CIRCLE OF DEPENDENCE

PROTECTED SPECIES HANDLING MANUAL

Edition II

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OCEANWATCH

FOR THE FUTURE OF OUR MARINE ENVIRONMENT

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GENERAL NOTES

The information in this manual is provided in good faith and is not intended to violate any relevant legislation. References for Commonwealth and State legislation are provided in Appendix B.

Many animals carry tags or have been marked in some way to aid research. Fishers are urged to note down information regarding the species of animal, any tagging data and location of any captured or assisted animal, and provide that information to the relevant authorities. If you have a camera on board, take a photograph.

This manual should be read in conjunction with any available material that covers the prevention of capturing protected and threatened species.

These handling guidelines are sometimes based on opinions and anecdotal information. If necessary, readers should make their own enquiries and obtain professional advice where appropriate, before making decisions.

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PROTECTED SPECIES HANDLING MANUAL

INTRODUCTION

The state of the oceans is an important issue for all Australians. Through their close associations and involvement with the oceans and its inhabitants, commercial fishers have a central role to play in ensuring that the oceans remain healthy, now and into the future.

There are many examples from Australia and around the world of fishers taking positive actions to protect fish, wildlife and habitats. Many of these handling guidelines are considered by commercial fishers to be good fishing practice and have been routinely adopted as part of everyday fishing operations.

In the case of species that are formally protected by legislation, commercial fishers have a responsibility to comply with the law. However, laws generally say what cannot be done, yet seldom provide practical advice to enable compliance to be as safe, effective and economical as possible.

This handbook provides practical suggestions for commercial fishers who may have to handle protected or threatened marine species. The suggested procedures may need to be modified if gear types not covered in this manual encounter protected species. Although these procedures have been trialed by fishers and scientists and have been shown to work, there is always room for improvement. If you find a better way of handling the species discussed, please contact Ocean Watch (02 9660 2262).

1 PROTECTED AND THREATENED SPECIES

1.1 Protected versus threatened – what's the difference?

A number of different terms are used to describe species that are of interest for conservation reasons. This handbook addresses species that are covered by Australian laws relating to wildlife and fish protection described as protected, threatened, rare, vulnerable or endangered.

Although there are some differences between definitions, in general, the terms used can be interpreted as follows:

- Protected – the animal (or plant) is set aside from harvesting in some way because it may be threatened or the government/community/industry believes that it should not be taken from the wild.
- Threatened – a generic term for rare, vulnerable or endangered species.
  a) Rare – an animal (or plant) that is uncommon either naturally or as a result of human interference.
  b) Vulnerable – an animal (or plant) that is at risk of becoming endangered.
  c) Endangered – an animal (or plant) that will go extinct in a short period of time unless action is taken to save it.
- Threatening process – an activity (either natural or human induced) that is causing a species to become threatened.

1.2 What does the law say?

Protection of threatened marine species involves both Commonwealth and State legislation. In general, State managed waters extend out to three nautical miles from the coastline and the Commonwealth controls between three and 200 nautical miles from the coastline.

Since 1983, the Commonwealth and most States have entered into a series of arrangements for the purpose of managing Australia's seas and marine resources. These arrangements are known as Offshore Constitutional Settlements (OCSs) and offer a formal means of negotiating cooperative fisheries management between the States and the Commonwealth.

Information on relevant Australian legislation can be found on the web sites listed in Appendix B.

1.3 What species have been protected?

Species protected under various State and Commonwealth legislation at the time of publishing are in Appendix C. However, these lists can change over time and vary between different jurisdictions so internet references that contain up-to-date lists have been included in Appendix B.

2 REPORTING PROCEDURES

It is important to report all interactions with protected species to the relevant authorities, as listed below. Reporting interactions will provide data on protected species which will not only assist with the scientific research on the species of concern, but also help in the development and adoption of useful and practical regulations in the future. For more information contact the organisation responsible for the species of concern in your state (Appendix D). If you decide to return to port with an injured animal initially contact the government hotlines, or alternatively one of the wildlife rescue groups, listed in Appendix D.

What to report

Any interactions with protected species should be reported. This includes interactions where the animal was returned to the water uninjured. Some fisheries have a logsheet or reporting form to be completed when an interaction with a protected or threatened animal occurs. Ensure you have a supply of these and are aware of the information that is required.

Information that may be useful to report includes the species, sex and size of the animal; health status of the animal on release; description of any injuries; information on where, when and how the animal was caught; any tag numbers and description of the tag already on the animal; and any other information you feel may be important.

For marine mammals, such as dolphins and whales, it is important to continue to observe the animal after release. If it appears injured, is swimming weakly or still carries fishing gear, the relevant authorities should be advised of its position and predicament. This also applies if you happen to see a dolphin or whale in distress.

Authorities to report to:

Commonwealth fisheries – report in your logbook

NSW fisheries – call the Protected Species Sighting Phoneline (02) 4916 3877

QLD fisheries – complete your Species of Conservation Interest logbook

VIC fisheries – report incidents in logbooks

TAS fisheries – report incidents in logbooks

WA fisheries – report in logbooks. If animal is dead call (08) 9334 0333

NT fisheries – contact Parks and Wildlife Commission (08) 8999 5511

SA fisheries – call Fishwatch SA 1800 065 522.

Law breaking offences (for information)

Law breaking offences should be reported to the relevant authority in each juristinction.

AFMA – General switchboard 02 6272 5029

NSW Fisheries – call the Fishers Watch Phoneline 1800 043 536 (within NSW)

QLD Dept of Primary Industries – call the Fishwatch hotline 1800 017 116

VIC Dept of Primary Industries – call (03) 9483 4283

TAS Dept of Primary Industries, Water & Environ.. – call Fishwatch 0427 655 557

WA Dept of Fisheries – call Fishwatch 1800 815 507 (within WA)

NT Dept of Primary Industry and Fisheries – call 1800 891 136

SA Primary Industries and Resources – call Fishwatch SA 1800 065 522.

3 HANDLING FISH

One of the central tools in fisheries management is regulating the overall taking of fish, including bony fish and sharks. This not only considers the sustainability of the target catch, but also the conservation of protected species.

There are distinct categories of protection depending on the associated legislation. Some species may be totally protected, some protected from certain fisheries and/or gear types and some protected for part of their life cycle.

Fish are considered threatened for different reasons. For example, the naturally rare Bleekers blue devil, the overfished Grey nurse shark and the trout cod (freshwater) that has been affected by habitat destruction. More often than not it is a combination of reasons that results in certain species of fish requiring a protected status.

Other reasons for protecting fish species include their vulnerability to certain fishing methods or their value to other fishing sectors. The blue groper is protected from spearfishing and commercial fishing because of its vulnerability, while the Australian bass is protected from commercial fishing due to its value as a sport fish.

Fishers have a legal and moral obligation to release protected fish back into the water as quickly and carefully as possible. The benefits of releasing fish alive are widely recognised. They can live on and continue to spawn, improving populations in future years.

3.1 Bony fish

Release the fish as quickly as possible

Fish become stressed as a result of capture and handling. The result can be death, either immediately or later. As stress takes time to occur and its effects are cumulative, it can be reduced by capturing and releasing a fish quickly and handling it as little as possible.

If possible, release the fish without landing it

Avoid lifting the fish out of the water, especially large fish. If the fish can be treated in the water then it will have a greater chance of survival. If possible, hold it next to the boat then unhook and release it quickly. A line-cutter and de-hooker may be useful for removing gear from a fish that will not be landed (Box 1).

Box 1

Line cutter

A line cutter is a simple device useful for removing fishing line from hooked or entangled animals, both in the water and on the deck. It is a cutting blade secured to a pole capable of reaching the water line. The blade should be protected to decrease the chance of accidental cuts to the crew and the animal. After fishing gear is cut away it should be stowed for disposal when the vessel returns to port.

De-hooker device

The best method to remove visible hooks is to cut the barb before threading the hook out, as described in the Seabird Section Box 4. If this is not possible a de-hooker can be used.

There are many styles of de-hooker or hook-out devices that will help to remove hooks from marine animals. They can be used if the animal is left in the water for treatment or lifted onto the deck. Some are designed to assist with taking a hook out of a lightly hooked animal, while others remove hooks that cannot be seen as in the deeply hooked animals. The latter styles tend to be passed down the line, rest on the hook and with pressure push the hook out of the flesh of the animal. It may be useful to extend the reach of the de-hooker so the animal can be treated while still in the water.

The line-cutters and de-hookers shown in Figure 1 are available from Aquatic Release Conservation (ARC). Information on the range of ARC products and detailed instructions on their use are on the ARC web site (www.dehooker4arc.com).

Figure 1 ARC J-style de-hooker, line-cutter and deep-hooked turtle de-hooking device

If landing the fish handle it with care

One of the major effects of stress is a reduction in the fish's normal resistance to infectious diseases. Fungal and bacterial infections following injury are causes of death after release and rough handling will increase the amount of damage done to a fish. As fish skin is particularly prone to injury, handling that causes a loss of scales and damage to the skin's slime coating should be avoided.

If the unwanted fish has to be landed and there is no danger of being spiked, bitten, cut or stung, it is best lifted by a wet hand or glove. Fish should be held horizontally with the whole body supported and care taken not to place additional strain on the jaw. Do not hold the fish vertically, place your fingers inside the gill cover or inside the eye sockets.

If the fish has to be netted, a net made of knotless mesh will cause less damage than the commonly available knotted landing nets. These increase skin damage and can lengthen handling time if the fish becomes entangled in the mesh. Never use a gaff to lift the fish into the boat.

If you are putting a fish down to measure, photograph or remove a hook, a smooth, wet surface will cause less damage to the skin than a dry rough surface. Covering the fish's eyes can help settle it down.

Remove fishing gear from the fish

The site and severity of the hook wound determines how the hook will be removed and plays an important part in whether or not a fish will survive. Fish hooked in the gills or gut, considered to be deeply hooked, are less likely to survive than those hooked in the jaw or mouth, lightly hooked. Howerver, if deeply hooked fish are handled correctly, they may still survive.

De-hookers, long nosed pliers or hook-outs may be useful for removing hooks from fish that have been either lightly or deeply hooked (Box 1).

If it is not possible to remove the hook, cut the line and leave the hook in the fish. Recent research indicates it is best to leave 15–20cm of line attached to the hook. This will give the fish a better chance of recovery.

Deflate the swim bladder if necessary

Fish caught in deep water suffer problems similar to those of divers with 'the bends'. As a fish is brought to the water surface, the gases inside it are subjected to less pressure and therefore expand. This causes the formation of large gas bubbles in the heart, blood vessels, gills and brain.

Unlike divers, many fish have the additional problem of the expansion of gas in the swim bladder. The swim bladder is a gas-filled sac that allows the fish to maintain neutral buoyancy. These fish have no way of venting gas directly out of the bladder and can only remove excess gas by diffusing it into the blood. As the fish is brought to the surface, the rapidly expanding gas in the swim bladder compresses its

internal organs and sometimes forces the stomach out through the mouth or the intestine out the anus. This over-inflation of the bladder will usually prevent the fish returning to deeper water, where the gases can return to their original volumes. The fish is almost certain to perish if it is left floating on the water surface and unable to submerge. Removing excess gas from a bloated fish by piercing the swim bladder can increase its chances of survival (Box 2).

An alternative, less intrusive method is to use a weighted line to return the fish to the bottom. The fish is hooked in the jaw with a barbless hook, attached to a weight and lowered to the bottom on a line. When the line is pulled back the hook can come out of the fish.

Fish that are not bloated should not have their swim bladder pierced.

Box 2

How to deflate the swim bladder of bony fish

Venting, or puncturing the swim bladder with a fine hollow needle can allow the expanded air in the swim bladder to escape. Venting methods can vary with species, however in most cases the needle is inserted forward between the scales in line with the top of the pectoral fin and the 4th dorsal spine (Figure 2).

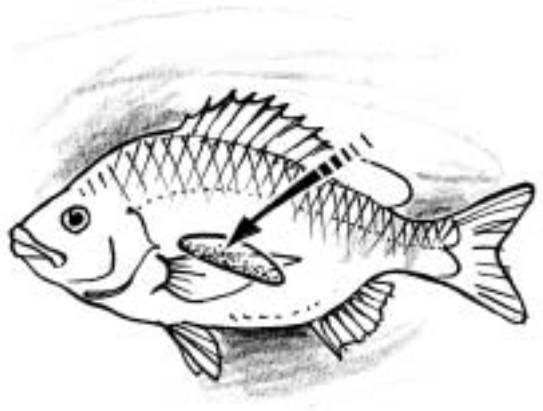

Figure 2 Location for deflation of the swim bladder

This should be done as quickly as possible to prevent the swim bladder from rupturing. If no air escapes you may have missed the bladder and need to try again. The small puncture wound may heal quickly.

The tissue that protrudes from the mouth of a bloated fish is generally the stomach which has been displaced by the expanded gas from the swim bladder. Puncturing the stomach does not release the gases in the swim bladder and does not help the fish return to its original depth.

Release the fish

Fish can be held upright in the water and moved backwards and forwards for a short time to allow them to regain equilibrium and re-oxygenation before release. Fish that have been brought up from deep water have their chances of survival greatly increased if they are returned to deep water as soon as possible.

3.2 Sharks

Release the shark as quickly as possible

As with all fish, sharks become stressed as a result of capture and handling. Mortality can be reduced by capturing and releasing a shark as quickly as possible with the least amount of handling.

If possible, release the shark without landing

Avoid lifting the shark out of the water, especially large sharks. If the shark can be treated in the water then it will have a greater chance of survival and be less likely to inflict injury on the crew and to itself.

If landing, handle with care

Extreme care must be taken when handling sharks, both in terms of crew safety and shark survival. If the shark is caught in a net, care must be taken when untangling the animal.

One method to immobilise an entangled shark is by rolling it over onto its back, placing the animal into a state of tonic immobility. This will assist to untangle it. Always keep a firm hand on the shark when removing it from the net to minimise its struggling movement.

The protected sharks do not possess swim bladders, so the problem of over inflation is not present. However, the grey nurse and Herbsts nurse sharks have the ability to gulp and store air in their stomachs to assist them in controlling their buoyancy. If these species are brought to the surface too quickly, they will be bloated and float upside down. In most circumstances the sharks will burp this excess air out of their stomachs.

Remove fishing gear

Remove all fishing gear from the shark, using line-cutters and de-hookers, if necessary (Box 1). If the shark is hooked in the mouth, it is important to remove the hook with minimal damage to the shark.

If the animal is deeply hooked, for example in the stomach, and the hook cannot be removed, the line and trace should be cut as short as possible. A significant concern is when the stainless trace, often attached to the hook, swings loose along

the side of the animal causing infections and abrasions. This can lead to the death of the shark.

Release the shark

Crew safety is the first priority when returning a shark to the water. For larger sharks it may be necessary for two of the crew to lift the animal. One method is to approach the shark from the tail end, one on either side, lift the front half of the shark from under the front side (pectoral) fins and place the head outside the bulwark capping. It is then possible to reach back to lift the back half of the shark and return it to the sea.

Report the capture

Report the capture to relevant authorities. Refer to Section 2 for information and contact numbers.

4 HANDLING MAMMALS

A variety of marine mammals occur along the Australian coastlines. These include animals that are resident to the area as well as seasonal and occasional visitors. Marine mammals, especially dolphins and whales, are high profile animals that generate significant public interest.

On southern coastlines the most common species of seals include the New Zealand fur seals and the Australian fur seals. Other species include Sub-Antarctic fur seals, leopard seals, elephant seals and Australian sea lions. A wide variety of whales and dolphins occur in Australian waters. The most abundant is the bottlenose dolphin, which is primarily marine but does venture into estuaries from time to time. Humpback, southern right and pilot whales are some of the species of whales commonly found in our marine waters.

4.1 Seals

Humans and seals share common food resources – fish, squid and crustaceans. Seals are active predators on fish and some individuals have learned that fishing operations make good foraging sites. Seals that scavenge from nets, remove fish from lines, or take bait from rock lobster pots, have an increased chance of becoming entangled or entrapped. Furthermore, seals swimming at sea can become entangled in nets that they fail to detect and in debris discarded or lost from vessels.

Reduce the chance of an interaction

The incidence of seal interactions with fisheries may be reduced in a number of ways. For example:

- Modifying pot designs and improving the design of bait holders can reduce the entrapment of small seals in lobster pots by making it more difficult for seals to access the bait.
- When possible, skippers of trawl vessels should deploy and retrieve nets as quickly as possible and close the trawl opening during recovery, thereby reducing the opportunities for seals to enter the net.
- The potential for entrapment of seals in gill-nets can be reduced by positioning nets away from seal breeding colonies.
- Entanglement of seals in packaging bands, fragments of net, old rope and line can be reduced if all waste is stored and discarded appropriately in port.
- Discarded fish and old bait can attract seals to the vessel. This waste can be processed through mincers before being discarded at sea, making the fish and bait inaccessible to the seals. Offal should be discarded away from fishing grounds while the vessel is moving.

Consider crew safety

Stressed seals can be aggressive and, due to their size, difficult to handle. If the seal is too large to handle and human safety is at risk it is far better to cut the entangling material, possibly using a line-cutter (Box 1), and let the animal go.

The primary aims of handling smaller, or more manageable seals, is to reduce the risk of being bitten and to control it for long enough to allow the entangling material to be removed.

Restrain and calm the seal

To prevent injury to the seal or the crew it should be physically maneuvered into a suitable place on the boat, possibly using the deck hoses, wooden poles or plywood sheets. This equipment will also be useful in maneuvering the animal off the boat. If necessary, the seal could be caught by throwing a net over its body.

Once the seal is confined it can be calmed by placing a bag (preferably hessian) over its head so the eyes are covered. To prevent the seal from struggling free, the front flippers should be pinned against the body (Figure 3).

Figure 3

Remove all fishing gear

All material needs to be cut away from the seal (Figure 4). This could be done using a line-cutter (Box 1) and possibly a boat hook. Leaving trawl webbing or rope around the seal can result in the slow death of the animal.

Figure 4

Return the seal to the water

Return the seal to the water as quickly and quietly as possible. A circular net may be useful for larger seals, while smaller seals should be carried by grasping the hind flipper in one hand, the outer fore-flipper with the other hand and your arm supporting the animals underbelly with its head held away from your body.

Even if it is injured it should be returned to the water. Caring for injured seals requires specialist skills and keeping it on board may place it under further stress.

Report the capture

Report the capture to relevant authorities. Refer to Section 2 for information and contact numbers.

4.2 Dolphins

Dolphins are relatively common along the Australian coastline and they can be found in estuaries, along the ocean beaches and at sea. As is the case for seals they are often attracted to fishing operations where they seek to feed on captured fish or discards. The number of dolphins caught in fishing gear is very small and, in most cases, it is young animals inexperienced with the fishing operation that are most at risk.

Most of the interactions between dolphins and fishing take place via entanglements in nets, usually trawl nets. For example, a dolphin can enter a trawl net while it is being lowered to the bottom. During this time the net is not fully operational and may not have an opening until it is under full tension. A dolphin may drown before the net reaches the bottom and the entrance becomes obvious to the dolphin's sonar system. Dolphins can also become tangled in ropes that are in the water, such as the lazy line.

Reduce interactions with dolphins

Dolphins are often attracted to high-risk areas, such as the stern of the trawler, by discarded bycatch. This can be minimised by retaining the discards on the boat until after the net is shot away. Turtle Excluder Devices (TEDs) and fish Bycatch Reduction Devices (BRDs), which reduce the amount of discards would also be of assistance. These devices are commonly used in prawn trawl fleets Australia-wide.

Underwater acoustic alarms (pingers) on gillnets can be used to alert marine mammals, such as dolphins, to the presence of nets in the water and therefore reduce their rate of entanglement.

If possible, release the animal without landing

For a dolphin caught in a rope or entangled in fishing gear it should be dragged slowly to the side of the boat so that the extent of entanglement can be determined. If possible, keep the dolphin in the water and untangle it from the fishing gear, or cut the line using a line-cutter (Box 1). All fishing gear should be completely removed from the animal before release.

Figure 5

Keep the dolphin's head above water using rope (do not hang the dolphin up by the tail)

It is best to support the dolphin's head above the water at the side of the boat using a piece of thick rope (2–3 metres) placed under the body between the top (dorsal) fin and the side (pectoral) flippers. If you need to bring the dolphin on board and it is small enough to lift then the entangling line can be used to maintain the animal in a horizontal position. Under no circumstances hang the dolphin up by the tail, as it may suffer spinal injury (Figure 5).

Remove all fishing gear

All material needs to be cut away or untangled from the dolphin. Leaving trawl webbing or rope around the animal can result in a slow death for the animal.

Release the dolphin safely, quickly and quietly

Once untangled the dolphin can be placed on the gunnel of the boat and slid headfirst into the water. As with seals, if the dolphin is injured it should be returned to the water as caring for injured dolphins requires specialist skills and keeping it on board may add stress to the injury.

Report the capture

Report the capture to relevant authorities. Refer to Section 2 for information and contact numbers.

4.3 Whales

A variety of whales inhabit Australian waters. They range in size from the smaller species such as melon headed whales, which may be 3–4 metres in length, up to large humpbacks, which may be 15 metres or longer.

Whales have been recorded entangling themselves in the head-gear on fish, spanner crab and lobster traps. Obviously the size of the animal entangled dictates what a fisher can achieve when trying to deal with the incident. For example, a 6 metre trap and line boat with one person on board is going to have difficulties dealing with a 15 metre humpback whale!

Consider if it is safe to bring the whale close to the boat

If it is possible to handle the situation safely and without assistance the animal should be brought slowly to the side of the boat and, if necessary, the line to the trap should be secured. This prevents the loss of the trap and takes some of the tension off the trapped animal.

Remove all fishing gear from the animal

Remove the fishing gear, possibly by the use of a line-cutter (Box 1) unless it can be easily unlooped.

Release the animal

Once released the animal should be left alone but continue to be observed. If it appears injured, is swimming weakly or still carries fishing gear, the relevant authorities should be advised of its position and predicament.

Report the capture

Advise the relevant authorities. Refer to Section 2 for information and contact numbers.

5 HANDLING REPTILES

Marine reptiles such as sea snakes and turtles are more common in the northern waters of Australia. They are occasionally encountered, however, in more southerly waters by commercial fishers.

Sea snakes require careful handling, as they are highly toxic. They are, however, unlikely to inflict a serious bite due to the small size of their rear-positioning fangs.

There are seven species of sea turtle worldwide, six of which live in Australian waters: loggerhead, green, hawksbill, olive ridley, flatback and leatherback. All threatened species listings in Australia include some or all of these species.

5.1 Sea snakes

Sea snakes, although appearing quite hardy, can be easily injured if treated roughly. If the snake is active it should be carefully thrown over the side by grabbing its tail or by using a piece of dowel or a broomstick.

If the sea snake is not moving it may recover if left in an empty container with a clear or mesh lid. Recovery time may take up to an hour. Some sea snakes that have emptied their venom glands by biting other species during capture in the fishing net, can regain their poison stores over the recover period.

5.2 Trawled sea turtles

Turtles are vulnerable to capture in prawn trawls and can drown as a result of being trapped for long periods of time under water. Due to their status as endangered species, a considerable amount of effort has been devoted to preventing the capture of turtles and special measures for handling trawl-caught turtles have been developed.

Sea turtles can also be found in some river estuaries and other waters where gill nets are used. If a turtle becomes entangled in a gillnet, or any other type of fishing gear, the same recovery procedure as recommended for prawn trawls should be followed.

Use a TED

The methods for preventing the capture of turtles involve the use of special escape panels in prawn trawls known as Turtle Excluder Devices (TEDs). These operate by physically ejecting the turtle from the net before it reaches the codend.

Fisheries in northern areas of Australia have already adopted TEDs. In southern areas, there are very few reports of prawn trawls catching turtles. However, the following advice is provided for those fishers who may encounter a turtle.

The following turtle recovery procedures were developed by the Queensland Commercial Fishermens Organisation (QCFO) and have been modified from the QCFO brochure for Queensland prawn trawl fishers.

Figure 6

Land the turtle, it may be comatose

Sea turtles caught in trawl nets may be stressed. Some are conscious and able to swim away after removal from the net, however others may appear to be tired or lifeless. Turtles that appear lifeless are not necessarily dead. They may be comatose (Figure 6). Turtles returned to the water before they recover from a coma will drown.

Figure 7

Watch the turtle for activity (breathing or movement) and treat accordingly

If active

(moving strongly and breathing regularly – Figure 7)

Gently return the turtle to the water (Figure 8) with:

a) the engine in neutral;

b) nets not trawling; and

c) without dropping the turtle on the deck.

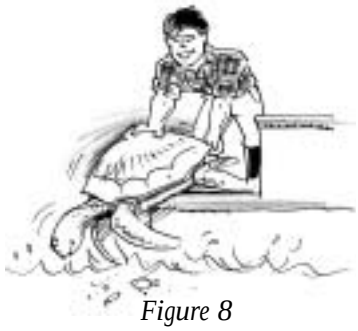

Figure 8

If not active

Keep the turtle on board:

a) raise the rear flippers about 20 centimetres off the deck (to drain its lungs);

b) keep it shaded and damp (Figure 9); and

c) allow to recover for up to 24 hrs

If the turtle doesn't become active, its probably dead.

Return the body to the to the water (Figure 10).

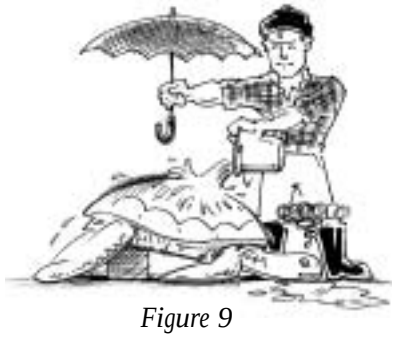

Figure 9

Report the capture

Report the capture in relevant logbooks. Refer to Section 2 for information and contact numbers.

Figure 10

5.3 Hooked sea turtles

Some turtles will interact with fishing hooks and line, either through feeding on the bait or entanglement in the line. Turtles have been recorded taking hooks and becoming entangled in both commercial fishing and recreational angling gear.

Handling guidelines have been developed for longline hooked turtles. However, when other gear types hook or entangle sea turtle, these basic guidelines should be followed where possible.

Scan mainline ahead to spot the turtle

The crew should scan the mainline in advance during gear retrieval so the sea turtle is spotted before being further traumatised by getting pulled along the surface of the water.

Gently bring the turtle to the side of the boat

To minimise tension on the line, possibly reducing the injury to the hooked turtle, the vessel and main line speed should be slowed down and the vessel moved towards the turtle. The turtle should be gently brought to the side of the boat without removing it from the water

Bring the turtle on board, otherwise treat it in the water

Do not land the turtle if it is too large to bring on board; lightly entangled in the line but not hooked; or bad weather prevents landing.

If possible, smaller turtles should be brought on board using a safe method – dip net or by grasping the shell and flippers by hand. Do not use a gaff (or any other sharp object), grasp the eye socket or retrieve the turtle using the line, as these methods will cause further damage.

Safety first for crew and turtle

Sea turtles, especially loggerheads, have powerful jaws capable of removing human fingers so handle them with care. Restrain the turtle in a safe place while on the deck, possibly using barricades, for the safety of the crew and to prevent the turtle moving around and further injuring itself.

At least two people may be needed to lift large turtles. Dropping a turtle onto a hard surface could easily result in damage to the carapace and possibly death. Make sure your hands are not where the flippers can crush them against the carapace.

Remove fishing gear

Entangled turtles or externally hooked turtles

All fishing line should be cut off the turtle and all hooks removed. It may be necessary to use a line-cutter and de-hooker (Box 1). If the turtle is entangled with no hook involved, it has a very high chance of survival when released with all line removed.

Lightly hooked turtles

If the hook is in the soft tissues of the mouth, the hook should be pushed through and cut off. Instructions on the safest way to do this are outlined in the Seabird Section (Box 4). A piece of wooden dowel, or the like, such as a rubber mallet handle, can be placed in the turtle's mouth to hold it open. A steel rod should not be used as it can injure the jaw of the turtle. The survival rate of lightly hooked sea turtles released without significant damage has been found to be high.

Deeply hooked turtles

If the sea turtle is deeply hooked, the hook cannot be seen, it may still be possible to remove the hook using a de-hooker or similar equipment (Box 1 and Box 3). However, if the hook cannot be removed the line should be cut off as short as possible and the animal released. However, the chance of surviving the hooking event is expected to be low if the sea turtle has been deeply hooked and released with extensive damage or still carries an internal hook.

An alternative is to bring the animal back to port for specialist veterinary treatment.

Comatose turtles

Hooked animals may have been trapped under water for some time. If this is the case, or if the animal is otherwise showing signs of stress, then the turtle recovery procedures described above for trawled turtles should be used.

Release the animal or bring it back to port

Release the turtle head-first into the water with the boat stationary.

Alternatively, if the sea turtle is deeply hooked and unable to be treated it may be viable to bring the turtle back to port for specialist veterinary attention. This would only apply if the vessel is going to return to port within a few days, if the relevant organisation is able to take the turtle from you, and a safe place is found on the boat to transport the turtle.

Box 3

Removing the hook from a deeply hooked turtle using a conduit de-hooker

1. If the hook cannot be seen it may be necessary to use a commercial de-hooker, or alternatively one can be made using a piece of conduit (approx. 60cm long).
2. Cut the line about 1 metre above the hook.
3. Thread the line through the conduit.
4. Allow the conduit to slide down the throat of the animal until it rests in the hook (Figure 11).

Figure 11

5. Hit the top of the conduit sharply to dislodge the hook (Figure 12).
6. Withdraw both the hook and conduit before releasing the animal (Figure 13).

Figure 12

Figure 13

Report the capture

Report the capture in relevant logbooks. Refer to Section 2 for information and contact numbers.

6 HANDLING SEA BIRDS

Many sea birds are natural scavengers – as a behavioural trait they do not restrict their foraging to diving on live fish. This has made them vulnerable to capture by longline fishers in particular.

On 24 July 1995, the incidental capture of seabirds during oceanic longline fishing was declared a 'Key Threatening Process' under the then *Endangered Species Protection Act 1992*. As a requirement of this listing a Threat Abatement Plan (TAP) was released. This provides the framework for coordinating action to reduce the impact of longline fishing on seabirds in Australian waters. This TAP is now legislated through the *EPBC Act 1999* with a target to reduce seabird bycatch in longline fisheries to less than 0.05 seabirds per thousand hooks within 5 years. This will be done through the development and adoption of mitigation measures (some of which are described below), better data collection and increased fisher education.

Sea birds may also be caught on other types of hook and line gear such as drop lines or possibly become entangled in shallow-set nets. The main focus of this section is on seabirds that take baits, but similar approaches to handling the birds can be used for those that become entangled.

6.1 Reduce interactions

Seabirds will be attracted to boats that are surrounded by food floating on the water surface. To reduce the possibility of attracting seabirds do not discard offal or bycatch into the water when fishing.

Setting fishing gear at night has been a successful mitigation measure in some fisheries as seabirds rely heavily on sight to locate their prey. This has already been adopted in some areas of Australia's longline fisheries.

Bird scaring devices, such as tori poles, attached to the boat are designed to keep the birds away from the bait before they sink below depths accessible to seabirds. Albatrosses tend to locate baits from the air and can't see the baits after they sink below approximately 15 metres. However, shearwaters and petrels also swim on the surface and put their heads underwater looking for the baits allowing them to see much deeper. If seabirds can be kept away during setting operations then the baits can reach the safe depths of about 15 metres for albatrosses and about 40 metres for species such as grey petrels, white chinned petrels and shearwaters.

There are various other mitigation measures designed to help the bait to sink faster. Frozen bait will tend to float, so using thawed bait will aid the sinking process. One device that has achieved partial success in Australia, New Zealand and Hawaii is the underwater setting chute. This is a device that forces the bait under the water to safe depths through a metal chute attached to the boat. Weighting the line can also help. These mitigation measures are often used in conjunction with each other.

6.2 Hooked seabirds

Gently and carefully bring the bird on board

Attempt to bring the bird aboard without causing further injury.

Safely restrain the bird

Crew safety is a priority so when practical wear protective equipment, like thick gloves and eye protection. Restrain the bird by holding the bill, taking care not to pull the hook or trace too hard (Figure 14). Be careful not to cover the external nostrils (if present). For birds like gannets and pelicans, which do not have external nostrils, allow the bill to stay slightly open.

Figure 14

Figure 15

The body can be restrained by folding its wings back into their resting position, taking care not to get scratched by the bird's feet. A good position to restrain the bird is to crouch over the bird holding it between your legs, keeping its wings folded in by your calves (Figure 15). Don't hold the bird too firmly, as it needs to expand its chest cavity in order to inflate its lungs. If possible, cover the bird to protect its feathers from oil or damage while being handled.

If entangled – remove the fishing line

Birds becoming entangled in fishing line is always a possibility when fishing activities are underway. Remove all line from the bird, possibly using a line cutter (Box 1). If it appears uninjured release it back to the air or place it on the sea surface.

Assess the extent of the damage

Externally hooked

If the bird has been hooked externally, usually in the wings or body, remove the hook using the standards outlined in Box 4. Many hooked birds unnecessarily die from injuries resulting from fishers attempting to cut the hook out and in the process severing arteries and ligaments. Be very careful when removing hooks and only cut with a knife where you can be confident that it will not damage the bird.

Internally hooked

Birds are more difficult to treat and consequently have a lower chance of survival when hooked inside the throat or mouth. This area is difficult to access and easily damaged. If possible, the hook should be removed using the guidelines presented in Box 4. If left unattended the bird would be open to extensive blood loss and infection. If it survives the early shock, it is likely to be restricted in its feeding due to tackle obstructing the gullet.

Box 4

Procedure for removing a hook

1. At least two people will be needed for this process.
2. Once the bird has been restrained the position of the hook should be determined (Figure 16). If possible, the hook should be removed with as little trauma and damage to the bird as possible.

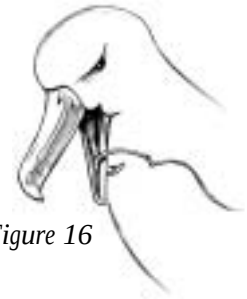

Figure 16

3. Cut the fishing line.
4. Find the barb of the hook. If the tip of the barb has pierced the skin and is protruding cut the barb and back the shank out with the line attached (Figure 17). This technique shall leave only a small hole, ensuring minimal damage and quick healing.
5. If the tip of the barb isn't exposed but can be felt, it should be gently pushed through the skin so it can be seen. If this isn't possible a small incision can be made to expose the tip. Once exposed the barb can be removed, and hook backed out (Figure 18).

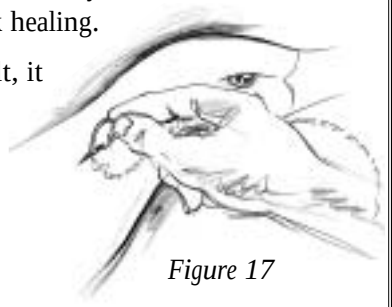

Figure 17

6. If the hook cannot be removed:
   a) Bring the bird back to port for specialist veterinary attention, see notes below.
   b) Cut the hook shank in the throat as far down as possible, leaving the hook embedded in the bird's throat and then release the bird with the hope it will survive. However, the bird's chance of survival is low if this technique is used.

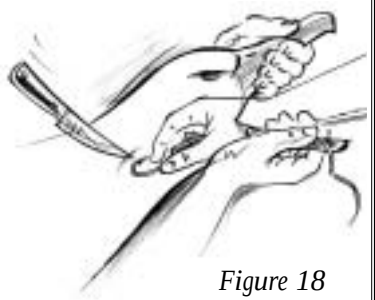

Figure 18

Bringing the bird back to port for treatment

On some occasions it may be possible to bring the injured bird back to port for medical attention. This is the best option for birds that have embedded hooks that can't easily be removed. Before considering this option take into account the following factors:

1. When is the vessel returning to port?

   If the vessel will remain at sea for a length of time then it may not be practical to keep injured animals on board. However, some species can easily be kept alive with some care and sufficient feeding with small pieces of soft fish scraps and offal.

2. Find a safe place for the bird?

   Seabirds should be placed in a quiet, warm, dark and confined space away from moving parts where there is no human activity. Ensure the bird is not near any oil or chemical residue as a bird covered in oil will almost certainly die. It may be preferable to place the bird in a hessian bag, but ensure it can still breathe.

3. Get the bird specialist attention.

   If possible, while at sea call one of the organisations listed for advice so that arrangements can be made for the injured bird once in port. Alternatively, transport the bird to the nearest vet or wildlife carer.

Release the bird after treatment

In the case of a bird that has successfully had a hook removed with negligible damage, it can be released off the back deck or gently placed on the water. In many cases it will readily fly off, but in others its may need additional take-off time so place it in a quiet spot on the deck for it to recuperate.

Appendix A
Useful references

Australian Fisheries Management Authority (1999) *Catch fish not birds. An information video for the Australian pelagic longline fishing industry*. Australian Fishery Management Authority.

Anon. (2003) *Released fish survival*. Series of fish handling guidelines produced by Info Fish, FRDC and ANSA.

Brothers, N. (1997) *Longline fishing dollars and sense*. Tasmanian Parks and Wildlife Service. Hobart.

Brothers, N. P. (2000) *Catching fish not birds*. Tasmanian Parks and Wildlife Service, Hobart.

Brothers, N. P., Cooper, J. and Lokkeborg, S. (1999) The incidental catch of seabirds by longline fisheries: worldwide review and technical guidelines for mitigation. *FAO Fisheries Circular No. 937*, FAO, Rome, 100 pages.

Eayrs, S., Buxton, C. and McDonald, B. (1997) *A guide to bycatch reduction in Australian prawn trawl fisheries*. Australian Maritime College, Launceston.

Environment Australia (1998) *Threat Abatement Plan for the incidental catch (or bycatch) of seabirds during oceanic longline fishing operations*. Biodiversity Group, Environment Australia, Canberra.

NSW National Parks and Wildlife Service (2002) *Guidelines and conditions for marine reptile strandings, rehabilitation and release in New South Wales*. Prepared by Mandelc, F., Carr, S., Waples, K., and Haering, R. NPWS Hurstville NSW.

NSW National Parks and Wildlife Service (2002) *NPWS policy on cetacean conservation and management*. Prepared by Waples, K. and Mandelc, F. NPWS Hurstville NSW.

Talbot, W. & Battaglene, S. (1995) Fishing for the future – catch and release fishing. *Fishnote DF/27*. NSW Fisheries.

Tuna Fisheries Bycatch Action Plan Working Group, (2001) B*ycatch Action Plan, Australia's Tuna and Billfish Fisheries – Background Paper*. Australian Fisheries Management Authority (AFMA), Canberra.

Tuna Fisheries Bycatch Action Plan Working Group, (2001) *Bycatch Action Plan, Australia's Tuna and Billfish Fisheries*. Australian Fisheries Management Authority (AFMA), Canberra.

Appendix B
Threatened species legislation web sites

Information on Commonwealth and State legislative Acts that are relevant to protected species and up-to-date lists of protected species can be found on the web sites noted below. In some cases it is necessary to go to the web site and then follow the instructions.

Commonwealth

Environment Protection and Biodiversity Act 1999

Legislation	www.ea.gov.au
Species listing	www.ea.gov.au/biodiversity/threatened/species/index.html, go to *Listed Fauna* and www.ea.gov.au/epbc/biodiversityconservation/listedmarine.html
Categories	Ex – Extinct; ExW – Extinct in the wild; CEn – Critically endangered; En – Endangered; V – Vulnerable; CD – Conservation dependant; LM – Listed marine species; P – Protected

Fisheries Management Act 1991

Legislation	www.afma.gov.au
Species listing	www.afma.gov.au, go to *Legislation*, go to *FMA 91*, go to *Section 15 and 15A*
Category	Pr – Prohibition against taking the species

New South Wales

Threatened Species Conservation Act 1995

Legislation	www.npws.nsw.gov.au
Species listing	www.npws.nsw.gov.au, go to *Nature and Conservation*, go to *Threatened Species Conservation*, go to *Threatened Species Profiles*
Categories	Ex – Presumed extinct; En – Endangered; V – Vulnerable

Fisheries Management Act 1994

Legislation	www.fisheries.nsw.gov.au
Species listing	www.fisheries.nsw.gov.au/conservation/threatened/whats_listed.htm
Categories	En – Endangered; V – Vulnerable; Pr – Protected

Queensland State Laws

Nature Conservation Act 1992

Legislation	www.epa.qld.gov.au/environment/legislation/conservation
Species listing	www.epa.qld.gov.au/environment/plant/endangered/wie.html
Categories	Ex – Presumed extinct; En – Endangered; V – Vulnerable; R – Rare

Fisheries Act 1994

Legislation	www.dpi.qld.gov.au/fishweb
Species listing	www.dpi.qld.gov.au/fishweb, go to *Protected Species*
Category	Pr – Totally protected

Victoria

Flora and Fauna Guarantee Act

Legislation	www.nre.vic.gov.au/fishing, go to *Commercial Fishing*
Species listing	www.nre.vic.gov.au, go to *Conservation and Environment*, go to *Flora and Fauna Guarantee Legislation*, go to *Background*, go to *Schedules*
Category	T – Threatened

Fisheries Act 1995

Legislation	www.nre.vic.gov.au/fishing, go to *Commercial Fishing*

Tasmania

Threatened Species Protection Act 1995

Legislation	www.dpiwe.tas.gov.au, go to *Parks and Wildlife*, go to *Sea Fishing and Aquaculture*, go to *Fisheries Legislation and Management Plans*
Species listing	www.dpiwe.tas.gov.au, go to *Parks and Wildlife*, go to *Nature of Tasmania*, go to *Threatened Species*
Categories	En – Endangered; V – Vulnerable; R – Rare

Living Marine Resources Management Act 1995

Legislation	www.dpiwe.tas.gov.au

Western Australia

Wildlife Conservation Act 1950

Legislation	www.calm.wa.gov.au
Species listing	www.calm.wa.gov.au/plants_animals/watscu_lists.html
Categories	R – Rare or likely to become extinct; Ex – Presumed Extinct; PB – Birds subject to agreements; Pr – Fauna in need of special protection

Fish Resources Management Act 1994

Legislation	www.wa.gov.au/westfish

Northern Territory

Territory Parks and Wildlife Conservation Act 2000

Legislation	www.nt.gov.au/ipe/pwcnt
Species lists	www.nt.gov.au/ipe/pwcnt, go to *Plants and Animals*, go to *Threatened Species*
Categories	CEn – Critically Endangered; E – Endangered; V – Vulnerable

Fisheries Act 1988

Legislation	www.nt.gov.au/dbird/dpif/fisheries/index.shtml

South Australia

National Parks and Wildlife Act 1972

Legislation	www.environment.sa.gov.au/biodiversity
Species listing	www.environment.sa.gov.au/biodiversity, go to *Threatened Species*, go to *Protection Within SA*
Categories	En – Endangered species; V – Vulnerable Species; R – Rare Species

Fisheries Act 1982

Legislation	www.pir.sa.gov.au
Species listing	www.pir.sa.gov.au
Category	Pr – Protected

Appendix C
Protected species lists

In general, all Australian reptiles, mammals and birds are protected and thus subject to the protection provisions of the relevant legislation. Only the species that have been specifically listed are provided in Table 1. Appendix B documents the web sites used to obtain these threatened species lists and abbreviations used for the protection categories.

Table 1 Protected species lists

Birds									
Common name	**Species name**	**COM**	**NSW**	**NT**	**WA**	**TAS**	**QLD**	**SA**	**VIC**
Birds occurring naturally in Commonwealth marine areas		LM							
Amsterdam albatross	*Diomedea amsterdamensis*	En			R				
Antipodean albatross	*Diomedea antipodensis*	V	V						
Atlantic Yellow-nosed albatross	*Diomedea chlororhynchos*				R				
Black-browed albatross	*Thalassarche melanophris*		V			En			
Buller's albatross	*Thalassarche bulleri*	V						V	
Campbell albatross	*Thalassarche impavida*	V						V	
Chathams albatross	*Thalassarche eremita*	En							
Gibson's albatross	*Diomedea gibsoni*	V	V		R				
Grey-headed albatross	*Thalassarche chrysostoma*	V			R	En		V	
Indian yellow-nosed albatross	*Thalassarche carteri*	V			R				
Light-mantled sooty albatross	*Phoebetria palpebrata*				R	V			
Northern royal albatross	*Diomedea sanfordi*	En			R			En	
Pacific albatross	*Thalassarche nov. sp*	V							
Salvin's albatross	*Thalassarche salvini*	V			R			V	
Shy albatross	*Thalassarche cauta*	V	V		R	V		V	
Sooty albatross	*Phoebetria fusca*	V	V		R	R		V	T
Southern royal albatross	*Diomedea epomophora*	V			R			V	
Tristan albatross	*Diomedea dabbenena*	En			R				
Wandering albatross	*Diomedea exulans*	V	En		R	En		V	
White capped albatross	*Thalassarche steadi*	V							
Abbot's booby	*Sula abbotti*	En			PB				
Cape gannet	*Morus capensis*				R				
Christmas Island frigate-bird	*Fregata andrewsi*	V			PB				
Fairy Pion (southern sub-species)	*Pachyptila turtur subantarctica*	V				En			
Flesh-footed shearwater	*Puffinus carneipes*		V					R	
Great creasted grebe	*Podiceps cristatus*					R		R	
Heard shag	*Phalacrocorax nivalis*	V							
Lesser noddy	*Anous tenuirostris melanops*	V			R				
Little shearwater	*Puffinus assimilis*		V						
Macquarie Island shag	*Leucocarbo atriceps purpurescens*					V			
Macquarie shag	*Phalacrocorax purpurascens*	V							
Masked booby	*Sula dactylatra bedouti*		V		R				
Red-faced cormorant	*Phalacrocorax urile*				PB				
Red-tailled tropicbird	*Phaethon rubricauda*		V				V		
Tufted puffin	*Lunda cirrhata*				PB				
Black-winged petrel	*Pterodroma nigripennis*		V						
Blue petrel	*Halobaena caerulea*	V				V		V	
Gould's petrel	*Pterodroma leucoptera leucoptera*	En	En		PB				
Grey petrel	*Pocellaria cinerea*					En			

Birds									
Common name	**Species name**	**COM**	**NSW**	**NT**	**WA**	**TAS**	**QLD**	**SA**	**VIC**
Herald petrel	*Pterodroma heraldica*	C En							
Herald petrell	*Pterodroma arminjoniana*	C En					En		
Kermadec petrel (western)	*Pterodroma neglecta neglecta*	V	V						
Northern giant petrel	*Macronectes halli*	V				R			T
Povidence petrel	*Pterodroma solandri*		V		PB				
Soft-pumaged petrel	*Pterodroma mollis*	V				En		V	
Southern giant petrel	*Macronectes giganteus*	En	En		R	V			T
White-bellied storm petrel	*Fregata grallaria*	V	V						
White-chinned petrel	*Pocellaria aequinoctalis*				R				
White-headed petrel	*Pterodroma lessonii*					V			
Wilson's storm petrel	*Oceanites oceanicus*					R			
Antarctic tern	*Sterna vittata bethunei*	V				En		En	
Caspian tern	*Sterna caspia*								T
Sooty tern	*Sterna fuscata*		V						
Grey ternlet	*Pocelsterna cerulea*		V						
White tern	*Gygis alba*		V						
Common tern	*Sterna hirundo*							R	
Fairy tern	*Sterna nereis nereis*					R		V	T
Gull-billed tern	*Sterna nilotica*								T
Little tern	*Sterna albifrons sinensis*		En			En	En	V	T
White-fronted tern	*Sterna striata*					V			

Protected fish									
Common name	**Species name**	**COM**	**NSW**	**NT**	**WA**	**TAS**	**QLD**	**SA**	**VIC**
Seahorses, pipefish, sea-dragons, ghost pipefish		LM							
Ballina angelfish	*Chaetodontoplus ballinae*		P						
Black cod	*Epinephelus daemelii*	P	VP						
Black marlin	*Makaira indica*	P	PC						
Bleekers devil fish	*Paraplesiops bleekeri*		P						
Blue marlin	*Makaira mazara*	P	PC						
Elegant wrasse	*Anampses elegans*		P						
Estuary cod	*Epinephelus coioides*		P						
Giant Queensland groper	*Epinephelus lanceolatus*		P						
Groper (blue, brown or red)	*Achoerodus viridis*		PC						
Western blue groper	*Achoerodus gouldii*							P	
Leafy seadragon	*Phycodurus eques eques*							P	
Port Davey skate	*Raja sp.*					En			
Southern bluefin tuna	*Thunnus maccoyii*								T
Spotted handfish	*Brachionichthys hirsutus*	En				En			
Striped marlin	*Tetrapturus audax*		PC						
Waterfall Bay handfish	*Sympterichthys sp.*	V							
Weedy seadragon	*Phyllopteryx taeniolatus*		P						
Ziebell's handfish	*Sympterichthys sp.*	V							
Great white shark	*Carcharodon carcharias*	V	V		R	V	P	P	T
Grey nurse shark	*Carcharias taurus*	V	EnP		R		P		T
Herbsts nurse shark	*Odontaspis ferox*		P						
Whale shark	*Rhincodon typus*	V							
Dwarf swordfish	*Pistis clavata*			V					
Freshwater swordfish	*Pistis microdon*	V							
Green swordfish	*Pistis zijsron*		En	V					
Narrow swordfish	*AnoxyPistis cuspidata*			V					

Mammals									
Common name	**Species name**	**COM**	**NSW**	**NT**	**WA**	**TAS**	**QLD**	**SA**	**VIC**
Seals		LM							
Australian fur seal	*Arctocephalus pusillus doriferus*		V					R	
Australian sealion	*Neophoca cinerea*				P			R	
Leopard seal	*Hydrurga leptonyx*							R	
New Zealand fur seal	*Arctocephalus forsteri*		V		P	R			
Southern elephant seal	*Mirounga leonina*	V				En		R	
Subantarctic fur seal	*Arctocephalus tropicalis*	V				En			
Whales, dolphins, porpoises		P							
Andrew's beaked whale	*Mesoplodon bowdoini*							R	
Arnoux's beaked whale	*Berardius arnuxii*							R	
Blue whale	*Balaenoptera musculus*	En	En		R	En		En	
Curvier's beaked whale	*Ziphius cavirostris*							R	
Dusky dolphin	*Lagenorhynchus obscurus*							R	
Dwarf sperm whale	*Kogia simus*							R	
False killer whale	*Pseudorca crassidens*							R	
Fin whale	*Balaenoptera physalus*	V			R	V		V	
Gray's beaked whale	*Mesoplodon grayi*							R	
Hector's beaked whale	*Mesoplodon hectori*							R	
Humpback whale	*Megaptera novaeangliae*	V	V		R	En	V	V	T
Minke whale	*Balaenoptera acutorostrata*							R	
Pygmy right whale	*Caperea marginata*							R	
Pygmy sperm whale	*Kogia breviceps*							R	
Risso's dolphin	*Grampus griseus*							R	
Sei whale	*Balaenoptera borealis*	V			R				
Shepherd's beaked whale	*Tasmacetus shepherdi*							R	
Short-finned pilot whale	*Globicephala macrorhynchus*							R	
Southern bottlenose whale	*Hyperoodon planifrons*							R	
Southern right whale	*Eubalaena australis*	En	V		R	En		V	T
Sperm whale	*Physeter macrocephalus*		V					R	
Dugong	*Dugong dugon*	LM	En		P		V		

Reptiles									
Common name	**Species name**	**COM**	**NSW**	**NT**	**WA**	**TAS**	**QLD**	**SA**	**VIC**
Estuarine/saltwater crocodile	*Crocodylus porosus*	LM			P		V		
Sea snakes		LM							
Sea turtles		LM							
Flatback turtle	*Natator dePessus*	V			R		V		
Green turtle	*Chelonia mydas*	V	V		R	V	V	V	
Hawksbill turtle	*Eretmochelys imbricata*	V			R	V	V		
Leatherback turtle	*Dermochelys coriacea*	V	V	V	R	V	En	V	T
Loggerhead turtle	*Caretta caretta*	En	En	En	R	En	En	V	
Olive ridley	*Lepidochelys olivacea*	En			R		En		

Appendix D
Contact information

Ocean Watch Australia Ltd
Locked Bag 247
Pymont NSW 2009
(02) 9660 2262 www.oceanwatch.org.au

Australian Fisheries Management Authority
PO Box 7051
Canberra Business Centre ACT 2610
(02) 6272 5029
www.afma.gov.au

Environment Australia
GPO Box 787
Canberra ACT 2601
(02) 6274 1111
www.ea.gov.au

NSW National Parks and Wildlife Service
PO Box 1967
Hurstville NSW 2220
(02) 9585 6444 or 1300 361 967 (within NSW)
www.npws.nsw.gov.au

NSW Fisheries – Cronulla Fisheries Centre
PO Box 21
Cronulla NSW 2230
1300 550 474
www.fisheries.nsw.gov.au

Qld Environmental Protection Agency
Qld Parks and Wildlife Service
160 Ann St
Brisbane Qld 4000
(07) 3227 7111
www.epa.qld.gov.au

Qld Dept of Primary Industries
GPO Box 46
Brisbane Qld 4001
(07) 3404 6999 or 132 523 (within Qld)
www.dpi.qld.gov.au

Vic Dept of Primary Industries
8 Nicholson St
East Melbourne Vic 3002
(03) 9533 2500 or 136 186 (within Aus)
www.nre.vic.gov.au

Vic Dept of Sustainability and Environment
8 Nicholson St
East Melbourne Vic 3002
(03) 9533 2500 or 136 186 (within Aus)
www.nre.vic.gov.au

Tas Dept of Primary Industries, Water and Environment
1 Franklin Wharf
Hobart TAS 7001
(03) 6233 8011 or 1300 368 550 (within Aus)
www.dpiwe.tas.gov.au

WA Conservation and Land Management
Locked Bag 104
Bentley Delivery Centre WA 6983
(08) 9334 0333
www.calm.wa.gov.au

WA Dept of Fisheries
Locked Bag 39
Cloisters Square WA 6850
(08) 9482 7333
www.wa.gov.au/westfish

Parks and Wildlife Commission of the NT
PO Box 496
Palmerston NT 0831
(08) 8999 5511
www.nt.gov.au/ipe/pwcnt

NT Fisheries
GPO Box 3000
Darwin NT 0801
(08) 8999 2144
www.nt.gov.au/dbird/dpif/fisheries

SA Dept for Environment and Heritage
GPO Box 1047
Adelaide SA 5001
(08) 8204 9000
www.environment.sa.gov.au

SA Primary Industry and Resources
Fisheries Enquiries
GPO Box 1625
Adelaide SA 5001
(08) 8226 2311
www.pir.sa.gov.au

Who to contact if you have an injured animal

New South Wales

NSW National Parks and Wildlife Service
Wildlife Management Coordination Unit
Hurstville NSW 2220
(02) 9585 6576

Australian Seabird Rescue
(seabirds and turtles)
Astonville NSW 2477
(02) 6686 2852 or 0428 862 852

Pet Porpoise Pool Oceanarium
Coffs Harbour NSW 2450
(02) 6652 2164

Oceanworld Manly
Manly NSW 2095
(02) 9949 2644

Queensland

Qld Parks and Wildlife Service
On duty ranger
(24 hour service)
1300 360 898

Australian Seabird Rescue Group Qld
Tewantin Qld 4565
(07) 5485 3543 or 0418 758 822

Victoria

Dept of Natural Resources and Environment
Stranded sick or injured animals
136 186

Wildlife Victoria
24 hours wildlife rescue network
0500 540 000

Project Jonah
(whales and dolphins)
(03) 9826 9715 or 0418 392 826

Victorian Cetacean Stranding Network
(whales, dolphins, turtles, seals)
0500 540 000

Tasmania

Parks and Wildlife Service – Wildlife
Hobart TAS 7000
(03) 6233 6556

Tas Devil Park Wildlife Rescue Centre
Taranna TAS 7180
(03) 6250 3230

Western Australia

Dept of Conservation and Land Management
Emergency rescue of marine animals
(08) 9334 0333

Wildcare Hotline
24 hour wildlife rescue service
(08) 9474 9055

Northern Territory

Parks and Wildlife Commission of the NT
Wildlife Rescue – Darwin
(08) 8999 4536

South Australia

Animal Welfare Officer
Dr Debbie Kelly
0417 801 094

RSPCA Marine Rescue Unit
BH (08) 8231 6931
AH (08) 8231 2120

Fauna Rescue of SA
24 hour wildlife rescue network
(08) 8289 0896

Alternatively

Any local vet or Wildlife Information Rescue Service WIRES (check the local phone book)

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