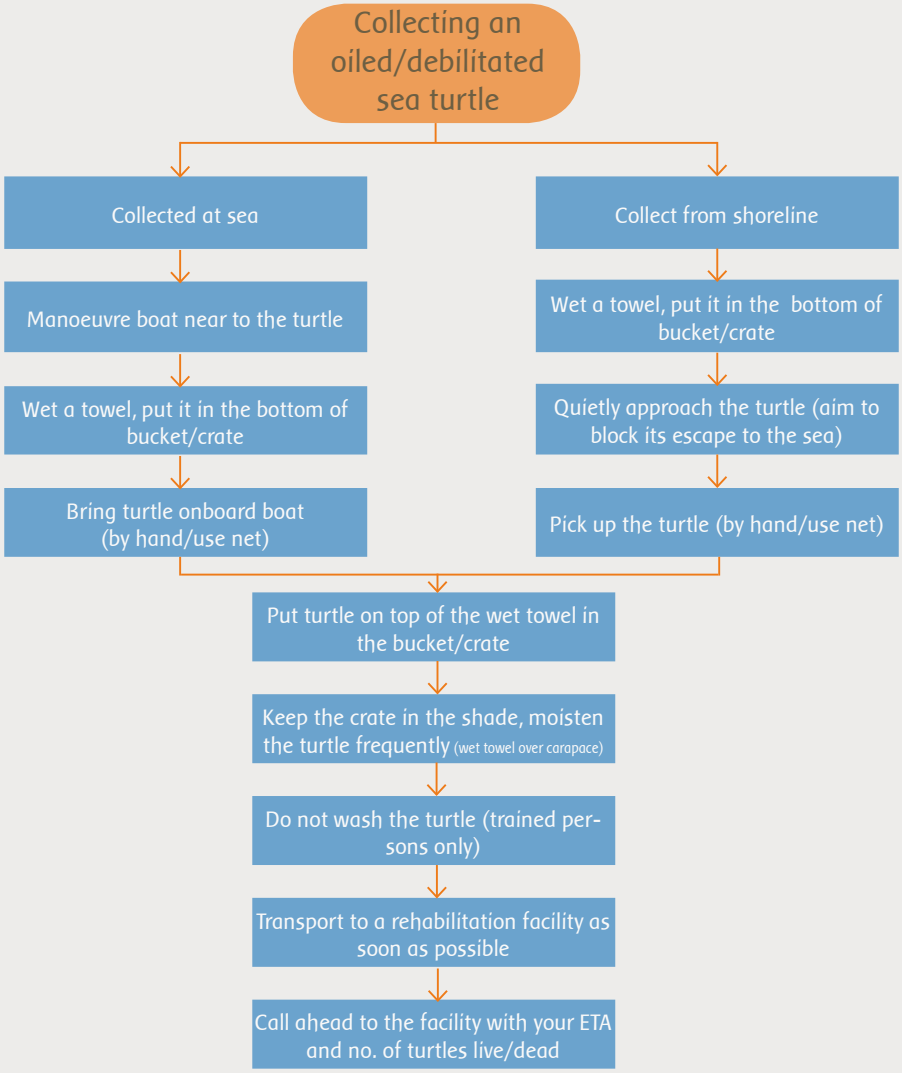
Dealing with live oiled sea turtles

Equipment needed for collection:

- ☐ PPE (gloves, non woven suits, goggles)
- ☐ Large net
- ☐ Large plastic buckets/crates
- ☐ Large towels

Make a note for each turtle of:

- ☐ Time/date collected
- ☐ Latitude/longitude
- ☐ Oil in the area?
- ☐ Species
- ☐ Responsive or not?
- ☐ Contact details of the finder



HANDLING TURTLES:

- ☐ Work in pairs as a minimum, get additional help for larger turtles
- ☐ Grasp the shell with both hands (do not pick up by flippers)
- ☐ Be aware of the head (turtles can bite) and flippers (have claws which can cause injury)

Contact details for incident assistance

For specific questions with regards to the rescue and rehabilitation of (oiled) marine fauna, the following organisations can be contacted (although their inclusion here does not guarantee their availability for a response):

Species group	Name of organisation	Country, city	Tel (office)	Tel (emergency)	Email
Marine/coastal birds Sea turtles	Centro de Recuperación de Fauna Silvestre de Tafira	Spain, Gran Canaria	+34 928351970	+34 659012626	pcalabuig@telefonica.net
Sea turtles rescue	Stazione Zoologica Anton Dohrn	Italy, Naples	+39 081 5833111		flegra@szn.it stazione.zoologica@szn.it
Seals	Seal Sanctuary	The Netherlands, Pieterburen	+31 595 526526		info@zeehondencreche.nl
Monk seals	MOM (Hellenic Society for the Study and Protection of the Mediterranean monk seal)	Greece, Athens	+30 210 5222888		info@mom.gr
Marine/coastal birds	Wildlife Rescue Centre Ostend	Belgium, Ostend	+32 59806766		voc.oostende@vogelbescherming.be
Marine/coastal birds	Royal Society for the Prevention of Cruelty to Animals	United Kingdom, Horsham	+44 1403 793119		wildlife@rspca.org.uk
Marine/coastal birds	CVFSE (Centre Vétérinaire de la Faune Sauvage et des Ecosystèmes)	France, Nantes	+33 (0)240687777		
Marine/coastal birds	ProBird	Germany, Herne	+49 23239640960		probird@gmx.de
Otters	International Otter Survival Fund	Scotland, Isle of Skye	+44 1471 822 487		info@otter.org
Marine/coastal birds	CRUMA (Centro Recupero Uccelli Marini Aquatici)	Italy, Livorno	+39 (0)586 400226		cruma.livorno@lipu.it

PART 3

FURTHER INFORMATION

Glossary and acronyms

The terms used in this manual concern the different features of wildlife response activities. To clarify and facilitate discussions between operators in the field, these terms are defined below:

Approved detergent: dishwashing liquid of a certain brand, which has been extensively tested and is widely accepted as the most effective by oiled wildlife response experts.

Barbs and barbules: structural elements of birds' feathers.

Beachhead collection point (or BCP): a central point along a section of coastline where birds and other animals are collected during the day before being transported (in bulk) to another centre. By the end of the day, all the animals should be transported to a forward holding facility or alternatively an oiled wildlife rehabilitation facility.

Command centre = operational centre = coordination centre = Emergency Central Coordination Centre: crisis room with staff in charge of response management.

Decontamination zone: a functional area between the environment where oil is (hot zone) and the area that is free from oil (cold zone). Any person or vehicle that comes out of the hot zone needs to be de-oiled in this zone, to ensure that the cold zone does not become contaminated.

Endemic: species native to or characteristic of a specific area or region.

ETA: estimated time of arrival.

Forward Holding Centre (or FHC): a centre provided for care of oiled wildlife, placed between a beachhead collection point and the main oiled wildlife rehabilitation facility. The Forward Holding Centre is likely to undertake the first activities in the rehabilitation process: intake, stabilisation and pre-wash care, plus some additional examinations can be administered by a veterinarian if one is in attendance.

Glottis: bird's breathing hole.

Hazing: Techniques or equipment used to scare or deter animals away from oiled areas.

Impact assessment: the process of systematic scientific data gathering during and after a wildlife response, to allow an assessment of the impact of the spill on wildlife populations. Impact assessment includes gathering wildlife corpses for counting and analysis by experts.

Intake: the process whereby an animal that is accepted for treatment in a rehabilitation facility is registered as a patient and whereby the animal undergoes a clinical examination by a trained person under veterinary supervision.

Oesophagus: muscular tube which passes food from the mouth to the stomach.

Oiled wildlife response: any activity dealing with wild animals that are or may be affected by a marine oil spill. This includes measures to avoid animals coming into contact with oil and active measures to mitigate the effects of oiling (wildlife capture, cleaning and rehabilitation or euthanasia).

ORS: Oral rehydration salts.

Personal protective equipment (PPE): clothing and equipment required to protect volunteers against the hazards of working in an oiled wildlife response.

Pinniped: group of fin-footed marine mammals including seals, sea lions and walruses.

Post-wash care: the process in which cleaned animals are dried, regain their waterproofing on pools and reach the required strength and fitness to be considered for release back into the wild.

Preening: behaviour whereby a washed bird smoothes, perfects and maintains its feathers with its beak to restore waterproofing and thermal insulation properties.

Pre-wash care: care given to an oiled animal to allow it to regain the required strength and fitness to withstand the washing process. Pre-wash care includes stabilisation treatment.

Responder: person engaged in or with responsibility for oiled wildlife response operations in the event of a marine oil spill.

Risk assessment: a systematic process to identify the risks presented by a particular response activity, and to define measures to minimise those risks.

SAF: Sea Alarm Foundation.

Search and collection: activities to locate and capture oiled animals (live and dead) from shorelines or the marine environment, for transport to a forward holding centre or rehabilitation facility.

Stabilisation: the initial part (first 48 hours) of the pre-wash care stage which is designed to ensure that the animal's condition does not worsen any further. Once the animal is stabilised, continued pre-wash care aims to ensure that the animal will become fit and strong enough to be washed.

Treatment: any action or care given to an animal which improves its health and well-being as part of the rehabilitation process.

Triage: the process in which all animals arriving at a forward holding centre or rehabilitation facility are divided into different groups for further treatment, on the basis of their health status.

Tubing: the action of tube-feeding a bird with rehydration fluids and/or mashed food, which is an important part of the stabilisation and pre-wash care processes.

Volunteer: (as used in this manual) a person with little or no previous experience in oiled wildlife response, who may carry out certain oiled wildlife response activities.

Washing: the process in which trained experts remove all the oil and other dirt from an animal's feathers, skin or fur.

Waterproofing: after washing, the process in which a bird restores the natural condition of its feathers. The bird must do this itself through preening behaviour whilst being kept on pools.

Wildlife Rehabilitation Facility (or rehabilitation facility): a specialised facility where oiled animals undergo care and treatments to restore them to their natural state (as they were before being oiled) for release back into the wild.

WRCO: Wildlife Rescue Centre Ostend.

Zoonotic diseases: infectious diseases that can be transmitted from animals to humans or vice versa.

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Useful websites

Euroturtle. Distribution of sea turtles in the Mediterranean. www.euroturtle.org/outline/distrib.htm

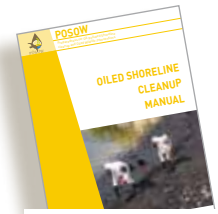
MEDMARAVIS. www.medmaravis.org/

Oiled wildlife response - Europe. www.oiledwildlife.eu

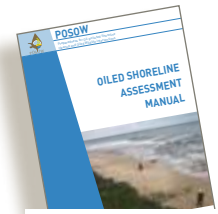
POSOW

Preparedness for Oil-polluted Shoreline cleanup and Oiled Wildlife interventions

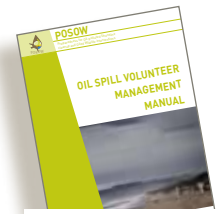
Manuals available in this collection



Oiled Shoreline Cleanup Manual



Oiled Shoreline Assessment Manual



Oil Spill Volunteer Management Manual

Oiled Wildlife Response Manual

www.posow.org

Contact point:

REMPEC - Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea

Maritime House, Lascaris Wharf, Valletta, VLT 1921 - MALTA

Tel: +356 21 337 296/7/8

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