



DEPARTMENT OF PLANNING, INDUSTRY & ENVIRONMENT

Code of Practice

for injured and sick sea turtles and sea snakes



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Preface

The *Code of Practice for Injured and Sick Sea Turtles and Sea Snakes* (the code) is intended for those authorised to rescue, rehabilitate and release marine reptiles. The code has been developed to ensure the welfare needs of these marine reptiles are met and the conservation benefits stemming from their rehabilitation and release are optimised. It also aims to ensure that risks to the health and safety of volunteers rescuing and caring for these animals are reduced and easily managed.

Compliance with the code does not remove the need to abide by the requirements of the:

- *Prevention of Cruelty to Animals Act 1979*
- *Poisons and Therapeutic Goods Act 1966*
- *Veterinary Practice Act 2003*
- *Local Government Act 1993*
- *Firearms Act 1996*
- *Fisheries Management Act 1994*

or any other relevant laws and regulations.

Compliance with the standards in the code is a condition of a biodiversity conservation licence (BCL) to rehabilitate and release sick, injured and orphaned protected animals issued under the NSW *Biodiversity Conservation Act 2016* (BC Act). A person who contravenes a condition of a BCL is guilty of an offence under section 2.14 (4) of this Act.

The code is neither a complete manual on animal husbandry, nor a static document, and must be implemented by a person trained in accordance with the *Sea Turtle and Sea Snake Rehabilitation Training Standards for the Volunteer Wildlife Rehabilitation Sector*. It will be periodically reviewed to incorporate new knowledge of animal physiology and behaviour, technological advances, developments in standards of animal welfare, and changing community attitudes and expectations about the humane treatment of sea turtles and sea snakes. The Department of Planning, Industry and Environment (the Department) will consult with licence holders regarding potential changes to the code and give written notice when the code is superseded.

1. Introduction

This code sets standards for the care and housing of a sea turtle or sea snake that is incapable of fending for itself in its natural habitat. It refers to six of the world's seven species of sea turtles that have been recorded in NSW waters and the 13 sea snakes recorded in NSW waters (see Appendix 1 for sea turtles and Appendix 3 for sea snakes).

All species of sea turtle are listed as vulnerable or endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, and there is a national Recovery Plan for Marine Turtles in Australia to improve their conservation status.

This code comprises both enforceable provisions and guidelines. Enforceable provisions are identified by the word 'Standards' and they must be followed.

1.1 Principles

The development of the code has been guided by four key principles which apply to all aspects of marine reptile rescue, rehabilitation and release:

Prioritise the welfare of sea snakes and sea turtles

The main objective of wildlife rehabilitation is to relieve suffering in sick or injured wildlife. The rehabilitation and release of marine reptiles to the wild is the primary objective and it must not be pursued to preserve the life of the animal at all costs or to achieve broader conservation outcomes where the animal is subject to unreasonable and unjustifiable suffering.

Avoid harm to wild marine reptile populations and other wildlife communities

In wildlife rehabilitation there is a risk of adverse ecological outcomes. The inappropriate release of animals can have significant detrimental effects on the local ecosystem and wildlife communities. At all stages of wildlife rehabilitation, the potentially adverse ecological outcomes must be considered and conservation benefits for wild sea turtle and sea snake populations maximised.

Minimise the risks to human health and safety

There are many risks in all aspects of rehabilitation, including both personal injury and disease, that require consideration to ensure prevention measures are in place. All personnel involved in the rescue, rehabilitation and release of marine reptiles must understand practical health and safety measures such as undertaking a risk assessment, using personal protective equipment and even delaying action to ensure safety measures are in place to protect their health and safety.

Optimise capacity to care

Wildlife rehabilitators must ensure they can provide for the essential needs of marine reptiles undergoing rehabilitation, and the resources to adequately prepare the marine reptile for release back into the wild. When the wildlife rehabilitator's capacity to care is exceeded, unacceptable standards of care or welfare may result. Wildlife rehabilitators must be mindful of their capacity to care, particularly when there is an influx of wildlife requiring care due to major incidents, significant weather events or disease outbreak.

When the capacity to care is exceeded there are three acceptable management options:

- refer the marine reptile to another licensed wildlife rehabilitator with a current capacity to care for the marine reptile
- increase the capacity to care by increasing or pooling resources
- lower the euthanasia threshold in combination with early-stage triage of newly rescued animals, proper veterinary assessment and prognosis of marine reptiles in care.

Lowering the standards of care, such that they are not consistent with this code, is not an acceptable response to exceeding the capacity to care. In circumstances that involve major catastrophic events and where capacity to care is exceeded, lowering the threshold for euthanasia is a more appropriate response than not rescuing animals in distress.

1.2 Interpretations

Objectives

'Objectives' are the intended outcomes for each section of this code.

Standards

'Standards' describe the mandatory specific actions needed to achieve acceptable animal welfare levels. These are the minimum standards that must be met. They are identified in the text by the heading 'Standards' and use the word 'must'.

Guidelines

'Guidelines' describe the agreed best practice following consideration of scientific information and accumulated experience. They also reflect society's values and expectations regarding the care of animals. A guideline is usually a higher standard of care than minimum standards, except where the standard is best practice.

Guidelines will be particularly appropriate where it is desirable to promote or encourage better care for animals than is provided by the minimum standards. Guidelines are also appropriate where it is difficult to determine an assessable standard. Guidelines are identified in the text by the heading 'Guidelines' and use the word 'should'.

Notes

Where appropriate, notes describe practical procedures to achieve the minimum standards and guidelines. They may also refer to relevant legislation.

1.3 Definitions

In this code:

Carapace is the hard upper shell of a sea turtle.

Cold-stunned is a condition suffered by sea turtles when they are in water of less than 10° Celsius which lowers their heart rate, circulation and as a result they become very lethargic.

Curved carapace length (CCL) is the measurement from the front of the carapace (where the carapace and skin meet) down the midline of the carapace to the back edge of the carapace (over the tail) The tape measure follows the curve of the carapace.

Curved carapace width (CCW) is the measurement across the carapace taken at the widest point. The tape measure follows the curve of the carapace.

Elements database is the incident database system used by NSW National Parks and Wildlife Service (NPWS) staff and approved licensed wildlife rehabilitation providers to report marine wildlife events.

Epibiota is an accumulation of organisms living on the surface of another living organism. Barnacles, molluscs, polychaetes, amphipods and algae may be found on marine reptiles. They are not parasites.

Experienced marine reptile rehabilitator means someone who has extensive knowledge of current rehabilitation techniques gained through training courses and many years of successfully rehabilitating and releasing sea turtles and sea snakes.

Marine reptiles are sea turtles and sea snakes. The sea turtles are classified as members of the superfamily Cheloniodea which has extant species in the family Cheloniidae and family Dermochelyidae. The sea snakes are classified as members of the subfamily Hydrophiidae (sea snakes) and subfamily Laticaudinae (sea kraits). A list of NSW sea turtles and sea snakes is provided in Appendix 1 and Appendix 3.

Park means a national park, historic site, state conservation area, regional park, nature reserve, karst conservation reserve or Aboriginal area, or any land acquired by the Minister under the NSW *National Parks and Wildlife Act 1974*.

Marine park is defined as an area declared and managed under the *Marine Estate Management Act 2014*.

Plastron is the underside of a sea turtle's shell.

Protected animal means any amphibian, reptile, bird or mammal (except dingos) listed or referred to in Schedule 5 of the BC Act that is native to Australia or that periodically or occasionally migrates to Australia (including their eggs and young).

Straight carapace length (SCL) is measured from midline point at the front of the carapace to the notch at the midline point at the back of the carapace. It is usually measured with callipers.

Recovery, when referring to an individual, means a return to a functional condition after an injury or illness. This includes the natural ability of an animal to feed, interact, move, and evade risks and hazards in a wild situation.

Wildlife rehabilitator means someone who is either authorised by a wildlife rehabilitation provider or zoological park or is individually licensed by the Department to rehabilitate and release protected animals.

Wildlife rehabilitation means the temporary care of an injured, sick or orphaned protected animal with the aim of successfully releasing it back into its natural habitat.

Wildlife rehabilitation provider means an incorporated wildlife rehabilitation group or individually licensed wildlife rehabilitator that is licensed by the Department under the BC Act to rehabilitate and release protected animals.

Zoonoses are diseases that can be transmitted from animals to humans.

2. Case assessment

2.1 Assessing marine reptiles

Objective

To assess marine reptiles to determine the type of intervention required. The primary objective of rehabilitation is the successful reintegration of the marine reptile back into the wild population and all decisions are in pursuit of this goal. This will mean that some marine reptiles may benefit from rehabilitation whereas others will need to be euthanased.

Standards

2.1.1 The decision tree in Figure 1 must be followed when determining how to respond to a marine reptile encounter:

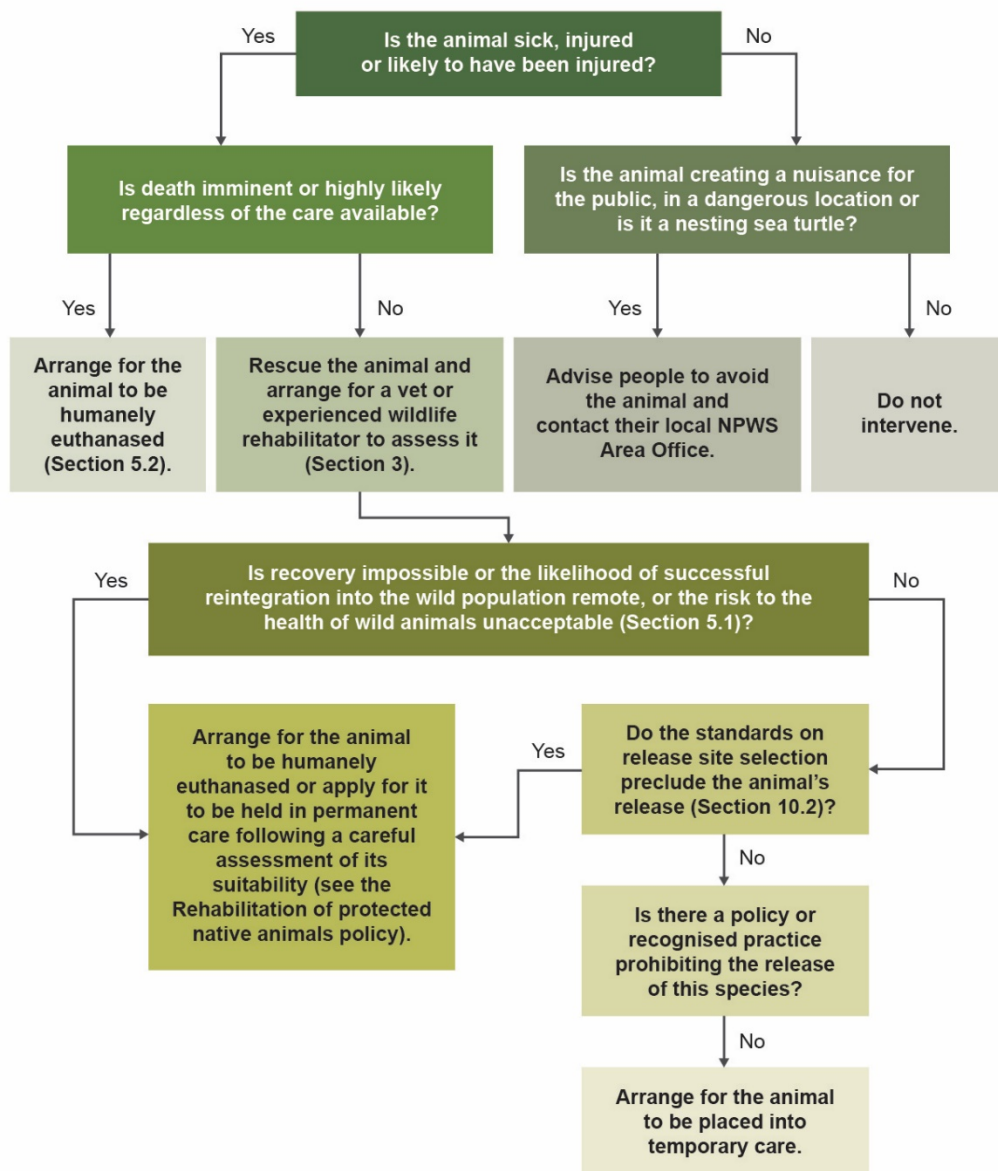


Figure 1 Decision tree for course of action when a marine reptile is encountered

- 2.1.2** Rescuers must arrange for sea turtles and sea snakes to be assessed by a veterinarian or experienced marine reptile rehabilitator within 24 hours of rescue to ensure accurate diagnosis and prompt treatment or euthanasia. If this is not possible due to the remoteness of the location, expert advice must be sought via telephone, video link or email from a veterinarian with marine reptile experience or experienced marine reptile rehabilitator.

3. Rescue

3.1 Conducting a marine reptile rescue

Objective

To conduct a marine reptile rescue to minimise further stress and injury to the animal.

Standards

- 3.1.1 Prior to a rescue attempt, the rescuer must assess the risks to the marine reptile from environmental hazards and from capture.
- 3.1.2 Prior to a rescue attempt, the rescuer must assess the risks to themselves and members of the public.
- 3.1.3 Rescuers must employ the correct rescue equipment for the type and condition of the marine reptile and be trained in its use. (e.g. rescuing sea turtles over 20 kilograms requires the use of specialised lifting mats and multiple rescuers).
- 3.1.4 Rescuers must only attempt to rescue marine reptiles when a sufficient number of trained personnel for that species and size are involved. (e.g. for every 20 kilograms of sea turtle weight an extra person will be needed)
- 3.1.5 If a marine reptile is entangled in shark meshing equipment, the Department of Primary Industries Fishers Watch Phonenumber 1800 043 536 must be contacted. Under the *Fisheries Management Act 1994* it is illegal for anyone to interfere with commercial fishing equipment, and shark meshing equipment falls within this definition.
- 3.1.6 A sea turtle must be picked up by holding the front and back of the carapace. They must not be picked up by the sides of the carapace or by the flippers (exception is 3.1.7).
- 3.1.7 Sea turtles with injuries to their carapace and/or plastron must not be lifted using the method listed in 3.1.6. Instead, the turtle must be lifted on a solid object with cushioning such as a stretcher, mat or foam. The carapace must not be touched. This will minimise pain and prevent further injury.
- 3.1.8 Large adult female sea turtles that are mobile must be observed before rescuing to determine if they are nesting females. If the sea turtle is observed nesting:
- all personnel must move away
 - the sea turtle must only be approached from behind and never past the head to remain out of the turtle's line of vision
 - lights (except red light) and flash photography must be turned off
 - NPWS must be contacted (13000 PARKS) to secure the site.

- 3.1.9 Sea snakes must only be rescued by wildlife rehabilitators who have undertaken a venomous snake handling course which includes training in venomous snake bite first aid (see section 11 Training).
- 3.1.10 Members of the public must not be involved with the rescue of sea snakes and encouraged to keep away from the animal to minimise the risk of snake bite.
- 3.1.11 Sea snakes must be captured using a snake hook or thick gloves and have the bulk of their body supported during capture to avoid injury to the spine.
- 3.1.12 The rescue of a sea turtle must only be undertaken by individuals that hold an authority by a wildlife rehabilitation provider licensed as listed in [Biodiversity Conservation Regulation 2017](#).
- 3.1.13 Wildlife rehabilitation providers must notify NPWS (via Elements database, contacting the [local NPWS office](#) during business hours, or calling 13000 PARKS outside business hours) for all sea turtle incidents whether the animal is dead or alive.

Guidelines

- 3.1.14 Rescuers should take steps to protect marine reptiles from additional stressors during rescue, such as onlookers, loud noises, other animals and extremes of temperature.
- 3.1.15 Sea turtles with an injury to their carapace or plastron may require immediate first aid to stabilise the injury prior to transport. (e.g. use a bridge and self-adhesive bandage around the break on the carapace).

4. Transport

4.1 Moving marine reptiles

Objective

To minimise further stress and injury to a marine reptile during transport. This section applies to all movements of marine reptiles including from the point of rescue to a veterinary surgery, between rehabilitation facilities and to the release site.

Standards

- 4.1.1 Transport methods and container sizes must be appropriate for the species, size, strength and temperament of the marine reptile.
- 4.1.2 Containers must be designed and set up to prevent injuries to the marine reptile (e.g. covering floors with a non-slip, non-ingestible, tangle-free surface and secured to prevent movement).
- 4.1.3 Containers must be designed to prevent the marine reptile from escaping. e.g. sea snakes must be in a lockable container.
- 4.1.4 While in the container the marine reptile must be positioned so its breathing is not restricted, and its pain or discomfort is minimised.
- 4.1.5 The container must be well-ventilated so air can circulate around the marine reptile.

- 4.1.6 Containers must minimise light, noise and vibrations and prevent contact with young children, pets, cigarette smoke and strong smells.
- 4.1.7 Transport containers must be constructed from a non-porous material that can be easily cleaned and disinfected.
- 4.1.8 Marine reptiles must not be fed or watered during transport.
- 4.1.9 The use of medication to facilitate transport must be assessed and approved by a veterinarian.
- 4.1.10 Transport of the marine reptile must be the sole purpose of the trip and undertaken in the shortest possible time.
- 4.1.11 Small sea turtles (carapace less than 40 centimetres) and sea snakes must not be transported in the back of uncovered utility vehicles, car boots that are separate from the main cabin or in the rescuer's lap.
- 4.1.12 A large sea turtle must not be covered and must be supported with foam or cushioning e.g. towels when placed in the back of a truck.
- 4.1.13 Sea turtles must be transported at a temperature close to the current sea temperature to minimise thermal stress, or ambient air temperature if they have been hauled out for longer than one hour. Fluctuations in temperature must be avoided.
- 4.1.14 Sea turtles must not have any cover e.g. towel placed over their head during transportation.
- 4.1.15 Sea turtles undertaking transport by plane must be transported:
 - in containers that meet the approved requirements of the airline
 - with the container clearly marked to indicate the top
 - with the cabin or hold temperature between 21 and 27°C.
- 4.1.16 During transport, containers holding sea snakes must have a clearly visible warning label that says 'DANGER – venomous live sea snake'.
- 4.1.17 Sea snakes must be transported in a container lined with a wet towel allowing a small pool of water (1–3 millimetres) to be trapped at one end for the sea snake to be kept moist but not able to drown.

Guidelines

- 4.1.18 For transport over a short distance, sea snakes should be placed in a moist hoop bag that is secured within another transport container.
- 4.1.19 Wildlife rehabilitation providers that do not have suitable enclosures for marine reptiles should transport them to facilities with these enclosures within 24 hours unless following the directions of a veterinarian with experience with marine reptiles.

5. Euthanasia

5.1 When to euthanase

Objective

To end a marine reptile's life in situations where death is imminent, full recovery is impossible, the likelihood of successful reintegration into the wild population is remote, or the

animal poses an unacceptable disease risk to marine or other animals in the wild once released.

Standards

- 5.1.1 A marine reptile must be euthanased without exception when either:
- death is imminent or highly likely regardless of the treatment provided
 - it is suffering from chronic, unrelievable pain or distress
 - it is carrying an incurable disease that may pose a health risk to marine or other wild animals
 - its ability to consume food unaided is permanently impaired due to a missing or injured jaw, teeth or fangs.
- 5.1.2 A marine reptile must be euthanased (unless the Department has granted permission to hold it in permanent care) when:
- its ability to locomote normally (i.e. crawl, swim or dive) is permanently impaired (e.g. loss of both flippers on one side, or both front flippers above the elbow for sea turtles, or significant loss or damage to a sea snake's tail)
 - its ability to sense its environment (i.e. see, hear, smell, taste or feel) is permanently impaired due to a missing or injured organ (e.g. eye, ear or nose)
 - its ability to successfully forage is permanently impaired.

In certain exceptional circumstances, the Department may grant permission to hold such animals in permanent care or arrange placement with an authorised animal exhibitor licensed by the NSW Department of Primary Industries (DPI). See the [Rehabilitation of Protected Native Animals Policy](#) for details.

Guidelines

- 5.1.3 A sea turtle should be euthanased when it has an untreatable major crack in its carapace or plastron involving displaced or missing segments where they are unlikely to reseal or heal.
- 5.1.4 The decision to euthanase should not be based solely on the availability of wildlife rehabilitators within a group. The wildlife rehabilitation provider should liaise with other licensed providers to facilitate care if necessary.

5.2 How to euthanase

Objective

To induce death with minimal pain and distress to the marine reptile.

Standards

- 5.2.1 A euthanasia method must be used which produces a rapid loss of consciousness immediately followed by death.
- 5.2.2 Death must be confirmed prior to disposal of the carcass. Criteria for confirming death in marine reptiles include:
- no spontaneous movement or reaction to a stimulus (e.g. by firmly squeezing the tip of a flipper or tail)

- no palpebral or corneal reflex response
- rigor mortis
- no audible pulse on a Doppler
- no meaningful cardiac activity as detected by echocardiography or electrocardiography.

5.2.3 Acceptable methods for euthanasia of marine reptiles include:

- anaesthesia followed by an intravenous (preferred) or intracardiac injection of sodium pentobarbital. This must be performed by a veterinarian experienced in reptile euthanasia
- captive bolt or gunshot to the brain for large sea turtles
- blunt force trauma to the head for sea snakes
- destruction of the brain using a heavy (≥ 5 kilogram) sledgehammer and a pointed chisel with a handguard for large sea turtles
- once a primary accepted method has been used to initiate euthanasia one or more adjunctive methods may be used to ensure death. These include decapitation, pithing or exsanguination.

5.2.4 Shooting must be undertaken by a licensed, skilled and experienced wildlife rehabilitation provider or an appropriate agency, such as NPWS, the Royal Society for the Prevention of Cruelty to Animals (RSPCA) or NSW Police.

5.2.5 The following euthanasia methods must not be used on marine reptiles:

- suffocation via drowning, strangulation or chest compression
- freezing or burning
- carbon dioxide or carbon monoxide in any form
- poisoning with household products
- air embolism
- exsanguination or decapitation without prior stunning
- electrocution or microwave irradiation
- chloroform or strychnine
- neuromuscular blocking agents.

5.2.6 The decision to euthanase a sea turtle must only be taken with approval from a veterinarian with marine reptile experience or a trained NPWS officer.

Guidelines

5.2.7 Wildlife rehabilitation providers should arrange for a veterinarian to perform euthanasia.

5.2.8 A marine reptile that requires euthanasia should not be exposed to additional stressors such as large numbers of onlookers, people touching it, loud noises or extremes of temperature.

5.2.9 A qualified venomous snake handler should be present to restrain the sea snake while it is being euthanased.

Notes

- The Australian Code for the Care and Use of Animals for Scientific Purposes [8th edition, NHMRC 2013]).

- The *Firearms Act 1996* specifies animal welfare as a genuine reason for having a firearms licence.
- The *Veterinary Practice Act 2003* places restrictions on the types of procedures non-veterinarians can perform on animals.
- The *Poisons and Therapeutic Goods Act 1966* places restrictions on the types of poisons people can possess.

5.3 Disposal of carcasses and animal waste

Objective

To dispose of waste so that the risks of disease, contamination or envenomation are minimised.

Standards

- 5.3.1 Carcasses and organic waste suspected or confirmed to be contaminated with infectious disease or that have been exposed to chemicals (e.g. barbiturates) must either be incinerated (under licence) or taken to a licensed waste facility.
- 5.3.2 Marine reptiles must not be fed to other animals.
- 5.3.3 Sea snake carcasses and transport bags can cause secondary envenomation and must be handled with caution (e.g. by taping around the head and lower jaw to ensure there is no possibility of the fangs penetrating the transport bag).
- 5.3.4 NPWS must be contacted (via Elements database, local NPWS office or 13000 PARKS) to report all sea turtle carcasses to ensure data is collected and to enable them to liaise with the land manager to arrange carcass disposal.

Guidelines

- 5.3.5 A deceased marine reptile should, whenever possible, undergo a necropsy by a veterinarian or undergo an internal examination by an experienced marine reptile rehabilitator to look for gross signs of disease or injury.
- 5.3.6 Samples for DNA should be collected from deceased marine reptiles and sent to the Australian Museum. Using appropriate equipment (e.g. gloves and sterile scissors or scalpel) obtain a 0.5 centimetre x 0.5 centimetre tissue sample, place the sample into a tube with 90–95% ethanol or dimethyl sulfoxide (DMSO) for preservation, or store dry in a freezer. Label or affix details including as a minimum: name of species, date, location, organisation and the unique rehabilitation ID number. A certificate of deed will need to be provided for all samples sent to the Australian Museum.
- 5.3.7 The Australian Museum should be contacted for all dead sea snakes, flatback turtles, leatherback turtles and adult hawksbill or olive ridley turtles, as these carcasses are of scientific significance.

Note

NPWS will advise if cultural protocols are applicable in your area.

6. Care procedures

6.1 Assessment

Objective

To identify the severity of wounds, injuries or disease to determine the best course of action for a marine reptile undergoing rehabilitation.

Standards

- 6.1.1 Within 24 hours of admission, all marine reptiles must be assessed by a veterinarian with marine reptile experience, or examined by an experienced marine reptile rehabilitator under the supervision of a veterinarian with marine reptile experience (e.g. via phone).
- 6.1.2 Upon admission a marine reptile must be checked for:
- discharge or bleeding from the eyes, mouth, nostrils or cloaca
 - external wounds
 - signs of lethargy (e.g. a healthy marine reptile will vigorously try to move away from an observer)
 - respiration (breathing is detected as intermittent movement in the throat area, or the head is slightly raised with each breath)
 - hydration levels (the loss of stream-lined shape and sunken eye sockets for sea turtles or emaciation in a sea snake can indicate dehydration)
 - disease or infection (e.g. wart-like lesions, abnormal breath sounds, diarrhoea, red colouration on the plastron, softness of the plastron or carapace for a sea turtle, or small red dots or bleeds known as petechiae on the inside of the mouth for sea snakes)
 - external epibiont levels (dense loads of barnacles, copepods, marine leeches and algae indicate debilitation and inactivity while marine snails may be an indication of the presence of trematode worm infections)
 - entanglement (fishing lines, rope or other debris embedded in skin, scales or around the carapace)
 - ingestion of marine debris or fishing gear (indicated by foreign materials extending from either the cloaca or mouth)
 - temperature (a marine reptile can easily overheat from being ashore for an extended period in warm air temperatures without water or shade)
 - mobility level (observe if the marine reptile can swim freely and dive).
- 6.1.3 Upon admission a sea turtle must also be checked for:
- fractures or serious trauma to the carapace, plastron, flippers, head or jaw
 - body or limb reflex (gently touching the back of the neck, forward of the carapace should cause the turtle to lift or retract its head)
 - corneal reflex (by touching the corner of the eye, a healthy response results in a retraction of the eyeball touched)
 - body condition (e.g. sunken eyes, a concave plastron and poor muscle mass indicate insufficient fat stores)

- floating or buoyancy disorders (by placing sea turtle in water deep enough to assess if it can dive to the bottom and stay submerged)
 - **fibropapillomatosis (FP)**; wart-like growths, ranging in size from 0.1 to more than 30 centimetres in diameter may be found anywhere on the skin, carapace or plastron. While these growths may not be a direct cause of ill health, intervention is required due to their potentially infectious character. FP is more commonly seen in green turtles
 - tears.
- 6.1.4 Upon admission a sea turtle must also be weighed (excluding some large sea turtles), measured, and the stage of development identified.
- 6.1.5 Sea turtles with visible signs of FP must have a sample collected and stored at -80°C or if not possible, stored in ethanol. Samples must be sent to the Australian Registry of Wildlife Health. The registry can be contacted at (02) 9978 4749 or (02) 9978 4788 at the time of sample collection for assistance on the collection and transport of the sample.
- 6.1.6 Upon admission sea turtles must be placed into warm (23–26°C) fresh water for a minimum of 48 hours to clean off barnacles, algae, leeches.
- 6.1.7 A rapid rise of temperature must be avoided for cold-stunned sea turtles. Upon admission they must be placed in water that is no greater than 3°C above the sea temperature where they were found. The water temperature must then be gradually increased by no more than 3°C per day until it reaches 23–26°C. Treatment must be implemented in consultation with a veterinarian with marine reptile experience.
- 6.1.8 Upon admission a sea snake must have the following checked:
- pupil dilation response (the pupils must be circular and even on both sides)
 - oral membranes (they must be moist and not pale or blue)
 - obstructions of the breathing and feeding tubes
 - scale condition (e.g. uneven scales, injuries and lesions)
 - evidence of poor sloughing (dysecdysis)
 - eye symmetry (e.g. when viewed from above, there should be no swelling and eyes should be symmetrical)
 - neurological signs (undertake a swim test observing posture and movement when first placed into the enclosure).
- 6.1.9 Upon admission sea snakes must be placed in warm fresh water for a minimum of 48 hours to allow them to rehydrate post stranding.
- 6.1.10 Once identified, disease or injury must be managed according to severity and this will generally require veterinary input. Management of marine reptiles in care must always strive for optimal animal welfare. Recognition and management of pain is important.

Guidelines

- 6.1.11 Sea turtles should have the following tests undertaken:
- radiographs (X-ray, CT, ultrasound) to screen for ingested fishing lines, hooks and marine debris or when there is no identifiable cause of illness or injury
 - faecal float to screen for spirorchidae, coccidiosis and other parasites
 - blood test for packed cell volume (PCV) and total protein.
- 6.1.12 Sea snakes should have the following tests undertaken:

- diagnostic imaging (X-ray, CT, MRI, ultrasound) for cases of spinal trauma, bony fractures or lesions
- blood test for packed cell volume (PCV) and total protein
- physical palpation of the coelomic region to assess for nodules or masses
- faecal float to screen for parasites.

Note

- Pain relief and hydration must be undertaken in accordance with the *Veterinary Practice Act 2003*. Wildlife rehabilitators must seek the advice of a registered veterinarian to determine appropriate and legal first aid treatment.
- Swimming backwards can be a normal behaviour for the yellow-bellied seasnake.

6.2 Monitoring

Objective

To check the health of marine reptiles undergoing rehabilitation so that concerns can be promptly identified and managed. The type and frequency of monitoring will vary with the species, age and stage of development, type of injury or illness and required treatment.

Standards

- 6.2.1 Monitoring a marine reptile must entail:
- determining foraging ability and food intake levels
 - noting quantity and quality of scats
 - determining swimming mobility and diving ability
 - looking for changes in behaviour.
- 6.2.2 Sea turtles in intensive care must be monitored at least twice a day to observe the progress for healing wounds and barnacle die-off.
- 6.2.3 Hatchlings (under 12 centimetres) must be weighed once a week unless it will hinder recovery of healing wounds such as a break on the carapace or major injury to a flipper.
- 6.2.4 Sea turtles in pre-release care must be discretely checked during feeding to determine feeding levels and to check for normal behaviours.
- 6.2.5 A sea turtle being prepared for release must be observed daily, from a distance, to determine if it is physically and behaviourally ready (see section 9. Suitability for Release).
- 6.2.6 Wildlife rehabilitation providers must monitor the temperature within enclosures containing thermal support (e.g. in-line or immersible heaters) at least once a day to ensure that appropriate temperatures are maintained.
- 6.2.7 Sea snakes can rapidly become overheated and they must be monitored closely to ensure their enclosures and water remain at the preferred body temperature for the species (e.g. yellow-bellied seasnakes 23–26°C).
- 6.2.8 Sea snakes in intensive care must be monitored twice daily for normal behaviours and to identify problems.

- 6.2.9 Sea snakes in pre-release care must be monitored twice a week and this will include monitoring for frequency of skin sloughing.
- 6.2.10 Antibiotics must be given by or under the guidance of a veterinarian and with extreme caution due to the spread of antibiotic resistance and harm to wild populations.

6.3 Controlling disease transmission between animals

Objective

To prevent the spread of diseases among marine reptiles undergoing rehabilitation. Stressed animals are more susceptible to contracting and expressing infectious diseases.

Standards

- 6.3.1 Each newly arrived marine reptile must be isolated in a separate area until its disease status can be determined by a veterinarian or experienced wildlife rehabilitator. Only hatchling sea turtles that are confirmed to be from the same nesting event can be placed in the same tank or container, however, they must also be monitored for signs of aggression.
- 6.3.2 Marine reptiles suspected or known to be carrying an infectious disease must be kept under strict quarantine conditions (e.g. individual tank filtration and appropriate disposal of discharge water) throughout their rehabilitation.
 - Signs of disease may include wart-like lesions; abnormal breath sounds; discharge from eyes, nose or cloaca; diarrhoea; red colouration on the plastron; softness of the plastron or carapace for a sea turtle, or small red dots or bleeds known as petechiae on the inside of the mouth for sea snakes.
- 6.3.3 If an unusual disease or mortality event is suspected, the wildlife rehabilitator must immediately contact their species coordinator to notify the DPI Emergency Animal Disease Hotline (24 hours) on 1800 675 888 for immediate assessment of emerging health threats.
- 6.3.4 Dedicated cleaning equipment must be used for enclosures housing marine reptiles with a suspected or confirmed infectious disease. This equipment must not be shared with other tanks.
- 6.3.5 All enclosures, transport containers, tank furniture, food and water containers must be thoroughly cleaned and disinfected (within an appropriate disinfectant for reptiles) between each occupant.
- 6.3.6 Marine reptiles undergoing rehabilitation must not come into contact with domestic pets.
- 6.3.7 Wildlife rehabilitators must wash their hands thoroughly with soap or disinfectant before and after handling each animal in care.

Guidelines

- 6.3.8 When handling multiple animals, rehabilitators should start with the healthiest and finish with the sickest to reduce the risks of disease transmission.
- 6.3.9 Pest control is recommended for all rehabilitation facilities.

Note

- Wildlife rehabilitators should make every effort to reduce the risk of contracting zoonoses such as salmonella, mycobacteriosis and fungal infections, through wearing personal protective equipment (e.g. mask, gloves and gown). People with open wounds should not handle marine reptiles as gloves and adhesive bandages are not effective in water once hands are immersed in water.

7. Husbandry

7.1 Food and water

Objective

To ensure that marine reptiles have a feeding and watering regime that encourages rapid recovery, supports growth in juveniles, and assists with the maintenance of foraging behaviour necessary for survival in the wild.

Standards

- 7.1.1 Marine reptiles must be provided with a balanced and complete diet that supports growth and development and is appropriate for the species, size, stage of development, mobility and physiological status of the animal. For example:
- Sea turtles will initially have a protein diet (fish including bones and cut into bite size pieces, squid, jellyfish).
 - After the intensive care phase, sea turtles require a variety of foods suitable for the species (see Appendix 4).
 - Sea turtles have different feeding requirements depending on their body condition and require feeding within a range of 2.5% to 5% of their body weight each day. Sea turtles with poor body condition require more food and would be at the upper range while the lower amount is for sea turtles with adequate to good body condition.
 - Most sea snakes feed on fish species, however, a turtle-headed seasnake must be fed fish eggs.
- 7.1.2 Food that is available in the wild or that mimics food in the wild (e.g. kale, endive or lettuce to replace seagrass) must form the basis of the animal's diet.
- 7.1.3 Feeding interaction with sea turtles must only continue in the initial intensive care stage where some sea turtles need encouragement to feed. As soon as the sea turtle shows signs of self-feeding, all feeding interactions must be minimised. This will include not feeding by hand but instead tossing food into the tank and discretely observing the sea turtle forage.
- 7.1.4 Sea snakes can be housed in fresh water during rehabilitation but must be acclimated to salt water prior to release. If housed in salt water they must be transferred into a tub of fresh water for a minimum of one hour twice per week to allow them to drink, or a film of fresh water must be available on the surface of their saltwater enclosure (e.g. heavily misting the surface or placing an overflowing water container above the water's surface). This is because sea snakes must drink fresh water to maintain their hydration and cannot convert salt water to fresh.

- 7.1.5 When feeding assistance is required for sea snakes in long-term care that do not actively eat food offered (e.g. food is blended and tube-fed to the sea snake or whole fish force-fed), due to the danger, this must be undertaken only by a veterinarian or an experienced marine reptile rehabilitator trained in venomous snake handling.

Guidelines

- 7.1.6 Food in storage should not be accessible to pets, pests and wild animals and should be stored, frozen and thawed in a manner that prevents contamination and nutritional loss.
- 7.1.7 In the first 48 hours sea snakes should be given fluid therapy by being placed in fresh water and allowed to drink. If subcutaneous fluid therapy is required it should be administered by a veterinarian or by an experienced marine reptile rehabilitator under the guidance of a veterinarian.

Note

- The feeding of live vertebrate prey to a predatory animal is only acceptable under certain circumstances as provided in section 24(1)(f) of the [Prevention of Cruelty to Animals Act 1979](#). Further information can be found on the DPI website: [General animal welfare](#).
- Sea turtles in long-term care will benefit from a vitamin supplement.

7.2 Hygiene

Objective

To maintain clean rehabilitation facilities so that diseases are prevented or contained.

Standards

- 7.2.1 Uneaten food must be removed after three hours and disposed of so that it cannot be consumed by other animals (e.g. in closed garbage or compost bins).
- 7.2.2 Faeces must be removed as soon as it is seen.
- 7.2.3 Food and drinking water containers must be cleaned on a daily basis. Cleaning involves the use of water, detergent and the physical removal of all residues.
- 7.2.4 Tank furniture and weighing equipment must be cleaned when soiled.
- 7.2.5 Food that requires thawing must be thawed in a refrigerator (less than 4°C) over 24 to 48 hours, and unused food must never be refrozen. Food that is thawed and has been in a fridge for 24 hours and not fed to the marine reptile must be discarded.
- 7.2.6 Wildlife rehabilitators must wash their hands and clean all food preparation surfaces and equipment prior to preparing animal food.
- 7.2.7 Water quality must be maintained by passing water through a mechanical filtration system and biological filters (e.g. ultraviolet, sand or carbon filters) or by replacing the water every day for intensive care and every few days for pre-release housing.
- 7.2.8 Each tank must be disinfected, rinsed and have a complete change of water for each new marine reptile arrival.

Guidelines

- 7.2.9 Wildlife rehabilitation providers should minimise the disturbance to marine reptiles when cleaning.
- 7.2.10 Equipment used for cleaning animal enclosures, containers and furniture should be separate from those used domestically.
- 7.2.11 Water quality should be tested weekly, and water pumped in from an external source should be tested prior to use. Water quality should be within the following parameters:
- pH levels between 7.6 and 8.5
 - salinity between 20 and 37 parts per thousand (PPT)
 - free chlorine levels less than 0.5 parts per million (PPM)
 - ammonia and nitrite levels between 0 and 1 PPM
 - nitrate levels between 0 and 40 PPM.
- 7.2.12 Care should be taken to avoid the spread of parasites within rehabilitation. This should include regular inspections of all areas of the tank, pipes, tank furniture, filtration and skimmer boxes for the intermediate host of the spirorchiid fluke, vermetidae (snails). If found, the tank and filtration system should be disinfected with bleach and the water changed as per 7.2.8.

Note

The use of wild-caught animals as food for animals in care may pose a disease and poisoning risk so safe food hygiene protocols are required

7.3 General care

Objective

To ensure that marine reptiles have a care regime that encourages rapid recovery, supports growth in juveniles and assists with behaviours necessary for survival in the wild.

Guidelines

- 7.3.1 All husbandry requirements should be covered in sea turtle and sea snake specific training (see section 11. Training).
- 7.3.2 Each marine reptile should have a husbandry plan.
- 7.3.3 Sea turtles are very prone to habituation to people. All care should be taken to minimise social interactions with humans, and natural behaviours should be allowed to develop.
- 7.3.4 Sea snakes are very prone to captive stress. All care should be taken to minimise social interactions with humans, and natural behaviours should be allowed to develop.

8. Housing

8.1 General requirements

Objective

To ensure that a marine reptile undergoing rehabilitation is housed in enclosures that keep it safe, secure and free from additional stress.

Standards

- 8.1.1 Enclosures must be escape-proof.
- 8.1.2 Sea snake enclosures must be secured and have a clearly visible warning label that says 'DANGER – venomous live sea snake'.
- 8.1.3 Housing must be made safe for the marine reptile to live in by excluding hazards that might harm it, including:
 - shielding the drains and intake pipes to prevent accidental entrapment and a drowning risk
 - shielding an electrical heat source so that it is bite-proof
 - removing small pebbles, non-food items or inappropriate substrate to prevent ingestion
 - excluding rough or abrasive surfaces.
- 8.1.4 Housing must be made safe for the rehabilitator by excluding hazards that may harm them (e.g. electrocution from electrical equipment near water, snake bite).
- 8.1.5 Housing must be designed and positioned to protect the marine reptile from physical contact with wild animals and pests.
- 8.1.6 Housing must be designed and positioned so that marine reptiles cannot see or come into contact with domestic pets.
- 8.1.7 Housing must be designed so wildlife rehabilitators can readily access the marine reptile.
- 8.1.8 Housing must be positioned so that marine reptiles are not exposed to strong vibrations, noxious smells (e.g. smoke) or loud noises (e.g. radios or televisions).
- 8.1.9 Housing must be constructed from non-toxic materials that can be easily cleaned and disinfected.
- 8.1.10 If multiple animals are kept within a single enclosure, there must be sufficient space for individuals to avoid undue conflict with other marine reptiles in the same enclosure.
- 8.1.11 Housing for sea snakes must contain a platform to haul out on.

Guidelines

- 8.1.12 When multiple marine reptiles are housed together, care should be taken to observe for aggressive interactions, and marine reptiles showing signs of aggression should not be co-housed.
- 8.1.13 Housing for sea turtles located outside should:

- have two areas – one exposed to direct sunlight and another covered by protective shade cloth
 - provide protection from insects (e.g. a mosquito net cover) to prevent them from becoming flyblown.
- 8.1.14 Housing for sea snakes should have a hide-out (e.g. small volumes of floating strips or driftwood for yellow-bellied seasnakes, or a submerged open-ended piece of 90–100 millimetre polypipe) and a secured rock or piece of coral to facilitate skin sloughing.
- 8.1.15 Sea snake enclosures should be made of an opaque material, or the outside covered with dark material, to ensure the sea snake cannot see out as they are prone to snout rub if constantly trying to get through their enclosure walls.

8.2 Intensive care housing

Objective

To facilitate frequent monitoring, treatment, feeding and re-hydration during the period immediately after coming into care and until the animal is stabilised.

Standards

- 8.2.1 Intensive care housing must provide sufficient space for the sea turtle to maintain a normal posture and to stretch its flippers and turn around.
- 8.2.2 Intensive care housing must provide sufficient space for the sea snake to uncoil and stretch to their full length but not actively swim. For example:
- 1.25 x sea snake length by 0.5 x sea snake length.
- 8.2.3 Intensive care housing must provide a constant temperature appropriate to the species, age and nature of the illness or injury. For example:
- marine reptiles need to be in water with temperature 23–26°C.
- 8.2.4 The temperature in intensive care housing must be monitored at least once a day using a thermometer.
- 8.2.5 Electrical heat sources must be regulated by a thermostat and shielded to prevent burns and disturbance to the marine reptile.
- 8.2.6 Marine reptiles in intensive care housing must experience a light-dark cycle that replicates outside conditions. If an artificial light source is used, it must be separate from any artificial heating.
- 8.2.7 Intensive care housing must be designed or positioned (or both) so that visual and auditory stimuli are reduced.
- 8.2.8 Intensive care housing must be adequately ventilated without allowing excessive drafts.
- 8.2.9 Consideration must be given to ensure the water is not too deep for a sea turtle that cannot lift its head.

8.3 Pre-release housing

Objective

To allow a marine reptile to regain its physical condition, acclimatise to current weather conditions and practise natural behaviour. At this stage of rehabilitation, interactions between marine reptiles and humans will be greatly reduced.

Standards

- 8.3.1 Pre-release housing must provide sufficient space for the marine reptile to move about freely and express a range of natural behaviours.

For example, a sea turtle with a:

- 0 to 10-centimetre CCL requires an enclosure that is 5 CCL by 2 CCW and a minimum depth of 30.5 centimetres. For each extra turtle, increase by 25%.
- 10–50 cm CCL requires an enclosure that is 7 CCL by 2 CCW and a minimum depth of 76.2 cm. For each extra turtle, increase by 50%.
- 50–65 cm CCL requires an enclosure that is 7 CCL by 2 CCW and a minimum depth of 91.5 cm. For each extra turtle, increase by 50%.
- Greater than 65 cm CCL requires an enclosure that is 9 CCL by 2 CCW and a minimum depth of 122 cm. For each extra turtle, increase by 100%.

For example:

- sea snakes require an enclosure that is 1.25 sea snake length by 1.25 sea snake length, with a depth of 1 sea snake length.

- 8.3.2 Pre-release housing must provide areas where the marine reptile can gain exposure to prevailing weather conditions and locations where it can shelter. The temperature in pre-release housing must be gradually adjusted to prevailing weather conditions as the marine reptile approaches release.

- 8.3.3 Pre-release housing must contain habitat that enables the marine reptile to perform a range of natural behaviours.

For example:

- sea turtles require sufficient depth for their diving ability to be assessable
- sea snakes require sufficient room to swim around and dive to the bottom to investigate
- sea snakes require a shelter to hide the bulk of their body with just their tail exposed. (The tail paddle in some species can have a light-sensing ability that allows them to 'see' through their tails to avoid predators.)

Guidelines

- 8.3.4 Pre-release housing should be designed and positioned so that exposure to humans is kept to the minimum required for observation, feeding and cleaning.

- 8.3.5 Pre-release housing for marine reptiles should be circular or oval-shaped.

- 8.3.6 Every effort should be made to provide the largest possible enclosure for sea snakes in the pre-release stage.

- 8.3.7 Pre-release housing should have a pump to mimic natural sea currents to ensure a marine reptile's fitness for release. (See section 9. Suitability for release.)

- 8.3.8 Reptiles that naturally bask should be provided with lighting appropriate to the species' needs (e.g. UVB light or exposure to sunlight for a few hours).

9. Suitability for release

9.1 Preparations for release

Objective

To ensure the marine reptile is physically fit and has the appropriate survival skills prior to its release. Preparations for release will start at the time of rescue and continue throughout the rehabilitation process. Many species will gradually lose their survival skills in captivity, so it is vital their time in care is kept to a minimum.

Standards

- 9.1.1 A marine reptile must not be released until it is physically ready.

This status has been achieved when:

- it has recovered from any injury or disease (e.g. swims, dives and submerges for an extended time)
- its weight and condition are within the appropriate range for that species, stage of development and sex
- it has appropriate fitness levels as determined by both passive observation and active assessment (e.g. the marine reptile shows normal swimming behaviour when a pump is turned on to simulate wave action, and can right itself when inverted in the water column)
- its scales, carapace or skin is adequate for survival in its natural habitat
- it has acclimatised to prevailing climatic conditions
- it exhibits salt tolerance.

- 9.1.2 A marine reptile must not be released until it is behaviourally ready. This status has been achieved when:

- it is not attracted to humans (i.e. not humanised) or to sights, sounds or smells that are specific to captivity (i.e. not imprinted).
- it can navigate effectively through its natural environment (e.g. avoid obstacles; a sea snake will orient itself by pointing its head in one direction and then swim in that direction).

- 9.1.3 A sea turtle must not be released until it can recognise, forage and consume appropriate, naturally available food, except for adult green turtles that are fed food (e.g. kale, endives or lettuce) that mimic seagrass.

- 9.1.4 A marine reptile must not be released until it has been acclimatised to the prevailing sea temperature. Sea temperature must not be measured by the outside temperature as it can be affected by both current and wind conditions.

- 9.1.5 A marine reptile's readiness for release must be confirmed by either a veterinarian or experienced marine reptile rehabilitator.

Guidelines

- 9.1.6 A marine reptile should not be released until its health and fitness is assessed with a blood test for packed cell volume (PCV) and total protein.

10. Release considerations

10.1 Timing of release

Objective

To ensure a marine reptile is released as soon as it is ready and at a time that minimises stress and maximises its chances of survival in its natural habitat.

Standards

- 10.1.1 Once a marine reptile is deemed ready for release, it must be released as soon as conditions are suitable (see below for what suitable conditions are).
- 10.1.2 A marine reptile must be released at a time of year that facilitates survival and reintegration into the wild population.
- For example:
- hatchling sea turtles and neonate sea snakes must be released during their natural dispersal period
 - sea turtles move along the east coast of Australia, with ocean currents playing an important role in the successful dispersal of some species.
- 10.1.3 Marine reptiles must be released when weather conditions encourage high activity levels. They must not be released immediately prior to or during a storm.
- 10.1.4 A marine reptile must be released at a time of day that enables it to immediately investigate its environment. For example:
- hatchling sea turtles released on a beach must be released at dawn or sunset
 - sea snakes must be released at dawn or sunset as they are active at these times.
- 10.1.5 Sea snakes are very prone to captive stress; once recovered and cleared for release they must be released as soon as possible.

10.2 Release site selection

Objective

To ensure the wild population and natural environment are not negatively impacted by the release, and the released marine reptile has the highest likelihood of survival.

Standards

- 10.2.1 If the exact location where the marine reptile was found is known and it is a suitable environment for release, it must be released there. A suitable environment for release is one that:

- contains appropriate habitat and adequate food resources
- is occupied by members of the same species
- has a water temperature of at least 19°C for adult green turtles and 21°C for juvenile green turtles
- has a water temperature of at least 21°C for hawksbill turtles
- has a water temperature of at least 16°C for yellow-bellied seasnakes
- is within the natural range of the species. e.g. no further south than Port Stephens for hawksbill turtles; flatback turtles and olive ridley turtles must be released in Queensland
- is within five metres of the original nest, or offshore close to the Eastern Australian Current (EAC) with a raft of seaweed nearby to hide under for all sea turtle hatchlings
- does not place the animal at a high risk of injury (e.g. near a shark meshing program or boat ramp)
- does not have extremes of weather including high wind and swell
- has a strong tide flow to assist with movement offshore for sea turtles and yellow-bellied seasnakes.

10.2.2 If the exact location where the marine reptile was found is known but it is an unsuitable environment for release, it must be released in a suitable environment as near as possible to this location. For example:

- sea snakes must be released offshore and not near beaches because they are unable to navigate through the waves in the surf line and because of the envenomation danger.

10.2.3 If only the general location where the marine reptile was found is known and it contains or adjoins a suitable environment for release, it must be released there.

10.2.4 Marine reptiles can only be released in parks if:

- written consent for the release has been obtained from the relevant NPWS Area Manager (issued under s.11 of the National Parks and Wildlife Regulation 2019) or relevant marine park manager
- the release complies with the relevant Department of Planning, Industry and Environment policies on translocation and environmental integrity.

These conditions also apply to the release of marine reptiles in a location where it might reasonably be expected to enter parks (e.g. on a beach adjoining a park).

Guidelines

10.2.5 Marine reptiles should be released in an area that is connected to other suitable habitat.

Note

Wildlife rehabilitators who propose to release a marine reptile outside these standards and guidelines may require a translocation approval from the Department. If the rehabilitator is unsure whether a translocation approval is required, they should contact the Biodiversity and Wildlife Unit via email (npws.bwt@environment.nsw.gov.au).

10.3 Release techniques

Objective

The use of release techniques that ensure the released marine reptile has the highest likelihood of survival, and information is collected regarding the fate of the rehabilitated marine reptile after release so the relative merits of different rehabilitation and release techniques can be compared.

Standards

- 10.3.1 When releasing a sea turtle, only people directly involved in the release must be in the water.
- 10.3.2 A sea turtle must be released by holding the front and back of the carapace and gently lowering the turtle onto the sand or into the water. Release for sea turtles that weigh over 20 kilograms must be undertaken by at least two people.
- 10.3.3 The sea turtle must be released as soon as it arrives at the release site.
- 10.3.4 A sea snake must be released by lowering the transport container into the water and allowing the snake to swim out on its own.

Guidelines

- 10.3.5 Wildlife rehabilitators should arrange for sea turtles to be tagged or marked as appropriate for individual identification prior to release. Wildlife rehabilitation providers and zoological parks are encouraged to participate in post-release monitoring programs to determine survivorship.

Note

All research involving protected animals requires a licence issued under the BC Act, and an ethics approval issued under the *Animal Research Act 1985*.

11. Training

11.1 Requirements

Objective

To ensure wildlife rehabilitators have appropriate knowledge and skills to ensure the welfare of marine reptiles in their care.

Standards

- 11.1.1 New wildlife rehabilitators must undertake an introductory training course (excluding paid staff in DPI-licensed facilities).
- 11.1.2 Before undertaking marine reptile rehabilitation, a person must undertake specialist training.
- 11.1.3 A specialist training course must:

- teach the standards and guidelines described in this code
- focus on what a person will be able to do as a result of completing the course (i.e. be competency-based)
- teach health and safety issues associated with marine reptile rehabilitation (e.g. disease transmission, envenomation, managing hazardous chemicals and operating in hazardous locations)
- have a written assessment component.

11.1.4 Wildlife rehabilitators must have an understanding of:

- the objectives of marine reptile rehabilitation
- wildlife ecology (e.g. population dynamics, habitat selection, competition, and predator–prey interactions)
- animal behaviour (e.g. feeding, predator avoidance and social interactions)
- first aid for venomous snake bites
- how to keep accurate records.

11.1.5 Wildlife rehabilitators must be proficient in:

- species identification
- marine reptile handling techniques
- first aid for injured marine reptiles
- recognising the signs of disease
- animal husbandry
- marine reptile anatomy and physiology.

11.1.6 Wildlife rehabilitators must be assessed as competent in the relevant areas before undertaking rescue, rehabilitation or release of sea turtles and sea snakes.

11.1.7 Training must be accompanied by ongoing in-field support from experienced marine reptile rehabilitators.

11.1.8 Sea snakes must only be handled by wildlife rehabilitators who have undertaken a venomous snake handling course which includes training in venomous snake bite first aid; this training must be refreshed every three years.

11.1.9 All wildlife rehabilitators must undertake professional development and refresh their training for marine reptiles every three years e.g. refresher training course, attendance at marine reptile conferences.

Notes

- The department has prepared Sea Turtle and Sea Snake Rehabilitation Training Standards for the Volunteer Wildlife Rehabilitation Sector including a sea turtle and sea snake trainer's guide to ensure volunteers are trained to be competent in the implementation of this Code of Practice.
- Attendance at marine reptile conferences may require pre-approval from a wildlife rehabilitator's group training coordinator to be eligible for consideration.

12. Record keeping

12.1 Keeping a register

Objective

To maintain a database of marine reptiles (both dead and alive) that have been reported to wildlife rehabilitation providers, to inform improved rehabilitation outcomes for individual animals and contribute to the ecological viability of marine reptile species.

Standards

12.1.1 Licensed wildlife rehabilitation providers, zoological parks and individuals must maintain a current register of all protected marine reptiles reported, encountered or rescued.

The register must contain the following information on each animal:

- encounter details (date, location, encounter circumstances, the animal's condition and unique ID number)
- species data (species name and stage of development)
- sex (only when it can safely be determined e.g. adult sea turtles)
- initial weight (excluding very large adult sea turtles)
- standard length measurements (curved carapace length [CCL], curved carapace width [CCW], tail length and head width for sea turtles, and total length and snout to vent length for sea snakes)
- care providers details (name and address of the initial assessor, name and address of the marine reptile rehabilitator)
- fate details (date, final disposition, location and any permanent marking).

These records must be submitted to the Wildlife Team (wildlife.licensing@environment.nsw.gov.au) once a year using an approved electronic [template](#).

12.1.2 When an individual is transferred to another wildlife rehabilitation provider or organisation for any reason, copies of its records must be transferred with it.

12.1.3 If the death of a marine reptile is suspected to be the result of a serious disease outbreak, the marine reptile rehabilitator must immediately contact their wildlife rehabilitation provider to ascertain whether tissue analysis or a necropsy is required. The [DPI Emergency Animal Disease Hotline](#) (24 hours) on 1800 675 888 must be notified immediately.

Guidelines

12.1.4 Wildlife rehabilitators should record the following additional information at the time of rescue:

- who discovered the marine reptile (name and contact details)
- when the marine reptile was discovered (time of day)
- details of the haul-out site e.g. high tide mark, rock pool
- any treatment provided prior to transport

- environmental history e.g. unusual weather events or recent oil spill.
- 12.1.5 Wildlife rehabilitators should record the following additional information at the time of assessment by a veterinarian or experienced marine reptile rehabilitator:
- details of wounds, injuries, diseases, epibionts and external parasites
 - details of mobility
 - details of abnormal behaviour
 - recommended management (e.g. euthanasia or prescribed treatment).
- 12.1.6 Wildlife rehabilitators should record the following additional information at the time of entry into a rehabilitation facility:
- identifying features if it is to be housed communally
 - housing (e.g. intensive care, pre-release) (see section 8. Housing).
- 12.1.7 Wildlife rehabilitators should record details of the following daily care information:
- the type and quantity of food and liquid ingested
 - treatment (e.g. medication, therapy, test results and sampling)
 - instructions from veterinarians and species coordinators
 - changes to general fitness and behaviour
 - enclosure cleaning (e.g. quantity and quality of faeces and urine)
 - weight of marine reptiles in their care so changes can be quickly identified.
- 12.1.8 Wildlife rehabilitators should record the following additional information regarding fate:
- if released, details regarding the type of release
 - if released, details regarding the condition of the animal (e.g. carapace length)
 - tag number.
- 12.1.9 Wildlife rehabilitators should keep duplicates or backups of records to avoid information being lost.
- 12.1.10 Records of turtle sightings should be uploaded to [NSW BioNet](#) and should contain encounter details (date, location, encounter circumstances and a unique ID number) as well as whether the sea turtle was alive or dead.
- 12.1.11 Wildlife rehabilitators should record the following information for dead marine reptiles:
- cause of death
 - necropsy notes
 - DNA testing results
 - records of care of previous rehabilitation.

13. Further reading

Bluvias J & Eckert K 2010, *Marine Turtle Trauma Response Procedures: A Husbandry Manual*, Wider Caribbean Sea Turtle Conservation Network (WIDECAST), WIDECAST technical report No 10, Ballwin Missouri 100pp.

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Commonwealth of Australia 2017, *Recovery Plan for Marine Turtles in Australia*, www.environment.gov.au/marine/publications/recovery-plan-marine-turtles-australia-2017.

Gillett A 2017, *An investigation into the stranding of Australian sea snakes*, University of Queensland, School of Veterinary Science, Brisbane, QLD.

Heatwole H 1999, *Sea snakes*, Kreiger Publishing, Melbourne Florida, USA.

Manire C et al. 2017, *Sea turtle health and rehabilitation*, J Ross Publishing, Florida USA.

Rasmussen AR, Sanders KL, Guinea ML & Amey AP 2014, Sea snakes in Australian waters (Serpentes: subfamilies *Hydrophiinae* and *Laticaudinae*) – a review with an updated identification key, *Zootaxa* 3869(4) 351–371.

Appendices

Appendix 1: Sea turtle species relevant to this code

BioNet Atlas code	Common name	Scientific name	BC Act 2016 NSW listing	EPBC Act 1999 Federal listing
2004	Loggerhead turtle	<i>Caretta caretta</i>	Endangered	Endangered
2013	Leatherback turtle	<i>Dermochelys coriacea</i>	Endangered	Endangered
2011	Olive ridley turtle	<i>Lepidochelys olivacea</i>		Endangered
2007	Green turtle	<i>Chelonia mydas</i>	Vulnerable	Vulnerable
2008	Hawksbill turtle	<i>Eretmochelys imbricata</i>		Vulnerable
2006	Flatback turtle	<i>Natator depressus</i>		Vulnerable

Appendix 2: Stage of development for sea turtles

Species	Curved carapace length (cm)				
	Hatchling	Post hatchling	Juvenile	Subadult	Adult
Loggerhead turtle	< 5.5	5.5–35	35–65	65–90	> 90
Leatherback turtle	Not available	Not available	Not available	Not available	> 150.5
Olive ridley turtle	< 4	Not available	Not available	45–63	> 63
Green turtle	< 5.5	5.5–35	35–65	65–90	> 90
Hawksbill turtle	< 5	5–30	30–60	60–80	> 80
Flatback turtle	< 5.5	5.5–35	35–65	65–90	> 90

Appendix 3: Sea snake species relevant to this code including stage of development

Neonate sea snakes for all species are identified by the presence of remnant umbilicus or navel scar.

BioNet Atlas code	Common name	Scientific name	Juvenile (cm)	Adult (cm)
2736	Horned seasnake	<i>Hydrophis peronii</i>	< 50	100
2738	Reef shallows seasnake	<i>Aipysurus duboisii</i>	<100	70
2742	Olive seasnake	<i>Aipysurus laevis</i>	< 50	Av. 120 Max. 200
5223	Mosaic seasnake	<i>Aipysurus mosaicus</i>	< 50	100
2744	Stokes's seasnake	<i>Hydrophis stokesii</i>	<100	Av. 120 Max. 200
2747	Turtle-headed seasnake	<i>Emydocephalus annulatus</i>	< 50	75

BioNet Atlas code	Common name	Scientific name	Juvenile (cm)	Adult (cm)
2756	Elegant seasnake	<i>Hydrophis elegans</i>	<100	Av. 170 Max. 200
2745	Spectacled seasnake	<i>Hydrophis kingii</i>	<100	150
2746	Olive-headed seasnake	<i>Hydrophis major</i>	<100	130
2761	Spotted seasnake	<i>Hydrophis ornatus</i>	< 50	100
2767	Spine-bellied seasnake	<i>Lapemis curtus</i>	Not available	100
2768	Yellow-lipped sea krait	<i>Laticauda colubrina</i>	Not available	Av. 100 Max. 140
2770	Yellow-bellied seasnake	<i>Pelamis platurus</i>	< 50	Av. 80 Max. 100

Appendix 4: Wild diet for sea turtles by species

Species	Type	Diet
Loggerhead turtle	Carnivorous	Shellfish, crabs, sea urchins, jellyfish, fish and other crustaceans
Leatherback turtle	Omnivorous	Jellyfish, seaweed, sea squirts, fish, and crustaceans
Olive ridley turtle	Omnivorous	Algae, crustaceans, molluscs, sea cucumbers, fish and jellyfish
Green turtle	Hatchlings – carnivorous	Crustaceans, jellyfish
	Juveniles – pelagic stage omnivorous	Algae, crustaceans and molluscs
	Adults – primarily herbivorous	Algae, seagrass
Hawksbill turtle	Omnivorous	Sponges, squid, crustaceans, sea urchins, seagrass, algae and jellyfish
Flatback turtle	Carnivorous	Soft corals, sea cucumbers, shrimp, jellyfish, molluscs and cuttlefish

Examples of fish typically fed in captivity are pilchards, eastern school whiting and whitebait.

Examples of greens typically fed in captivity to replace seagrass and algae are kale, endive and lettuce.

Dietary information supplied by Taronga Wildlife Hospital.