Moreton Bay Dolphins

(Buwangan)

Dolphin Research Australia

Knowledge, Awareness, Action – Conserving Our Seas

Dolphin Research Australia Inc. is a marine research, education and conservation charitable organization dedicated to ensuring the protection of Our Oceans for generations to come.

For more of Dolphin Research Australia's education resources, check out our website www.dolphinresearchaustralia.org

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1.0 DOLPHIN RESEARCH AUSTRALIA INC.

In all oceans, dolphins are exposed to a cocktail of threatening processes and activities from human sources. Dolphins that reside along the coastal zone are particularly vulnerable and face an uncertain future as the pressure to survive increases due to the inundation of human activities that threaten their very existence. These threats include pollution, habitat loss and degradation, prey depletion, fishing interactions, boating and climate change, to name just a few. In recent years, more dolphins and whales have been reported injured, ill or deceased as a result of human interference and disease while more are being found with higher levels of pollutant loads. The future of dolphins, whales and our oceans is uncertain and they need our help now more than ever.

Dolphin Research Australia Inc. is a charitable organization that is working to increase the understanding of the ecology, status and health of dolphins and whales, as well as promoting awareness, change and action to help protect and conserve them and their habitats. Our projects are diverse, from developing early primary education programs and adult education programs to research that investigates the habitat use, abundance trends and social systems of dolphins and other marine species. Each of these projects aims to increase the awareness and engage the public in marine conservation efforts and increase the knowledge about dolphins and their marine environment.

2.0 MORETON BAY

Bordered by the bustling cities of South East Queensland and the beautiful Moreton, North Stradbroke and Bay Islands, Moreton Bay is a special place. It is home to a diverse array of marine life, including multiple species of coastal and oceanic dolphins. The unique geography of the region forges a variety of marine habitats; from seagrass beds, mudflats, rocky shores, mangroves and reefs. This mosaic of environments, as well as the overlap of temperate and tropical climates, has allowed for an incredible diversity of terrestrial and marine life, many of which are also endemic to the region[1]. These habitats and diversity of marine life is protected by the Moreton Bay Marine Park that encompasses a 3400km^2 range.

Two species of dolphins rely on habitat in these protected waters for hunting, resting and raising young; the Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) and Australian humpback dolphin (*Sousa sahulensis*).

The Bay has been an important and historical site for dolphins and local Aboriginal groups such as the Quandamooka People[2]. They would work together to catch mullet and tailor by wading into the shallow waters clicking their boomerangs and spears to call to the dolphins. The dolphins would herd the fish into the shore, allowing the people to hunt what they needed, leaving the rest for the dolphins.

Moreton Bay is a very popular destination for recreational users and also hosts a variety of commercial industries. The close proximity and intensity of exposure to human activities and related threats such as pollution and runoff places considerable pressure on the habitats and wildlife that inhabit Moreton Bay.

3.0 MORETON BAY DOLPHIN RESEARCH PROJECT

The Moreton Bay Dolphin Research Project began in 2014 and focuses on the two resident species of dolphins, the Australian humpback dolphin (*Sousa sahulensis*) and Indo-Pacific bottlenose dolphin (*Tursiops aduncus*). These species are the focus of our research project, particularly the humpback dolphin that has been classified as Vulnerable and a species of high priority.

Assessing the trends in abundance and ecology of dolphin populations requires long-term research projects to determine the health and risks associated with threatening processes.

The objectives of the research are to;

- Assess and monitor the abundance and trends of coastal dolphin populations in the Moreton Bay Marine Park;
- Examine the use of habitat areas over space and time to identify critical areas;
- Establish a baseline acoustic catalogue of communicative sounds used by coastal dolphins in Moreton Bay;
- Investigate the social systems and stability of communicative systems of coastal dolphins in Moreton Bay Marine Park overtime;
- Determine the threats to coastal dolphins over space and time to provide important information to be used in conservation and management plans.

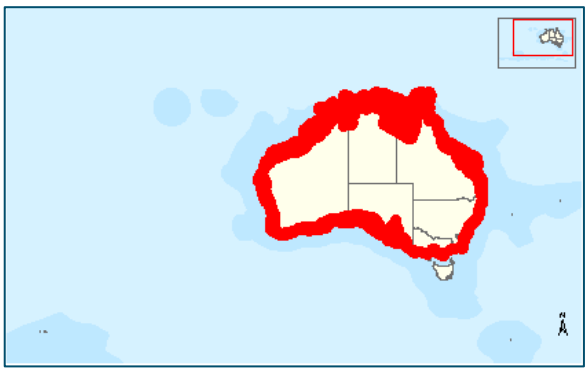
This information provides important information on the ecology of the species, their health and informs conservation planning and management to ensure the protection of the animals and their habitats for the future.

Each year, teams of ecovolunteers take part in the research program and help to collect information about the dolphins.

4.0 GETTING TO KNOW MORETON BAY DOLPHINS

There are at least 45 different species of whales and dolphins that can be encountered along the coast of Queensland. Here is a short description of the two species of resident dolphins of Moreton Bay.

Indo-Pacific Bottlenose Dolphins
(*Tursiops aduncus*)



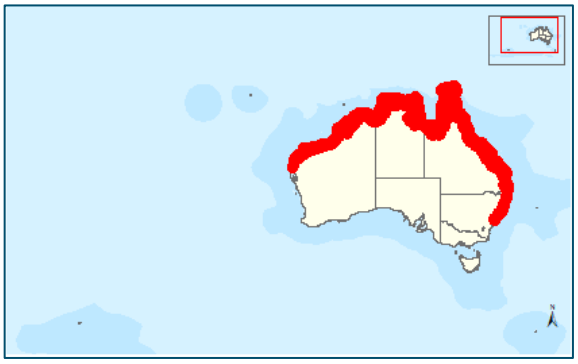
Found all around the Australian mainland, Indo-Pacific Bottlenose Dolphins grow to about 2.5m in length, weighing between 150kg and 250kg when fully grown. They are a dark gray colour on the upper dorsal side and light gray to white on their underbelly, though size and shape varies with region.

Bottlenose Dolphins are very social animals and often have a dominance hierarchy that can be sexually segregated. Females live in large groups and maintain a large network of associates within their home range. Mature males can form a strongly bonded alliance with at least four other males. They live in groups called pods, which usually range in size from 1 – 20, but have been found in groups of 100 or more. Bottlenose dolphins display many different types of behaviours including leaping, surfing, bow riding, and tail-slapping.

Dolphins produce a range of sounds described as whistles and clicks. The clicks are used for echolocation, which assists in navigating and feeding, while the whistles are thought to be used to locate other animals, identify and to maintain contact.

Australian Humpback Dolphins
(*Sousa sahulensis*)

The Australian humpback dolphin is a Vulnerable species. They are found in coastal waters around tropical waters of Australia, from the NSW-QLD border to Shark Bay, WA. They can grow up to 2.7m in length, weigh up to 200kg. This species is typically a light gray colour on their upper side, and white on their underbelly. They have a longer rostrum (beak) and smaller dorsal fin than the Indo-Pacific bottlenose dolphin.



Humpback dolphins are typically found in much small group of around 2-4 individuals with aggregations of around 30 individuals infrequently encountered. They are also commonly sighted with the Indo-Pacific bottlenose dolphin. They are opportunistic feeders, and will eat a variety of different types of prey.

While the closest known resident population of humpback dolphins are found within Moreton Bay, we do have frequent sightings of this species in the Byron Bay region during Autumn.

5.0 WHAT HAVE WE LEARNED?

5.1 Moreton Bay's Indo-Pacific Bottlenose Dolphins

Bottlenose dolphins are the most common species spotted in Moreton Bay, with a population size estimated to be approximately 554 (95% CI: 510–598) individuals[3]. This population is divided into northern and southern sub-populations, evidenced by genetic differences[4] as well as strong distinctions between habitat and diet linked with geographical location[5]. The smaller southern population of 172 (95% CI: 163–182) individuals is generally found in shallow (<15m) nearshore areas of the Bay, while the northern group of approximately 446 (95% CI: 336–556) individuals prefers deeper (<23m), open waters of northern-central Moreton Bay[3]. Despite their mobility and social nature, it appears that these two sub-groups rarely interact.

Their diet generally consists of a range of fish, cephalopods (octopus, squid, and cuttlefish), crustaceans and sometimes small rays. However, some differences in diet have been noted between northern and southern populations. Northern dolphins seem to feed on higher trophic level prey in more pelagic, offshore habitats while southern dolphins appear to forage in demersal and/or benthic habitats closer to shore on lower trophic level prey[5].

These dolphins are well equipped to catch prey and often work cooperatively. Some individuals have adapted to the increasing presence of humans and vessels in Moreton Bay, learning to chase trawler boats to catch discarded fish[6]. These feeding strategies and prey preferences significantly affect the structure of social systems in the Bay. Bottlenose dolphins form strong bonds with those that they reside and forage with, and rarely interact with those with differing foraging techniques.

These resident populations of Moreton Bay are highly susceptible to both commercial and recreational influences, being located close to the busy port in the Brisbane River as well as increasing land development following human population growth. Exposure to pollutants, boats and vessels, entanglements in fishing gear, and unregulated feeding are all major cumulative threats to dolphins in the Bay. These dangers are exaggerated for the southern population due to their small population size and high fidelity, making them extremely vulnerable.

5.2 Moreton Bay's Australian Humpback Dolphins

Less common than the bottlenose, Moreton Bay's population of Australian humpback dolphins is only estimated to be 128 individuals as of 2016 (95% CI: 67-247), representing a relatively large population at medium density compared to other sites[7]. This is the southern-most reach of this species' range, and likely demonstrates the ecological limits of what humpback dolphins can tolerate. This population appears to be highly segregated, with five distinct social communities being identified. There is a great degree of residency of individuals, where there is little interaction between different communities[7].

This species tends to remain in shallow (<20m) waters close to deeper channels, estuaries, mangroves, reefs, sandbanks and occasionally surf zones. The area beside to the Port of Brisbane is part of their core habitat, with resource availability also influencing consistency of habitat use in other areas of the Bay[7]. Humpback dolphins will typically forage when tides are high, locating prey in murky coastal waters using echolocation.

In additional to usual social interactions, humpback dolphins have been observed playing with shells, sponges, jellies or seaweed with one another. Though when it comes to human presence, this species is quite shy and tends to avoid both passing and approaching boats[2].

The high level of residency in this population, though perhaps conferring benefits for resource familiarity and social interactions, also puts this species at risk by local threats. Their preference for these coastal waters puts them in close proximity to commercial and recreational activities, pollutants, strikes from vessels and risk of entanglement.

6.0 TRACKING DOLPHINS THROUGH TIME

How do we identify dolphins?

Each dolphin is identified by their unique pattern of nicks and notches on the trailing edge of their dorsal fin. These notches are often caused during social interactions with each other and last a lifetime and lucky for us, act as a fingerprint.

We now have over 590 individually dolphins in our photo-identification catalogue for South East Queensland. Here we introduce you to a few of the resident dolphins of Moreton Bay.

7.0 MEET OUR RESIDENTS

7.1 Resident Indo-Pacific Bottlenose Dolphins of Moreton Bay

ID # 007

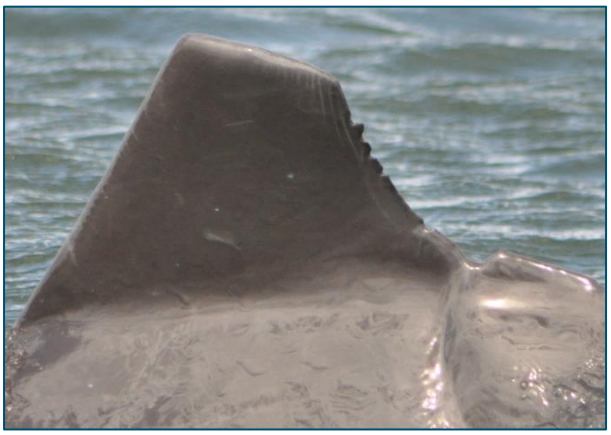
Name: Muppet
Sex: Female
Age: Adult
First recorded by researchers: 3rd December 2010
With a large notch in the middle of her dorsal fin, Muppet is easily spotted feeding among the mangroves and channels of this region. She is part of the southern Moreton Bay resident community, along with a number of other adult females that we will meet below.

ID # 008

Name: Gully
Sex: Female
Age: Adult
First recorded by researchers: 3rd December 2010
We can identify Gully by her unique pattern of notches on her dorsal fin, as well as an old scar on her caudal peduncle (behind the dorsal fin) which is likely from a past entanglement. Gully is likely an older female in the southern Moreton Bay group, and is regularly seen babysitting other female's calves.

ID # 010

Name: Chopper
Sex: Female
Age: Adult
First recorded by researchers: 3rd December 2010
Chopper is easy to spot due to her chopped off fin, possibly caused by entanglement in fishing line or rope. Also resident to the southern Bay, we see her feeding and socialising in the waters from northern Gold Coast to Amity Point on North Stradbroke Island.



ID # 011

Name: Curl
Sex: Unknown
Age: Adult
First recorded by researchers: 3rd December 2010
Feeding, socialising and milling in Moreton Bay's southern waters are where we commonly see Curl. Often seen with Gully and Chopper, the notches on their fin look like the curl of a wave to set them apart.

ID # 414

Name: Sylvie
Sex: Female
Age: Adult
First recorded by researchers: 19th May 2015
Sylvie is often seen with a calf by her side and enjoys feeding, resting and socialising off southern North Stradbroke and the Gold Coast.

ID # 553

Name: Wizard
Sex: Female
Age: Adult
First recorded by researchers: 19th May 2015
Part of another resident pod to the southern Bay, we often see Wizard socialising, feeding and resting in this area.

7.2 Resident Australian Humpback Dolphins of Moreton Bay

ID # 16

Name: Bree
Sex: Female
Age: Adult
First recorded by researchers: 10th July 2014
Bree is part of the Brisbane community of humpback dolphins. She is often seen feeding, milling and socialising off Mud Island.

ID # 19

Name: Rohan
Sex: Female
Age: Adult
First recorded by researchers: 16th July 2014
Rohan has a single large notch in the trailing edge of her dorsal fin to set her apart. We often see Rohan feeding and socialising in the waters of Pumicestone Passage.

ID # 69

Name: Scarlet
Sex: Female
Age: Adult
First recorded by researchers: 10th May 2015
Scarlet is a breeding female, commonly seen with her calves feeding in the Rainbow Channel off Amity Point. She has a scar, possibly from a shark bite, on her caudal peduncle.

ID # 70

Name: Mitchie
Sex: Male
Age: Adult
First recorded by researchers: 14th May 2015
We have been following Mitchie since he was a juvenile dolphin. He can generally be found milling, resting and feeding around Amity Point.

ID#71

Name: Jessie
Sex: Female
Age: Adult
First recorded by researchers: 12th May 2015
One of the females commonly found by Amity Point, we often see Jessie feeding with her offspring. Her characteristic dorsal fin can be identified by the shape of the nick in the tip and the notch in the trailing edge.

ID#82

Name: Mist
Sex: Male
Age: Adult
First recorded by researchers: 14th May 2015
Also part of the group common to Amity Point, Mist has been seen feeding, milling and socialising here. He is best friends with Mitchie and we almost always see them together.

8.0 CARING FOR OUR DOLPHINS

8.1 THREATS FACING MORETON BAY DOLPHINS

Dolphins face many threats from human activities, and it is important that we are aware and prioritize efforts to reduce our impact. The overlap of numerous threats in highly developed areas such as Australia's East Coast, mean that our resident dolphins are particularly vulnerable.

Threats include:

- **Boats and marine vessels**
  - Fast-moving boats and ships can strike dolphins and cause injury or death.
- **Litter and pollution**
  - When it rains or storms, rubbish, chemicals and pesticides can be washed into the oceans from our cities and farmlands.
  - Plastic can end up in the stomachs of dolphins and the chemicals have negative effects on their health.
- **Fishing interactions**
  - Fish stocks can be overfished which means there is less food for dolphins and other sea creatures.
  - Dolphins can also become entangled in fishing nets and fishing line that can cause injuries and even death.
- **Illegal feeding**
  - Feeding wild dolphins can cause changes in their natural behaviour so that they become dependent on humans to feed them instead of foraging for themselves. Because calves learn from their mothers, this means that young dolphins may never learn how to feed or forage on their own.
  - Feeding dolphins can also introduce foreign diseases and illness.
- **Underwater noise**
  - The loud sounds of boat and ship engines can drown out dolphin sounds and make it harder for them to communicate with each other.

- **Degradation and loss of habitat**
    - Construction and development along the coastline and estuaries can damage or completely destroy the areas that dolphins use to feed and breed. This can displace or reduce the size of wild populations.
    - Climate change will also cause disturbance through changes in prey distribution and abundance.

Many dolphins in Moreton Bay have signs of injuries from boat strikes and entanglement in fishing gear.

8.2 WHAT YOU CAN DO – BE DOLPHIN FRIENDLY

There are many ways you can help! Every little action goes a long way!

- **Reduce, reuse and recycle**. Dispose of your rubbish responsibly so that it will not end up in our oceans.
- **Pick up rubbish & litter**
- **Be an informed consumer** and use biodegradable and **Earth friendly products**
- **Don't use single-use plastics**
- Choose to **eat sustainably sourced seafood**, choose options that will not deplete wild dolphins' food source.
- **Limit your use of energy** by turning off lights or car pooling for example.
- **Don't feed or touch wild dolphins**, let them forage for food naturally.
- **Respect dolphins' space** and follow dolphin watching regulations (don't approach closer than 50m on any vessel including surfboards, kayaks and paddle boards and no closer than 30m when swimming).
- **Be a responsible fisher** - Never cast your line around dolphins, stow used or broken fishing line and dispose of it responsibly.
- **Talk to your friends and family about environmental issues that matter to you** – share the knowledge and awareness.
- **Support conservation and research organisations like Dolphin Research Australia!**

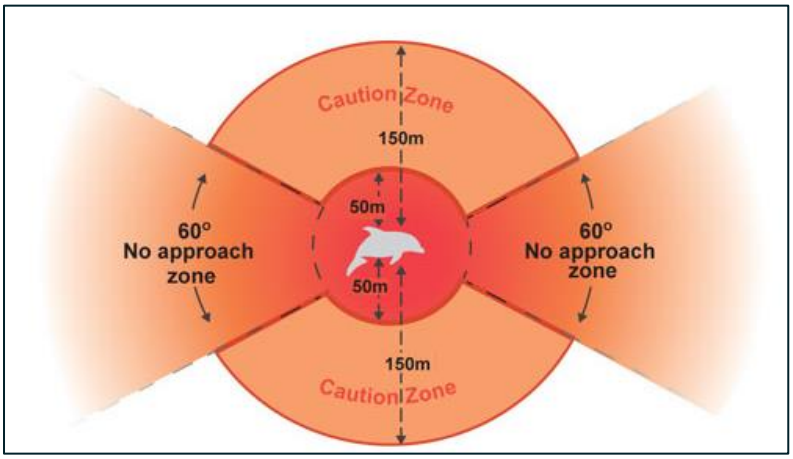
8.3 RESPONSIBLE DOLPHIN ENCOUNTERS

Many human activities occur within our coastal regions of Australia and these can cause increased stress and pressure on our marine species. These regions are also home to resident dolphin communities. You can help to keep the dolphins in your region healthy and safe, whilst making the most out of your special encounter, by following 'dolphin etiquette'.

How to make the most out of your dolphin encounter:

- Follow NSW Dolphin Watching Regulations (see diagram below).
- Don't approach the dolphins closer than the 30m when swimming, 50m from a vessel or 150m from a vessel if there are calves present.
- Approach from behind and parallel to the direction of dolphins travel direction. If there is no obvious travel direction, stay at a distance and wait.
- Approach at slow speed and with consistent direction. Don't make any sudden movements or gear changes. Don't use reverse gears.
- Increase speed slowly as you move away.
- Don't attempt to attract or touch wild dolphins.
- Keep your distance and keep it brief when dolphins are resting or if calves are present.

Approach Distances for Dolphins



9.0 WE'D LOVE TO HEAR FROM YOU!

GET IN TOUCH AND REPORT YOUR SIGHTINGS

You can help to get to know and monitor dolphins in your area and assist researchers by reporting your dolphin sightings. Every sighting helps!

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.

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

- Population status
- Movement patterns
- Life histories
- Habitat use
- Health & vulnerability of individuals & populations

What's in a Fin?

Photos of dolphin dorsal fins are especially useful. Every dolphin can be identified by the unique pattern of nicks and notches on the back or trailing edge of their dorsal fin.

What makes a good dorsal fin photo?

- The image of the dorsal fin is parallel to the camera so that there is a relatively 'flat' image of the fin from the side.
- The photo is of high resolution and the dorsal fin is in focus.

Image Quality

Poor | Medium | Good

Four quick tips to becoming a great dolphin detective;

1. Pay attention to the behaviour and breathing patterns of the dolphins to help you predict the next time they will surface. This will help you be more prepared when they do pop up to get a good shot.
2. Be patient - it can take a lot of patience to get photographs of dorsal fins that are helpful for dolphin research.
3. Use a fast shutter speed - Generally fast shutter speeds are best for capturing dolphins. If you are using the automatic setting on your camera, the sports function will be best (especially if the dolphins are close), and if using the manual setting, try and have it on a fast shutter speed (at least 1/1000th second).
4. Pre-focus your camera- by having your camera pre-focused it will give you a few extra moments to get a good shot of the dolphins.

Report your dolphin sightings at www.dolphinresearchaustralia.org OR Email: info@dolphinresearchaustralia.org

10.0 HOW YOU CAN HELP!

Support Dolphin Research Australia!

Dolphin Research Australia relies on the support of volunteers and donations from the public to continue our marine research, education and conservation programs.

Our dolphin, whales and Oceans need help now more than ever to ensure their wellbeing, protection and conservation into the future.

You can help by supporting Dolphin Research Australia!

Make a Tax Deductible Donation

Adopt-A-Dolphin for yourself or as a gift for only $60

Become a partner or sponsor

www.dolphinresearchaustralia.org

11.0 KEY REFERENCES

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OTHER USEFUL RESOURCES

Head to our website www.dolphinresearchaustralia.org and check out our Learn About Dolphins & Whale and Being Dolphin Friendly pages where you can download

- Information about the Biology & Ecology of Dolphins & Whales
- Species Fact Sheets
- Guide to Behaviour Observations
- Guide to Dolphin Watching
- Best Practices Recreational Fishing
- Colouring in pages & activities