Oiled Wildlife Response Protocols in the Central Baltic Sea

KFV:s Riksförbund
Katastrofhjälp – Fåglar o Vilt

ELF

WWF

ENSACO

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1. INTRODUCTION

The Baltic Sea is one of the most heavily trafficked sea areas in the world. Oil tankers, passenger ferries and cargo ships plough the already heavily polluted sea, unfortunately resulting in accidental and illegal pollution incidents every year. The Baltic Sea is a unique brackish water environment and an important area not only for resident and breeding bird species; twice a year it hosts millions of birds on their Arctic migration route.

Because maritime traffic in the Baltic sea is increasing and ship size is growing, we must adapt to a changing risk scenario for oil spills and also prepare for a worst-case scenario of thousands of tonnes of oil spilled into the sea. There are several examples of oil spills in the Baltic which have resulted in oiled birds and thousands of birds are estimated to die every year because of small accidental or illegal spills.

There are several legal, ethical, conservational and public opinion arguments for rehabilitating oiled animals. Among these are the fact that we have an ethical responsibility to mitigate damage which we have caused, but more importantly, that rehabilitation can alleviate the suffering of oiled birds and act as an important conservation tool for local or regional bird populations. Rehabilitation also gives members of the public a chance to channel their efforts through a well-managed response in a situation which could otherwise quickly become chaotic.

This guide aims to provide basic knowledge for both volunteers and representatives of national and regional authorities on how oiled wildlife rehabilitation can be carried out and which methods should be used. This manual also attempts to bring together oiled wildlife rehabilitators from the Central Baltic area to ensure that oiled wildlife rehabilitation in the Baltic Sea is carried out according to best practices and jointly agreed standards.

We have drawn knowledge and valuable information from a number of manuals, guidelines and protocols on oiled wildlife response and from conversations with individual wildlife rehabilitators and authority representatives. We would like to thank everyone who has helped us along the way. A list of important publications can be found at the end of this manual. A special thank you goes to Sophie Vanroose. This manual is largely based on her document on the protocols used at the Wildlife Rescue Centre Ostend. Also special thanks to Hugo Nijkamp from Sea Alarm Foundation for valuable input.

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2. EFFECTS OF OIL ON WILDLIFE

Oil affects the whole ecosystem when it enters the water. Oil slicks may reduce phytoplankton production and cause disturbances in the food web which will be evident all the way up to the top predators like seals or raptors; benthic invertebrates may be covered in oil and deprived of oxygen, and the reproduction and development of fish and birds may be disrupted. Only part of the effects oil has on organisms and ecosystems are clearly visible.

Oil is toxic to most living organisms and may have both indirect and direct effects on individual species. The most noticeable effect is surface oiling, where oil stuck to feathers or fur can hinder the movement of animals, change their behavioural patterns and interfere with their thermoregulation. Surface oiling may severely hinder movement and feeding. In seabirds, surface oiling leads to changes in the structure of the feathers which affect the bird's waterproofing. As a result, the bird gets wet and hypothermic.

In addition to surface oiling, animals often suffer from internal effects caused by the ingestion of oil either when preening or through their food. Oil may damage the function of internal organs, such as the liver and kidneys, cause gastrointestinal problems and even decrease fertility in animals. Oil components also break down red blood cells, causing anemia. The resulting lack of oxygen is detrimental especially to seabirds which dive for food. Oil also has carcinogenic effects. Indirect effects on individuals or populations are the destruction of habitats, and the disruption of food availability. Often, birds that are taken into care after an oil spill are dehydrated, emaciated, anemic and hypothermic.

When rehabilitating oiled birds, staff and volunteers need to be aware that they are dealing with a toxic substance. Proper instruction on health and safety issues is vital to avoiding health risks for people involved in the rehabilitation process.

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Surface oiling often interferes with the thermoregulation of birds as the water resisting properties of the feathers are destroyed

3. OVERVIEW OF OILED WILDLIFE RESPONSE

When an oil spill happens, it is too late to start thinking about a strategy for dealing with oiled widlife. Different countries have different approaches, ranging from shooting all oiled animals encountered to attempting to catch and rehabilitate as many animals as possible. The question which is often posed is: why rehabilitate oiled wildlife? A natural counter-question would be: why not? We have examples from numerous oil spills around the world which show that rehabilitation is not only possible, but is increasingly successful with more and more healthy individuals being released back into the wild. Increasing knowledge about the best methods for oiled wildlife care will give us a greater chance of success when dealing with declining or endangered species, or local populations.

The key objective of wildlife response is to minimise animal suffering and protect wild animal populations. In a large-scale oil spill, hundreds or thousands of animals – most often birds, may become oiled. The situation can quickly become unmanageable unless guidelines and best practices are followed, and well-trained wildlife rehabilitators are called in. Oiled wildlife is a sensitive issue which, if not dealt with properly, can lead to unauthorised individuals setting up their own ”rehabilitation centres“ or washing and treating birds in their own homes. The lack of an organised wildlife response has often led to public outrage and rescue attempts by untrained individuals and organisations. At worst this can hamper oil spill response activities and spread the oil contamination to previously un-oiled areas. By organising well-managed oiled wildlife response operations, the situation can be kept under control. Human safety and animal welfare can be ensured and national animal welfare legislation followed while at the same time giving local people and volunteers a chance to participate in the rehabilitation process and producing important scientific data.

The development or needs for oiled wildlife response actions after a spill are very unpredictable. The effects of oil on wildlife and the number of oiled birds found varies greatly from one oil spill event to the other, depending on weather conditions, time of year, bird migration routes and the presence of certain vulnerable species, just to mention a few variables. The first oiled birds may be found almost immediately after the spill, or only days or weeks later. There may be a situation where only a handful of birds are found each day or a situation where hundreds or in the worst case thousands of birds all arrive at the same time.

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The amount of oiled birds encountered after an oil spill may vary greatly

Prompt initiation is the key to oiled wildlife response and ensures that animals are quickly collected and humanely rehabilitated or euthanised to minimise their suffering. Oiled wildlife response needs to be a fair process which is organised, efficient, transparent and stakeholder inclusive. A professionally managed wildlife response is included in the overall oil spill incident management and is based on the best available methodology for wildlife care.

3.1. INCIDENT MANAGEMENT

Different oil spill incident command structures exist in different countries but oiled wildlife response should always be integrated into the overall incident management. This ensures that cooperation between wildlife responders and responsible authorities is functional, that information is shared and that resources and staff can be allocated efficiently.

Below is an example of an organisational chart for oiled wildlife response.

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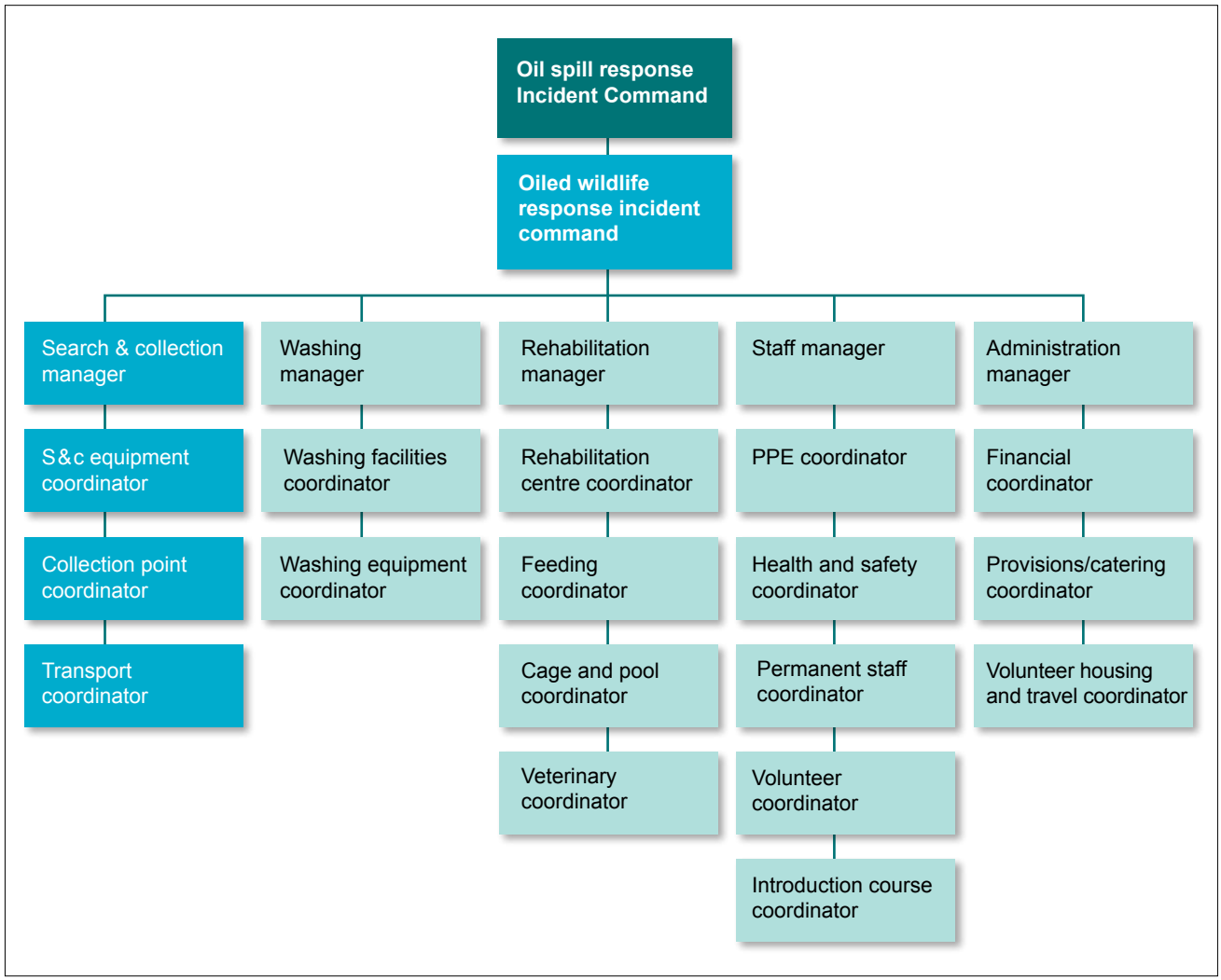
Prompt initialization is crucial for a successful response.



3.2. INITIALISING THE RESPONSE

As previously mentioned, oiled wildlife rehabilitators should be mobilised as soon as possible in the event of an oil spill. Even if no oiled animals have yet been found, it is important to place oiled wildlife response units on stand-by, given that some time is needed for all resources to be fully operational. It is therefore vital that all authorities involved in an oil spill response, be it oil combat at sea or on the shoreline, are aware of the wildlife resources available and know how to mobilise them. For this reason, it is important that oiled wildlife rehabilitators and authorities cooperate already before a possible spill, through joint exercises and contingency planning.

Contact information for oiled wildlife rehabilitators should be easily accessible in all countries and should be kept updated.

3.3. TIERED RESPONSE

It is crucial that authorities are aware of the limitations of equipment and staff at their disposal for an oiled wildlife response. Local or regional resources may only be able to deal with a limited number of oiled birds. If the number increases, there needs to be a plan for calling in national or international assistance.

A tiered response is a way of sorting incidents according to how severe they are and how well local, regional or national resources can deal with them. Usually a model with three tiers is used, where Tier 1 considers a scenario with local impact, tier 2 a scenario with national impact and tier 3 a scenario for which international assistance is required. It is important that these tiers are pre-defined so that authorities with regional and national responsibilities know when the resources are threatening to become exhausted. A tiered response can be based on different criteria, for example response capacity (e.g. how many animals can local/regional/national resources deal with?) or species involved (e .g. do the strategies differ for common species and endangered species?).

3.4. EXISTING OILED WILDLIFE RESPONSE RESOURCES

In many Baltic Sea countries, there are organisations specialised in dealing with injured wildlife. Some of them have extensive knowledge and experience of dealing with oiled birds and some of them have resources and keep registers of volunteers trained especially for an oiled wildlife response. These organisations can provide expert advice, trained staff, volunteers and material resources to assist authorities with an oiled wildlife response. Knowing what resources exist and what the organisations and authorities expect of each other helps to set the response efforts into motion efficiently.

Volunteers can be an important resource in an oiled wildlife response, especially if they are trained and join the response through an organisation which has established and agreed protocols for dealing with oiled wildlife, and which already cooperates with the authorities. In Estonia, trained volunteers are coordinated by the Estonian Fund for Nature (ELF), in Finland by the World Wide Fund for Nature (WWF) and in Sweden by Katastrofhjälp Fåglar och Vilt (KFV). Detailed information about volunteers can be obtained by contacting these organisations. Contact information can be found on page 10.

3.5. PRE-EMPTIVE MEASURES

One of the first steps in oiled wildlife response, which should be taken immediately when an oil spill has happened, is to identify the areas that will be worst hit and the areas where protective measures can be taken to reduce the impact of the oil. Keeping animals away from oiled areas can be a lot easier, cheaper and less labour-intensive than catching them and washing them. This requires that oiled wildlife rehabilitators are mobilised as soon as possible after the spill has taken place. Protective measures are any measures which can be taken to prevent animals from getting oiled and they can be divided into hazing/deterring and pre-emptive capture.

Hazing techniques such as using loud noise, visual or other sensory aids to deter birds and other animals from oil affected areas work best in small and well-defined areas. With large, drifting oil slicks it may be difficult to cover the whole affected area and clean areas may not be available nearby for birds to use. Often local ornitholoigical organisations have the knowledge of how best to proceed with hazing because they possess information about local species and their behaviour. Resources needed for hazing are knowledgable staff and could include a wide array of equipment, such as gas cannons for creating loud noise or flags or shiny tape to use as a visual deterrent. Animals may become accustomed to different hazing means, so a change of strategy may be needed to keep the animals away if the spill continues for a long time.

Pre-emptive capture can be done for example when a local population of a threatened or endagered species is under threat of being oiled. It may be better to catch and re-locate, or temporarily hold these animals in a rehabiltation centre until the oil has been cleaned up.

3.6. RESPONSE ACTIVITIES AND RESOURCES NEEDED

Oiled wildlife response activities can be divided into search and collection, stabilisation, washing and post-wash rehabilitation. More detailed information about the different stages of the response can be found in later chapters of this manual.

All these activities require resources. Wildlife responders and volunteers need transportation, housing and provisions. In addition, personal protective equipment, insurance, medical services and other health and safety requirements need to be taken into account. These are all services which, to a large extent, or at least partly, should be provided by the authorities under which the wildlfie response will be organised. National legislation may deal with the deployment of volunteers in a more detailed manner and may also contain more detailed information on, for example, work compensation requirements.

The list of equipment needed for the response activities is long, including nets, cages, cardboard boxes, washing agents, veterinary supplies, animal feed etc. Authorities will need to agree with rehabilitators on how this equipment will be purchased and reimbursed. Rehabilitators may purchase equipment and make a claim of costs to the coordinating authorities, or the authorities may purchase equipment for the rehabilitators directly. Rehabilitators often have a stock of existing equipment which lasts for the first few days of rehabilitation, after which they need to be replenished. It is important that it is shown and approved from the start how equipment is bought and how the final claims will be handled.

© TONI JOKINEN

Resources needed for search and collection include cardboard boxes

CONTACT ORGANISATIONS:

ESTONIA:

- Estonian Fund for Nature (ELF): www.elfond.ee
- Estonian Environmental Board: www.keskkonnaamet.ee
- Estonian Rescue Board: www.rescue.ee
- Estonian Environmental Inspectorate: www.kki.ee

SWEDEN

- KFV – Katastrofhjälp fågel och vilt: www.kfv-riks.se
- Svenska Blåa Stjärnan: www.svenskablastjarnan.se
- Swedish Civil Contingencies Agency (MSB): www.msb.se
- Swedish Coast Guard: www.kustbevakningen.se

FINLAND

- Finnish Environment Institute (SYKE): www.syke.fi
- Itä-Uusimaa Rescue Service: www.iupl.fi
- WWF Finland: www.wwf.fi

INTERNATIONAL

- Sea Alarm Foundation: www.sea-alarm.org
- The Interntaional Tanker Owners Pollution Federation Limited (ITOPF): www.itopf.org
- International Bird Rescue (IBR): www.bird-rescue.org
- Tristate Bird Rescue and Research: www.tristatebird.org
- Oiled wildlife care network: www.owcn.org

4.DOCUMENTATION

A professionally managed wildlife response is included in the overall incident management and based on the best available methodology for wildlife care. All decisions made and measures taken need to be carefully documented for the following reasons:

- To ensure transparency and accountability
- To allow evaluation and scientific research (evaluating damage to bird populations)
- To foster public confidence and save money
- For claims purposes (to recover costs from the polluter)
- To ensure the health and safety of responders and animals and to ensure animal welfare

4.1 . DOCUMENTATION OF ANIMALS

All live animals admitted to a rehabilitation centre are given an intake card and daily treatment form, which remains with the animal through the whole rehabilitation process. Everything concerning a specific animal is written down on these forms. A general rule is that it's better to write down too much information than to leave something out.

Dead animals are also carefully documented and counted by species and sex. Necropsies are needed to make population impact assessments at a later stage.

© PÄIVI SEPPÄNEN

Careful documentation of people, animals and resources is essential for a successful response effort

4.2. DOCUMENTATION OF STAFF AND VOLUNTEERS

Staff working in the rehab centre are documented in two ways: upon arrival, volunteers have to fill in a form containing their personal data (name, address, phone number). Staff and volunteers also have to commit to following working instructions and sign a form to confirm this. In addition, all volunteers are documented in the personnel chart, where everyone's working hours are filled in and counted. Arrival and departure of all personnel is written on this chart daily. Printable registration sheets for volunteers working at rehabilitation centres or with search and collection can be found on pages 12 and 13. Volunteers have to register every time they come to work. After signing the registration form, they will receive their instructions. They also have to sign out each time they leave for the day.

The work schedules should be posted on notice boards and it is crucial that volunteers follow them.

Every single injury and illness incident, however small, has to be reported to the staff manager. Insurance arrangements need to be in place.

4.3. DOCUMENTATION OF RESOURCES

Supplies, services and equipment used during a wildlife incident must be approved and documented. There must be a receipt for everything bought for the rehabilitation process, even if volunteers are asked to purchase something. This is important for claims after the response is finished, and to evaluate the oiled wildlife response process and the resources spent on it.

All the waste and contaminated water produced need to be documented as well, as this needs to be treated and/or brought to a waste disposal facility. All volunteers are asked to keep all receipts and report on all personal possessions which have gone missing or have been stolen or broken during the response. All receipts are collected and stored.

4.4. USE OF WRITTEN PROTOCOLS

The use of written protocols, such as protocols for the rehabilitation of oiled wildlife, chain of command structures etc., is also part of documentation. These present the staff and volunteers with a standard way of working, help them learn from previous mistakes and prevent new mistakes from happening. They also help staff and volunteers to work fast and in an organised way and enable the reconstruction of the rehabilitation process after the response. Written protocols should be kept up to date and they should be easy to change when new methods have been proven to be more efficient.

PRINT & USE

REGISTRATION FORM FOR VOLUNTEERS

Rehabilitation centre name and number: _____

Personal registration number: _____

PERSONAL INFORMATION

Name: _____

Nationality: _____

Address: _____

Phone number: _____

E-mail address: _____

Social security number: _____

Date of first registration: _____

Work ended on: _____

Number of working periods: _____

EMERGENCY CONTACT INFORMATION

Name: _____

Address: _____

Phone number: _____

E-mail address: _____

I hereby confirm that the information I have given is correct. I am familiar with the rules and regulations of the rehabilitation centre and I commit to following them and any other instructions given to me by rehabilitation centre staff and supervisors. I am aware that I will not be allowed to continue working if I disregard these.

_____ _____

Signature Date

PRINT & USE

REHABILITATION CENTRE WORK REGISTRATION FORM

Rehabilitation centre name and number: _____

Date: _____

Shift: _____

Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature
Name	Personal registration number
Time signing in	Time signing out
Signature	Signature

5. GENERAL CONSIDERATIONS FOR BIRD REHABILITATION

5.1 HEALTH AND SAFETY

There are several risks to consider when dealing with oiled wildlife. As previously mentioned, oil is a toxic substance and it may cause adverse health effects like respiratory problems and skin burns after exposure. In addition to the risks of working in an oily environment, some wild animals are potentially dangerous and are capable of causing serious injury. All wild animals may carry parasites and bacterial, viral and fungal infections. Most of these can be passed on to humans (zoonoses) or other animals, either domestic or wild. That is why there are some rules of health and safety that have to be followed when rehabilitating birds. The number one rule is: human safety comes first. A first aid kit has to be always available, and suitable personal protective equipment provided. It is also useful to post work safety and hygiene rules and information about work hazards in clearly visible places. Volunteers under the age of 18 are not allowed to work with oiled birds. The same applies for people who are pregnant, have a weakened immune system or suffer from allergies or asthma. It is important that everyone working with oiled wildlife understands these rules and inform the management of any illnesses or conditions which might prevent them from working with oiled wildlife. The work can be tedious and physically and mentally challenging. The use of alcohol or drugs during an oiled wildlife response is strictly prohibited and anyone taking part who does not follow the rules and instructions will be forbidden from continuing to work.

BASIC RULES TO REMEMBER

FOR WORK SAFETY	FOR HYGIENE AND CLEANLINESS
Take frequent breaks – extra breaks are better than a tired worker	Treat and disinfect all wounds, no matter how small
Drink enough water and eat properly and regularly	Wash your hands regularly, it is extemely important
Report every problem or accident to a supervisor	Strictly maintain separate areas for oiled and clean birds and oiled and clean equipment
Pay attention to written information. In the rehabilitation centre, there are always important notices on the walls.Information may change, so read the instructions on message boards regularly. Communication is essential.	Keep places clean and tidy. To prevent anyone from tripping over them things must not be left on the floor.
Keep electric cables and sockets dry to prevent electric shocks. Cables may never be laid in water.	Never eat or drink in animal holding areas
Never smoke inside the rehablilitation centre. Smoking spots will be indicated outiside.	Use separate clothes and towels when working and when resting or eating
Always wear appropriate personal protective equipment which is provided. PPE will vary according to the task at hand.	Keep all equipment in the right place so it can be found easily
Use suitable shoes, floors may be wet and slippery	Strictly maintain separate areas for volunteers and animals

© PÄIVI SEPPÄNEN

Health and saftey rules and regulations should be kept clearly visible

Personal protective equipment which is needed during an oiled wildlife response varies depending on the working conditions and tasks as hand. Below is a list of all necessary equipment.

- Warm/cool clothing depending on weather
- Water resistant PVC layer
- Disposable tyvek overall
- Oil resistant boots
- Oil resistant gloves
- Goggles
- Disposable respirators or half masks protecting against oil fumes and/or airborne diseases
- Long-sleeved washing gloves
- Water resistant pinafore
- Nitril gloves

© SUSANNA MANU

WORK HAZARDS

ANIMALS:

BITES, PECKS.

Vulnerable areas: hands, wrists, eyes.
Control measures: gloves, goggles,a good handling technique – good training and experience. Always remember that you are dealing with wild animals that can be very unpredictable in their behaviour

DISEASES, ZOONOSES, PARASITES

Control measures: gloves, handwashing, masks, clean treatment areas

OIL:

SKIN IRRITATION
HEALTH PROBLEMS WHEN INHALED
CAN IRRITATE THE EYES

Control measures: gloves, goggles, masks

WASHING:

SKIN IRRITATION

Control measures: hand moisturising cream, gloves, restricted bird washing periods

WORKING OUTDOORS:

COLD
ICE
WATER
SUNBURN

Control measures: proper clothing and footwear, suncream, hat, drinking enough water, proper safety equipment for working in and around water.

WORKING INDOORS:

SLIPPERY FLOORS
ELECTRICITY AND WATER
OVERHEATING

Control measures: proper clothing and footwear, training in health and safety, understanding and obeying health and safety rules, drinking enough water

GENERAL:

PHYSICAL AND MENTAL STRESS

Control measures: taking breaks, eating and drinking enough, training, good knowledge of the assignment. Monitoring your own wellbeing and keeping your supervisor informed

5.2. ANIMAL WELFARE

Animal care starts from the moment a net is thrown over it. From that moment onwards, there are certain things which have to be considered. Firstly, the aim of rehabilitation is to release a perfectly healthy and 100 % waterproof bird, which has the same chances to survive and reproduce in nature as it had before becoming oiled. Secondly, to ensure that animal treatment in captivity is good-quality treatment, pre-defined proven protocols should be used. Every step of the treatment should be documented in individual files and the time in captivity should be kept as short as possible.

To prevent the spreading of diseases in the rehabilitation centre, hygiene and cleaning routines need to be given top priority. At the same time, however, animals in captivity are under severe stress – the stress level must be kept as low as possible. This is achieved through avoiding contact with the birds and avoiding loud voices or other noises in the rehabilitation centre. To keep stress levels low, sheets and towels should be used when handling animals and all necessary procedures performed with one handling. Attempts at domesticating or taming the animals must be avoided: the animals should not be petted and no emotive responder-animal relationship should be developed.

Certain cleaning routines are carried out daily and others only when needed. It is important to do things in the same order every day as part of a routine. This way it will become less likely that something is forgotten!

National legislation regarding animal husbandry, handling of food, disease control and the care of wild animals must be followed at all times.

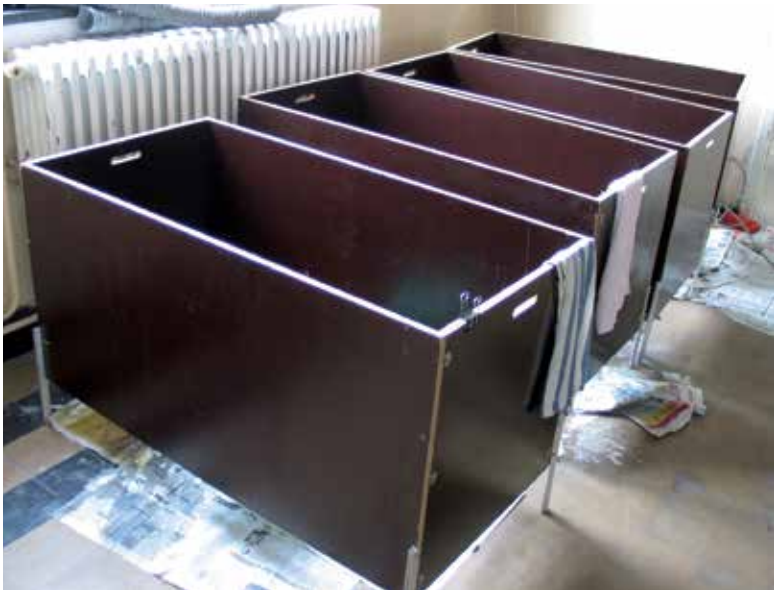
© TOOMAS VASK

6. REHABILITATION CENTRE SET-UP AND FACILITIES

Rehabilitation centres, where the care for oiled birds is carried out, are preferably set up as close to the oil spill site as possible, but in an area with well-developed infrastructure. This guarantees easy access for volunteers and the availability of shops and main transport routes. The facilities should be easy to monitor and preferably surrounded by a fence to keep out unauthorised people, domestic animals and predators.

Some countries may have permanent rehabilitation centres which can be upgraded or expanded to accommodate a large-scale response effort, while others rely on rehabilitation centres being set up after a spill has already happened. In Finland, there is a mobile bird cleaning unit (BCU) which can be moved to a suitable location along the coast of Finland or abroad when needed. The Finnish Environment Institute (SYKE) is responsible for the administration of the BCU and the Itä-Uusimaa Regional Rescue Service is responsible for transporting the unit to the required location and setting it up. WWF Finland provides the volunteers and staff, and cooperates with experts such as veterinarians and ornithologists. In Estonia, there is a similar system as the Rescue Board has a mobile equipment unit for oiled wildlife rehabilitation. This unit will in case of a spill be transported by the Rescue Board in cooperation with the Environmental Board, which is responsible for oiled wildlife response. The Estonian Fund for Nature has signed agreements with the Rescue Board and the Environmental Board, and provides volunteers and staff needed for the response.

Whatever the solution or rehabilitation facilities are, it is important to identify the spots along the coastline where rehabilitation centres or mobile rehabilitation units may exist or may be set up, to discuss these needs with oiled wildife rehabilitators and to include oiled wildife response in existing and upcoming contingency plans.



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Oiled birds should be housed indoors. Pens need to be built according to the varying housing needs.

When setting up a rehabilitation centre, special attention should be paid to proper ventilation, temperature regulation and easy access to cages. Areas for oiled and clean birds should always be clearly separated. The simplest design for a rehabilitation centre is a conveyor belt –like setup where birds move in one direction only, through intake, pre-wash areas and washing and drying areas to post-wash areas and pools.

© JAAKKO POIKONEN

The Finnish mobile bird cleaning unit (BCU) consists of three containers designed especially for oiled wildlife rehabilitation.

7. HOUSING

Housing needs for birds vary between spills and also during the development of a single spill event. In some cases, the first oiled birds will be found during the first few days of the spill, in others it may take from a few days up to weeks before the first oiled birds are observed. Therefore, housing planning and setup needs to be robust with regards to changing situations like altering ratio of oiled to washed birds.

Areas for oiled and clean birds differ from each other especially when it comes to air temperature as this generally needs to be kept higher for oiled birds than clean and dry birds. Temperatures between 27°C and 30°C are suitable for oiled birds. For clean birds, the temperature can be kept around 18 – 20°C. All areas must have sufficient ventilation to avoid the accumulation of harmful oil fumes and also to avoid the spread of the fungal disease aspergillosis (see page 43). The recommended air exchange rates are 10 times per hour.

One of the tasks volunteers will perform during an oil spill is building cages, pens and pools. There may be a sudden need for large numbers of these.

Cages should be designed so that they are easy to clean. All seabirds should be kept in net-bottom cages if possible. The net should be soft, knot-free and elastic. The mesh size should also be small enough to prevent birds' feet from falling through and getting caught but large enough so faeces can easily drop through. There are several advantages with net-bottom cages:

- Net-bottoms, if made from the right material, are soft and do not hurt the seabirds chest and legs as they are not used to lying on a hard surface (see page 43)
- Net-bottom cages can be built to a certain height which makes it comfortable to move birds in and out. This causes less back problems for rehabilitators.
- Faeces drop out through the net, so the birds' feathers stay clean.
- It is easy to clean the floor under the net-bottom; layers of newspapers can be laid on the floor under the cages and changed a couple of times a day.

Bird species which are used to walking on land (for example swans, most gulls and waders) can be kept on the floor. The floor should be covered with Astroturf, towels and newspaper or wood shavings. Never use hay or straw as this is an ideal breeding ground for aspergillosis. The floor coverings need to be regularly changed to keep the floor clean and dry at all times.

Cages are partly covered with light-coloured sheets or towels to keep the stress levels down as well as to prevent the birds from escaping from the cage. Noise should always be kept to a minimum while being around the animals.

© VANESSA RYAN

Newspaper should be kept under each pen and cage in order to keep the floor clean as it is easy to change when it gets soiled.

The recommended cage size may not be smaller than the minimum defined by national legislation on animal housing. A cage of 120 x 60 cm can house for example four auks or two eiders. Remember to keep the dimensions of the cages reasonable: if the cages are too deep, too wide or too low, it will be hard to reach the birds and clean the cages when needed. Pens and cages can be built using plywood; avoid net walls as birds can injure themselves or get caught in them by their feathers. If pens with net walls are used, these should be covered with a suitable material like plastic sheeting. Some birds are easily stressed and need to be provided with a hiding place like an upside down cardboard box.

Birds should always be kept in cages sorted by species and feeding schedule: it is easier if all the birds in a certain cage have the same nutrition and medication schedule. The number of birds which can be kept in one cage varies: some birds (like divers) should preferably be kept individually.

8. SEARCH AND COLLECTION

The treatment of oiled birds starts with search and collection. For the search and collection phase to be successful, it needs to be well planned and all necessary safety and collection equipment should be available. Sometimes the first step in the oiled wildlife response process is to take protective measures, e.g. to try to scare animals away from oiled areas using different hazing techniques, or even to capture animals like swans, geese, non-fledged young or moulting ducks in order to prevent them from becoming oiled.

After an oil spill incident, some volunteers and rehabilitator staff will be assigned to search and collection duties. The search and collection manager has overall responsibility for the operations and coordinates the work of the different field groups. Wildlife rehabilitators and volunteers working with search and collection usually work in teams of two or more people. They require vehicles for transportation (boats, cars for volunteers, vans for bird transportation), gear for catching birds and personal protective equipment. Some or all of this equipment may be kept in storage by rehabilitation organisations. Usually rehabilitators require help in organising transportation for volunteers and access to areas where oiled birds may be found. They can also benefit from information gathering operations carried out by Shoreline Cleanup Assessment Teams or other overall shoreline oil spill response activities. Safe access to beaches needs to be granted and search and collection planned in such a way that the oiled wildlife response activities do not interfere with the shoreline response activities. No search and collection attempts should be made without proper authorisation from the oil spill incident command.

Oil-affected animals other than birds may also be encountered on the shore, including e.g. marine mammals, otters, and scavengers such as mink or foxes. It may not be necessary or possible to capture these animals and when capture is attempted, it should always be done with care and by trained and experienced people only. Some animals are not only extremely difficult to catch and even dangerous, but also require purpose built holding facilities and personnel with extensive training in animal handling. If there is no suitable holding facility or trained personnel, no attempt should be made to catch or treat the animal. Separate protocols exist for dealing with mammals.

© VANESSA RYAN

Pens should be partly covered with light-coloured sheets in order to create a calmer environment for the birds.

© JARI LUUKKONEN

Animals other than birds may be extremely difficult to catch

8.1. THE SEARCH AND COLLECTION TEAMS

Team work is essential for the successful collection of oiled birds. A group leader is assigned for each group. If possible, one member of the group should be an ornithologist or biologist with sound knowledge of bird species and bird behaviour. It is also good if at least one member of the group is familiar with first aid techniques to ensure the safety of team members. The group leader and preferably also the scribe should stay un-oiled.

8.1.1. PERSONAL SAFETY

In the work, personal safety is always priority number one. It is important to be familiar with the local terrain and possible risk factors like slippery surfaces, ice and long walking distances. Always stop the work if in doubt about the safety of the group. The maximum recommended working hours for a team are ca 6 hours, depending on circumstances.

EQUIPMENT NECESSARY FOR SUCCESSFUL SEARH AND COLLECTION

Equipment (for each bird collection group)
- binoculars
- cardboard boxes for collected animals
- newspaper (for insulation)
- tarpaulin
- nets, throwing nets and hand nets
- duct tape
- large plastic bags
- equipment for bird rehydration (if necessary)
- equipment for emergency euthanasia (if necessary)
- compass
- knife
- maps of the area
- flashlight
- matches
- bird guide
- notebook, pencils and water resistant marker pens
- antiseptic handwash
- personal first aid kit
- cleaning tissue for equipment and hands
- towels
- contact details for incident command on at least two phones
- bread or other food for luring

Personal protective equipment
(for each member of the group)
- tyvek overalls (at least 2/person)
- rainproof and warm clothing
- oil resistant gloves
- nitrile gloves
- protective eyewear
- breathing masks, if necessary
- rubber boots

Other personal equipment
(for each member of the group)
- change of clothes and shoes
- snacks
- water bottle
- personal medication for at least 24 hours
- charged mobile phones, in protective plastic bags

© HANNU EKBLOM

Weather conditions may be very challenging for search and collection teams. Personal safety always comes first!

8.2. CATCHING THE BIRDS

Most catching will be done on the shore. In some cases, when proper equipment and trained personnel is available, catching operations can also be conducted by boat. In certain areas where the shoreline is rocky and steep, this is the only available option. Night-time and early morning has been found the best time for capturing certain bird species on the beach.

CATCHING STRATEGY

It is always best to get an overview of the beach area and plan ahead before capturing. This way, you can use the terrain to your advantage and avoid scaring off other oiled birds that have been spotted on the beach when attempting a catch. For a successful catch, at least two people should participate. The first thing to do is to prevent the bird from re-entering the water. Walk towards the bird along the shoreline, but don't head straight to it. Walk slowly and quietly and use the features of the shoreline (shrubs, large stones) 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. Once back in the water, the bird will probably be impossible to catch. When you are at the same level along the beach as the bird, you can attempt a catch with your net. Once the bird is caught, gently remove it from the net, using a towel where possible. At this stage, you must be aware of sharp beaks and fast movements. You should always handle birds using a firm grip, keeping its wings and, when necessary feet and beak, under control.

© ESTONIAN FUND FOR NATURE

1. Get an overview of the area and plan your approach

© ANU VALING

2. Use the features of the terrain to your advantage

© ESTONIAN FUND FOR NATURE

3. If possible, bring food for luring birds towards you

© JAN-ÅKE HILLARP

4. Walk towards the bird, placing yourself between the bird and the water.

© JONAS PÅLSSON

5. When you are on the same level as the bird, attempt a catch.

© ANU VALING

6. More than two people may be needed to handle large birds.

AFTER THE CATCH

© PÄIVI ALA-RISKU

1. When the bird is caught in the net, hold it firmly against the ground.

© PÄIVI ALA-RISKU

2. Always keep the bird in a steady grip

© PÄIVI ALA-RISKU

3. Gently remove the bird from the net without loosening your grip.

© PÄIVI ALA-RISKU

4. Place the bird in a well aerated cardboard box for transport to the rehabilitation centre

HOW TO

WATCH OUT FOR

Vanessa Klötzer/WWF Jaakko Poikonen/WWF

© PÄIVI SEPPÄNEN

Long necks

© TONI JOKINEN / WWF

Powerful wings

© VANESSA RYAN

Sharp beaks

© SHARLENE JACKSON, SXC.HU

Claws

HOW TO

HANDLING BIRDS

© JAAKKO POIKONEN

When handling live birds, always use both hands and keep control of the wings, feet and beak of the bird.

© PÄIVI SEPPÄNEN

Large birds can be easier to handle if bird bags are used

Be aware that birds have delicate bones and feathers which can break easily. When dealing with large birds, two people are needed. Large birds like swans are easier to transport if bird bags are used.

Heavily oiled birds are usually easier to catch. Lightly oiled birds might still be able to fly, dive and/or defend themselves. Approaching lightly oiled birds therefore requires extra care to avoid injury to the bird and/or the catcher. Catching can be very stressful for a bird and should be done as swiftly as possible. Unnecessary fast movements should be avoided and groups should be calm on the beach.

Birds still able to fly should be prevented from taking flight upwind. This is achieved by facing them with the wind at your back. A useful tool is a throwing net. If appropriate, searches and catching can be conducted at night using flashlights. This requires extreme care and experience and should not be attempted without proper guidance.

A shaft with a hook could be useful when capturing swans and geese, as could a rope snare. Swans are often accustomed to humans feeding them, so it is possible to lure them closer with small pieces of bread until they can be reached for capture. Long chases should always be avoided, as this is extremely stressful for the birds. If the bird gets away, there will not be a second chance to catch it.

It is not always possible to catch all oiled birds. They may be able to escape, or the conditions may be such that catching them may cause more harm than good. During nesting periods for example, it may cause more damage to the bird population to disturb nesting couples or catch nesting birds, than to leave a few oiled individuals in the wild.

© BJÖRN HILLARP

All dead birds encountered on the beach should be collected for further analysis.

8.3. GATHERING DEAD OILED BIRDS

All dead birds encountered on the beach have to be collected for further analysis. They should be collected in waste bags but kept separately from each other and from other oiled waste. The bags containing the carcasses should be marked with the date, time and place of collection and stored in a freezer. Separate ringed and non-ringed birds in the freezer if possible. The carcasses can later be sorted according to species, sex and age, and used to assess the damage to the bird populations and to determine the causes of death. They may also be needed for the compensation claim process. Dead oiled birds are classified as hazardous waste and should be disposed of accordingly when scientific data has been gathered.

8.4. TRANSPORTATION

Oiled birds can be transported in cardboard boxes or in boxes designed for transporting cats and dogs. Each box has to be marked with the capture date, time and place and information about the bird(s) in the box (species, sex and age if possible) and name of the person who captured it. A printable information sheet for transportation boxes can be found on page 26.

General rules when transporting birds are to maintain good ventilation, a steady temperature and a quiet environment (no radio or loud noises). This is important for both the birds and the persons transporting them. The driver should be calm in his movements and driving style.

To keep the birds warm during transportation in cold weather, newspaper or a towel can be added as insulation (this also prevents the bird from slipping). Extra heating, like battery-powered heat lamps or interior heaters might be necessary during winter months. Since some of the fractions of oil are volatile, it is important that the transport boxes have adequate ventilation holes in them and that they are not

packed too tightly in the vehicle and not stacked on top of each other. Bear in mind that when many birds are kept in the same box, ventilation needs to be very efficient. There must be enough space around each box for the air to circulate; between 10 and 12 cardboard boxes fit into a small van. The boxes must always be properly closed so as to prevent birds from escaping. If the transport takes more than an hour, the birds must be monitored during the trip and may also need to be rehydrated half way. Only non-aggressive colonial species may be put in a box together with individuals of the same species, other birds are best put in individual boxes. Transport distances and waiting times should be kept as short as practically possible.

Always inform the rehabilitation centre of the number and the species of birds you are transporting, as well as the estimated time of arrival at the centre. This helps the centre to plan ahead. At the end of each day, the response leader should be provided with a summary of all the dead and live birds gathered.

8.5. TEMPORARY HOLDING

Sometimes it is not practical or possible to transport the birds directly from the beach to the permanent rehabilitation centre. Work may still be ongoing to set up a permanent centre, or transport distances may be too long for dehydrated and hypothermic animals to survive the journey. In these cases it is useful to set up temporary holding areas where birds can be stabilized and kept in a warm, quiet, dry and well ventilated place. Possible temporary holding areas may be warehouses, school buildings or any other spacious inside area with access to electricity and water.

© TONI JOKINEN

More than one individual of non-aggressive colonial species may be transported in the same box.

INFORMATION SHEET FOR TRANSPORTATION BOXES

Collection date and time	___ ___ /___ ___ / ___ ___ ___ ___ at ___ ___ : ___ ___ d d m m y y y y
Place of collection	
Collector	
No. of birds	
Species	
Sex	male ☐ female ☐ unknown ☐
Oil coverage	light ☐ medium ☐ heavy ☐
Additional information	

INFORMATION SHEET FOR TRANSPORTATION BOXES

Collection date and time	___ ___ /___ ___ / ___ ___ ___ ___ at ___ ___ : ___ ___ d d m m y y y y
Place of collection	
Collector	
No. of birds	
Species	
Sex	male ☐ female ☐ unknown ☐
Oil coverage	light ☐ medium ☐ heavy ☐
Additional information	

PRINT & USE

9. TRIAGE

In an oil spill there may be hundreds or thousands of animals and all animals can not always be cared for immediately because of lack of resources.

Triage is an instrument that aims to make optimal use of limited resources by grouping together animals with different treatment needs. Through triage animals can be divided into groups based on how urgent their care is, what medication they should be given, or whether they should be treated or euthanised.

Selection criteria during triage may depend on the number of birds and their overall condition, oil type and available space and resources in the rehabilitation centre. Selection can also be made by species (e.g. prioritising species of conservation interest), sex (priority given to females) or age (priority given to animals of reproductive age). Selection criteria are always decided specifically for each oil spill incident.

If possible, a first triage should already be conducted prior to transportation to the rehabilitation centre, either on the beach or at a temporary storage facility close to the collection area where the birds are collected prior to dispatch to the rehabilitation centre. This triage can, in accordance with relevant national legislation, either be carried out by a veterinarian or an experienced rehabilitator. If a veterinarian or other authorised person is available on the beach, individuals not likely to survive transportation or rehabilitation may be euthanised immediately.

© VÅBJÖRN HILLARP

Hevily oiled birds may be in better condition than lightly oiled ones.

EUTHANASIA

In an oil spill, when only a limited number of oiled birds can be treated, the amount of animals taken into care may have to be reduced. The weakest animals may then be selected for euthanasia by a veterinarian or wildlife rehabilitator, as the strongest animals are more likely to survive. Euthanasia may also be the only humane treatment option for a severly injured or emaciated animal, and animal welfare should in this case always be put first. Euthanasia cannot be carried out by volunteers unless national legislation permits and volunteers have received training. The method, like using lethal injection or breaking the neck of the bird, must comply with national laws on the prevention of cruelty to animals. To prevent prolonged suffering, seabirds may not be euthanised with CO_2!

Examples of euthanasia criteria:

- Severe hypothermia or hyperthermia
- Abnormal blood values like severe hypoproteinemia and/or anaemia (TP<2 g/dl and/or PCV<15%)
- Emaciation
- Debilitation
- Serious injuries to wings, keel or legs
- Infection

10. INTAKE AND STABILISATION

All birds arriving at the temporary holding facility or rehabilitation centre have to be registered and live birds that are admitted must be thoroughly examined. On admission, an individual patient intake form must be filled in for every bird. An example of an intake form and a daily progress form can be found on pages *31* and *33*.

The intake procedures are always carried out by a veterinarian or authorised rehabilitator. Volunteers are important in an assisting role. Volunteers with more experience may be given more demanding tasks after proven experience and under supervision.

The first priority when a bird has been taken into care is to stop its condition from declining further. It is important to rehydrate the bird and achieve a normal body temperature. After this a normal body mass and normal blood values are achieved through regular feeding and medication and minimum disturbance. No bird may be washed before its condition is clearly improving.

HOW TO

INTAKE PROCEDURES FOR ALL BIRDS

- The bird species, sex and age as well as information about summer or winter plumage (if possible) is determined
- The bird is weighed and its body condition classified (normal or emaciated).
- The temperature is taken from the cloaca. The thermometer has to be disinfected and lubricated between each bird. Normal bird body temperature is between 39°C and 41°C. If the temperature is 36.5°C or above, the bird is tube fed with oral rehydration solution. If the temperature is below 36.5°C, procedures are stopped and the bird is warmed up on a heating mattress. Triage procedures are continued after 1-2 hours. A hypothermic bird is given only oral rehydration solution for 48 hours
- The bird is checked for injuries like broken bones and/or external wounds
- The percentage of oil coverage is determined
- A veterinarian or experienced rehabilitator decides about euthanasia or further treatment
- The bird is given a temporary ring and the colour and number of the ring is noted on the intake form
- Oil is cleaned from the beak and nostrils inside and out
- If necessary, the eyes are flushed with eye solution to remove sand and oil
- As a treatment for potential toxic effects, the birds can be given a kaolin or barium sulfate mixture
- Blood sampling during the intake is decided by a veterinarian and performed by a veterinarian or other trained and authorised person (national legislation may vary)

While examining the bird, always keep the bird's head under a towel to reduce stress. Nitrile gloves must be used while holding and examining the bird, goggles when necessary.

© VANESSA RYAN

Birds are thoroughly examined at intake.

© VANESSA RYAN

All birds are given a temporary ring at intake.

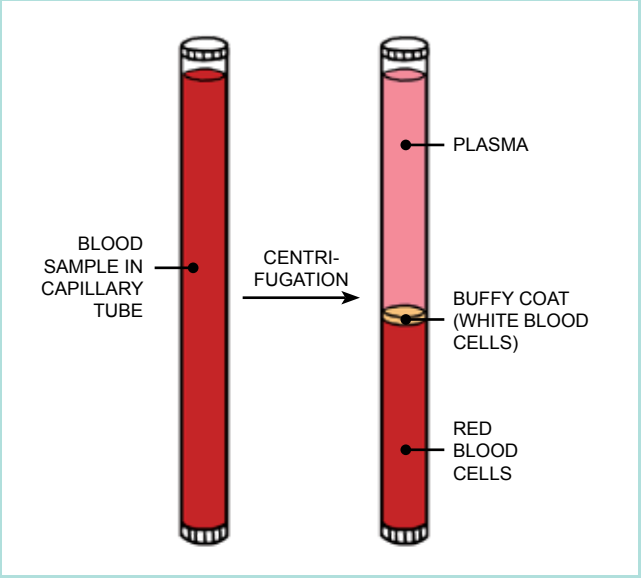
HOW TO

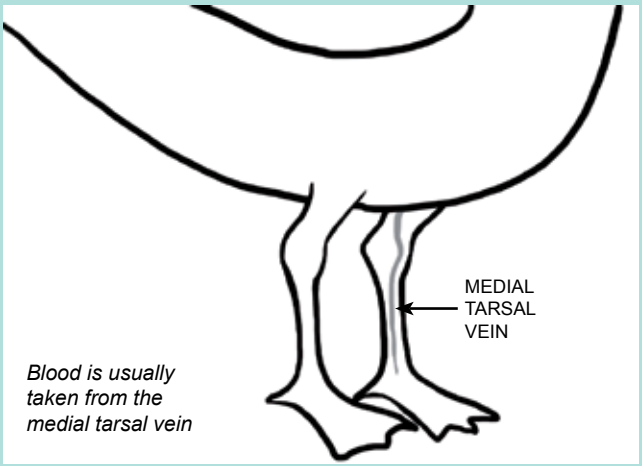
BLOOD SAMPLING

Blood samples should be taken from all birds taken into care, to get reliable and objective data to assess their condition. Blood values should, however be analysed with care as they can sometimes be wrongly interpreted. Only authorised people are allowed to perform blood sampling and it should be carried out regularly throughout the whole rehabilitation process to follow the development of the bird's condition all the way from intake to release.

The common blood values measured are:

- Packed cell volume (PCV, also called haematocrit level). This is the percentage of red blood cells in the blood. A low amount of red blood cells tells us whether the bird is suffering from haemorrhage or anaemia. Normal values for birds are 35 – 55% (seabirds 40 – 53%).
- Total protein of the blood plasma (TP). The blood plasma mostly consists of water, but also contains many substances like mineral ions, hormones and glucose. It also contains proteins, and measuring these can tell us about the nutritional state of the bird. Normal values are 3.5 – 5.5. g/dl. Once the birds are eating normally, values range between 6 – 8 g/dl and test results for TP will not be reliable.
- Blood glucose. Elevated blood glucose can be an indication of stress or malnutrition. Normal values in birds are 190 – 350 mg/dl
- Buffycoat (percentage of white blood cells). Elevated percentage of white blood cells can give and indication of infection or inflammation. Normal values range between trace amounts – 1,5%





Blood is usually taken from the medial tarsal vein

© PÄIVI SEPPÄNEN

Blood sampling results must be carefully recorded

HOW TO

WEIGHING

Weighing will also be carried out regularly throughout the whole rehabilitation process. If possible, it should always be carried out at the same time of the day and at least three times a week (less frequently when the bird has been washed and moved to a pool). The easiest way to weigh birds is to put them in a box, carefully wrapped in a towel. Remember to weigh the box and towel separately first! Keep separate scales, boxes and towels for oiled and washed birds. Tables of normal bird weights will be provided on site if necessary.

© VANESSA RYAN

© PÄIVI SEPPÄNEN

Birds may need to wait at intake.

INDIVIDUAL PATIENT INTAKE FORM

Intake

Date and time of intake:

Temporary ring number:

Signature:

Capture and transportation

Date and time found:

Place found:

Name of finder:

General information

Species:

Age:

Sex:

% oiled (if visible):

Other evidence of oil:

Injuries:

Intake diagnostics

Weight: Temperature:

Body condition:

PCV: BC:

TP: BG:

Other:

Euthanasia/ Found dead
(please circle appropriate)

Date and time:

Reason:

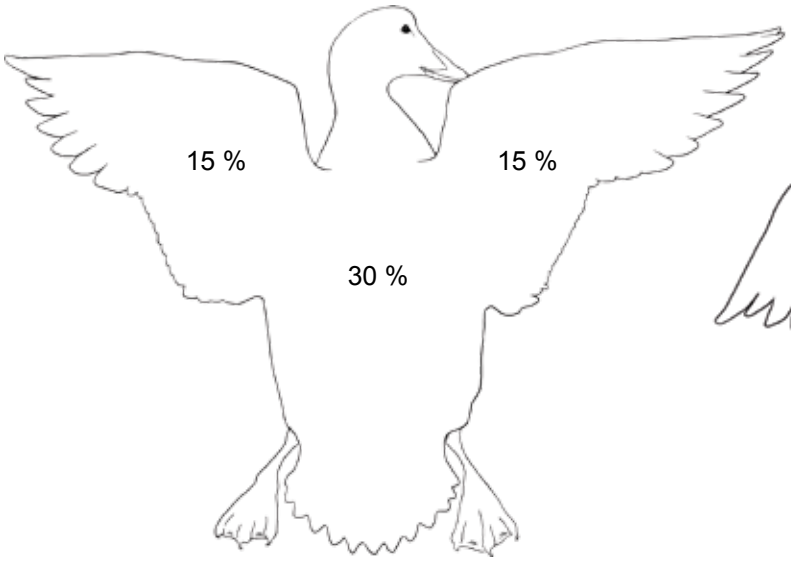
Release

Date and time:

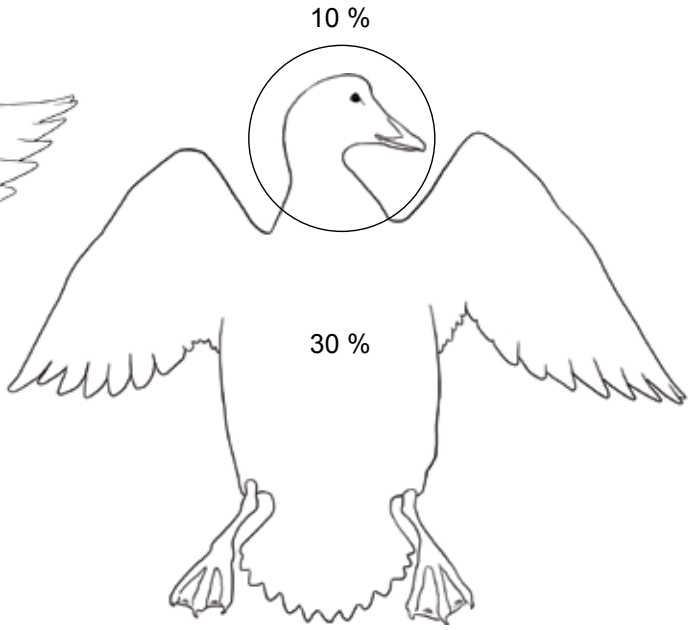
Additional information

PRINT & USE

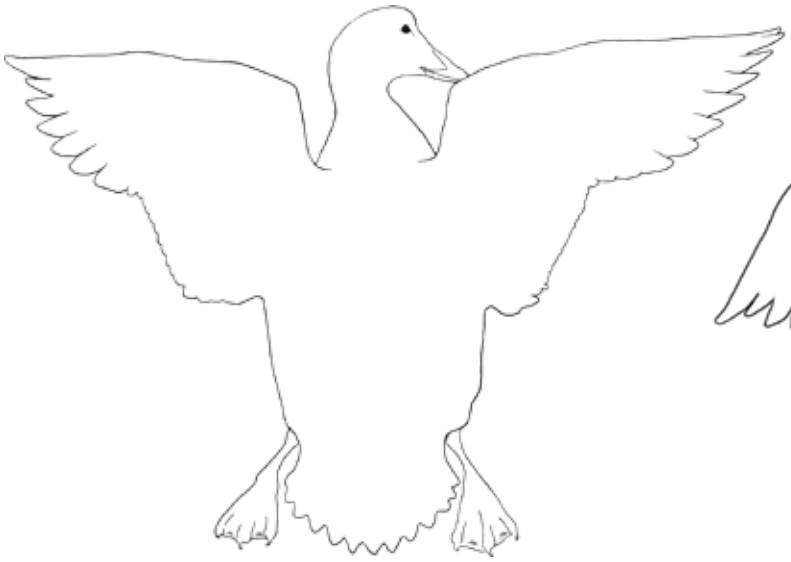
FORM FOR DETERMINING THE PERCENTAGE OF OIL



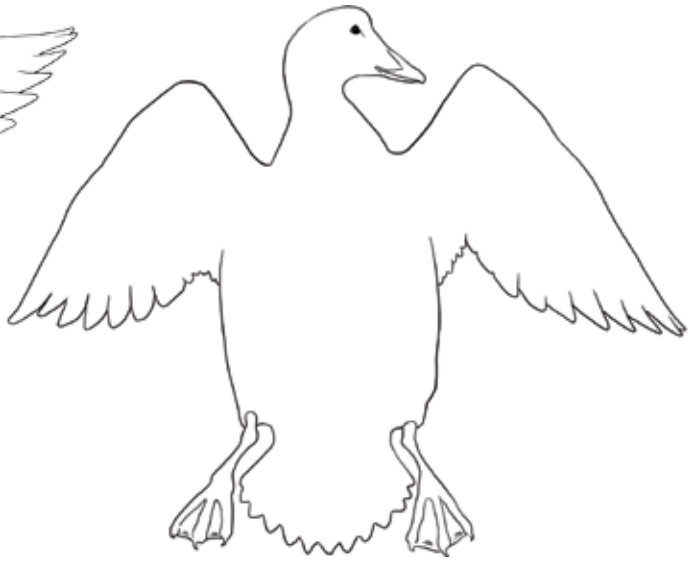
DORSAL



VENTRAL



LEFT **DORSAL** RIGHT



LEFT **VENTRAL** RIGHT

DAILY TREATMENT FORM

Temporary ring number: _____

Species: _____

Date	Time	Weight	Temp.	PCV	BC	TP	BG	Feeding	Other treatment and progress notes	Signature

PRINT & USE

11. WASHING OILED BIRDS

11.1. PRECONDITIONS FOR WASHING

11.1.1. Bird condition

There are certain preconditions which need to be met before a bird can be washed. The bird needs to fulfill four general requirements:

1) It is bright, alert and responsive
2) It must have been stabilised (and should preferably have been in care for 48 hours)
3) Blood samples must have shown that the bird has a PCV (packed cell volume = proportion of blood volume occupied by red blood cells) of at least 30% and a total protein (TP) of more than 2,5 g/dl
4) Its weight is increasing or stable, and the bird is eating independently

A bird which is not in a stable condition will not be able to preen its feathers after washing and may be in such poor condition that the stress of washing might kill it.

11.1.2. Water quality

The quality of the water also needs to fulfill certain requirements. It needs to be of the right temperature (40 - 42°C) and have a hardness of 2-3 °dH (35 – 50 ppm). There also needs to be sufficient water pressure (3 – 4 kg/cm2) and volume for rinsing. A printable water quality chart can be found on page 38.

11.2. WASHING AND RINSING

Before washing a bird which is covered in very sticky oil it may be pre-treated with warm (35 – 38°C) canola (rapeseed) oil to loosen the oil from the feathers. The canola oil needs to be applied at least one hour before washing.

The recommended detergent for washing oiled birds is Dawn® (also known as Fairy® or Yes®), which in tests conducted by the Tristate Bird Rescue and Research has been proven to be an efficient cleaning agent. Detergent should never be applied straight onto the bird's feathers! A chart for detergent dilution can be found on page 38.

The washing of the bird is carried out in tubs with a 1 – 2% solution of detergent or a suitable concentration derived from the feather test. Many tubs may be required to clean a heavily oiled bird. The water in the last tub needs to come out clean before washing can be concluded and rinsing started. The water should be between 40 and 41°C, which is the normal body temperature for birds. Because the water temperature will fall during the wash, the starting temperature of the water should be 42°C. This is to prevent the bird from becoming hypothermic. The washing process generally takes between between 15 and 60 minutes for one bird.The bird should be washed as fast as possible, but thoroughly.

After washing and rinsing, the following information must be recorded on the bird`s intake form:

- Names of washers
- How long the washing took
- Behaviour of the bird during and after washing
- Possible problems noticed during washing (e.g. wounds)

HOW TO

FEATHER TEST

Before washing, a feather test may be conducted. This will determine the most efficient detergent concentration and can increase the efficiency and success rate of the washing process. The feather test is done by removing part of a feather from the oiled bird or from a dead oiled bird affected by the same spill. If a feather is removed from a live bird, it should not be taken from the wings, tail or chest. The feather is washed in 3 -4 jars of 42°C water with a decreasing detergent concentration. Start with a solution of 2 % and gradually lower the concentration to 0.5 %. Rinse the feather – if it does not come out clean, try again with a higher concentration of detergent.

© TANJA PIRINEN

HOW TO

WASHING

Two people are required to wash one bird. If the bird is big (for example a swan) three people may be needed. Generally, one person holds the bird and washes the head while the other person washes the body. Keep in mind that a bird gets rid of excess heat by opening its beak and that hot water and stress increase the bird's body temperature. Do not hold the bird harder than necessary as the bird must be able to "gasp for air". Do not cover the nostrils and try to hold the bird in an upright position at all times. The person holding the head washes the bird's head, neck and throat at the same time as the person controlling the bird's body gently pushes water into its ventral plumage without bending the feathers. This reduces the washing time and thus stress. You may rub the feathers on the bird's head, neck and chest but never on the wings as the feathers may break. The bird's head and neck may also gently be washed using a toothbrush. You can use a cotton swab for washing around the eyes and beak. The nasal opening can also be wiped using cotton swabs and the eyes can be rinsed using a sterile isotonic (0.9 %) saline solution.

© JAAKKO POIKONEN

Two people are required for washing a bird.

Washing should be conducted systematically, so that no part of the bird is forgotten. Use the same method for all the birds you wash. Agree and communicate with your washing partner as it is important that both washers know what is being done and in which order. Avoid sudden movements or changes of grip which your partner is not prepared for. Ideally, there should be 1 – 2 people in the wash room whose task it is to provide new filled washing tubs and remove the dirty ones. This allows the washers to concentrate on the washing process.

© MIKAEL OVEGÅRD

Below is a check-list and suggested washing order:

WASHER 1: inside and outside of the beak
WASHER 1: head (apply soapy water, remove most of the dirt; repeat at the end if necessary)
WASHER 1: back of the neck
WASHER 2: left side back
WASHER 2: left side tail feathers
WASHER 2: left leg
WASHER 2: left wing + shoulder (top and bottom)
WASHER 2: left side breast + cloacal region
WASHER 2: right side back
WASHER 2: right side tail feathers
WASHER 2: right leg
WASHER 2: right wing + shoulder (top and bottom)
WASHER 2: right breast + cloacal region
WASHER 1: head if necessary

EQUIPMENT NEEDED FOR THE WASHING PROCEDURE:

- 0.5 – 1 m3/h of water with a temperature of 40 - 42°C and a hardness of 2 – 3 °dH.
- Hose and a hand shower nozzle, each with a water pressure between 3 and 4 kg/cm2
- At least 2 wash tubs, preferably 3 per washing team
- Pre-wash solvents, canola/rapeseed oil
- Detergent with no perfume
- Thermometer for checking water temperature
- Syringe or a graduated cylinder for dosage of detergent
- Container which gives you an easy access to the detergent
- Soft toothbrushes
- Cotton swabs
- Eyewash fluid

© OLLI VUORI

PERSONAL PROTECTIVE EQUIPMENT:

- Tyvek disposable overalls for bird handlers and other suitable (not too warm) protective outfits for washers
- Plastic aprons
- Nitrile gloves with long sleeves
- Rubber boots
- Safety goggles
- Consider mouth protection

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HOW TO

RINSING

The rinsing of oiled birds is done using running water. The pressure of the water spray needs to be between 3 – 4 kg/cm2 to ensure that all soap suds are removed from the feathers. While rinsing, try to hold the bird as little as possible so the water can flow freely over its whole body. Whenever you change your grip on the bird, wash your hands before you touch the bird again. Make sure to rinse the bird's breast thoroughly, this requires you to hold the bird in a straight, upright position. You should also rinse between the feathers (against the direction of the feathers). The bird is considered clean when droplets of water form on the feathers and the feathers look dry. You must check that the whole bird is completely clean – a detergent-polluted bird is no better than an oil-polluted one!

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Rinsing should be carried out with sufficient water pressure

PROBLEM AREAS

Pay special attention to problem areas such as wing attachments and cloacal region.

11.2.1. VOLUNTEERS AND WASHING

Volunteers with previous experience and/or after proper training can be a part of a washing team. The facility manager always decides which method is used for washing. In oil spill response situations it has sometimes been noticed that some volunteers, despite being highly motivated and good at following instructions, do not reach the same washing standards as other volunteers. Supervisors have the right to remove such volunteers from the washing team and assign them to other duties. One washing team normally should not wash more than 5 birds during one day, but this may vary according to the situation at hand.

DETERGENT SOLUTION CHART

Solution %	ml/ l liter	dl/ 5 liter	dl/ 10 liter	dl/ 20 liter	liter/ 40 liter	liter/ 60 liter
1%	10	0,5	1	2	0.4	0.6
2%	20	1	2	4	0.8	1.2
3%	30	1,5	3	6	1.2	1.8
4%	40	2	4	8	1.6	2.4
5%	50	2,5	5	10	2.0	3.0
6%	60	3	6	12	2.4	3.6
7%	70	3,5	7	14	2.8	4.8

WATER QUALITY CHART

TEMPERATURE	HARDNESS	PRESSURE	DETERGENT CONC.
40 – 42 °C	2-3°dH (35 – 50 ppm)	3-4 kg/cm^2	1-2% = 0,1-0,2 dl detergent / liter water

12. DRYING AND WATERPROOFING

Post-wash care is the process of caring for the animals after they have been washed, allowing them time and nourishment to re-establish the normal health parameters that are required for birds to be released, and making sure their feathers become completely waterproof. From now on, certain rules apply for handling birds:

- birds are handled using clean, non-powdered gloves and a clean, dry towel
- birds are never held against clothes or bodies – they may be dirty
- cages are not to be cleaned with disinfectant and soap any more - only clean hot water
- only cleaning equipment marked specifically for cleaned birds is used (= cleaning tools that have never been used with soap)
- fabric softener may not be used to wash towels
- fish must be offered without water and well rinsed

HOW TO

DRYING

When the bird has been rinsed, immediately transfer it to a calm, quiet and warm cage or pen with appropriate flooring. The bird is now given time to calm down and is fed. Fan heaters may be used to keep the temperature at approximately 32 - 35°C. Small birds can dry in half an hour; larger birds may take up to three hours. To conserve the heat and provide a calmer environment, partly cover the pens with light-coloured sheets. Ensure that the birds can move away from the direct impact of the possible heat source. In addition, conduct regular check-ups to see that the birds are not overheating. Birds breathing fast and/or through an open mouth are usually too warm.

HOW TO

HANDLING CLEAN BIRDS

When handling clean birds you should be certain to use only clean towels which have been washed without fabric softener. You should also use equipment and cages that have been washed using only hot water and no detergent/soap or disinfectant. When carrying birds, avoid contact with your body and clothes, which might be dirty. Always use powder-free, clean gloves.

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Use only powder-free, clean gloves.

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Use only clean towels which have been washed without fabric softener.

WATERPROOFING

When the bird is dry, it is important to put it on water as soon as possible. This prevents it from becoming dirty again, and also prevents keel and foot injuries and stimulates preening behaviour. The bird needs to be waterproofed before it can be let into the water unsupervised.

Preferably, the waterproofing pool should be inside a tent or other structure which provides a calm environment and protection from extreme weather. The bird should be put in a pool without a platform and without food for only a short period of time.

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Remove the bird from the pool if it is washing excessively.

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Waterproofing pools should be sheltered from extreme weather

The bird should be carefully observed during the whole time in the pool and the time spent in the pool will depend on the bird's behaviour. During this time, it is critical to have personnel who are experienced in observing normal bird behaviour and capable of identifying signs of hypothermia. Knowledge of assessing waterproofing comes only with experience. If possible, no more than 4 seabirds should be tested at the same time.

A bird should immediately be taken out of the water, if:

- It is very wet
- It is cold (shaking)
- It is washing excessively
- It is trying to get out of the water

After the first test, each bird should be carefully checked for wet spots and these should be recorded on the daily treatment form along with the time the bird stayed in the pool. After this, the bird is put in a clean cage to dry. If necessary, it can be dried under a dryer, but for no longer than 30 minutes. The bird should also be fed. After a couple of hours the test should be repeated, this time leaving the bird in the pool a little longer. The time in the pool is gradually extended depending on how well the bird is doing in the water. Some birds are almost immediately waterproof, while others need to be supervised for a longer period and may need a few days of gradually increased pool time until they can stay in the pool overnight. Waterproof birds sit high in the water and water droplets are visible falling from their feathers.

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Water droplets will form on feathers which are waterproof

Possible reasons for not getting birds waterproof:

- inadequate wash or rinse
- weeping wound
- feather damage
- improper preening
- problems with pool-water quality
- dirty pools
- too many birds in a pool

13. POOL DESIGN AND MANAGEMENT

Pools will be housed both indoors and outdoors according to available facilities, weather conditions and specific needs. All pools need to be carefully covered with netting in order to prevent birds from escaping and predators from entering.

Pool design may vary according to the species of birds they house. They can be square or round, with a surface area of up to 20 m2. Divers need a water depth of at least 1 metre, so the sides of the pools need to be more than 1.5 m high. Dabbling ducks such as mallards need a water depth of approximately 0.5 metres. Birds staying in the pools overnight are given platforms made out of plastic netting so that they can get out of the water, preen and eat. Every pool needs to have its own platform, and general rules are:

- platforms have to be put at the right height, i.e. just above the water surface, so that the birds can keep dry
- platforms are usually put in during lunch breaks and in the evenings
- platforms have to be cleaned daily

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In extreme weather pools may need to be sheltered.

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Pools need to be covered so the birds can't escape

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Platforms are installed into pools for feeding and overnight.

Keeping the pools clean is essential in order for the birds to stay waterproof. The pools need to be connected to a filtering system which allows the water to be filtered several times a day. In addition to this, the pools need regular manual cleaning. They should be cleaned at least once a day by netting out large debris and siphoning out small debris. Pools are emptied, wiped and filled with fresh water approximately twice a week. Only water may be used for pool cleaning, since soaps or detergents harm the birds feathers.

13.1. CARING FOR BIRDS IN POOLS

Birds that are completely dry stay in the water overnight. It is, however, important that the birds are taken out of the water during the first days to check if invisible areas, such as the area around the cloaca, are still dry.

Fish-eating birds permanently housed in pools should be fed only rinsed fish without water in the bowls. In a filtered pool, fish can be put in a strainer next to the filtering system so that excess oil is immediately filtered out. Fish can also be provided on the platform or thrown in the water to check the bird's diving abilities. Itraconazole is no longer given from the moment a bird stays in an outdoor pool.

Once permanently housed outdoors, physical handling of the animals is reduced to a minimum. As well as getting their drinking water from the pool, the animals can feed on fish tossed into the pools. Long-handled nets and clean towels are used for catching the birds from pools. The net is put in the water and lifted up when the bird swims above it. The bird is then taken out of the net using a clean towel.

14. DAILY WORKING ROUTINES IN THE REHABILITATION CENTRE

Work in a rehabilitation centre follows strict daily routines. These routines, including timetables for feeding, medicating and cleaning, should always be clearly visible on charts in designated places in the rehabilitation centre. It is the responsibility of each staff member and volunteer to read these carefully every day before starting work. A staff meeting should be held each morning to go through the day's work and divide the tasks between staff and volunteers. Some activities, like weighing and blood sampling, may be carried out only a few days a week. The timetables for such activities should also be clearly indicated. After each finished job, the person who carried it out should sign the work chart with his or her initials or name.

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Equipment should be colour coded.

14.1. CLEANING

Cleaning is an essential part of the daily routines. Good ventilation and proper cleaning methods, like leaving the surfaces dry, reduce air humidity and prevent mould and fungal diseases from developing and spreading. Cages need to be cleaned every day. Also kitchen worktops, shelves and fridges, intake rooms, corridors and staff rooms need to be kept clean and floors need to be mopped. Cage cleaning should be timed so that the birds are not removed from their cages just for cleaning, but is rather taken care of while the birds are being weighed, fed or are otherwise removed from the cage.

After cleaning, towels need to be washed and mops rinsed, disinfected and dried. Equipment like buckets, mops, brushes and towels for oiled and washed areas need to be kept separate. The easiest way to do this is by colour-coding all equipment. Equipment used on oiled birds should never be used for washed ones, and separate washing machines and sinks should be used for oiled and clean towels. Cleaning of pools is discussed in chapter 13.

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HOW TO

CLEANING CAGES

CAGES/PENS FOR OILED BIRDS:

- remove the dirty newspaper
- remove the dirty net and wash it with a high pressure hose or steam cleaner (soap may be used if bottom nets for oiled birds are kept separately)
- Wash the walls of the pens with warm soap water and dry it off with a clean towel
- Wash the floors and dry them as thoroughly as possible
- Spray the walls with disinfectant, rinse with clean water and let dry
- Add new, dry newspaper on the floor
- Replace the bottom net with a new, clean and dry one

CAGES/PENS FOR WASHED BIRDS:

- remove the dirty newspaper
- remove the dirty net and wash it with water only with a high pressure hose or steam cleaner
- Wash the walls of the pens with warm water only, using buckets and towels which are only used for clean birds. Dry the walls with a clean towel
- Wash the floors and dry them as thoroughly as possible
- Add new, dry newspaper on the floor
- Replace the bottom net with a new, clean and dry one which has been washed with only water

14.2. CHECKING FOR INJURED AND DEAD BIRDS

While doing the routine cleaning, feeding and weighing, birds should be checked for possible injuries or strange behaviour. Dead birds should to be removed from the cages. They should be labeled and stored in a freezer for a later analysis of the cause of death.

14.2.1. SECONDARY PROBLEMS

When seabirds are kept out of water and indoors in large numbers, they tend to develop stress symptoms, infectious diseases, pressure sores and feather problems.

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Feather damage As a result of insufficient cleaning, feathers may become damaged by the acidity in bird droppings. This is problematic because damaged feathers are more difficult to waterproof.

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Foot and keel lesions – The birds' feet and keels need to be checked daily for lesions. Seabirds are not used to being kept out of the water, and especially individuals who are in care for a long time, or individuals with injuries, cuts or scrapes, are susceptible to foot and keel lesions. If caught at an early stage, these can be healed using supports made of towels (also called "doughnuts") or socks.

© INTERNATIONAL BIRD RESCUE

Aspergillosis Aspergillosis is a lung infection caused by fungi of the genus Aspergillus. It spreads rapidly in humid, enclosed environments and can easily become the number one killer of birds in a rehabilitation centre. Birds can show different symptoms, such as rapid breathing with an open beak, rasping sounds, weight loss, loss of appetite and general weakness. Because it is difficult to diagnose, any unusual behaviour or symptoms should be immediately reported to a veterinarian and the bird showing symptoms should be quarantined. Special care needs to be taken when entering and exiting the quarantine area to prevent diseases from spreading. All birds in captivity are given Itraconazole daily until they are in the outdoor pools to prevent aspergillosis.

14.3. FEEDING

Large amounts of animal foods of different types need to be prepared and administered to the birds in care. Preparing the food is labour intensive and requires a large number of people working in the animal kitchens at any given time. Different bird species have different diets in the wild. Gulls are omnivores, auks are fish-eaters, and mallards eat invertebrates and plants while swans eat mostly aquatic and submerged plants. Birds taken into care do not often eat unaided and may be dehydrated, so they need to be rehydrated and tube fed.

Birds which are on the same feeding schedule should always be housed together. This way it is easy to remember and monitor which birds have eaten and which have not. The feeding schedule of a certain cage or pen should be clearly displayed, and feeding personnel are required to mark down each feeding on each bird's daily treatment form when it has been done. Food preparers need to be extra careful with hygiene and closely follow instructions.

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Different bird species require different diets.

14.3.1. FEEDING TYPES AND FEEDING REGIMES

It is important that all birds in care receive the right food at the right time. There are many different feeding regimes, and a veterinarian or rehabilitation centre manager will determine which birds follow which regime. There are four basic types of feeding, explained in detail below: oral rehydration solution, convalescence support, assisted feeding and free-feeding. Oral rehydration solution and convalescence support are both tube fed.

Oral rehydration solution

Day 1 and 2

When a bird is taken into care it is usually dehydrated. Oral rehydration solution (containing a mix of salts and sugars dissolved in water in the right proportions) is given to get the bird's water and salt balance back to normal. It is given at 50ml/kg body weight, always at body temperature. It should be pre-warmed and kept in warm water. During stabilisation, birds usually receive ORS around three times per day and CS another three times. Even if the bird is eating normally without tube feeding, ORS can be given a few times a day for the first two days. At least one hour has to pass between tube feedings with ORS.

Day 3 and onwards

ORS is usually not given after day 3 if the bird is stable.

Convalescense support

Day 1 and 2

For the first two days, birds are usually given ORS up to three times a day and Convalescence Support (CS) up to three times a day. As mentioned in the intake chapter, a hypothermic bird should be fed only oral rehydration solution for 48 hours. Convalescence Support is given to the birds before they start eating on their own. It usually consists of ready-made, protein-rich and high-energy powders which are easy to digest and have been developed for pets (cats and dogs) recovering from illness or surgery. The powders can easily be dissolved in 120 ml warm water and given at body temperature and at 50ml/kg body weight. Mixtures containing Attapulgite or Bismuth subsalicylate (sometimes marketed as Kaopectate or Pepto-Bismol) can be given together with the CS to reduce diarrhoea symptoms. During stabilisation, birds usually receive CS twice or three times a day. At least two hours have to pass between tube feedings with CS. For the CS regime there may be two different types of feed: one for fish-eaters and another for plant-eaters.

Day 3 and onwards

If the bird starts eating on its own, CS tube feeding can be stopped after day 3. If, however, the bird is eating on its own but is still losing weight, it should be given CS a few times a day.

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Oral rehydration solution and convalescence support.

Assisted feeding

Fish-eating birds on CS may be assisted fed a couple of times a day. This requires two people, one holding the bird and one feeding it. Open the bird's beak and gently push a small-sized fish into the bird's oesophagus, using tweezers or by hand and taking special care to avoid the trachea. You may rub the bird's throat gently to induce swallowing.

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Free feeding

The goal is to have all birds feeding freely as soon as possible, preferably by day three. Depending on the natural diet of the bird, it may be given whole or diced fish, shrimps, blue mussels, pellets, lettuce, grains etc. ORS may be given to start with even though the bird is eating on its own. To encourage free feeding, each bird should be given its natural diet in a bowl on a daily basis, even if it does not eat it. If the cage setup supports it, freely feeding birds can be placed in view of birds which do not yet feed on their own. Watching other birds feed from a bowl may induce feeding in those birds which have not learned that the bowl contains food. Many birds eat mostly at night or early in the morning, so food should be made ready for the birds in the evening and again in the morning. Food should also be thrown directly on the cage net or dangled in front of the bird to induce eating.

The first job in the morning is to discover new freely feeding birds. After identifying and moving them to suitable cages, tube feeding can be prepared and started for the remaining birds. When tube feeding is done, prepare fresh food for the freely feeding birds.

Fish should be served in water, to prevent drying. The dish from which it is served should be low and small so the bird doesn't have to go inside it and get covered in fish oil. Washed birds receive fish which is carefully rinsed and then served without water, because fish is naturally oily and the water the fish is served in may get oily and oil the bird which has just been washed. Fish should never be thawed in standing or warm water, but rather in a fridge or under cold, running water. The thawing time needs to be taken into account when planning feeding timetables. For each portion of fish, a multi-vitamin supplement for seabirds (like Akwavit minitab containing vitamins A, E, B1, B2, B6 and C) is added to the food.

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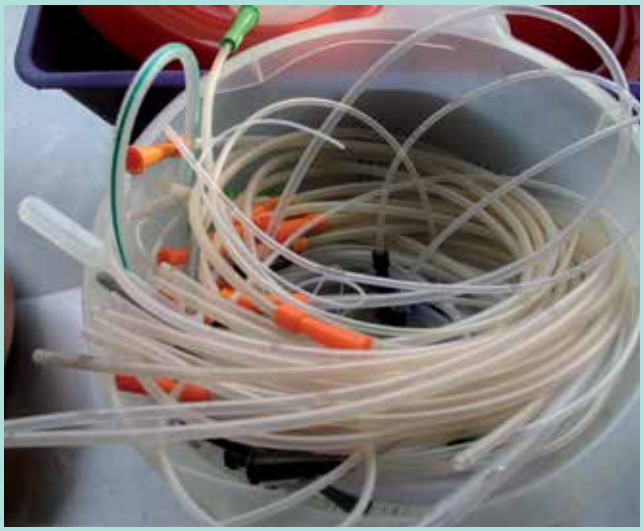
Thawing time needs to be taken into account when planning feeding schedules.

The best time to discover freely feeding birds is early in the morning. If a bird has started eating, it should be moved to another cage and be put on the free feeding regime. At this stage it is important to be able to estimate how much food a bird has consumed, so careful record-keeping is essential.

HOW TO

TUBE FEEDING

Tube feeding can only be carried out by trained wildlife rehabilitators and volunteers. The food given by tube should always be the same temperature as the bird's normal body temperature. When preparing tube feeding, syringes can be filled with food and put into warm water to keep them warm. One person is required to hold the bird while another one handles the tube. Birds should be taken out of the cages covered by a towel. Some bird species like cormorants, crakes and gulls are very sensitive to tube feeding and may throw up the food given to them. If the bird throws up, note this in the daily treatment form and report it to your supervisor. Do not try to feed the bird again immediately after it has thrown up. Wait a while before trying again. To avoid feeding the same bird twice, always move the bird into another cage after feeding, or separate birds in the same cage from another by a cardboard or wooden plate.



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1. make sure that the tubes and syringes are clean and filled with the correct food before you start. Before inserting the tube, check that it is the right length

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2. Gently but firmly insert the tube as far as you can. Stop if you feel resistance. If you have inserted the tube correctly, it is often visible from the outside of the neck

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3. Push the food in at a slow, steady pace

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4. When finished, press the tube with your finger to stop the flow, retract the tube at a steady pace.

14.4. MEDICATION

The veterinarian or rehabilitation centre manager may decide to put certain birds on medication. This should be clearly marked on the intake form and on the daily routine charts in the rehabilitation centre. All seabirds in care get Itraconazole daily to prevent aspergillosis. This should be given in the morning, at the same time as feeding.

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Medication should be given when otherwise handling the bird.

14.5. WASHING THE DISHES

All containers and utensils used for food preparation need to be rinsed, washed, disinfected and then rinsed again before the next use. This is especially important for the tube feeding equipment which needs to be disinfected after every single use. All utensils have to be kept in their right places.

Always start by washing the syringes and tubes used for tube feeding. Syringes and tubes need to soak in disinfectant for at least 10 minutes. Ensure that disinfected tubes are well rinsed in clean water before next use.

Dirty dishes → Rinse → Wash with detergent → Rinse → Disinfect → Rinse → Dry

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Syringes and tubes must be desinfected between uses.

15. RELEASE

Release means the return of rehabilitated wildlife back into their natural, unoiled environment so that they can resume their place in the ecosystem. Released animals must be fully recovered and capable of living in the same manner as they were before becoming affected by the oil. The overall goal of animal care is to return the highest possible percentage of rehabilitated animals to their natural habitat; however, animals should not be released unless there is a good chance of surviving and being able to breed again.

Before release, every bird will receive a permanent metal leg band. Additional post-release monitoring is always recommended after spill events because it can help verify the long-term survival and breeding success of released animals, therefore providing critical data for the evaluation of the overall effectiveness of the response effort and the overall impact of the oil spill on local bird populations.

Release sites should be selected based on a number of criteria:

- They should be free of oil contamination and/or the risk of further contamination
- They should be close to the area where the animal was collected in order to minimise transport time and reduce stress associated with transport. Sometimes this is not possible and birds need to be transported quite far from the site where they were caught.
- The yearly migration pattern of the species and species-appropriate habitat should also be considered.

It is always recommended to release birds in groups rather than individually.

There are certain release criteria which should be met by each bird considered for release. Commonly used criteria are:

- The bird shows normal feeding, swimming and diving behaviour
- The bird shows fear of humans
- The bird has gone through a normal physical examination and shows no active disease states
- The bird does not suffer from bumblefoot or keel lesions. All its injuries have healed or are at a stage that will not interfere with normal behaviour.
- The bird has normal blood values with a PCV of 40 – 53%
- The bird's weight is assessed by a veterinarian to be close to the normal weight for the species.

The best time to release birds is early in the morning. The weather at the release site should ideally be calm for the following three or four days and birds should not be released in strong wind or rain. They must be transported to the release site in a clean box, preferably covered with a clean towel. They should not be touched during the release because every touch can potentially deteriorate the waterproofing of their feathers. As with oiled birds, different species are kept separated during transport and some species need to travel alone. The box containing the birds is opened in the release area and the birds are let out. Do not lift the birds out of the box, rather let them come out in their own time. Ideally, a group of birds are released together. It is recommended that one person stays on the beach until all birds have moved on. Someone should also check the release site the next day to make sure that all birds have gone and/or are behaving normally.

Staff and volunteers should be able to participate in release events as this is a great way to keep morale and spirits high during the response.

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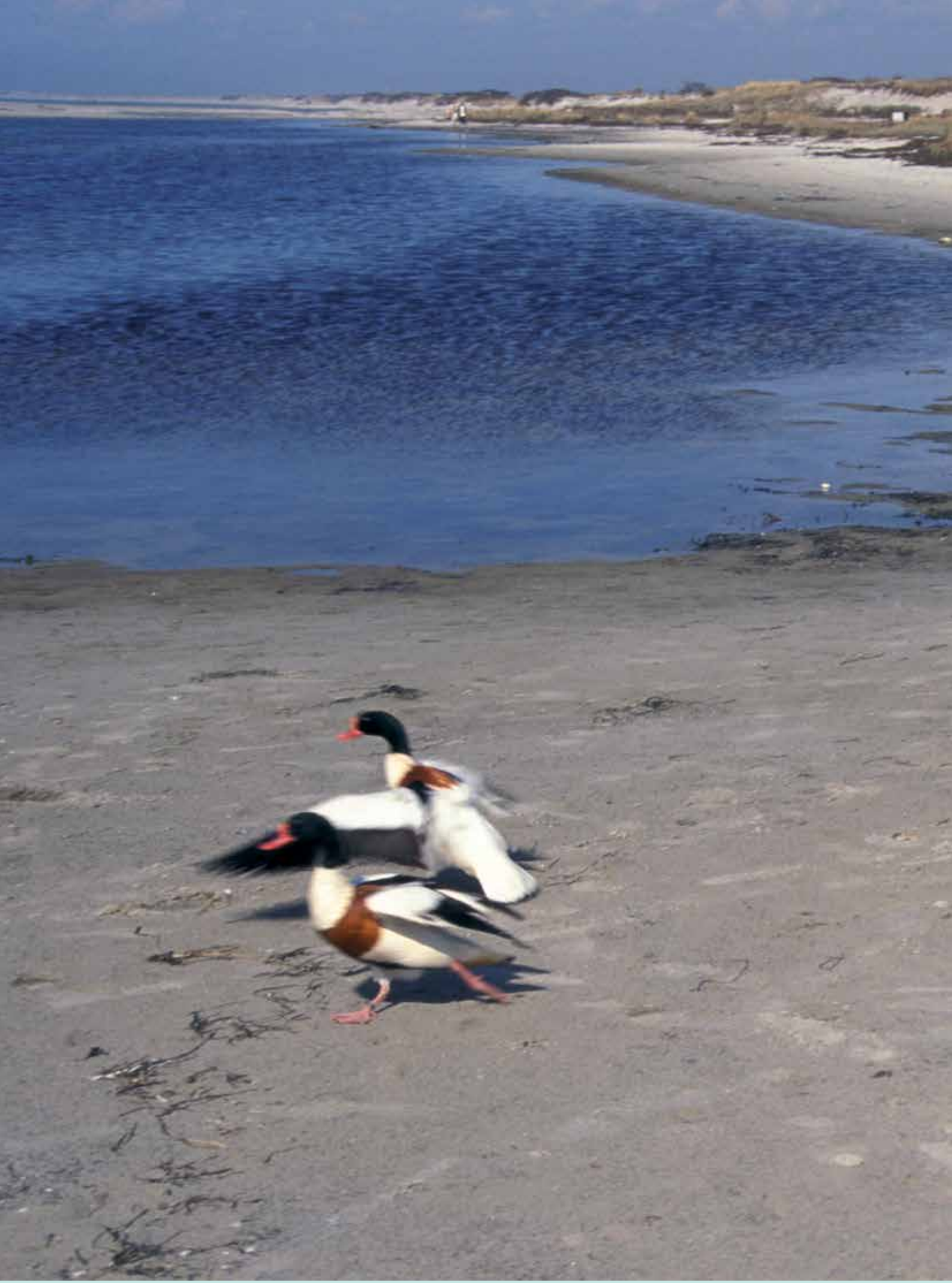

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