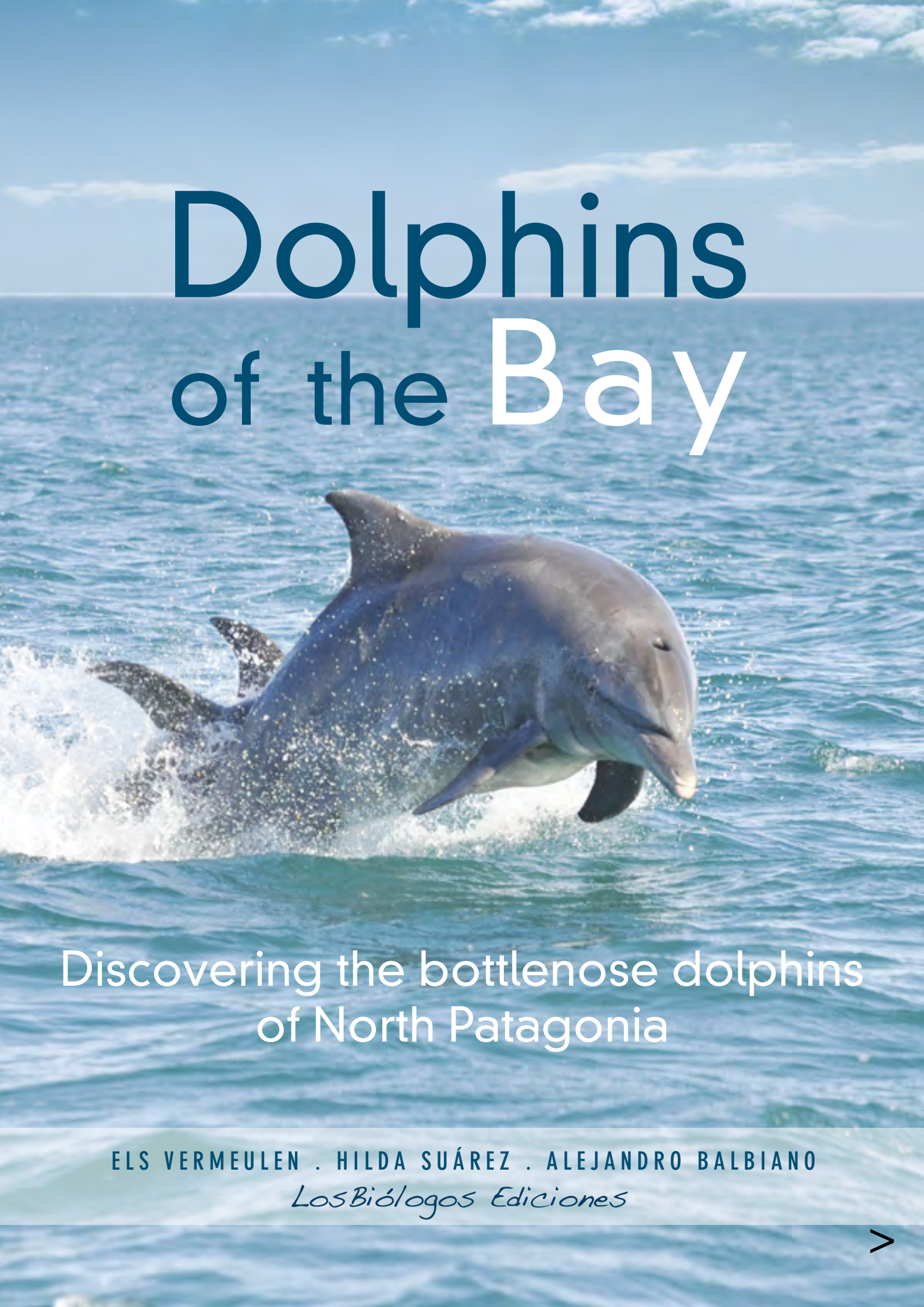

Dolphins of the Bay

Discovering the bottlenose dolphins of North Patagonia

ELS VERMEULEN . HILDA SUÁREZ . ALEJANDRO BALBIANO

LosBiólogos Ediciones

"We ourselves feel that what we are doing is just a drop in the ocean. But the ocean would be less because of that missing drop."
Mother Teresa of Calcutta (1910-1997)

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Prologue

Ever since I was a child, I have dreamed of working with dolphins, my favourite animals. But it wasn't until I was 20 that I saw my first wild dolphin. I will never forget it. It was a bottlenose dolphin, also known in Argentina as "tonina".

The love I feel for these animals has cultivated the need to protect them deep within me, seeking to ensure they are able to live in a healthy and peaceful environment. This passion motivates me to learn about dolphins and study them in the wild, and is why I became a marine biologist. Besides, it is the perfect excuse to be around them all day long!

Studying the bottlenose dolphins in the Bay of San Antonio (Province of Río Negro, Argentina) has only deepened my passion further. During the years I have spent around these dolphins, not only have I begun to understand their life as a species, but I have also begun to know each one of them individually, all with their different stories. This is how I have come to learn that they are very intelligent creatures. I have discovered that, besides the need for food and protection, they need to interact with their family and friends, to be part of a group, have fun, play and take care of their young. However, unfortunately I have also noticed how human actions can be a serious threat to them and I've become aware of how much they need our care and protection.

This is why I want to share with you, throughout the pages of this book, what I have learned from the dolphins of the Bay of San Antonio, since we can only protect what we love and we can only love what we know. I want to introduce you to the dolphins that live in this bay: Tulumba, Hilda, Yaco, Nereo and many more, so that you can understand them, know them, love them and take care of them too.

Els Vermeulen

Acknowledgements

Firstly, I want to thank Alejandro Cammareri for all the years we have worked together, and the Marybio Foundation, which I have been part of and which has made my work in the area possible. I also want to thank all the surrounding neighbours who have given me their support during all these years of work, especially to Claudio Barbieri, Mariela Pazos, Jorge Baraschi, Hernán David, Mauricio Faillá, and Federico Hollmann. Furthermore, I would like to thank those who have helped me with the scientific analysis and my PhD: Ludo Holsbeek, PhD; Stefan Bräger, PhD; Krishna Das, PhD; and Pedro Fruet, MSc.

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Dolphins of the Bay

Discovering the bottlenose dolphins of North Patagonia

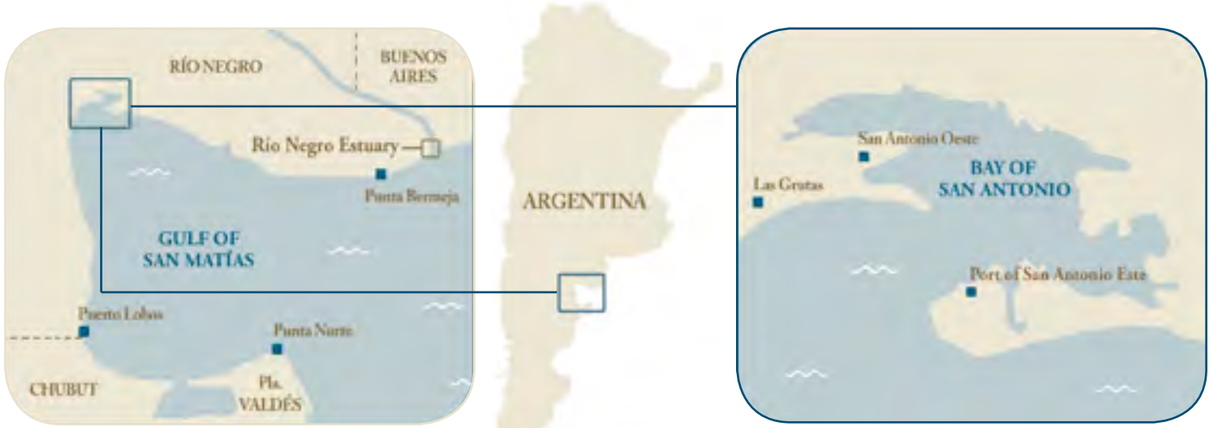
LosBiólogos Ediciones

Introduction

The Bay of San Antonio is privileged, as its protected coasts and shallow waters are inhabited by unique species. The southern right whale, migratory birds such as the red knot and several species of dolphins are just some of them. But why do they choose this area to spend part of their lives?

Located in the north-west of the Gulf of San Matías, in the Province of Río Negro, Argentina, the Bay of San Antonio is 20 km long, 10 km wide and no more than 30 metres deep. The region is not only famous because of its shallowness and lack of strong currents, it is also well known for having the warmest waters of the entire Argentine coastline, with maximum temperatures around 24º C in summer. In winter, temperatures drop considerably, with differences of more than 16º C between summer and winter. Another characteristic of the area is the large tidal range and the existence of large quantities of food, both in its clear waters and its sandy beaches and rocky coasts.

All of these unique characteristics make the Bay of San Antonio the ideal home for a group of bottlenose dolphins, many of which remain in the area the entire year. It is one of the best places to observe them within their natural habitat, which gives us an excellent opportunity to study their lives, habits and behaviour. And as if that were not enough, due to the enormous decrease in bottlenose dolphin sightings in other areas, the Bay of San Antonio may be one of the last remaining homes within Argentina for this species.



The Gulf of San Matías is located in the north of Patagonia. It is outlined by Punta Bermeja (Province of Río Negro) and Punta Norte (Peninsula Valdés, Province of Chubut). It is the second largest gulf in Argentina, with an area of approximately 18,000 km2. It has an average depth of 100 metres, with a maximum depth of around 200 metres.

The Natural Protected Area of the San Antonio bay, created in 1993 by the Río Negro Province Law No. 2670, protects one of the most important places for migratory birds in the south-west Atlantic.

Southern right whale.

Red knots.

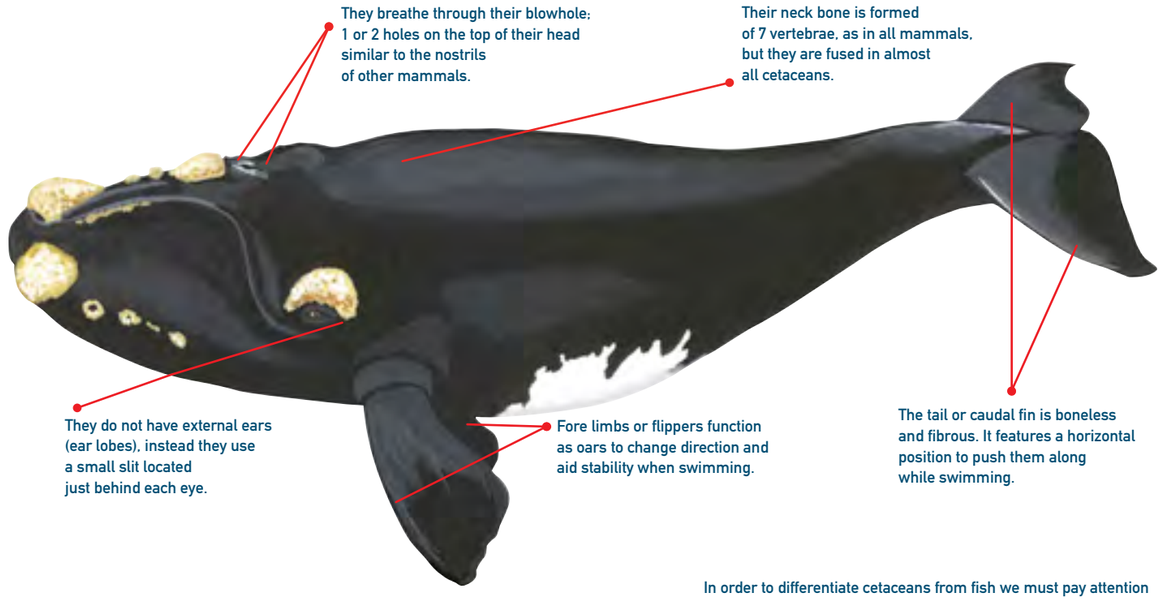
What is a cetacean?

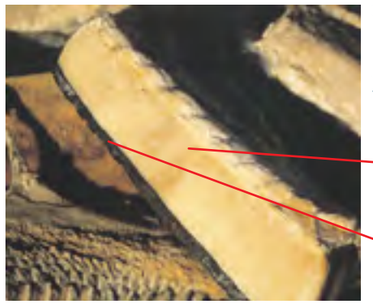
Cetaceans are mammals, just like us, but are adapted completely to an aquatic life. The word "cetacean" has a dual origin, from the Latin cetus, meaning large sea creature, and the ancient Greek ketos, meaning sea monster.

Like all mammals, cetaceans are "warm-blooded" animals, which means they have mechanisms that allow them to maintain a constant body temperature, in spite of temperature variations in the environment. Furthermore, they have lungs through which they breathe atmospheric air and produce milk to feed their calves, which grow and develop inside the womb of their mother.

But, besides the characteristics shared with other mammals, cetaceans have some special features that enable them to live in water. These adaptations are related to both their anatomy and function. Let's look at some examples. Cetaceans' bodies feature a hydrodynamic shape which, together with their short and rigid necks, improves their movement in water and allows them to swim at great speed. Instead of arms, they have flippers, and they don't have hind limbs. Instead, they have a muscular tail which helps them swim powerfully and most of them have a fibrous dorsal fin, which helps them stabilise their bodies in the water. Because they have lungs, they must come to the surface to breathe and hold their breath while swimming underwater. They are excellent divers though, a very important ability when it comes to hunting fish! They also give birth and nurse their calves underwater, and they never have more than 1 calf at a time.

Although it may seem hard to believe, the ancestors of cetaceans were land mammals that walked on 4 legs. The first real cetaceans appeared on Earth around 55 or 60 million years ago and were called Archaeoceti. They were similar to the large cetaceans with teeth that live today, but they became extinct almost 30 million years ago.





Cetaceans generally do not have hair. Instead, they are covered in a thick layer of blubber (fat) under their skin which keeps them warm.

Blubber.

Skin.

In order to differentiate cetaceans from fish we must pay attention to 2 characteristics: the tail and their way of breathing. Cetaceans have a horizontal tail, which moves up and down, and blowholes on the top of their head. Fish have a vertical tail, which moves from side to side, and gills on both sides of their head.

Getting to know the dolphins of the Gulf of San Matías

Cetaceans include all the animals known as whales and dolphins. Although the term whale is usually associated with cetaceans of great size and the term dolphin with smaller ones, size is not the characteristic that distinguishes them. Scientists classify cetaceans into 2 groups: odontocetes or toothed whales and mysticetes or baleen whales. As well as teeth, odontocetes have a single blowhole. Among them are, for example, dolphins, sperm whales and beaked whales. The mysticetes, which do not have teeth and have 2 blowholes, include amongst others humpback whales and blue whales. Instead of teeth, mysticetes have a set of triangular plates called baleen, which grow down the upper jaw sieving prey from the water. Interestingly, the killer whale, which of course is a toothed whale, is the largest dolphin in the world!

We can also find differences between dolphins. On the one hand, those which are part of the family of "real dolphins" live exclusively in the ocean, with beaks of different sizes, numerous conical teeth and a dorsal fin on the back of their body. On the other hand, "river or freshwater dolphins" live in some of the largest rivers in Asia and South America, except for the La Plata dolphin which actually lives in the estuaries and coastal marine environments of South America. A peculiar aspect of the dolphins of the second group is their neck mobility which, unlike other dolphins, has unfused cervical vertebrae. This page shows some of the dolphins which live in the Gulf of San Matías.

Communication

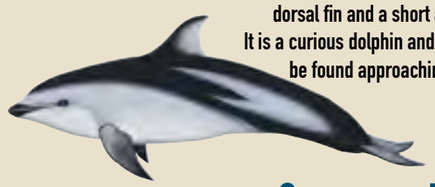
Distances in the ocean are enormous, but sound travels 5 times faster underwater than in the air. Cetaceans produce sounds to communicate with one another, some of which have been classified as the most complex sounds in nature and may be divided into dialects, in the case of killer whales, or songs, in the case of humpback whales. Some of the different sounds are very strange, such as the "signature whistles" of bottlenose dolphins, used not only to identify themselves, but also to recognice others. To dolphins, these are something like the individual names we use to talk to each other.

La Plata Dolphin or Franciscana

With a length of 1.3 to 1.7 metres, this is the smallest dolphin in the gulf and one of the smallest dolphins in the world. The body is greyish brown, similar to the robe of Franciscan monks, hence the name. The dorsal fin is rounded at the tips and it has an extremely long and narrow beak. The population of the Gulf of San Matías is the most southern population of this species in the world.

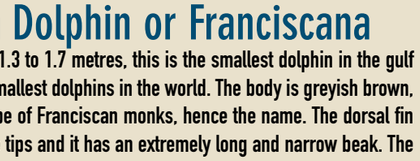
Dusky Dolphin

This dolphin reaches about 1.5 to 2 metres in length. It features a dark colour on its back and has a lighter belly. Its body is very compact and has 2 clear stripes which extend up to its flanks. It has a prominent dorsal fin and a short and thick beak. It is a curious dolphin and can commonly be found approaching ships at sea.



Common Dolphin

This dolphin can reach lengths of 1.7 to 2.5 metres. Colour patterns on the common dolphin are very characteristic: a dark back, light grey flanks behind the dorsal fin and yellowish-tan forward of the dorsal fin, and a white belly. The dorsal fin and beak are dark and prominent. This dolphin is very energetic and lives in large groups. It produces piercing sounds that are easily heard from outside the water.



Bottlenose Dolphin

This dolphin grows to be 2 to 4 metres long. Its colour varies considerably, but generally it is dark grey. It is a robust dolphin with a large and rounded head, and a short and stubby beak. It has a tall, triangular or falcate (sickle-shaped) dorsal fin. It is a sociable and active dolphin which lives in small groups.

Killer Whale or Orca

This dolphin can reach lengths of 5 to 10 metres, and is the largest of the dolphin family. Male killer whales are bigger and heavier than females and can weight around 9 tons. It has a distinctive black and white colour pattern, with white patches behind the eyes and behind and under its tall dorsal fin. Killer whales typically live in mixed family groups.

The bottlenose dolphin

It is common to name the same animal in different ways. For example the bottlenose dolphin, which is the most popular dolphin found in oceanariums, is also bottle-nosed dolphin in English or "tonina" in Spanish. In order to avoid confusion, researchers assign a scientific name to every species, in this case, Tursiops truncatus. Tursiops finds its origin in the Latin word tursio, which means "dolphin", and the Greek suffix -ops, which means "to look like"; while truncatus in Latin means shortened or cut-off, referring to the bottlenose dolphins' relatively short beak, in comparison to other dolphins' beaks.

This dolphin lives in temperate and tropical coastline waters worldwide, but it may also be found offshore. In Argentina, it can be found from Bahía Samborombón, in the Province of Buenos Aires, to the Province of Chubut, but they have occasionally been seen in the Provinces of Santa Cruz and Tierra del Fuego. The previous page listed some of its general characteristics which distinguish the bottlenose dolphin from other dolphins. Now let's look at some of the most characteristic features of the ones in the Bay of San Antonio.

Fully grown males are slightly larger than females, reaching lengths from 2.5 to 3.5 metres and their average weight is between 200 and 350 kg. Differences in colour, body shape and dorsal fins among individuals are related to the different geographical locations. Females live about 50 years, while males rarely live longer than 40 years.

Gestation lasts 12 months and newly born calves weight about 10 to 30 kg with a length of 0.85 to 1.40 metres. Calves nurse for as long as 18 months, a period which may be extended for a total of 8 years, although they start to eat solid food 4 months after birth. A female dolphin can potentially bear a single calf every 3 to 6 years. Like every cetacean, they give birth to only a few calves throughout their lives as the care and training of the calves, which males are not involved in, lasts several years.

Bottlenose dolphins usually live in groups or pods comprised of adult females and their daughters and granddaughters, which may stick together for more than 6 years or even their entire lives. In contrast, males remain with their mother for a while after nursing and then typically gather in groups with other juvenile males.

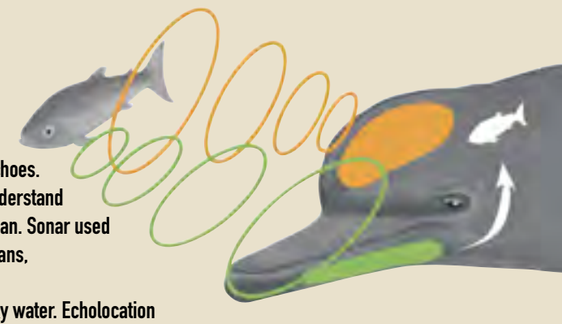
Their diet is based around fish, squid and crustaceans, such as shrimp, which they hunt while diving. Although bottlenose dolphins are not great divers, there are records of dives of more than 200 metres, with apneas, or suspension of external breathing, for more than 20 minutes.

Calves are mostly born in summer and spring, although births can take place at any time of the year.

Bottlenose dolphins are very sociable and usually gather in groups of 2 to 20 individuals, although groups of hundreds of dolphins have been registered offshore.

Echolocation

The dolphin's echolocation system, also called bio sonar, is used to locate prey and gather information on the environment. How does it work? Firstly, dolphins send out brief sound waves or "clicks", which bounce back from objects creating echoes. Dolphins then listen to these echoes and form a mental "image" of the objects. To understand this better we can compare the process to the images created with an ultrasound scan. Sonar used by submarines and other vessels is also based on this system. Other toothed cetaceans, like sperm whales, also use echolocation, as well as certain bats.
The bio sonar is useful at sea, where vision is often limited by lack of light and murky water. Echolocation should not be confused with the sounds dolphins produce to communicate with each other.



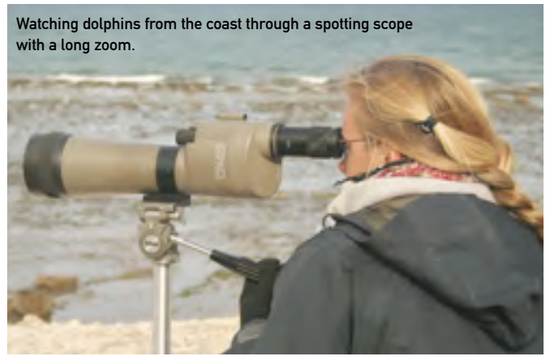
How do we study bottlenose dolphins?

The key predators of bottlenose dolphins are killer whales and big sharks. Some particular markings and scars are a result of fights with those predators, however most come from interactions with other bottlenose dolphins.

Observing dolphins in the wild is one of the most beautiful and intense experiences anyone can have. No one can remain indifferent in the face of such beauty and grace. However, there are not many places in the world to observe dolphins. The Bay of San Antonio is one of the few places in Argentina where bottlenose dolphins can be observed almost every day. This is why this location was chosen by researchers to study these dolphins.

A fundamental concept when observing animals in the wild is to avoid interrupting their activities and to be very patient. Surveys may be conducted from the coast, using a spotting scope with a strong zoom, or also from small vessels. These surveys enable researchers to find out, among other things, how often dolphins can be seen in the area and what their home range is, that is the area in which they forage (eat), rest and reproduce. And, perhaps most importantly, these surveys can tell us more about their population dynamics, that is whether there is an increase or decrease in the number of dolphins over time.

But you must wonder how is it possible to study all these aspects from an animal that spends most of its life underwater? One solution is to identify each individual and recognise them when they surface to breathe. But, how do we know which dolphin we are observing? We can identify each dolphin through the physical characteristics of their dorsal fin and other parts of their body, looking closely at the shape and markings such as cuts and important scars, all which are considered unique and permanent, making it possible to tell one animal from another. This is the reason why scientists try to get the best pictures while observing dolphins, as they try to capture these distinctive markings from all individuals. Each dolphin can then be assigned an identification code to help scientists recognise them when observed in a different area or at different times. Typically, it is an alphanumeric code. For example, RN-BSA-6/06 means that the dolphin has been observed in Río Negro, in the Bay of San Antonio, that it is individual number 6, identified in 2006. Every identified dolphin is then gathered into an identification catalogue. This method is known among scientists as "photo-identification" and is the fundamental basis for studying animal populations over time. As we will see in the following pages, these kinds of studies also help us understand the life stories and lifecycles of bottlenose dolphins.



Watching dolphins from the coast through a spotting scope with a long zoom.

Photographing dolphins from a small boat.

A software program compares each new picture of a dolphin with those already part of the catalogue. If there is a 75% or higher coincidence with the shape of the fin and the markings, it may have already been identified. If not, then it is almost certainly a new individual that has not yet been catalogued.

What do we know about bottlenose dolphins in the Bay of San Antonio?

Calves are much smaller than adults and they are always spotted swimming near their mothers.

The first wild bottlenose dolphin studies in Argentina can be traced back to the 1970s and 80s, when the first photo-identification catalogue of the species was created in the country. In those days, 53 individual dolphins had been identified in Peninsula Valdés (Province of Chubut) and 30 in the Province of Buenos Aires.

Since 2006, scientists have identified 67 individual bottlenose dolphins in the Bay of San Antonio. Thanks to this research, and bearing in mind that young dolphins cannot be identified due to the lack of scars, today it is estimated that the entire population comprises a total number of 80 to 100 dolphins. Researchers also try to understand the dolphins' social interactions, what their daily activities are, where they carry out most of these activities and whether or not they remain in the area the entire year. Here is some of the information we currently have about this population:

. Approximately 57% of the identified bottlenose dolphins are considered resident in the Bay of San Antonio, meaning that they were seen in the bay in all 4 seasons of the year. Research also showed that, although all these dolphins know each other, they generally associate with one another very randomly. Nevertheless, some individuals clearly prefer each other's company and form long term friendships or family bonds. Surveys clearly show that dolphins use the Bay of San Antonio mainly to rest, forage and nurse their young.

. Groups are usually made up of 4 individuals, although solitary animals or groups of up to 50 dolphins can also be found. Variation in the group size clearly depends on the activities they carry out and, in turn, these activities vary according to the time of year.

. During winter and spring, more dolphins can be seen in the bay, gathering in numerous groups related to cooperative feeding and social activities. During autumn, the amount of dolphins in the bay sharply decreases, possibly due to the lack of prey in the region. But, where do they go if they're not in the Bay of San Antonio? As we will see in the following pages, this is not the only place where they live.

Generally, coastal dolphins do not make huge migration trips, but they can easily range over 300 km.

The larger groups are formed during winter and spring to feed cooperatively and socialise.

Bottlenose dolphin tales I

All the dolphins identified in the Bay of San Antonio have been given an alphanumerical name, while some have also been given a common name. Why? As we have observed these dolphins over the years, we have got to know each one individually by looking at all the different aspects of their lives. For example Hilda and Tulumba have provided a better understanding of the social and family relations among dolphins.

Hilda

In July 2001, one of the authors of this book photographed a bottlenose dolphin in the Bay of San Antonio. Up to that moment, it was nothing more than a nice picture of a dolphin. However, years later, when scientists spoke about the catalogue they were making, they compared the pictures and realised that the dolphin was specimen RN-BSA-16/06, a female that had been spotted in 2006 with a calf, and in 2010 with a second calf. Today she is the eldest photo-identified dolphin of the population and we all know her as Hilda.

Tulumba

Another very special dolphin is Tulumba (RN-BSA-31/07). When identified for the first time in 2007, she was already an adult female with a very sociable attitude, often approaching vessels. From that moment on to 2011, she has been seen 44 times throughout all 4 seasons of the year; hence she is a permanent resident of the bay. However, she has never been seen with a calf, which may indicate she is already old and cannot have calves anymore. Tulumba might be the 'Grandmother of the bay' and the eldest of her group, with an estimated age of 40. As she is always seen in the company of other females and calves, she shows that bottlenose dolphins may form strong social groups integrated by grandmothers, daughters and granddaughters that live together for a lifetime.

Bottlenose dolphin tales II

The Bay of San Antonio is not the only place in Argentina where bottlenose dolphins live. Photo-identification has made it possible to learn that some dolphins of this bay also frequent other areas. Researchers have described geographical variations of bottlenose dolphins and identified the areas where they live on the Argentine coastline. While those which live in the Province of Buenos Aires have triangular dorsal fins, those which live further south have falcate dorsal fins. These differences suggest that both populations are isolated from one another, which has conservation implications. This shows how the identification catalogue is an indispensable tool not only in learning about the species, but also in preserving it. But where do the dolphins go when they travel and how far do they travel?

Yaco

Yaco (RN-BSA-22/07) is a male adult dolphin with a very distinctive dorsal fin, which enables his identification even from land. He is considered a "scout" dolphin, since he approaches new or unknown elements like boats, to observe and investigate whether there is any sort of danger. He has allowed us to begin to understand the movements and seasonal shifts of dolphins and their home range.

There are around 20 dolphins, including 3 mothers with their calves, which have been photo-identified in the estuary of Río Negro, around 180 km east of the bay. It is believed that they enter the river to feed mostly in autumn, which may be a result of the lack of food in the bay during this season.

"The Falcates"

Among the dolphins living in the bay, there are 5 that look different from the others. Two of them are male adults (#55 and #57), and they are very big, active and curious. The other 3 comprise a female (#56) and her 2 calves. One of which (#56b) was with her when she was first identified in 2008 (see picture above) and a new one which was born in the summer of 2011, named Yagui (see picture below).

The group is known as "the falcates", due to their sickle-shaped dorsal fin. They are darker and larger than the rest of the bottlenose dolphins and their beak is notably shorter. These characteristics were also observed in the 53 dolphins studied in the Province of Chubut during the 70s and 80s. It would not be surprising if "the falcates" formed part of that original population. They are always seen together, something very unusual among the other dolphins in the Bay of San Antonio, but they have also been spotted regularly with the other dolphins. "The falcates" have also been observed in Puerto Lobos, 150 km to the south, strengthening the hypothesis that they originate from the population in Chubut. Recent studies have shown their differences are not only physical, but also genetic.

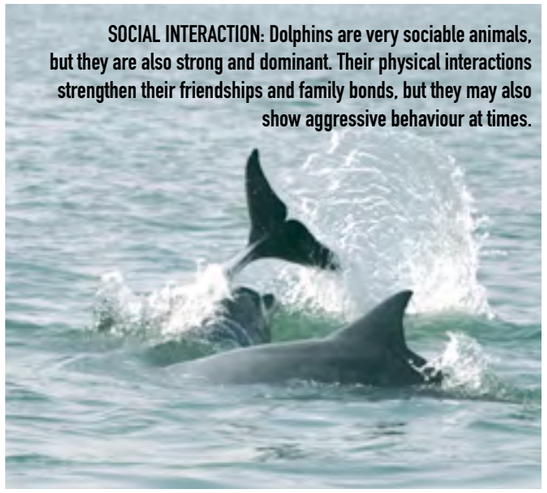
Behaviour

The bottlenose dolphin is a curious and smart species. Research reveals that in the Bay of San Antonio, bottlenose dolphins spend most of their time resting and feeding, depending on the time of year. In winter and spring they are more social and engage in cooperative feeding, while diving time increases in summer, probably related to the capture of demersal (living on or near the bottom of the sea) prey species.

Given that dolphins spend most of their life under water, it is often extremely difficult to interpret what behaviour their activities represent. The following images allow us to see some of their most distinctive behaviour.

JUMPING: They usually leap clear out of the water and then land with a great splash. They jump to swim faster (since air is less dense than water), to look around while swimming, to hunt and/or to communicate.

FLUKING: A dolphin will often lift its fluke above the water surface when about to dive. This kind of dive is not performed every time, but only when there is prey at the bottom of the sea they want to hunt. Therefore, tail raising in the air is generally a sign that the dolphin is diving in search of food.



SOCIAL INTERACTION: Dolphins are very sociable animals, but they are also strong and dominant. Their physical interactions strengthen their friendships and family bonds, but they may also show aggressive behaviour at times.

BOW-RIDING AND SURFING: Some dolphins love to ride on the waves near beaches or on the bow or stern waves of ships. However, not all of them approach vessels. Some dolphins are more curious while others are shyer and reserved.

SPYHOPPING: Although the bottlenose dolphins' world is mainly underwater and their senses relate to sound, they also have good vision outside the water. They poke their head above the surface to look around, perhaps to distinguish details onshore, ships and boats, or people approaching.

Cooperative feeding

In the Bay of San Antonio, bottlenose dolphins spend most of their time diving in small groups during summer. While diving, they hunt for demersal species like octopuses or flatfish which live near the sea bottom. However, during winter and spring, they feed from different species of schooling fish near the surface, like silverside, hake and whiting. When hunting, more than 40 dolphins gather together! They cooperate with each other to catch prey. How do they manage to do it? First of all, they group together around the prey to encircle it. This is how they herd the fish and bring them to the surface. Dolphins are experts in organising a hunt, communicating with each other through sounds and visual signs. They synchronise so perfectly and efficiently that no fish can escape from this "cooperative web". Fish group together as a defence, but near the surface this strategy becomes a trap since there is no way to escape. This is the moment to start eating, so now the dolphins start to capture them one by one.

During these "feeding fests", other species participate as well, benefiting from the dolphins' work herding the fish. Therefore, not only do colonies of penguins and sea lions make good use of dolphin hunting activities, but also seagulls, terns, petrels and albatrosses participate!

A dolphin jumps while chasing its prey, the sea lions jump in immediately after it, following which many seagulls dive into the water too. Everyone wants to take advantage of a dolphin-organised fishing trip.

Threats I

Overfishing and fishing discards are some of the main problems affecting productive seas and species worldwide.

A lot of dolphin and whale populations around the world are threatened. For example, in the waters of the South Atlantic Ocean, along the coast of South America, the La Plata dolphin is an endangered species due to entanglement in fishing nets. As a consequence, this species may disappear within the next 30 years if conditions do not change. Nowadays, at least the North Atlantic grey whale and the Yangtze River dolphin in China are believed to have become extinct due to human activities.

The bottlenose dolphin is not considered an endangered species and at the moment its future is stable due to their abundance and high adaptability to changing environments. However, we should bear in mind that in the 70s and 80s bottlenose dolphins were easily spotted along the entire Argentine coastline, but then the situation changed. Nowadays it is rare to see bottlenose dolphins in the Provinces of Buenos Aires and Chubut.

What caused this disappearance? Probably rising development and human activities brought about consequences such as pollution and overfishing. Accumulation of toxins in their body tissues and organs, such as heavy metals and pesticides, may kill bottlenose dolphins or make them more vulnerable to disease. Argentina is not without these problems, as evidenced by the high toxic concentrations recorded in some local populations. Samples from the Province of Buenos Aires, for example, have evidenced high concentrations of heavy metals and plastic material intake by several species of marine mammals.

Also, fishing activities have increased around the world. As a consequence, conflicts between humans and marine mammals have risen. One of them is the competition for food resources between fishing fleets and both whales and dolphins. Furthermore, as if this were not enough, accidental entanglements in fishing nets continue to increase the number of deaths.

There are even greater problems in countries like Peru, Japan and Denmark, where dolphins are caught to be sold to the captive industry or killed for human consumption with harpoons, rifles and nets. In certain areas of South America, their meat is also used as lobster and crab bait. They are sometimes killed as a way of falsely reporting the lack of fish, thus justifying today's excessive commercial and industrial fishing.

Previously, oceanariums enabled researchers to learn more about dolphins. However, nowadays they are only used for entertainment, as methods to study dolphins in the wild are widely available.

The increased traffic of commercial vessels affects marine environments around the world.

Threats II

There are 3 urbanised areas along the coast of the Bay of San Antonio under full expansion and development: San Antonio Oeste, San Antonio Este and Las Grutas, one of the most popular tourism regions in Patagonia, which has grown enormously in the last few years. It is considered the most important and attractive resort in Patagonia, not only for its beaches and warm water, but also for its wide biodiversity. Big investment is taking place in the area, such as the building of hotels, resorts and restaurants. San Antonio Oeste is a city with antique railway houses, a traditional port and the most populated and developed urban centre of the bay. On the other hand, San Antonio Este has a deep-water seaport with the most import and export activity in Southern Argentina. More than 80% of the fruit and vegetable production of the valleys of the Provinces of Río Negro and Neuquén departs from its quays, as well as other Patagonian products, such as wool and minerals.

Human development has contributed to the contamination of the bay. Untreated sewage, toxic chemical products, heavy metals, industrial waste, pesticides and oil are a result of the urbanisation, chemical industries and mining activities in the area. Another threat to be taken into account is the overfishing of certain species from which dolphins feed. One of them is Argentine hake, which was once abundant in the area, but has now decreased in the north of the Gulf of San Matías. Furthermore, accidental captures in the fishing industry in Patagonia create victims, not only among birds, but also among marine mammals. And last but not least, a potential threat that cannot be disregarded is the destruction of their natural habitat, as a potential consequence of port dredging operations.

Bottlenose dolphins are an abundant species worldwide. However, some populations are seriously under threat, due to pollution of their environment and overfishing, among other things. Several activities are carried out in the bay, such as small-scale coastal and non-industrial fishing, tourism and shipping. Today, the bottlenose dolphins of the bay can be regarded as nationally threatened and recent studies have found that the population is decreasing. Therefore, we must protect them from both potential and real threats that affect the area.

Courtesy Federico Bernasconi

Fishing nets are a growing threat to bottlenose and La Plata dolphins.

Not only is strict provincial control needed, but also monitoring by citizens, if we are to succeed in avoiding conflicts between local chemical industries and the dolphin species in the bay.

Ports help economic development but can create conflicts with local species. A way to solve these dilemmas must be found.

How can we protect the Bay and its dolphins?

The dolphins of the Bay of San Antonio are isolated from Uruguayan and Brazilian dolphins because of the La Plata River. If this population continues to decrease, it may become extremely difficult for them to survive.

The Bay of San Antonio is a very important area for thousands of migratory coastal and sea birds as a resting and foraging site. The northern and eastern area has islets which are frequented by several species of non-migratory coastal birds to reproduce and rest. And as we have seen, its waters are the most important habitat of one of the most charismatic species of the Patagonian Sea: the bottlenose dolphin. These reasons are more than enough to justify why we should be careful; the cities surrounding the Bay of San Antonio are growing quickly, and besides generating progress and development, this causes a negative impact on the surrounding environment.

Dolphins have chosen this region for its protected waters; to rest and nurse their calves, and as a foraging site due to its great quantity of food. We now know that it is a resident population, perhaps the last one in Argentina. To protect the Bay of San Antonio and its dolphins, it is essential to continue scientific research, and to spread the knowledge acquired through educational projects.

One activity that could contribute to the protection of these dolphins is dolphin watching. If this activity is controlled and executed in a responsible and sensible way, it may be educational, sustainable and financially viable. Furthermore, it may encourage and promote the interest of local inhabitants, operators, fishermen, shellfish farmers and of course tourists, in the conservation and care of the marine environment. Coastal observation is another alternative that has no negative impact on dolphins. According to researchers, a dolphin may be spotted in the bay every 4 hours. This proves it is a very valuable place to look for wild dolphins in Argentina. If you visit the places mentioned in this book, you will not be disappointed when looking for dolphins. Indeed, you will never want to see dolphins in captivity again.

However, the information available about the Bay of San Antonio and its species will not be enough if laws protecting marine mammals are not enacted. This is the only way Río Negro may be turned into a province that truly protects its marine and coastal species. We can all be a part of this, urging municipal and provincial authorities to exercise real control in this unique natural habitat.

Whale watching contributes to awareness and the development of action for the protection and conservation of the southern right whale in Argentina. Something similar could be done with the bottlenose dolphins in the Bay of San Antonio.

General view of Las Grutas, which features the most important and attractive beaches in Patagonia.

Reflections by the sea

We have learned about the life stories of Hilda, Tulumba and Yaco. But there are many more! Manuel (#6), Yaco's best friend, and his friends Azul (#12) and Nereo (#25) also live in the bay. And Elsita (#11), an example of a mother who, after 8 years, is still accompanied by her daughter Juno (#51), and lives together with Hilda and Tulumba. They all need the bay as much as its human inhabitants do.

Although knowing and understanding these dolphins is important, it is not enough. They deserve our respect, not only because they are charismatic, but also because they are intelligent animals that live together in groups just like us. What is more, they should be respected because they transmit their culture from generation to generation, just like chimpanzees and killer whales. Although dolphins seem to be "smiling and happy" all the time, this is the result of our interpretation of their behaviour. Their "smile" is just an aspect of their anatomy and does not represent their mood.

Wherever humans and animals live together there is conflict. The Bay of San Antonio is no exception. We have become aware of the pollution and habitat destruction that accompanies ever increasing human activities, which makes it necessary to establish conservation measures to protect the resident coastal dolphins. Furthermore, implementation of these measures may contribute to the conservation of all species inhabiting these waters.

Today we know that the Bay of San Antonio is a safe haven for our friends and perhaps the last refuge remaining in Argentina for these dolphins. In the bay they can rest, feed, give birth and nurse their calves. In order to do that, they need clean and quiet waters, with an abundance of fish and squid. When we look after them, we take care of ourselves, as well as the sea and what it has to offer.

Although dolphins have a voice to communicate among themselves, they cannot speak with us to help us understand their problems and needs. However, they transmit their energy and joy when we see them! Therefore, we must act as the voice of these dolphins! Let the end of these pages be the beginning of a message that you can share with your family, friends and everybody you know:

"Dolphins have been in the sea before humans inhabited this planet, and they have managed to live in harmony with all other species. We must learn to live in harmony with them too".

Catalogue

The following are some of the bottlenose dolphins photo-identified in the Bay of San Antonio. Researchers assign an alphanumerical name to each one of them, but they also receive a common name. As dolphins acquire more marks and scars over time, it is important this "identification catalogue" is updated regularly. Therefore these pictures have been updated since the previous publication.


RN-BSA-1/06 ♀ Sofi


RN-BSA-6/06 ♂ Manuel


RN-BSA-10/06 Matias


RN-BSA-11/06 ♀ Elsita


RN-BSA-12/06 ♂ Azul


RN-BSA-16/06 ♀ Hilda


RN-BSA-18/07 ♀ Dara


RN-BSA-22/07 ♂ Yaco


RN-BSA-25/07 ♂ Nereo


RN-BSA-29/07 Mai


RN-BSA-31/07 ♀ Tulumba

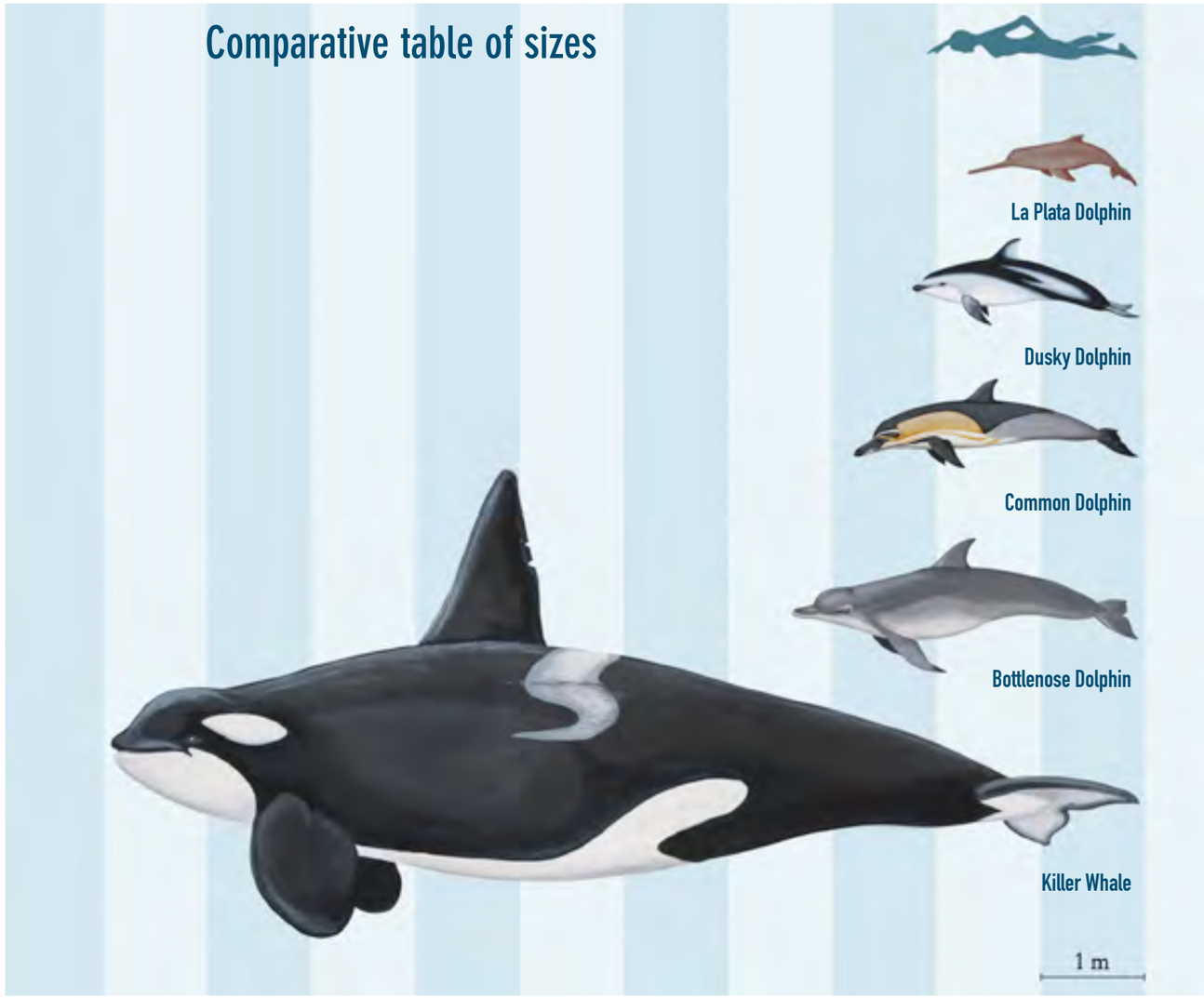

RN-BSA-51/08 Juno


RN-BSA-55/08 ♂ Ale


RN-BSA-56/08 ♀ Grace


RN-BSA-57/08 ♂ Agus

"You are not a drop in the ocean.
You are the entire ocean in a drop."
Rumi (Sufi Poet, 1207-1273)



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The bottlenose dolphins of the Bay of San Antonio tell us a story never before told, whose secrets have only been known by scientists but are now whispered in your ears. "Dolphins of the Bay" immerses us in an unknown, mysterious and amazing world and has been written by specialists in marine mammal biology and environmental education, who are devoted to the conservation of these animals. It is the result of scientific work carried out between 2006 and 2012 in the Bay of San Antonio and other locations in North Patagonia.

The purpose of this book is to share the results of these investigations, offering knowledge about this population of bottlenose dolphins to contribute to their preservation and care. The more we learn about these animals, the better equipped we are to protect and care for our marine neighbour, the bottlenose dolphin. Come and submerge yourself in their world...

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