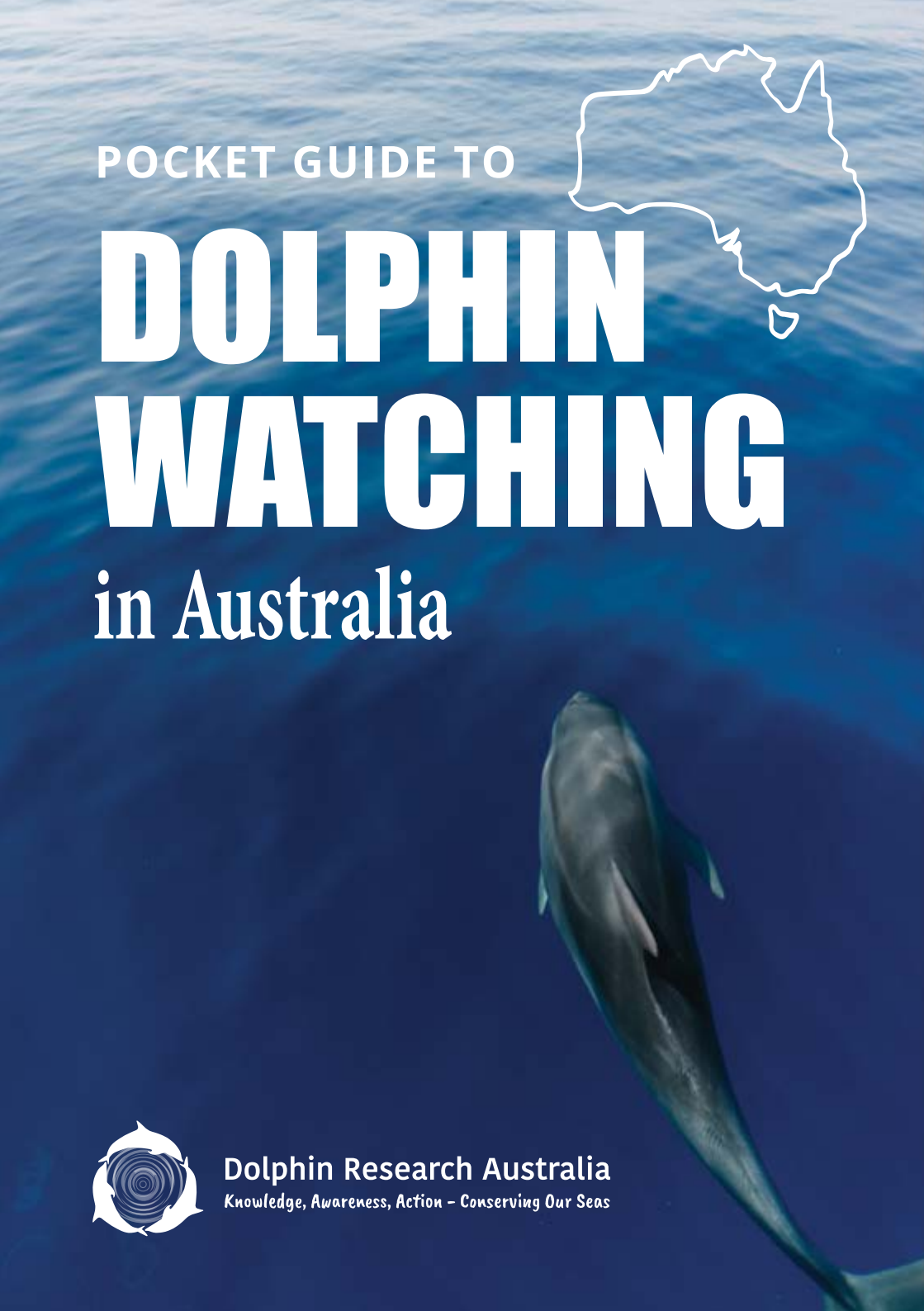
POCKET GUIDE TO

DOLPHIN WATCHING

in Australia



Dolphin Research Australia

Knowledge, Awareness, Action – Conserving Our Seas



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Cover photo: Sereja Ris, Unsplash
IFC and BC photo: Cristian Palmer, Unsplash

We would like to extend a heartfelt thanks to the Dolphin Research Australia volunteers and photographic contributors. We would also like to acknowledge and thank the City of Gold Coast Catchment and Citizen Science Grants Program, Queensland Government's Community Sustainability Action Grant Program, and Gumma Indigenous Protected Area for funding assistance for this project.

Disclaimer: While this publication has been prepared with great care, readers are advised that no contributor can accept liability for any decisions or any actions taken on the basis of information included or excluded.

Dolphin Research Australia
Knowledge, Awareness, Action – Conserving Our Seas

Printed on sustainably sourced materials.

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DOLPHIN WATCHING

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By Dolphin Research Australia

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Knowledge, Awareness, Action – Conserving Our Seas



PREFACE

This is a booklet for nature and wildlife enthusiasts of all ages. The purpose of this booklet is to enhance the understanding and appreciation of dolphins and your dolphin watching experiences. It provides a gentle introduction and quick reference to the biology, ecology and identification of dolphins in Australian waters, in addition to, how to help conserve and protect dolphins and their habitats.

Australia has some of the most incredible coastal and marine environments where dolphins can be encountered in their wild habitats. For many, these encounters are unforgettable. We have included a special dolphin sighting journal and checklist to keep track and record all of your encounters. We hope that this book encourages readers to take a moment to observe dolphins in their natural environment and appreciate their wild lives. All of your dolphin sightings can assist in improving the knowledge of these mysterious animals by participating in our Dolphin Watch Citizen Science Initiative.

Through the production of this guide, along with Dolphin Research Australia's education, engagement and outreach programs, we aim to raise awareness and help improve the protection and conservation of dolphins and their oceanic habitats into the future.

We hope you enjoy!

The Dolphin Research Australia Team

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WHY ARE DOLPHINS IMPORTANT?

Dolphins are highly intelligent, social animals that are supremely adapted to living in their aquatic world. Dolphins are top predators and have a vital role in maintaining healthy, functioning ecosystems.

However, dolphins are also highly vulnerable due to many human activities that threaten their wellbeing, health and survival. An increasing number of dolphin species are becoming vulnerable to extinction. This trend is greatly concerning as the intensity of human activities continues to intensify. It is critical that effective conservation measures are in place to ensure the protection of marine life and biodiversity and reverse current trends.

Compared to other areas around the world, Australia has one of the highest diversities of dolphins and whales. However, there is relatively very little known about the status, health and habitat use of Australia's dolphin populations.

By observing dolphins in their natural environment, we can improve the understanding of their status and conservation needs.

ABOUT DOLPHIN RESEARCH AUSTRALIA

We provide a voice for the dolphins, whales and the oceans to help ensure their protection, well-being and survival for many future generations.

Dolphin Research Australia is a charitable organisation dedicated to the protection and conservation of dolphins, whales and their marine environment.

Our long-term research and monitoring projects focus on understanding the ecology of dolphins and whales, their needs for survival and ensuring their protection and conservation of their habitats. Our education programs engage the community to raise awareness, knowledge and foster stewardship to care for our planet. By improving knowledge, awareness and taking positive environmental actions, together we can ensure a healthy future for marine life and their ocean homes.
We achieve all of this with our team of dedicated volunteers.



WHAT IS DOLPHIN WATCH?



Dolphin Watch is a citizen science initiative that provides a platform for the community to assist in improving the understanding and monitoring of coastal dolphins whilst providing opportunities for education and environmental awareness.

Dolphin Watch citizen scientists participate by reporting information on their dolphin sightings. Submitted dolphin sighting reports contribute to understanding the long-term status, ecology and protection of local dolphin populations around Australia.

HOW TO GET INVOLVED

Anyone can be a Dolphin Watch citizen scientist! It is easy to get involved.

- **Have you seen a dolphin?** Simply report your dolphin sighting and enter in all the details via our Dolphin Research Australia online sighting form. When you see dolphins, take note of how many you see, what species they are, their location and what they are doing. Take photographs when you can too.
- You can also become a trained Dolphin Watcher by attending one of our Dolphin Ecology Workshops where you'll learn the basics in recording and observing dolphins and how to photograph them. Our workshop calendar is available on our website.
- Attend one of the community presentations, events or visit us at our market stall. For updates on when and where these will take place, please sign up to our e-newsletter or follow us on Facebook and Instagram.
- If you would like to get even more involved with our programs, you can also become a volunteer as a Dolphin Ambassador.

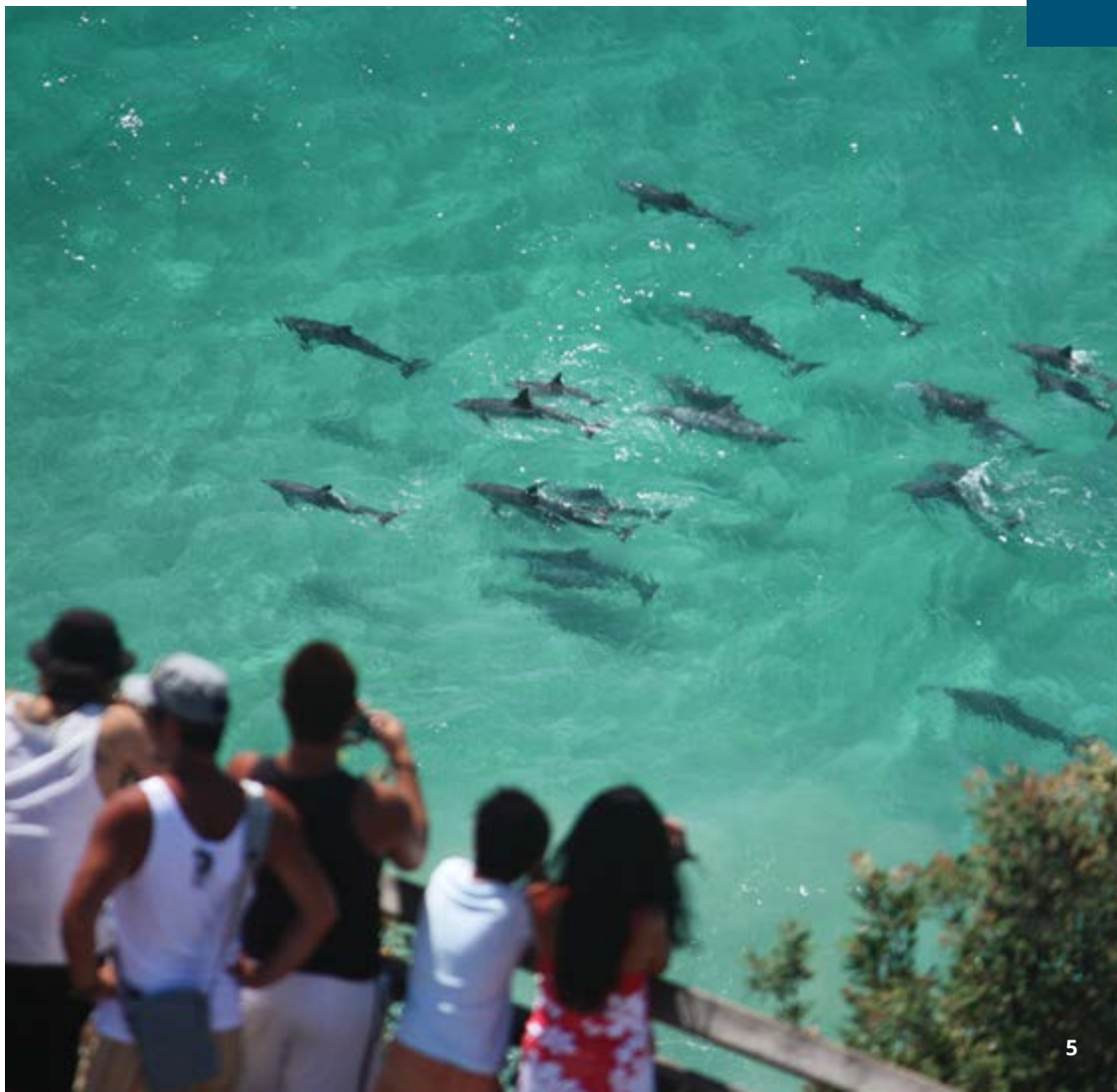
HOW YOUR OBSERVATIONS HELP

Did you know that your observation can help science? Just by reporting your dolphin sighting as part of our Dolphin Watch Citizen Science Initiative, you can help us to understand and monitor dolphin populations. Simply by reporting your sighting (with or without a photo), you can contribute to this knowledge.

Every sighting helps!

We can learn a lot about the dolphins from sighting information and a photograph, all of which will help us to understand:

- Population status and trends
- Movement patterns and residency
- Life histories and life cycles
- Habitat use
- Health and vulnerability of individuals and populations.



WHAT IS DOLPHIN WATCH?



ABOUT DOLPHINS

CULTURAL SIGNIFICANCE FOR ABORIGINAL PEOPLE

Aboriginal people hold inherent rights and responsibilities over Country. Landforms link us to the time of Creation when giant ancestor spirits journeyed across the land and sea; their actions created what Aboriginal people call 'Country'. Aboriginal people relate to the land that is now underwater through these creation stories that passed on the laws, ceremony, marriage and food.

Dolphins are revered by coastal clan groups. They are seen as a totem or important messengers that are spiritually connected to individuals and family groups. Coastal clans' respect for dolphins ensured they were protected through totemic beliefs that forbid harm to them in any way. Children were raised with positive interactions with dolphins through creation stories, songs, dances and ceremony.

"*When it was time to fish our mother would sing out to the dolphin, she would walk into the sea and tap the water. She knew her dolphin, it had a bite out of its top fin. While we held the nets, the dolphins would drive the fish into them and up on the beach, there was plenty of fish back then.*"

~ Linda Vidler, Byron Bay Arakwal Bumberbin Elder (dec.)

Aboriginal people used their knowledge of tides, weather and seasons and watched out for migrating species such as the whale and mutton bird.

"*The ocean is like our huge refrigerator that keeps our food fresh and abundant, we all need to respect it so our dolphins and marine animals are healthy too.*"

~ Delta Kay, Byron Bay Bundjalung Woman

TAXONOMY

Dolphins and whales belong to the Order Artiodactyla and Infraorder Cetacea. They are further classified into two different taxonomic groups based on their feeding mechanisms. Those that have teeth and a single blowhole belong to the Odontoceti group or toothed whales, those that lack teeth and have two blowholes belong to the Mysticeti group or baleen whales.

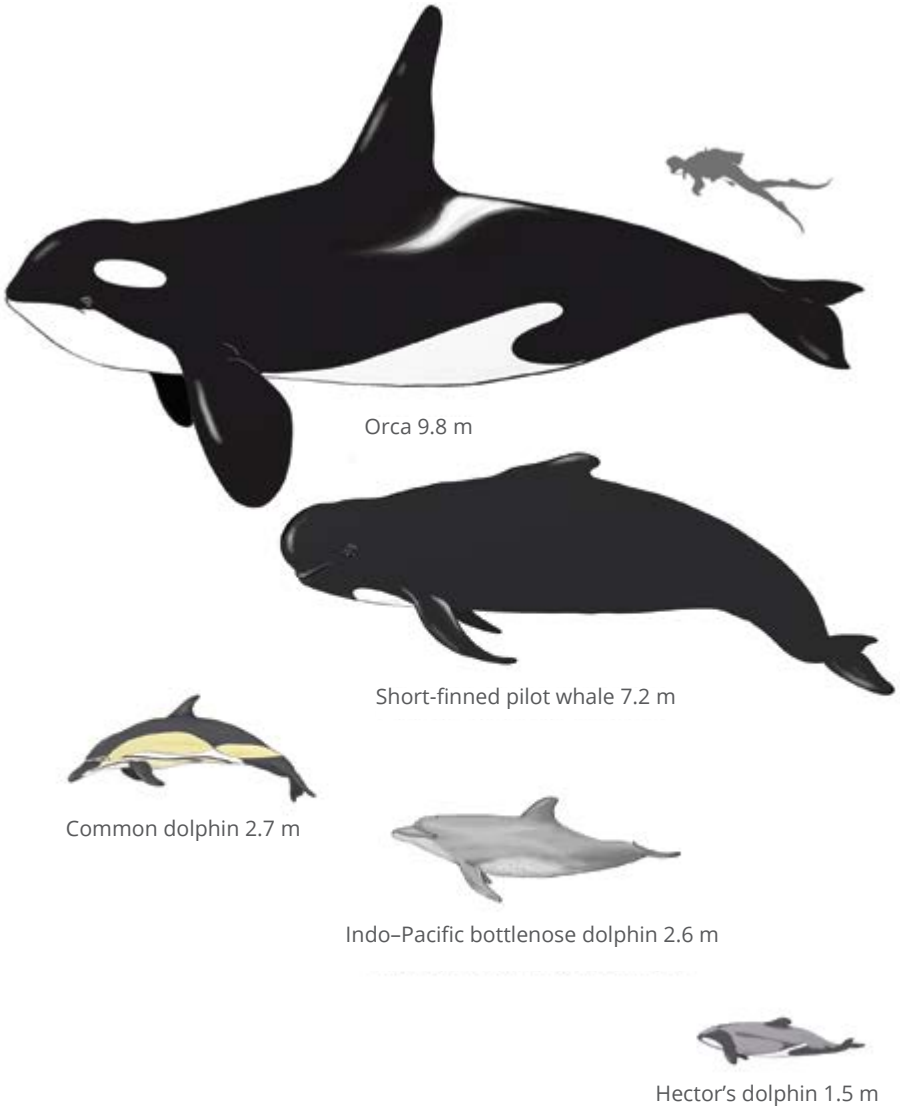
Dolphins are a type of toothed whale and most belong to the Family Delphinidae or oceanic/marine dolphins of which there are 38 known species (hereafter referred to as dolphins). The largest dolphin is the orca or killer whale (*Orcinus orca*) with adults growing up to 9.8 m long and the smallest is the Hector's dolphin (*Cephalorhynchus hectori*) at just 1.5 m long. There are also five species of river dolphins that belong to the Families Platanistidae, Iniidae, Pontoporiidae and Lipotidae.



SIZE COMPARISON OF OCEANIC DOLPHINS

Dolphins exist in many shapes and sizes.

Size comparisons of selected dolphin species



ADAPTING TO LIFE AT SEA

The evolution of cetaceans began more than 50 million years ago. Modern cetaceans are thought to have descended from a four-legged, haired land mammal. Around 10 million years ago, most of the dolphin and whale species we know today existed.

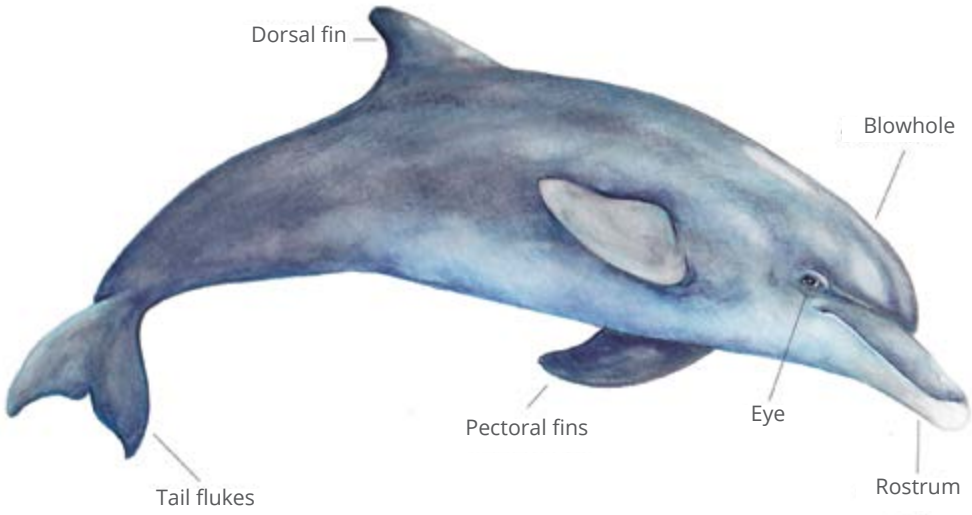
Dolphins are marine mammals that breathe air, give birth to live young, are warm-blooded and have hair (yes they are born with small 'whiskers' on their upper rostrum!). They have adapted sublimely to living life in the dynamic and frequently harsh ocean environment.

The streamlined body of dolphins is designed for energy efficiency. Their tail provides a powerful propulsion system to move through the water. Dolphins use their pectoral fins for balance and communication.

To stay warm, dolphins have a fatty layer of tissue called blubber just under their skin that helps them maintain body heat which also provides a source of energy when required.

Dolphins are conscious breathers and lack a breathing reflex. This means that they must stay conscious, even during periods of rest and sleep, to ensure they 'remember' to breathe. To adapt, dolphins have developed a unique way of sleeping. Dolphins are unihemispheric sleepers whereby, during periods of rest, one brain hemisphere is shut down (unconscious) at a time, with the other hemisphere remaining alert to the surrounds and the need to breathe.

External morphology of dolphins



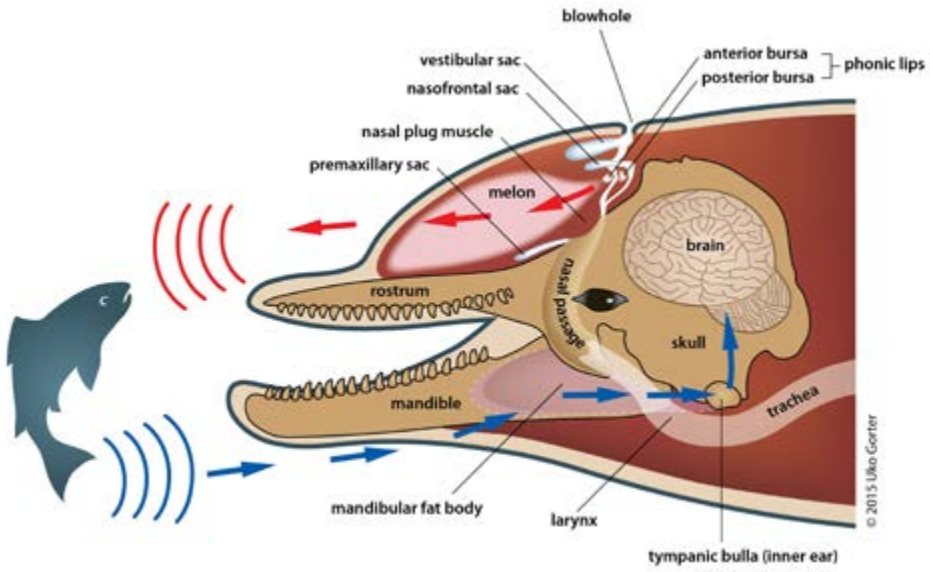
INTELLIGENCE

Relative to their size, dolphins have a large and complex brain; they have an acute and highly evolved acoustic sensory system and establish sophisticated social systems. Next to humans, dolphins are thought to be among the most intelligent animals on Earth. Based on the encephalisation quotient (EQ) (brain-to-body-mass ratio), the intelligence of dolphins is similar to gorillas, orangutans and chimpanzees. Dolphins have the ability to comprehend the two main elements of human language; symbols and syntax. They are able to mimic behaviours and sounds and are among few animals that are self-aware.

COMMUNICATION

Dolphins have excellent eyesight, but this faculty is limited in the ocean as minimal light penetrates the water column. To account for this, dolphins have developed a sophisticated acoustic communication system that optimises the efficient sound propagation properties of water. Many dolphins produce two types of sounds, whistles and clicks. Dolphins use whistles to communicate the identity of individuals, where they are, what they are doing, and even if they are stressed. The primary use of clicks is for echolocation, where a click is produced and the sound bounces off objects creating an echo. From this, the dolphin can discriminate the size, shape and density of different objects, such as prey, in their surroundings.

Echolocation in dolphins



SOCIAL LIVING

Dolphins are highly social animals that live in complex societies. Much like humans, dolphins can develop strong bonds with others to optimise foraging, predator defence and reproduction. For some species, social bonds can remain strong for decades. The social structure can vary greatly between and even within species. Orcas, for example, live in stable matriarchal societies where the oldest females are the dominant individuals. These family groups consist of both male and female closely bonded relatives. In contrast, bottlenose and Australian humpback dolphin societies are sexually-segregated. In these societies, males, once mature, form bachelor groups called alliances comprising of strongly bonded individuals, while females maintain a network of associates that assist to care for and protect young.

HABITATS AND DIET

Most dolphin species live in marine environments from deep ocean habitats to shallow coastal waters and embayments. Many species of dolphins will occupy specific home ranges or have limited ranges of movement. They are non-migratory and instead occupy these specific ranges throughout the year. Within these areas, the dolphins will use specific areas or habitats for different activities. Some habitats may be more critical to the survival of populations or species and may be designated as marine mammal sanctuaries.

Dolphins are opportunistic carnivores, feeding on a variety of fish, squid and even stingrays. Some orcas will also eat other marine mammals including humpback whales. Dolphins use many different foraging strategies to successfully catch their prey. In some cases, this requires a careful plan and coordination between individuals. Some hunting strategies are also unique to particular social groups and are part of the culture of society. Such strategies are passed on by females to their offspring.





REPRODUCTION

Many dolphin species have a gestation period of around 11–12 months. For orcas, the gestation period can be up to 15–18 months. The Hector's dolphin has a shorter gestation period of 10–11 months.

Dolphins generally mate in a belly-to-belly position. Males and females don't pair or mate with each other for life. Competition to mate with females between males can at times be intense. Calves are born tail first and will remain dependent on their mothers for a number of years. In bottlenose dolphins, calves are weaned between 2–4 years on average.

AGE DETERMINATION

Newborn or 'neonate' calves have foetal folds along their bodies that, in most species, are easily distinguished during the first four weeks of life. These creases are formed from being folded in the womb. Calves are defined as those that are dependent on their mothers and are less than three-quarters of an adult's size. Sub-adults are the teenagers and are not quite fully grown but independent of their mothers and almost sexually mature. Adults are fully grown sexually mature individuals. The age of maturity varies between species. For example, bottlenose dolphins reach maturity between 8–10 years of age, while pilot whales can reach maturity between 8–17 years. Bottlenose dolphins can live up to 60 years and orcas for over 80 years.

SEX DETERMINATION

Dolphins have internal reproductive organs. The best way to distinguish between the two sexes is by looking at the genital slit located on their underside towards the tailstock. Females have a mammary gland on either side of the genital slit. The distance between the navel and the genital slit in males is also shorter than in females. Females can also be identified if they are seen with a calf for a prolonged period of time. In some species, sexual dimorphism is evident. Male orcas, for example, have very large dorsal fins that can measure up to 2 m in height, while females have a much shorter and rounded dorsal fin in comparison.



Genital and mammary slits of a female Indo-Pacific bottlenose dolphin.



Genitals of a male Indo-Pacific bottlenose dolphin.

DOLPHINS OF AUSTRALIA

Twenty species of oceanic or marine dolphins are found in Australian waters. At least two of these species, the Australian humpback and snubfin dolphins, are found nowhere else in the world.

The following symbols are used to indicate the typical habitat, abundance and conservation status according to the International Union for the Conservation of Nature and Natural Resources (IUCN) Red List (www.iucnredlist.org).

Habitat and range

- TR Tropical Waters
- TP Temperate Waters
- CO Coastal Environments
- OF Offshore Environments
- SA Subantarctic / Circumpolar Environments

Conservation status

- DD Data Deficient
- LC Least Concern
- NT Near Threatened
- VU Vulnerable
- EN Endangered
- CR Critically Endangered
- EW Extinct in the Wild
- EX Extinct

DOLPHIN SPECIES

Species of toothed whales from the Delphinidae family in Australian waters, their habitat and range, and conservation status according to the International Union for the Conservation of Nature and Natural Resources (IUCN) Red List.



Australian humpback dolphin
Sousa sahulensis

TR CO VU



Australian snubfin dolphin
Orcaella heinsohni

TR CO VU

Species of toothed whales from the Delphinidae family in Australian waters (cont.)



Burrunan dolphin
Tursiops australis

TP DD



Common bottlenose dolphin
Tursiops truncatus

TR TP CO OF LC



Dusky dolphin
Lagenorhynchus obscurus

TP OF LC



False killer whale
Pseudorca crassidens

TR TP OF NT

** Note: The taxonomic status of Burrunan dolphin (Tursiops australis) remains uncertain.*

Species of toothed whales from the Delphinidae family in Australian waters (cont.)



Fraser's dolphin
Lagenodelphis hosei

TP OF — LC



Hourglass dolphin
Lagenorhynchus cruciger

SA — LC



Indo–Pacific bottlenose dolphin
Tursiops aduncus

TR TP CO — NT



Long-finned pilot whale
Globicephala melas

TP SA OF — LC

Species of toothed whales from the Delphinidae family in Australian waters (cont.)



Melon-headed whale
Peponocephala electra

TR TP OF — LC



Orca
Orcinus orca

TR TP CO OF — DD



Pantropical spotted dolphin
Stenella attenuata

TR OF — LC



Pygmy killer whale
Feresa attenuata

TR TP OF — LC

Species of toothed whales from the Delphinidae family in Australian waters (cont.)



Risso's dolphin
Grampus griseus

TR TP OF LC



Rough-toothed dolphin
Steno bredanensis

TR CO OF LC



Short-beaked common dolphin
Delphinus delphis

TR TP CO OF LC



Short-finned pilot whale
Globicephala macrohynchus

TR TP OF LC

Species of toothed whales from the Delphinidae family in Australian waters (cont.)



Southern right whale dolphin
Lissodelphis peronii

TP SA LC



Spinner dolphin
Stenella longirostris spp.

TR CO OF LC



Striped dolphin
Stenella coeruleoalba

TR TP OF LC



IN FOCUS: SPECIES PROFILES
These selected species are often seen in some areas along the Australian tropical or temperate coast.

NT TR TP CO

INDO–PACIFIC BOTTLENOSE DOLPHIN

Tursiops aduncus

DISTINGUISHING FEATURES

- Indo–Pacific bottlenose dolphins grow to 2.6 m and weigh 230 kg when mature. At birth, calves are around 1 m in length and weigh between 9–21 kg.
- Distinguished by their large curved dorsal fin, grey dorsal colouration and white ventral surface colouration. Adults have dark grey speckling on the underside that increases with age.

REPRODUCTION AND BREEDING

- Female bottlenose dolphins give birth after a gestation period of around 12 months.
- A bottlenose dolphin calf will remain dependent on its mother for 2–4 years.
- Female bottlenose dolphins reach sexual maturity between 8–10 years and males between 10–12 years.
- Bottlenose dolphins can live for over 50 years.

DISTRIBUTION AND HABITAT

- Indo–Pacific bottlenose dolphins are a coastal species that inhabit coastal areas, estuaries and bays through the temperate, subtropical and tropical regions of Australia and the greater Indo–Pacific region.

DIET

- Bottlenose dolphins feed on a variety of fish, squid, octopus and occasionally even crayfish.

BOTTLENOSE DOLPHIN SOCIETIES

- Indo–Pacific bottlenose dolphins are typically found in groups of 5–15 individuals. Occasional aggregations of over 100 can be encountered.
- Bottlenose dolphins are very social animals and live in complex societies that can often be sexually segregated.
- Mature males often form a strongly bonded alliance with at least 3–4 other males.
- Females live in large groups and maintain a large network of associates within their home range.
- Many communities of bottlenose dolphins will remain in small home ranges along the coastal zone and have year-round residence.
- Bottlenose dolphins can be very active at the surface and can be seen leaping, surfing and tail-slapping.

COMMUNICATION

- Bottlenose dolphins produce a diverse range of sounds that include echolocation or sonar clicks, whistles, and burst pulse sounds such as ‘squawks’ and ‘squeaks’.
- Whistles are used to maintain contact, identify, and to locate other dolphins. Indo–Pacific bottlenose dolphins have ‘signature whistles’ which are similar to a name and are unique to individuals.
- Clicks are used for echolocation, assisting in navigation and feeding.





VU TR CO

AUSTRALIAN HUMPBACK DOLPHIN

Sousa sahulensis

DISTINGUISHING FEATURES

- Adults can reach up to 2.75 m in length and weigh 260 kg. Newborn calves are around 1 m in length and weigh 14 kg.
- Distinguished by pale grey colouration, long slender beak and low triangular dorsal fin. Adults can acquire white–pink scars that increase with age, and speckling on the dorsal fin.

REPRODUCTION AND BREEDING

- Gestation period of 10–12 months. Calves are highly dependent on their mothers for the first few years of life.
- It is thought that humpback dolphins reach maturity between 10–12 years.
- Females give birth to a single calf approximately every 2–4 years.
- Humpback dolphins can live for over 40 years.

DISTRIBUTION AND HABITAT

- Humpback dolphins live close to the coast within the tropical waters of Australia and Papua New Guinea. They are typically found in small groups near estuaries, deep channels, rocky reefs, in sheltered bays, open ocean and occasionally in surf zones.

DIET

- Humpback dolphins are carnivorous and feed on a variety of fish, squid and rays.

HUMPBACK DOLPHIN SOCIETIES

- Typically found in small populations (~100) within their range and in small groups of around 4–5 individuals.
- They are very social animals and live in complex fission–fusion societies where the composition of groups can change over time.
- Humpback dolphins live in sexually-segregated societies with males forming small strongly-bonded paired-alliances and females having larger networks of associates.
- Some individuals will display preferences for certain areas and have year-round residence.

COMMUNICATION

- Humpback dolphins produce a diverse range of sounds that include echolocation or sonar clicks, whistles, and burst pulse sounds such as ‘squawks’ and ‘squeaks’.
- Similar to bottlenose dolphins, whistles are thought to be used to maintain contact, identify, and to locate other dolphins. Clicks are used for echolocation, assisting in navigation and feeding.





VU TR CO

SNUBFIN DOLPHIN

Orcaella heinsohni

Formally known as Irrawaddy dolphin the Australian snubfin dolphins were recognized as a genetically separate species in 2005.

DISTINGUISHING FEATURES

- Snubfin dolphins grow up to 2.7 m and weigh 133 kg. Males are typically larger than females, the latter reaching 2.3 m in length and weighing 114 kg.
- Snubfin dolphins are characterised by a round head, no beak or rostrum, small dorsal fin and broad, paddle-like pectoral fins.
- Snubfin dolphins have a three-tone colouration. They are dark brown along the dorsal cape and light brown on the sides with a white underbelly.
- Snubfin dolphins have conical teeth, usually less than 20 in each row.

REPRODUCTION AND BREEDING

- There remains little known about this species with much of its reproductive biology including the age of maturity and longevity.
- Breeding and birthing occurs all year round.

DISTRIBUTION AND HABITAT

- Inhabits nearshore tropical waters from Broome in Western Australia to the Fitzroy River Queensland and parts of Papua New Guinea.
- Primarily found in shallow waters close to the coast, often near river mouths. Populations tend to be resident with individuals occupying relatively small home ranges.

DIET

- Snubfin dolphins are generalist feeders with a diet that primarily consists of fish, squid, cuttlefish, octopus and shrimp.

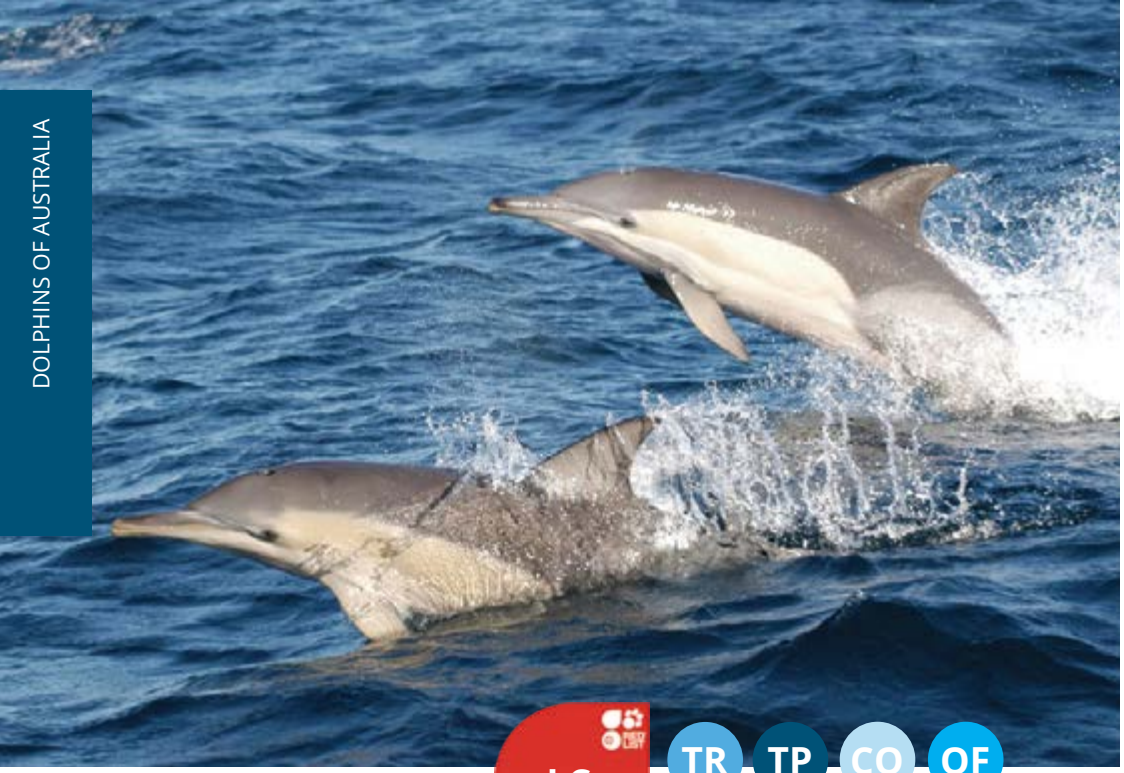
SNUBFIN DOLPHIN SOCIETIES

- Snubfin dolphins are generally found in small populations of less than 100 individuals.
- Typical group sizes consist of less than 15 individuals.
- Snubfins are generally shy towards boats, have low surface profiles and are generally unpredictable. They are highly social among themselves and often seen in mixed species groups with Australian humpback dolphins.
- A unique behaviour exhibited by snubfin dolphins is the spitting of water. The purpose of this behaviour remains a mystery with some theorising that it is used as a hunting tactic.

COMMUNICATION

- Snubfin dolphins produce a variety of sounds described as broadband clicks, pulses and whistles. Clicks and pulses can sound similar to creaking and buzzing when the dolphins are foraging for prey. Whistles are thought to be used to communicate between individuals and are more commonly produced during social behaviours.





LC TR TP CO OF

SHORT-BEAKED COMMON DOLPHIN

Delphinus delphis

DISTINGUISHING FEATURES

- Adults reach 1.7–2.4 m in length and weigh 70–200 kg. Newborns are around 80–90 cm long. This species have 82–114 teeth on both the upper and lower jaws.
- Common dolphins have a long pronounced beak or rostrum and curved dorsal fin.
- Common dolphins are grey, black to brownish on their upper side. They have an hourglass colouration pattern along their side with a yellowish patch extending from the eye to below the dorsal fin, then pale grey along the tailstock. They also have dark grey to black pectoral fins, tail flukes and rostrum. The underbelly is white to off-white in colour which can be broken by yellowish or grey lines. A dark grey line extends from the rostrum to the pectoral fins. Geographic variations occurs in the colour patterns and rostrum length.

REPRODUCTION AND BREEDING

- In Australia, very little is known about this species. It is thought that common dolphins live in mixed-sex societies.
- Age of maturity can vary between populations. Those in the Red Sea, for example, reach maturity at around 2–4 years and those in the eastern Pacific between 6–12 years. Females generally mature younger than males.
- Calving occurs year-round following a gestation period of 10–11 months.

DISTRIBUTION AND HABITAT

- Common dolphins inhabit temperate and tropical oceans worldwide.
- This dolphin species is commonly found in open ocean waters off the continental shelf in depths of 180 m or more (although they may also be found within several hundred metres of the coast).
- They typically move long distances along the coast, however, some communities appear to be resident, preferring relatively small coastal areas where they have a year-round presence. In some areas, common dolphins appear to be seasonally present following prey sources along the coast.

DIET

- Common dolphins feed on a variety of fish, crustaceans and cephalopod (squid and octopus) species.

COMMON DOLPHIN SOCIETIES

- Common dolphins can be seen in groups numbering between 10 and 2,000 individuals.
- Common dolphins are a very acrobatic species and are often seen porpoising, leaping, tail slapping and head lunging.

COMMUNICATION

- Like other species of dolphins, common dolphins produce whistles, echolocative clicks and burst pulse emissions. These sounds are used for communication, navigation and feeding, among other purposes.





© Whale Watch WA

DD TR TP CO OF

ORCA

Orcinus orca

DISTINGUISHING FEATURES

- There are 10 recognised ecotypes of this species globally (Types A, B1, B2, C, D, Resident, Offshore, Bigg's Transient, Type 1 and Type 2).
- At birth, orcas are around 2.6 m and weigh 160–180 kg. Males may measure up to 9.8 m and 10,000 kg when mature, with females reaching 8.5 m and 7,500 kg. Orcas have 40–56 teeth each may be up to 7.5 cm long.
- Distinguished by their robust body, black and white colouration and lack of pronounced rostrum (or beak), they are mostly white ventrally and black between the anus and tail flukes. White lobes extend along the sides and distinct eye patches are present above and behind the eye. Light grey to white saddle patches behind the dorsal fin are also present on some populations. Males have a large dorsal fin up to 2 m in height. Females have a comparatively smaller and more curved dorsal fin to males.

REPRODUCTION AND BREEDING

- Gestation is between 15–18 months with sexual maturity reached at 11–13 years of age. Orcas can live to at least 50–90 years.

DISTRIBUTION AND HABITAT

- Global distribution from polar regions to temperate and tropical waters. Different ecotypes and populations specialise in different habitats, e.g., Type B1 is found in Antarctic waters and is also known as the Pack Ice orca.

DIET

- Various species of fish, cephalopod, stingray, sharks and marine mammals. Dietary preference can vary between ecotypes and populations.
- An adult can eat up to 227 kg of prey per day. Orcas cooperate and strategically hunt together to hunt and capture prey. They can also share food with other pod members.

ORCA SOCIETIES

- Orcas have stable matriarchal societies consisting of nuclear and extended families called pods, clans and communities. Pods are very closely related and contain mothers, their daughters and sons, cousins and their offspring. Sons and daughters will remain with their maternal group. Clans are defined by acoustic traditions that are shared between multiple closely related pods. Communities consist of numerous pods.

COMMUNICATION

- Vocalisations of orcas fall into three categories; whistles, discrete calls and clicks.
- Discreet calls are thought to function as social signals between pod members. Call and whistle rates are highest when orcas are socialising. Sound recordings have shown that each pod has its own 'dialect'. Each pod has some sounds in common with other pods whilst other sounds are unique to a given pod.



Southern Hemisphere ecotypes (from top: Type A, Type B, Type C, Type D).

OBSERVING DOLPHINS

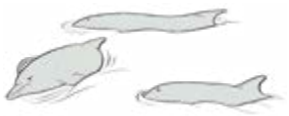
There's nothing quite like watching dolphins in their natural environment.

HOW TO IDENTIFY DOLPHIN BEHAVIOUR

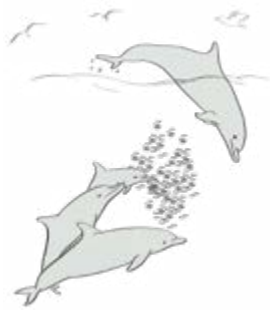
What are the dolphins doing? It's not always easy to define what dolphins are doing. To make it easier, four general behaviour categories are used; socialising, feeding (or foraging), milling (and/or resting) and travelling. These behaviours are defined below.



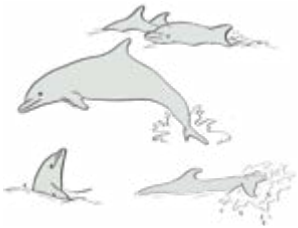
Socialising
Two or more dolphins interacting with each other and making direct physical contact. This can include dolphins rolling over, biting, pushing, and petting each other. Splashes and disturbances at the surface are also frequently seen.



Milling or resting
Group frequently changes orientation with no consistent travel direction. Individuals may surface facing different directions. Dolphins have slow movements with variable, but frequent, dive intervals and often remain floating at the surface for a short amount of time between dives.



Feeding or foraging
Dolphins are actively pursuing prey and feeding (often confirmed by visual observation of fish or prey item). Usually feeding/foraging is associated with deep diving (fluke-up dives), fast swims or porpoising, frequent changes in travel direction and inconsistent inter-breath intervals. The group may be in a circular formation, spread over a wide area and individuals may surface facing different directions.



Travelling
Dolphins moves in a consistent direction with regular surfacing intervals, typically with consistent breathing patterns and dive times.

** To see video examples of these behaviours you can go to www.dolphinresearchaustralia.org observing dolphins page.*

HOW MANY DOLPHINS ARE THERE?

When you're observing dolphins, it is useful to identify the composition of the group or pod. How many are there and are there any calves present?

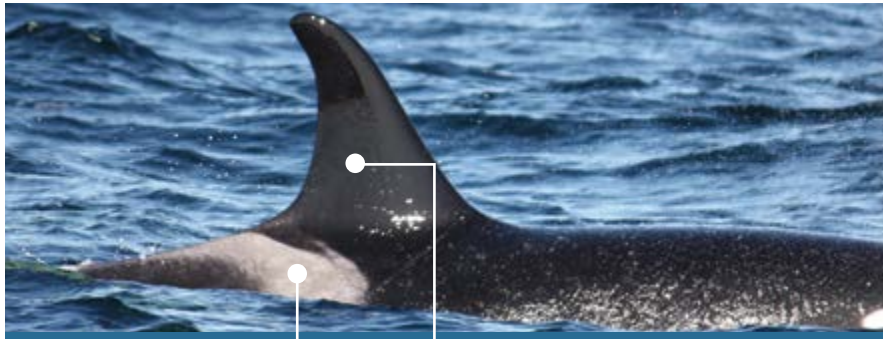
It can be tricky to count the number of dolphins in a group as they spend most of their time under the water. However, if you keep a look out and count how many dolphins come to the surface to breath repeatedly, over time, you'll get an idea of how many there are. One tip is to also observe how many breaths an individual dolphin takes as it surfaces. Typically, one dolphin will take 1–3 breaths with each surface. This can help you to gain an understanding of their dive patterns and avoid double counting individuals in the group.

Now you know how many dolphins there are, take a closer look at the composition. Look out for those little calves. Calves are defined as dolphins that are less then two-thirds the body length of an adult and are still dependent on their mothers. Calves will spend the majority of their time next to an adult in infant or baby position – where they swim in the slipstream next to the mother's side.



IDENTIFYING INDIVIDUAL DOLPHINS

Did you know that almost all dolphins can be individually recognised by the unique patterns of notches and scars on their dorsal fin? In some species (such as the orca or killer whale) unique colour patterns can also be used to help identify individuals.



SADDLE PATCH

The patterns of the grey-white coloured saddle patch are individually distinct and last the lifetime of the dolphin

DORSAL FIN

The shape and pattern of notches along the trailing edge of the dorsal fin are also unique



EYE PATCH

The shape of the eye patch can also provide extra clues



TIPS FOR TAKING PHOTOS OF DOLPHINS

- Have patience, observe and anticipate the dolphins' surfacing behaviour(s).
- Use a fast shutter speed.
- Focus on the dorsal fin (for photo-identification images).
- Refocus the camera as the dolphin comes to the surface.

WHICH PHOTOS ARE USEFUL FOR RESEARCHERS?

- For identification, the image of the dorsal fin needs to be clear in the photo. The dolphin needs to be parallel to the camera so that there is a relatively 'flat' image of the dorsal fin from the side (rather than from above or on an angle).
- Some dolphins will be easier to identify than others and don't require a high-quality photograph, however, those with more subtle features need a high-quality image to be used for research.

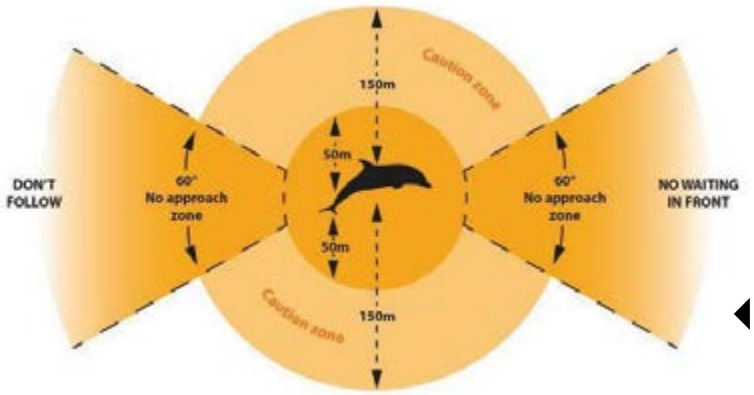


▲ *Photo identification: Examples of poor (left) and good (middle and right) photographs for the identification of individual dolphins.*

DOLPHIN WATCHING REGULATIONS

When observing dolphins, it is important to act in accordance with the relevant state and national dolphin watching regulations. This is for both your safety and that of the dolphins. In accordance with regulations:

- Slow down at 150m from dolphins and do not approach closer than 50m from the group (150 m from groups with calves in New South Wales and Commonwealth waters) with a vessel (this includes personal paddle craft such as kayaks and stand-up paddle boards).
- Do not approach dolphins from in front or behind.
- Observing dolphins from jet skis is not permitted in Commonwealth and almost all state waters including Queensland, New South Wales, Victoria, South Australia and Western Australia.
- Do not touch or feed dolphins.
- Do attempt to swim with dolphins within 50m
- Limit your observation time to 20 mins or less to ensure minimal disturbance.
- If dolphins approach your vessel to bowride, maintain a consistent course and speed. Do not manoeuvre the vessel to encourage bowriding as this can course stress to the dolphins.
- While observing dolphins, keep your vessel's movements predictable and slow.
- Limit the amount of gear changes.
- If the dolphins show any signs of disturbance, slowly move away.



Australian dolphin watching regulations.

Signs of disturbance or stress include:

- Changes in travel direction or orientation away from a vessel.
- Changes in surface behaviours including leaping, tail slapping and deep dives ('fluke up dives').
- Dolphins group together into a tight formation at the approach of a vessel.
- Dolphins increase their travel speed at the approach of a vessel.
- Dolphins increase their dive time (i.e. the amount of time spent below the surface).

WHAT TO DO IF A DOLPHIN IS SICK OR INJURED

If you come across a dolphin that appears sick, injured or deceased, what do you do?

If the animal is deceased:

- Contact your local national parks office or rescue group. Take photos and record the location. Do not disturb or interfere with the animal.

If the animal is alive:

- Contact your local national parks office or rescue group immediately. Officers will provide you with expert advice over the phone to help reduce the stress to the animal and ensure you stay safe too.
- Take note of the location (a GPS point is most useful).
- If you have a camera, take photos.
- Do not interfere with the animal or try to push the animal back into the water.
- Remain quiet around the animal to help avoid additional stress.
- Keep the whale or dolphin wet with seawater by placing wet towels over the animal. Avoid placing towels over the blowhole or pouring water down the blowhole!
- Keep clear of the tail. When stressed, the animal can unexpectedly move or toss its tail and cause injury to bystanders.
- Wait for assistance from trained rescuers.





CONSERVATION OF DOLPHINS

Dolphins face many different threats. While there are some natural threats, including sharks and disease, the majority of threats dolphins face are from human activities. Dolphins are protected in Australian waters, however, their future remains uncertain.

In Australia, dolphins are under threat from:

- Degradation and loss of habitat
- Fishing interactions and overfishing
- Litter and pollution
- Climate change
- Illegal hand-feeding
- Underwater noise
- Vessel activity and vessel strike.

Dolphins that live along the coast are particularly vulnerable as these areas are where human activities are concentrated. Some dolphin populations have heavy contaminant loads as a result of pollution from land run-off and coastal development. Degradation of coastal habitats has been related to increased incidence of viruses and diseases in dolphins as well as population declines. Most dolphin populations are exposed to numerous threats from human activities that create considerable cumulative pressures. This can result in long-term detrimental impacts including: lower reproductive success, increased disease, mortality and population declines.

WHAT YOU CAN DO TO HELP DOLPHINS

The good news is, there are many actions that each person can take to help protect dolphins and their habitats including:

Reduce, reuse and recycle
Generate less waste

Pick up rubbish and litter
Dispose of responsibly

Use biodegradable and eco-friendly products
Be an informed consumer

Refuse single-use plastics
Bring your own bags, cutlery, straw, etc

Buy sustainably-sourced seafood
Choose options that won't deplete the food source of wild dolphins

Limit energy use
Turn off lights, carpool, use public transport, go solar

Don't feed or touch wild dolphins
Let them forage for food naturally

Respect dolphins' space
Abide by dolphin watching regulations in or on the water

Fish responsibly
Never cast your line around dolphins, reel it in when dolphins are about and take your tackle/rubbish with you

Share knowledge and awareness
Talk to your friends and family about environmental issues

Support conservation and research organisations
like Dolphin Research Australia





© Simon Infanger, Unsplash

WHERE TO WATCH DOLPHINS IN AUSTRALIA

Australia has some of the best dolphin and whale watching on the planet. There are many places around the country where you can watch and experience the dolphins and whales in their natural habitat. Whether from a boat, a headland or the beach, seeing these animals in the wild is a special experience. Along the entire coastline of Australia, you have the chance to see a dolphin or whale. Some locations are particularly special and have populations of dolphins that have a year-round residency, have higher densities of animals or a higher diversity of species.

Here are just a few places around the country that offer a variety of dolphin watching tours and experiences from land and sea. Look out for and support local eco-certified, environmentally sustainable tourism companies.



RECORDING YOUR SIGHTINGS

Citizen science can contribute greatly to our understanding of dolphins and their habitat use. One of the best ways you can help is to record your sightings including:

- Date and time
- Location
- Group size (number of individuals)
- Whether calves are present
- Behaviour(s)
- Species (if you can)
- Any other information that may be important (e.g. injury, entanglement).



SPECIES CHECKLIST

WHICH DOLPHIN SPECIES HAVE YOU SEEN?

✓	Common Name	Scientific Name
☐	Australian humpback dolphin	*Sousa sahulensis*
☐	Australian snubfin dolphin	*Orcaella heinsohni*
☐	Burrunan dolphin	*Tursiops australis*
☐	Common bottlenose dolphin	*Tursiops truncatus*
☐	Dusky dolphin	*Lagenorhynchus obscurus*
☐	False killer whale	*Pseudorca crassidens*
☐	Fraser's dolphin	*Lagenodelphis hosei*
☐	Hourglass dolphin	*Lagenorhynchus cruciger*
☐	Indo–Pacific bottlenose dolphin	*Tursiops aduncus*
☐	Long-finned pilot whale	*Globicephala melas*
☐	Melon-headed whale	*Peponocephala electra*
☐	Orca	*Orcinus orca*
☐	Pantropical spotted dolphin	*Stenella attenuata*
☐	Pygmy killer whale	*Feresa attenuata*
☐	Risso's dolphin	*Grampus griseus*
☐	Rough-toothed dolphin	*Steno bredanensis*
☐	Short-beaked common dolphin	*Delphinus delphis*
☐	Short-finned pilot whale	*Globicephala macrorhynchus*
☐	Southern right whale dolphin	*Lissodelphis peronii*
☐	Spinner dolphin	*Stenella longirostris*
☐	Striped dolphin	*Stenella coeruleoalba*

DOLPHIN SIGHTINGS JOURNAL

Date _____

Time _____

Location _____

Species _____

Group size _____

Are calves present? _____

What are they doing? _____

Notes:



Report your dolphin sighting at
www.dolphinresearchaustralia.org

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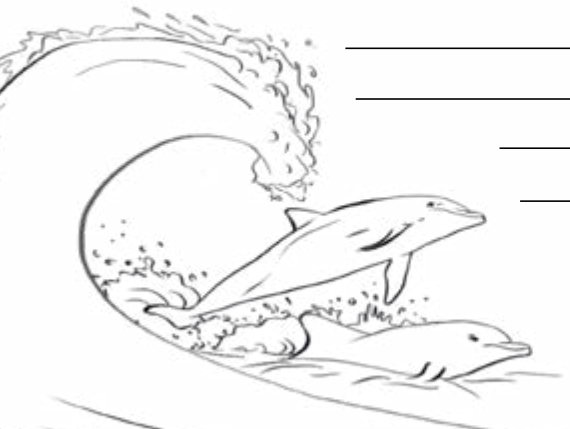
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WAYS TO SUPPORT DOLPHIN RESEARCH AUSTRALIA

You can support the work of Dolphin Research Australia by:

- Making a tax-deductible donation
- Becoming a member
- Adopting-a-dolphin
- Getting involved in our Dolphin Watch citizen science initiative
- Becoming a volunteer Dolphin Ambassador

For more information head to our website:

www.dolphinresearchaustralia.org



FURTHER READING

Learn more about dolphin populations in south-east Queensland and northern New South Wales from the Dolphin Research Australia website:

https://www.dolphinresearchaustralia.org/education/learn-about-dolphin-whales

Get informed about the Dolphin Watching Guidelines and Regulations in Australia:

https://www.environment.gov.au/marine/marine-species/cetaceans/whale-and-dolphin-watching

Jefferson T, Webber M and Pitman R (2015). *Marine Mammals of the World: A Comprehensive Guide to Their Identification*. Elsevier, UK.



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Dolphin Research Australia

Knowledge, Awareness, Action – Conserving Our Seas