

Birds

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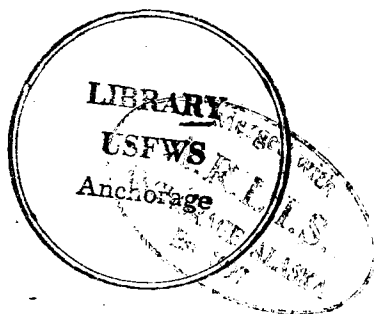
CURRENT METHODS OF OILED BIRD REHABILITATION,

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## CURRENT METHODS OF OILED BIRD REHABILITATION

We at Bird Rescue believe that even though the process of oiled bird rehabilitation can be difficult and expensive, the effort is worthwhile. The techniques that we have used and developed, as well as the experience that we gain with each oil spill incident, may someday help to maintain a threatened local seabird population or an endangered aquatic species, and will, we hope, make the job easier for those preparing for or supervising an oiled bird emergency effort.

We are not yet able to rehabilitate birds in sufficient numbers to have any biological significance. Bird deterrent techniques and rapid containment and clean-up methods are of much greater importance presently in protecting our aquatic birds from losses due to oil pollution. However, in response to the public mandate that oiled birds be cleaned, techniques are available for rehabilitating significant numbers of those birds affected in a short time, greatly reducing cost and labor requirements.

Since the inception of Bird Rescue following the San Francisco Bay spill of 1971, we have treated over 1500 birds in local spill incidents, of which 38% were released. In some of these incidents, birds were in captivity for only a few days, while in others, birds required as long as six weeks in captivity. In comparison, in the 1971 spill, of the more than 4,000 birds treated, only 200 (5%) were released, some after nine months in captivity. Although we have limited information on the ultimate fate of the birds we release, we do not release birds until they are waterproof, healthy, and capable of fending for themselves in the wild.

The success of a rehabilitation effort is dependent upon a number of factors, which include:

1. The toxicity of the oil involved. Oil is preened and ingested by affected birds, as well as absorbed through the skin.
2. The weather conditions when the birds are oiled. Since oil destroys the insulating capacity of the plumage, harsh conditions quickly deplete the oiled birds' energy reserves.
3. The time elapsing between oiling and treatment. Exposure to cold and oil toxicity progressively debilitate affected birds.
4. The birds' condition at the time of year in which they are oiled. When birds have expended their energy reserves in moulting or breeding, they are less able to withstand the stresses associated with oil contamination.
5. The species of bird involved. The larger ducks, geese, large grebes and pelicans have so far been easier to rehabilitate than the smaller grebes and alcids.

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Factors such as this are largely beyond the control of those preparing for oiled bird emergencies. Additional factors that influence rehabilitation success, however, can and should be controlled by advance planning. These include:

1. Extensive preparation, including the training of personnel, the stockpiling of equipment and supplies, and the selection of an adequate facility for cleaning and husbandry;
2. Efficient organization and overall coordination during an incident, and trained supervisory personnel for all phases of rehabilitation, including capture, medical treatment, cleaning, drying, care, and swimming in preparation for release.

Bird Rescue offers consulting services in planning against an emergency, and in training supervisory personnel, and can also provide some on-scene assistance in distant emergencies.

### The Process of Rehabilitation

It quickly becomes very clear to anyone working with oiled birds that rehabilitation requires much more than effective methods of removing oil from the birds' plumage. The birds must also receive appropriate medical treatment and care during their entire stay in captivity to help them regain or maintain a normal state of physiological function, and reestablish the water repellent and insulating qualities of their plumage. Unfortunately we do not have answers for all of the problems posed by rehabilitation, but we have developed methods that can be more effective than those used in the past. With continuing investigation and experience, we hope to further improve our techniques.

### Collection and On-Site Treatment

The collection of oiled birds is of course the first step in their rehabilitation, and can be the most difficult. Bird Rescue has had little direct experience in this activity, since capture, initial treatment and transport to our center has in our area been a cooperative effort involving personnel from the California Department of Fish and Game, the U.S. Coast Guard, local wildlife rehabilitation groups, humane societies and animal control agencies.

Ordinarily, oiled birds are not accessible for capture until they have become somewhat debilitated by oil toxicity, exposure or starvation; therefore, they are given some initial treatment at centralized locations near the site of capture. The locations of these "collection stations" may vary, depending upon the movement of the oil and the birds. This initial treatment includes:

1. Oil is removed from the birds' nostrils and mouths as well as possible, so that no further oil is ingested and breathing is unobstructed.
2. The birds are tube-fed a warm solution of water and glucose (2-5%) to provide hydration and an easily utilized source of energy.

3. To prevent further preening and ingestion of oil, the birds' bodies are wrapped in cloth, or their beaks are taped shut.
4. The birds are then put into individual boxes, and kept in a quiet, sheltered area to await transport.

#### Treatment at the Rehabilitation Center

Once the birds arrive at our center, they are tubed additional warm hydrating solution, and the following procedures are performed:

1. The birds are weighed and banded, and a short record of treatment is started for each of them. This record includes information on prior treatment, location of capture, degree of oiling, species, sex, age, etc.
2. We take each bird's cloacal temperature, and those with low temperatures (below 100°F) are placed in a box under a heat lamp (85-90°F) for a few hours. Once their body temperatures approach normal (above 103°F) they are housed with the rest of the birds.
3. Birds that are heavily oiled with fresh or toxic oil and are actively preening are wrapped again in clean cloth in such a way as to prevent preening and to provide some mobility, unless they appear too stressed by the restriction.

When resources are limited, it may be necessary to euthanize some of the birds received, and to concentrate efforts on those that have the best chance of survival. Birds less likely to survive the stress of oiling and rehabilitation include those with obvious signs of disease, such as convulsions, extreme lethargy, or labored respiration accompanied by gasping or gurgling sounds, those with traumatic injury, such as fractured limbs or lacerations, and those whose body temperature remains low despite supplemental heat and warm hydrating solution.

Birds of a very abundant species, such as some types of gull or coots, may be among the first to be euthanized when it is clear that not all birds can be treated. Certainly birds of an endangered species or a limited local population should not be euthanized except for humane reasons. A high degree of oiling, initial resistance to self-feeding, or bloody droppings are not reliable indicators of a bird's lessened likelihood of survival, and should not be used routinely as criteria for euthanasia.

#### Care of Oiled Birds in Captivity

The care of captive wild birds requires the maintenance of a supportive, minimum-stress environment for them. A high level of care is essential in preventing the problems that easily develop in debilitated birds, such as inadequate nutrition, dehydration, joint and sternal lesions, cloacal impactions, infectious disease, and a number of other problems.

As oiled birds have been stressed prior to capture by oil toxicity and exposure, and will be further stressed by the cleaning process, it is essential

that the people caring for them be aware of and attempt to reduce the stresses associated with captivity. Prolonged stress in birds, as in any animal, will have a number of general and specific deleterious effects on the body, causing heavy mortality. The stresses to captive wild birds include:

1. Visual stress. The sight of people is very threatening to wild birds, judging from the alarm calls and escape behavior that it elicits. Birds should be penned in areas where there is little human activity, and only the workers specifically involved in their care should approach them.
2. Loud, startling noise. Loud conversation and noisy activity should be avoided in the areas where birds are penned. Constant low level noise is less stressful.
3. Handling. It is very important that birds be handled only for necessary treatment and care, and otherwise be left undisturbed.
4. Extremes in temperature. As the plumage of oiled birds does not provide them with sufficient insulation, the areas in which they are penned must be kept quite warm (70-80°F), especially if the birds are debilitated or eating poorly.
5. Artificial cycles of light and dark. To avoid stress to the endocrine system, birds should be kept on a cycle of day and night that is appropriate for the time of year. Cleaning should not be attempted at night when the resistance of diurnal birds is lowest.
6. Overcrowding. Birds must be kept in sufficiently roomy pens to allow them to space themselves comfortably (this varies from species to species) and to prevent aggressive interactions.
7. Nutritional inadequacy. The birds must receive sufficient quantities of fresh, appropriate food, and may require tube-feeding to assure adequate intake.
8. Dehydration. Waterbirds kept out of water need to be tubed fluids several times a day to remain sufficiently hydrated, until they are cleaned and swimming, or known to be taking adequate quantities of water from pans in their pens.
9. Pathogens. Pens, bedding, food and water pans, and tubing syringes and catheters must be kept clean and disinfected to avoid the transmission of disease. Also, bedding materials that are likely to mold, such as straw or wet newspaper, are avoided, so that the birds will not be so likely to develop the fungal respiratory disease aspergillosis, a common problem in captive wild birds.

We construct pens for the birds from 2'x8' sheets of 3/8" plywood, which are usually subdivided with additional sheets of plywood or other barricades so that groups of birds can be spaced appropriately within the pens. At first the pens are set up indoors, so that the birds can be kept warm, but in later stages of rehabilitation many birds can be penned outdoors, depending on the weather. When necessary, covers of cloth or plastic netting are draped over the pens to prevent birds from flying out.

The bedding materials used in the pens are kept as clean and dry as possible, to help prevent microbial infection, chilling, and recontamination of the plumage with food and droppings. Two layers of bedding are ordinarily used: a bottom layer of newspaper or thick foam padding, and an absorbent top layer of cloth. It is especially important that birds that lie continually on their ventral surfaces, such as loons, grebes and some sea ducks, be given a resilient bottom layer (of crumpled newspaper or foam) as they will begin to develop pressure sores along the keel when kept on too hard a surface. Active birds spending most of their time on their feet can be given a bottom layer of flat news sheet only, which is then covered with cloth for absorbency.

To avoid the stress of repeated handling, we attempt to have all of the birds under our care feeding themselves within a day or so after arrival, and they are also encouraged to learn to drink from pans of water in their pens. Particularly during the first few days of captivity, however, their food and water intake is supplemented by force-feedings and tubings of hydrating solution.

The fish-eating birds, such as pelicans, loons, cormorants, alcids, sea ducks, etc., are fed small (4 ") salt-water smelt; other small fish can be used, but anchovies and herring are not recommended, as birds fed on them produce very oily droppings which will recontaminate the plumage. Self-feeding is stimulated by tossing individual fish into pans of water or on the ground in front of the birds; the movement of a few small live fish in a pan with defrosted ones will usually elicit feeding behavior, as will competition with other birds that have already begun to feed.

The grain-eating birds, such as swans, geese, dabbling ducks and ruddy ducks, are fed soft grain feeds at first, such as non-medicated chick starter mash and Trout Chow (Purina), presented in low wide pans of water. These soft feeds are used initially so as not to further irritate the bird's gastrointestinal tract, which may be already irritated by oil ingestion; within a few days, this diet is supplemented with whole or cracked grain feeds. To initiate self-feeding, the bird's beak is gently placed in the pan with mash and water, or is swirled in front of the bird. As with fish-eating birds, competition will stimulate self-feeding.

It should be recognized that some birds classified as "fish-eaters" will also take some grain foods, such as soaked Trout Chow or dog kibble. These include the sea ducks and bay ducks. Conversely, grain-eating dabbling ducks and swans will eat an occasional fish. A variety of foods should be continually available to the birds to prevent nutritional inadequacy. Multi-vitamin supplements and a thiamine supplement to smelt are given on a regular basis.

Sometimes birds must be maintained initially by force-feeding. Fish-eaters are force-fed whole fish or tubed a fish mixture that includes vitamins, glucose and corn oil. Grain-eaters are best force-fed by using a strained mixture

suitable for tubing, consisting of sifted mash, Trout Chow, vitamins, glucose, corn oil and water. All birds are routinely tubed hydrating solution 3-4 times a day until they are cleaned and swimming, at which point they will need less forced hydration, depending upon the amount of time spent in the pools.

### Cleaning and Drying

A number of factors must be considered in deciding how and when to clean oiled birds. These include:

1. Choice of cleaning agent. The agent must quickly and efficiently remove all of the contaminating oil, must be used at an effective temperature (and concentration when detergent is used), and strict safety precautions must be taken to protect both birds and workers when flammable and toxic solvents are used.
2. Cleaning method. The techniques used to remove oil from the plumage must not disrupt or damage the alignment of the feathers, while being sufficiently forceful to be effective.
3. Condition of the birds. Unless the oil is very toxic, the birds should be maintained in captivity for a short time (12-48 hours); receiving food, water and protection from the cold, so that they will be in better condition for the stressful cleaning process. When possible, the cleaning of birds in poor condition (body temperature less than 103°F, lethargic) should be delayed until their condition improves.
4. Coordination. Cleaning and its back-up activities (preparing adequate quantities of warm cleaning agent, selecting and medicating birds for cleaning, drying birds after cleaning, etc.) must be sufficiently organized that shortages of workers, materials or cleaning agent do not hinder the process.

To date, Bird Rescue has used Shell Solvent 70 in all cleaning efforts involving more than 15-20 birds, as solvent affords the greatest efficiency and speed of cleaning, particularly with viscous or tarry oils. On small numbers of birds oiled with more highly refined oils we have used detergents, specifically Amber Lux (Lever Brothers); we will attempt to use detergents more extensively in large-scale efforts when appropriate. Methods of cleaning which combine two agents bear investigation, such as an initial cleaning in solvent or mineral oil to remove especially viscous oils, followed by cleaning in a dilute detergent solution to remove the first agent.

Although solvent is an excellent cleaner, it does have the extreme disadvantage of being toxic to both birds and people through inhalation and skin contact, as well as being flammable. Therefore, cleaning workers must wear plastic protective gowns and gloves and organic vapor filtering respirators, and fire safety measures, such as fire extinguishers, removal of spark and flame hazards, and careful monitoring of solvent temperature are required.

In preparation for cleaning, the solvent is warmed to 70-80°F (flash point of Shell Solvent 70 is 104°F), and two or three dishwashing basins are filled to about 4 inches with the warm solvent. The bird is then dipped into the first basin, and solvent squeezed into the plumage in the direction that the feathers lie to loosen the oil on the bird. After 30 seconds or so the bird is lifted from the first basin, excess solvent is pressed from its feathers, and it is placed in the next bath. After three or so such baths most of the oil has been dissolved by the solvent, and the bird is then thoroughly rinsed with warm solvent pumped by an explosion-proof pump through small nozzles. Because of solvent toxicity, the cleaning process is limited to only five or six minutes, after which the bird is dried with towels and taken to be completely dried with a hot air blower.

Cleaning with detergent is somewhat similar to cleaning with solvent, has the advantage of being relatively non-toxic and safe to use. Because it is negligibly toxic, it is the cleaning agent of choice for the more highly refined, toxic oils, as well as on smaller birds, since they may be more highly affected by toxins absorbed through the skin by virtue of their larger surface-to-volume ratio.

The most effective brand and concentration of detergent will vary, depending upon the type and age of oil encountered; determination of effective solutions should be done on the plumage of dead oiled birds or on a few plucked oiled feathers. Cleaning with detergent also requires large quantities of hot water (95-115°F), which can be provided by a large continuous-demand water heater. As with solvent cleaning, the birds are dipped and cleaned in several successive basins of hot cleaning solution; once clean, they are rinsed thoroughly with a hot water spray until the feathers begin to resist wetting.

After cleaning, the birds are dried thoroughly with hot air, in a drier which we designed to dry eight birds at a time with a minimum of handling. Pet-grooming driers can also be used to dry individual birds. Prior to drying, the bird is tubed hydrating solution, and its feet are protected from excessive heat and drying with A&D ointment and cloth wraps. It is then dried for 25-35 minutes, until all feathers, including the down and those under the wings, are completely dry. Thorough drying not only prevents the birds from becoming chilled, but also in the case of solvent cleaning, reduces the birds' exposure to the toxic cleaner.

After drying, the birds cleaned in solvent are very intoxicated from the effects of the cleaner, and require a few hours to recover in safe, well-padded pens. Detergent-cleaned birds do not suffer these effects, but should be left alone in warm-pens with plenty of food and water before being handled further.

### Swimming

Once the birds are clean, dry and rested, they can begin swimming in



preparation for release. Some further cleaning of water soluble stains or detergent residues occurs as the birds swim, but more importantly, they will begin to preen their feathers back into the alignment necessary to keep water out and warm insulating air in. This, rather than moult or the replenishment of natural oils, is all that properly cleaned birds need to become waterproof and releasable. As long as the birds' plumage has not been too disrupted by viscous oil, particulate matter or mishandling, they should become waterproof within a very short time after cleaning.

The best type of pool for a rehabilitation effort is a small (8-12' diameter) plastic-lined swimming pool, with a water depth of 12 to 18". A filter system and attachments for skimming the surface and vacuuming the bottom are needed to keep the water sufficiently clean. The number of pools needed to provide each bird adequate swimming time varies with the number of birds on hand, their rate of progress in becoming waterproof, and other factors.

At first, birds may be able to stay in the pools for only a few minutes before becoming too wet and cold to swim further. They are then transferred to warm pens, where they usually preen. Once they are dry and warm, after some two to four hours, they can be returned to the pools.

Birds should swim as frequently as possible, but must be given time between swims to rest and feed, so that they do not become exhausted. Swimming birds require constant observation and frequent handling, and it is often quite difficult to judge how much swimming they can and should have over the course of a day.

### Release Criteria

Ideally, each bird should become increasingly waterproof with each period of swimming, provided that it has been thoroughly cleaned and is actively preening. Once the bird's plumage is waterproof, i. e., the down remains fluffy and the contour feathers resist water despite prolonged swimming, the bird can be considered for release. In addition to waterproof plumage, a bird's general physical condition must be sufficient for survival in the wild. Feet, legs and wings must be without injury or damage, and the bird must be active, alert and of adequate body weight prior to release. Pelagic birds are tested for salt tolerance before release, as their ability to utilize salt may be depressed by oil ingestion or rehabilitation on fresh water.

Releasable birds are banded with U.S. Fish & Wildlife Service bands, from which Bird Rescue has gotten a small number of returns indicating normal migration or cause of death unrelated to oiling and rehabilitation.

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This has been an overview of the methods of rehabilitation that we use currently at Bird Rescue. During an actual incident, the process is more complicated

than my presentation might suggest, particularly when large numbers of birds are involved. In this case, most of the activities of medical treatment, cleaning, drying, feeding, routine hydrating and other aspects of care must go on simultaneously, requiring a high degree of coordination, a sufficient number of supervisors to direct each activity, and enough workers to carry out each job.

It is beyond the scope of this paper to discuss the kind of preparations that should be made against an oiled bird emergency. The plan needed to suit the needs of a particular area will depend upon available personnel, facilities, supplies and equipment, as well as on local bird species and geography. It has become almost a maxim of oiled bird rehabilitation, however, that some degree of advance planning is essential to help make the effort more productive once an emergency exists.

#### BIRD RESCUE OILED BIRD SUMMARY

	<u>Received*</u>	<u>Released</u>
1973	523	218
1974	83	26
1975	732	199
1976	<u>235</u>	<u>154</u>
Total	1,573	597

#### RECENT SPILL EXPERIENCE

Date	Location	Species involved (in order of frequency)	Received*	Released	Approx mea stay of thos released
September 1975	San Mateo Co. (coast)	Common murre Brown pelicans	635	159 (25%)	3 weeks
January 1976	Carquinez Straits, Crockett, CA	Canvasbacks Scaup Mallards & hybrids Ruddy ducks Goldeneye	140	105 (75%)	4 days
March 1976	Aquatic Park Lake, Berkeley, CA	Ruddy ducks Coots Pied-billed grebes	54	26 (48%)	2 days

\*Total of all oiled birds received, including those that died prior to cleaning and those that were euthanized.

## FAMILIES OF SEABIRDS

GROUP	HABITAT	GENERAL APPEARANCE	BILL	NECK	LEGS/FEET	DIET/FEEDING METHOD
Loons	Close to shore	Bold patterns Dense plumage	Strong Tapering	Stout	Far back on body 3 toes webbed	Fish, shellfish Diving
Grebes	Winter close to shore	Black & white Satiny plumage	Sharply pointed	Slender	Far back on body Feet <u>lobed</u>	Fish, shellfish Diving
Shearwaters, Fulmars	Pelagic	Gull sized Wings long, pointed	Tubed nostrils	Short	3 toes webbed	Squid, fish Plunging, scavenging
Cormorants	Coastal	Large, blackish	Long, hooked No nostrils	Long	4 toes webbed	Fish, Diving
Ducks, Geese	Bays, Offshore	Varied	Generally flat Mergansers pointed	Long	3 toes webbed	Grain, Fish Dabbling, Diving
Jaegers, Skuas	Pelagic	Dark, Gull-like	Strongly hooked	Long	3 toes webbed	Mammals, Fish Piracy
Gulls	Coastal	Gull-like	Slightly hooked	Long	3 toes webbed	Anything, Scavenging
Auks	Pelagic	Usually dark back, pale belly	Pointed	Usually short	Far back on body 3 toes webbed	Fish, Shellfish Diving

## OVERVIEW OF AN OILED BIRD REHABILITATION EFFORT

### ADMINISTRATION

#### Interagency Coordination

1. Determine what type of oil has been spilled
2. Establish clean-up responsibility
3. Evaluate wildlife involvement
4. Determine public relations policy
5. Initiate collection of wildlife
6. Schedule daily briefings

#### Media

1. Provide public information personnel of cooperating agencies with bird statistics daily
2. Issue press releases
3. TV interviews
4. Radio interviews

#### Volunteers / Workers

1. If needed, recruit from cooperating agencies or, if absolutely needed, via media
2. Screen new volunteers
3. Keep time sheets
4. Schedule shifts
5. Deal constructively with or phase out problem volunteers / workers

#### Supplies

1. Keep record of "on hand" supplies used
2. Keep record of supplies purchased
3. Obtain supplies needed

#### Public Relations

1. Deal with cleaning agent salespersons
2. Deal with curious public

### BIRD CARE FACILITY

#### Choose Cleaning Agent

1. Solvent
2. Detergent
3. Mineral oil / detergent

## OVERVIEW ( Cont. )

### Activate facility

1. Check supplies on hand & order needed material
2. Set up equipment
3. Test equipment for proper functioning
4. Check inventory for supplies needed

### Appoint teams and leaders

1. Train
2. Supervise

### Schedule and coordinate activities

1. Receiving birds
2. Records
3. Preparation for cleaning
4. Cleaning
5. Pre-drying
6. Drying
7. After cleaning care
8. Tubing
9. Feeding
10. Swimming
11. Medical Treatment
12. Release

## RESEARCH

Institute if needed and supervise  
Assist  
Coordinate with other activities

## SELECTING SUPERVISORY PERSONNEL

Although experience with wildlife rehabilitation is desirable, supervisory personnel should not be selected using this as sole criterion. Other requirements include willingness to work within existing contingency plans, ability to acquire and accurately interpret cleaning and husbandry information and a mature attitude toward the work being done.

### Suggested supervisory job descriptions

#### General Supervision

1. Acquires details of incident from appropriate agencies
2. Determines size and type of response needed
3. Alerts members of supervisory team, deploys response
4. Maintains coordination and communication among all involved agencies

#### Public Information

1. Maintains communication with cooperating agencies and media
2. Issues press releases, interviews etc.

#### Spill Site Operations

1. Trains workers in capture techniques
2. Acquires or arranges for use of equipment and vehicles
3. Supervises collection, field treatment and transport of birds

#### Wildlife Rehabilitation

1. Supervises wildlife care workers
2. Directs wildlife care, swimming and release
3. Assesses need for equipment, materials and labor

#### Veterinary Medicine

1. Supervises medical aspects of rehabilitation
2. Arranges for or performs lab work
3. Supervises ordering, storage and use of medical supplies and drugs
4. Performs necropsies
5. Institutes and supervises research

#### Supply and Equipment

1. Stocks equipment and material needed for rehabilitation effort
2. Monitors and replenishes supplies during incident

#### Training

1. Selects, schedules and trains personnel

#### Cleaning Operations

1. Maintains safe working conditions in cleaning and drying areas

## SELECTING SUPERVISORY PERSONNEL

### Cleaning Operations (cont.)

2. Supervises use of equipment and rotation of personnel
3. Maintains adequate supplies of warm cleaning agent

### Labor requirements

FUNCTION	NUMBER OF PERSONS SUGGESTED
Collection	2-3 / team
On-site treatment	2 / station
Transport to rehabilitation center	1-2 / vehicle
*Intake treatment at center	3-4 / team
*Pre-cleaning treatment	2 / team
Cleaning preparations: equipment and supplies	1 / cleaning station
Cleaning stations	3-4 / cleaning station
Drying by pet dryer	1 / dryer
Drying by multi-unit bird dryer	2 / dryer
*Solvent recovery pens	1-2 / team
Changing and cleaning bedding	2 / team
Feeding	2 / team
*Swimming	2-4 / team
*Records	1
*Obtaining supplies	2 / team
*Construction, maintenance, custodial	2-3 / team

Since all tasks do not necessarily go on simultaneously, workers may be part of more than one team.

\*These tasks will probably require only one team, no matter how many birds are involved.

## COLLECTION OF OILED BIRDS

Oiled birds coming ashore are likely to be in poor condition. This does not mean that they will be easy to capture. A successful collection effort will require control of public access to affected shorelines, coordination of capture activities and communication equipment for collection teams.

### Control of Access

1. Close beaches and shorelines to public
2. Request assistance from media if needed

### Coordination of Capture Activities

1. Designate teams of two or three workers
2. Position workers between water's edge and beached birds
3. Conditions permitting, encourage bird in water toward land with small boats
4. It has been determined that birds cannot be captured effectively while in the water by the use of nets from small boats
5. If birds cannot be readily captured, return later and try again

### Safety

1. Do not climb down steep cliffs
2. Do not chase birds over slippery rocks
3. Do not wade out into the surf
4. Hold captured bird at or below waist level
5. When handing bird to someone else, have that person take the bird from behind
6. Wear long sleeves, gloves and, if possible, goggles
7. Do not attempt to capture marine mammals as they will bite and can carry disease that can be transmitted to man

### INITIAL TREATMENT AT SPILL SITE

When delay in transport is unavoidable, one or more treatment stations can be established at the site of a spill. Ideally, oiled birds should receive treatment of some kind within an hour of capture.

### Spill-site treatment

1. Clear mouth and nostrils of oil
2. Tube bird rehydrating solution
3. Fit bird with a poncho
4. Place birds in individual boxes

Load for transport to care facility.



## SAFETY OF BIRD CARE WORKERS

1. TETANUS IMMUNIZATIONS MUST BE CURRENT.
2. HOLD BIRDS AT OR BELOW WAIST LEVEL, NEVER CLOSE TO THE EYES.
3. CLEAN AND TREAT ALL CUTS AND SCRATCHES.
4. WASH HANDS WITH SOAP AND HOT WATER AFTER CLEANING PENS OR HANDLING BIRDS, AND ESPECIALLY BEFORE EATING.
5. MASKS SHOULD BE WORN IF ALLERGIC TO FEATHERS, DUSTY CONDITIONS, OR OTHER RESPIRATORY CONDITIONS, SUCH AS ASTHMA, ARE EVIDENT.
6. OILED BIRD EFFORTS ARE STRESSFUL TO PEOPLE AS WELL AS BIRDS. KNOW YOUR LIMITS AND PACE YOURSELF ACCORDINGLY, TAKING REGULAR RESTS AND MEALS. IT IS EASY TO WORK BEYOND CAPACITY WHEN CARING FOR OILED BIRDS.

## HYGIENE

1. Bedding in bird pens must be kept as clean as possible, and changed as needed.
2. Catheters and syringes used for administering fluids and strained foods must be cleaned of all particulate matter after use. They should soak in a disinfectant solution ( 1:750 Zephiran or Roccal ) when not in use, and must be rinsed thoroughly in hot water before being filled again.
3. Food and water dishes will frequently become contaminated by droppings; they must be emptied and cleaned as necessary.
4. To minimize the chance of transmitting communicable disease, workers cleaning pens should wash their hands between pens.
5. Diseased birds should be kept isolated from the others:
  - a. If possible, their pens should be in a separate room;
  - b. Catheters and syringes used in their care should not be used on healthier birds;
  - c. Workers caring for them should wear plastic gloves and foot coverings ("Baggies") which are discarded after use, or at the very least soaked in Zephiran;
  - d. "Sick pens" should be cleaned last and all soiled bedding discarded.

## STRESS

Good husbandry techniques, essential to oiled bird rehabilitation, consist of maintaining wild birds in a minimum-stress environment. The types of stresses to which wild birds are subjected, are listed below:

VISUAL - Wild birds usually show alarm at the sight of people, and will attempt to escape or hide when approached. Bird pens should be constructed of opaque material, and be placed away from the busier areas of the rehab center. A bird that shows distress while being handled can be calmed by placing a cloth over its eyes.

NOISE - Low-level constant noise is not ordinarily disturbing to birds. However, they will be alarmed by loud conversation and sudden crashes, and should be kept in a relatively quiet environment.

HANDLING - Being handled may well be the most stressful influence on a wild bird in captivity, unless everyone caring for birds learns how to pick them up and hold them correctly.

TEMPERATURE - Oiled birds are particularly vulnerable to temperature extremes, as their plumage does not insulate them well. Even after cleaning it may be some time until they can withstand temperature stress. Temperatures in the pens should be 65-75 degrees F. On very hot days, the birds may show signs of overheating (panting and standing with their wings held away from the body), and should be removed to a cooler area, or given a swim, if possible.

OVERCROWDING - If too many birds are placed in a pen, aggressive interactions may occur. Even if birds are not overly aggressive, they may be prevented by a crowded pen from maintaining a comfortable distance from each other. As alcids spend their lives in close proximity with one another, they may not be subject to this kind of stress.

LIGHT & DARK - In captivity, sudden changes in the relative length of day and night is stressful. Birds penned indoors should be provided the schedule of light and dark that is appropriate for the time of year.

INADEQUATE NUTRITION - In some instances, oiled birds undergoing rehabilitation have shown signs of nutritional deficiency, developing over a period of weeks, due to inadequate quantity or infrequency of feeding, and to vitamin deficiency.

DEHYDRATION - Most wild birds will not drink from water dishes in their pens, and those that do may not drink adequate quantities. Most oiled birds will require tubed hydrating solution 3-5 times per day; fewer tubings will be needed by those that are cleaned and swimming.

## S E L F - F E E D I N G   B I R D S

FOR PURPOSES OF REHABILITATION, AQUATIC BIRDS CAN BE DIVIDED INTO TWO GROUPS:

### F I S H E A T E R S

1. DIVING
2. SCAVENGERS
3. PLUNGING

### G R A I N E A T E R S

SELF - FEEDING BIRDS / FISHEATERS

TO INITIATE SELF-FEEDING IN A GROUP, TAKE ADVANTAGE OF NATURAL COMPETITION

SLOWLY TOSS WHITE BAIT INTO SHALLOW PANS OF WATER

OR PRESENT LIVE FOOD IN TROUGHS

OR SLOWLY TOSS WHITE BAIT AT FEET OF BIRD

OR FORCE FEED SELECTED BIRDS

S E L F - F E E D I N G   B I R D S   /   G R A I N E A T E R S

SPRINKLE ONE HANDFUL EACH OF TROUT CHOW AND TRIP-L-DUTY ON WATER IN A  
LARGE, SHALLOW PAN.

PLACE BILL IN MIXTURE TO SHOW WHERE FOOD CAN BE  
FOUND

OR      GENTLY MOVE PAN BACK AND FORTH IN FRONT OF BIRDS

OR      PLACE NON-EATING BIRDS WITH SELF-FEEDING BIRDS AND RELY  
ON A LITTLE NATURAL COMPETITION

PLACE AN EMPTY DISH IN A PEN, POUR WATER INTO IT. IF BIRDS SEEK THE WATER,  
FOOD MAY BE ADDED AFTER THEY START DRINKING.

SOME GENERAL SUGGESTIONS FOR SELF-FEEDING

- A. -- KEEP FOOD CONTINUALLY AVAILABLE
- B. -- KEEP FOOD FRESH
- C. -- PROVIDE VITAMIN SUPPLEMENTS
- D. -- WATCH FOR BIRDS THAT DON'T EAT

## HUSBANDRY AND SWIMMING

The bulk of oiled birds die due to problems that can be ameliorated or entirely avoided by good husbandry techniques.

Causes of death:

1. Excessive chilling
2. Dehydration
3. Starvation
4. Stress from above factors, as well as contact with people

Caretakers must counteract by:

1. Providing warm environment until cleaned, waterproof and able to regulate temperature
2. Hydrating
3. Appropriate and sufficient nutrition
4. Minimizing contact with people
5. Disease control: Maximum cleanliness of bedding
  - No straw, hay or moldy material
  - Feet greased frequently to prevent entry of bacteria
  - Isolation for diseased birds

### Swimming

Only way to reestablish waterproof status of feathers; also permits birds to drink freely

Surface of water must drain continually

Water must be kept clean

Avoid chilling

Avoid excessive handling

Watch (quietly) for birds whose plumage becomes too wet for further swimming; remove from pool and place in warm, clean pens



## S W I M M I N G

### OBJECTIVES

TO REGAIN THE FEATHER ALIGNMENT NECESSARY FOR WATERPROOF PLUMAGE

PROVIDES BIRDS FREE ACCESS TO DRINKING WATER

REDUCES THE FEATHER DISTURBANCE AND GENERAL STRESS THAT OCCURS WHEN  
BIRDS MUST BE FREQUENTLY CAUGHT, HELD AND TUBED FLUIDS.

TO AVOID FOOT, BREAST LESIONS AND CLOACAL IMPACTIONS

INCREASED WILLINGNESS TO EAT

## INITIAL TREATMENT AT THE REHABILITATION CENTER

Initial treatment is designed to determine the bird's physical condition, degree of oiling and to establish a record from which data can be extracted.

### Start a record

1. Date of arrival
2. Species.
3. Sex (if known)
4. Age (if known)
5. Date and time of collection
6. Location of capture
7. Initial treatment at capture site

### Take the bird's temperature

1. Use an oral or electronic thermometer lubricated with K-Y jelly
2. Record temperature after 45 to 60 seconds with oral thermometer, 30 seconds with electronic thermometer
3. Healthy bird's normal temperature is 39-41 degrees C (102-106 degrees F)

### Weigh the bird

1. Put it directly on a scale or weigh in a box of known weight

### Clear any remaining oil from mouth and nostrils

### Examine bird for extent of oiling and injury

1. If the bird has extensive injury, it may be best to euthanize at this time

### Band the bird

### Tube the bird

1. 25cc per pound of body weight warm (80 degrees F)

### Check the bird for signs of oil toxicity

1. Red irritated skin
2. Loss of equilibrium

### Provide special treatment for low temperature birds

1. Place birds with temperatures below 38 degrees C (100 degrees F) in a covered box close to a lamp or heater. Temperature in the box should be between 29-32 C (85-90 degrees F)
2. Tube birds warm hydration solution every hour
3. If no improvement within 4-6 hours, euthanasia may be necessary

### Place birds in pens

1. Before cleaning oiled birds must be maintained in warm indoor pens (24-27 degrees C or 75-80 degrees F)
2. To prevent dehydration, these birds must be tubed 3-5 times a day

## EUTHANASIA

When large numbers of birds are involved in a spill, it may be advisable to euthanize those birds that are least likely to survive. Bird Rescue has developed the following criteria to assist decision-making in choosing which birds will be destroyed. The U.S. Fish and Wildlife Service has adopted these guidelines and they are included in that agency's Oil Pollution Response plan.

1. Consistently low body temperature

A bird with a temperature below 38 degrees C (100 degrees F) that does not respond to being warmed and tubed hydrating solution for 4 to 6 hours must be considered a poor risk. ( Caution: Body temperatures in healthy immature birds may fluctuate widely, thus low temperature should not be the only criterion used for euthanasia.)

2. Extreme emaciation

Birds that are severely underweight, with a protruding keel bone and little breast muscle will be difficult to rehabilitate. ( Caution: As dehydration can mimic emaciation, this should not be used as a criterion until the bird has received tubed fluids for 2 to 3 days. )

3. Signs of disease

Birds with signs such as gasping, gurgling, or other respiratory difficulty; Convulsions and throwing the head back; extreme lethargy; or a temperature significantly higher than the range of other birds received are most likely diseased and should be humanely destroyed.

4. Traumatic injury

Depending on its severity, injury to the bones, eyes, skin or muscle is additional stress to an oiled bird and may call for euthanasia.

DO NOT USE THE FOLLOWING AS CRITERIA FOR EUTHANASIA:

1. Degree of oiling
2. Bloody droppings
3. Resistance to self-feeding

ENDANGERED SPECIES SHOULD NOT BE EUTHANIZED UNLESS APPROVAL IS GIVEN BY FEDERAL  
OR STATE WILDLIFE AGENTS.

## CLEANING OF OILED BIRDS

### Principles of cleaning

1. Cleaning should be done when the oiled bird is in the best possible physical condition
2. Rough handling will retard waterproofing
3. The cleaning agent must be appropriate and properly used
4. Feathers must be very thoroughly cleaned and rinsed to be waterproof.

### The cleaning process

1. Fill basins with warm detergent solution of correct strength
2. Tube bird warm hydrating solution
3. Begin cleaning in first basin
4. Force out excess cleaning agent
5. Continue to other basins
6. Rinse the bird
7. Dry the bird

### Drying process

1. Tube the bird
2. Apply ointment to the feet
3. Apply ophthalmic ointment to the bird's eyes
4. Place "booties" on the bird's feet
5. After the bird is dry, again tube with hydrating solution

## RELEASE CRITERIA

Under ideal conditions, birds can be released within 48 to 72 hours of cleaning. A bird's readiness for release can be judged by the following criteria:

### Waterproofing

1. Floats high in the water
2. Feathers below the waterline are undisturbed
3. Down is dry and fluffy
4. No "leaks" around legs and cloaca
5. Stays dry for minimum time:

Grebes, loons, alcids	4 hours
Bay ducks, sea ducks	2 hours
Dabbling ducks, geese, swans	30 minutes

### Temperature

1. Birds maintain 39 degrees C (103 degrees F) while in water

### Behavior

1. Active, alert
2. Preening
3. Eating regularly, weight gain since capture
4. Full use of wings and legs

### Salt balance of pelagic birds

1. Birds must be able to tolerate 3% salt water

Date received \_\_\_\_\_ Species \_\_\_\_\_ Sex \_\_\_\_\_ Age \_\_\_\_\_ Bird Rescue band # \_\_\_\_\_

Temperature \_\_\_\_\_ Weight \_\_\_\_\_ Type or consistency of oil \_\_\_\_\_ Signs of molting? Describe \_\_\_\_\_

☐ Entire body & head ☐ Body only ☐ Spotty (describe): \_\_\_\_\_

Degree of oiling \_\_\_\_\_

Comments or additional problems (fractures, lacerations, bloody droppings, etc.) \_\_\_\_\_

Initial treatment at Center \_\_\_\_\_

Location of capture \_\_\_\_\_ Brought in by \_\_\_\_\_ Prior treatment \_\_\_\_\_

# CLEANING

Date cleaned \_\_\_\_\_ Time cleaned \_\_\_\_\_ Temp at cleaning \_\_\_\_\_ Weight \_\_\_\_\_

Medication(s) used \_\_\_\_\_

Cleaning agent(s) used \_\_\_\_\_

# DISPOSITION

☐ Released

Federal band # \_\_\_\_\_

Location of release \_\_\_\_\_

Date out \_\_\_\_\_

☐ Expired

Clean/Oiled \_\_\_\_\_

Approx. time of death \_\_\_\_\_

Weight out \_\_\_\_\_

☐ Euthanized

Reason euthanized \_\_\_\_\_

Date/Time \_\_\_\_\_

Comments from Daily Sheets; Additional information \_\_\_\_\_

( continue on other side )

Date / Time

Comments from Daily Sheets; Additional information

Library  
U.S. Fish & Wildlife Service  
1011 E. Tudor Road  
Anchorage, Alaska

