MARINELAND
CATALUNYA

EDUCATIONAL PROJECT

INDEX

DOLPHINS

SCIENTIFIC CLASSIFICATION

ORDER OF CETACEANS

MYSTICETS

Instead of teeth, they have baleen through which they filter their food, like the blue whale, the gray whale…

ODONTOCETES

They are those who have teeth like dolphins, killer whales and sperm whales.

FAMILY Delphinidae are dolphins and their closest relatives, such as killer whales.

GENUS - SPECIES

Tursiops truncatus

Bottlenose dolphin, up to 4 m in length and a relatively short and thick nose.

HABITAT AND DISTRIBUTION

DISTRIBUTION

They live in temperate-cold waters in tropical oceans around the world.

They appear in many closed seas such as the Black Sea, the Red Sea and the Mediterranean.

HABITAT

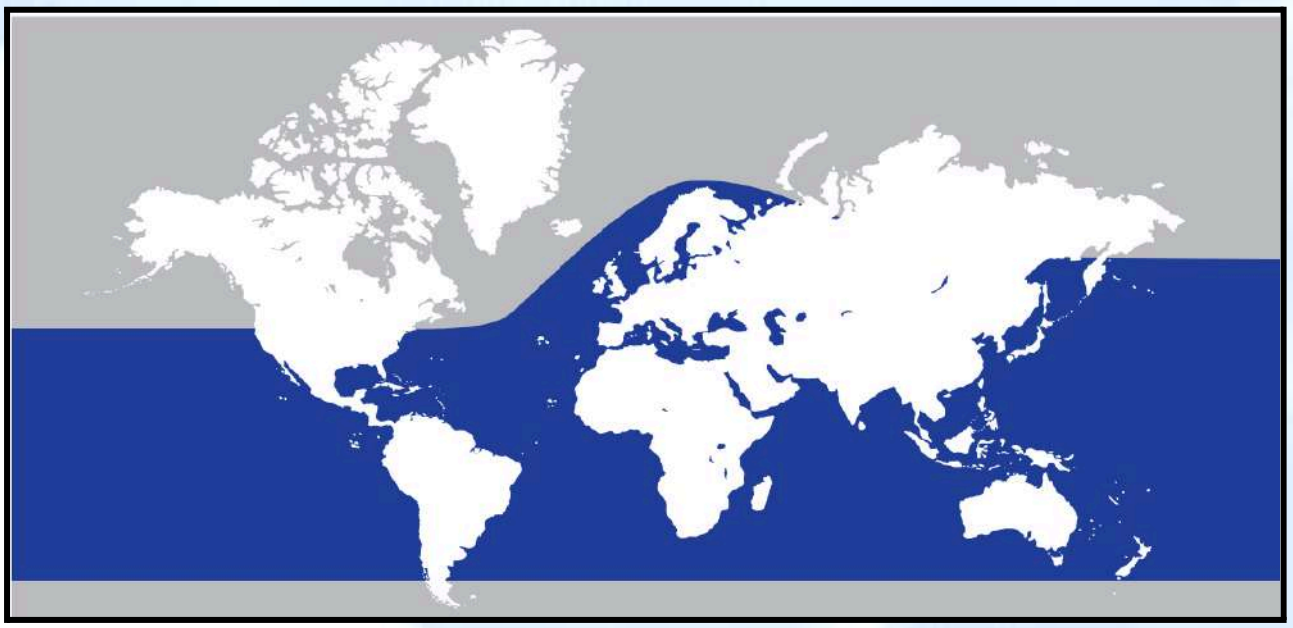
They live in open waters and also in coastal areas such as ports, estuaries, gulfs, bays...

MIGRATION

Many dolphins make seasonal migrations, probably in response to variations in water temperature and food availability.

POPULATION

It is estimated that the population of bottlenose dolphins in the Mediterranean is less than 10,000 individuals.



PHYSICAL CHARACTERISTICS

SIZE AND SHAPE

There are two varieties of bottlenose dolphin, depending on whether it lives in coastal areas or in the open sea, the former being smaller than the latter.

Coastal dolphin: 2.5 - 2.7 m and 190 - 260 kg

Open sea dolphin: 3.7 - 3.9 m and 454 kg.

COLORATION

Dark bluish gray or dark gray on the back. The ventral area is ivory, light gray or pink. This coloration serves as camouflage.

FINS

Pectoral fins: have the same bony parts as the upper limbs of terrestrial mammals, although shorter and modified.
Caudal fin: devoid of bones and muscles, made only of collagen. The muscles of the caudal peduncle are what move it.
Dorsal fin: has the same composition as the caudal fin.

SENSES

HEARING

Dolphins have a highly developed sense of hearing that allows them to locate sounds underwater.

They have auditory openings a few centimeters behind each eye.

Dolphins detect sound frequencies from 1 to 150 kHz, but they hear best from 40 to 100 kHz, (humans detect sounds from 0.02 to 17 kHz).

VISION

Dolphins have very sharp vision, both in and out of the water.

Their eyes are adapted to see underwater, they are small and are located on both sides of the head, a few centimeters from the mouth.

TASTE

Little is known about it, but they must have a sense of taste since they have preferences for certain species of fish. Although it is true that they differentiate the bitter taste to detect toxic substances and thus avoid ingesting them.

SMELL

They do not have olfactory nerves and therefore their sense of smell is believed to be very limited.

TOUCH

There are studies that indicate that their sense of touch is highly developed, their skin has areas of high sensitivity.

ADAPTATION SYSTEMS TO THE AQUATIC ENVIRONMENT

BREATHING

They breathe through an opening located on the top of their head: the spiracle. They can hold their breath for about 20 minutes. They hold their breath while underwater.

They open the spiracle and begin to exhale when they are reaching the surface and once there they inhale and close the spiracle. This lasts for 0.3 seconds.

SWIMMING AND DIVING

Dolphins can swim above and below the water by moving their tail fin up and down using the muscles of the caudal peduncle. With the pectoral fins, dolphins can turn left and right and with the help of the caudal fin they can stop. The dorsal fin is like a dorsal keel that provides stability.

SLEEP

Some researchers claim that dolphins spend a third of their day resting; others think that dolphins only sleep deeply with one cerebral hemisphere at a time.

The cerebral hemisphere that is awake is responsible for watching over the young and preventing predators from approaching.

THERMOREGULATION

As mammals, their circulatory system allows them to regulate their body temperature to keep it more or less constant.

For this reason, they have a thick layer of fat under their skin (it makes up 20% of their weight). When they are hot, they pull a fin out of the water to lose heat through it.

FOOD AND EATING HABITS

PREFERENCES

Dolphins are active predators and eat a wide variety of fish, squid and crustaceans, such as shrimp.

They eat the equivalent of 4-5% of their body weight daily.

FISHING TECHNIQUES

They cooperate with each other, surrounding a school of fish and making them concentrate.

They take turns feeding.

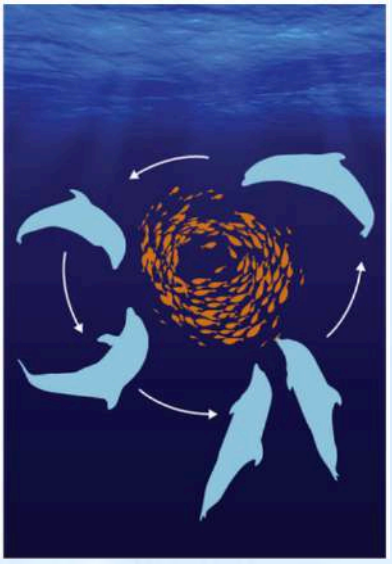
Sometimes, the group pushes the school of fish into shallower water where it will be easier to catch them.

To catch larger prey, they use their caudal fin. This way, they can pull it out of the water and then catch it.

EATING METHODS

Dolphins do not use their teeth to chew their food, only to capture prey.

They swallow fish whole, starting with the head, so as not to hurt their throats with the scales.



BEHAVIOR

SOCIAL STRUCTURE

Dolphins live in groups of 1-10 individuals on the coast and 25-500 in the open sea.

Sometimes groups come together to collaborate in the capture of food. Groups form out of fear, family ties or to seek protection and disperse for surveillance, aggression or feeding.

INDIVIDUAL BEHAVIOR

They are very active on the surface, jumping over the bow and stern of boats and even jumping over waves caused by whales. They can jump over 4.9 m high as adults and young chase each other. They also throw seaweed and other objects to play and practice catching food.

PROTECTION AND CARE

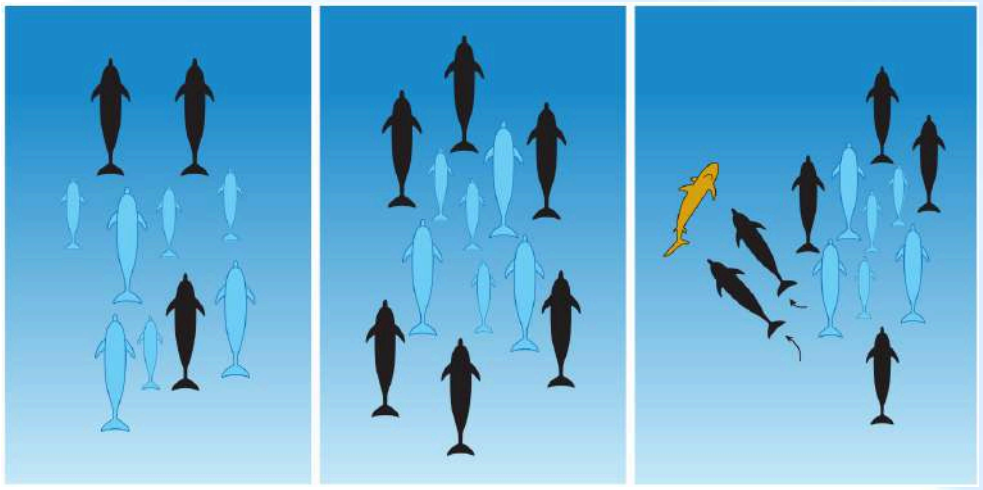
Adult males usually swim at the periphery of the group to protect it from predators.

When one of the members is injured or sick, the others can help by trying to keep it close to the surface so it can breathe.

INTERACTION WITH OTHER SPECIES

Bottlenose dolphins have been seen interacting with other species such as pilot whales.

Sometimes they respond to sharks with tolerance, other times they avoid them, and sometimes they become aggressive.



REPRODUCTION

SEXUAL MATURITY

Females reach sexual maturity when they are about 2.3 m long, that is, between 5 and 12 years old; males when they are between 2.4 and 2.6 m long, between 10 and 12 years old.

During the courtship period, males chase females, rubbing against them and biting their fins.

Gestation lasts 12 months and birth takes place in the water. The first thing to emerge is the young's tail.

The umbilical cord is detached.

At birth, the young sinks because it has no air in its lungs. The mother pushes it to the surface so that it can breathe for the first time. Sometimes another experienced female in the group stays nearby to help them.

CARE OF THE NEWBORNS

The first food that the young take is the mother's milk, which is very nutritious. The young suckle 3 to 8 times every hour, both day and night, for a period of 18 to 24 months.

The young can stay with the mother between 3 and 6 years.

At birth, the young measure between 106-132 cm and weigh about 15 kg. Its skin usually has dark lines due to the fetal position. These lines disappear after a few days.

Females give birth every 2 or 3 years, usually when they stop nursing their young.

COMMUNICATION AND ECHOLOCATION

Dolphins depend on the emission and reception of sounds to swim, communicate and capture food in murky waters.

SOUND EMISSIONS

Dolphins produce sounds through their spiracles that vary in volume, wavelength, frequency...

COMMUNICATION

Each dolphin's sound is different and this is how they can communicate. There are studies investigating the type of language they possess.

After giving birth, a mother emits sounds continuously and this helps the baby to identify its mother.

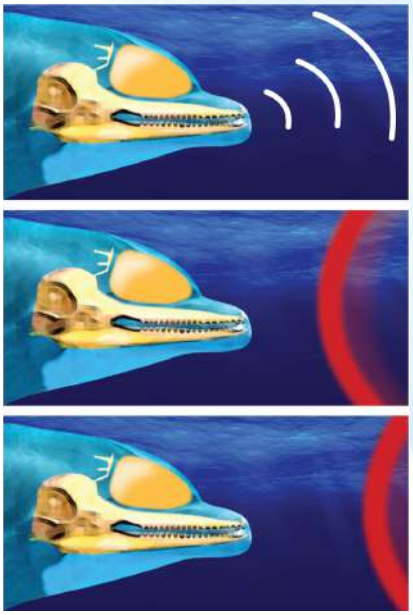
There are studies investigating the types of language they possess.

ECHOLOCATION

Echolocation is a term that refers to the ability of some animals to “see” through the sound of echoes.

Dolphins produce a series of sound waves that collide with an object or living being and then receive and interpret the resulting echo.

Thus, dolphins can determine the size, shape, speed, distance, direction and even the texture of objects in the water.



LONGEVITY AND CONSERVATION

LONGEVITY

A dolphin can live up to 48 years but usually does not live more than 20. Age is calculated from the structure of the teeth.

DISEASES AND PARASITISM

Like other animals, they can suffer from infections, ulcers and tumors and suffer from respiratory and heart problems. The parasites that commonly affect dolphins are intestinal worms.

PREDATORS

Dolphin remains have been found in the stomachs of predatory sharks and even killer whales.

CONSERVATION

There are several international organizations for the protection of dolphins. Dolphinariums are a good place to raise public awareness of the importance of protecting and conserving nature. Here, researchers can examine aspects of these animals that are difficult or impossible to study in their natural environment and therefore help us protect them.

HUMAN IMPACT

In the past, they were captured for their meat, skin, oil, food or fertilizer. Bottlenose dolphins, especially those living on the coast, suffer from increasing marine pollution, collisions with boats, the destruction of their habitats, fishing nets... There is still much to be done in terms of the conservation of these animals.

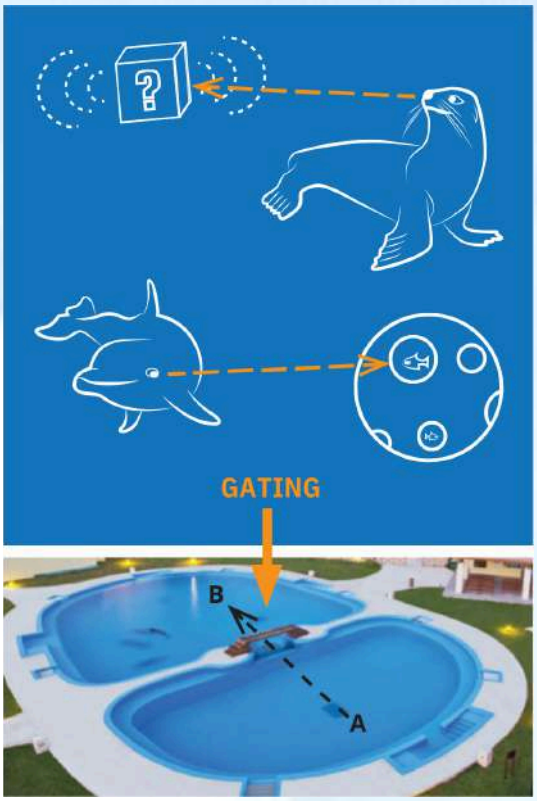
ANIMAL TRAINING TO ENRICH THEIR WELL-BEING

Training is essential for the well-being of animals. It helps us to keep animals physically and mentally active, and to have good control over their health.

For daily routines, animals must learn to go from point A to point B voluntarily, for situations such as “GATING”, which is to go through a door to enter another facility, to perform a specific behavior in another place, for transportation, to go with another trainer…

Training sessions and exhibitions allow us to keep the animals constantly learning, mentally challenged and in good physical condition. ENVIRONMENTAL ENRICHMENT is a tool that provides animals with endless stimulation to keep them busy most of their free time, increases their physical activity, stimulates their cognitive part and promotes the natural behaviors of each species.

Our role as animal caretakers and trainers is undoubtedly to give them the best of ourselves. It is our responsibility to ensure their well-being and teach visitors the love for what we do and, most importantly, educate them in NATURE CONSERVATION and RESPECT FOR ANIMALS.



Animals must have a good level of ATTENTION towards their caretakers to perform any kind of training in a place called a STATION at specific periods of time.

Also one of the first things an animal must learn is to touch and follow the TARGET, which is a tool that will help us direct the animal in training, to have voluntary direct contact and accessibility to any part of the body.

One of the most important behaviors we train are veterinarians, as they serve to monitor their health status at all times.

The “BRIDGE” whistle, which trainers wear around their necks, is used to tell animals that what the animal or group of animals has just done is WELL DONE, at the exact point of a desired behavior, it is the bridge stimulus to reinforcement. In this way we facilitate communication between the trainer and the animal and we will achieve that the desired behavior is repeated over time.

Trainers always use POSITIVE REINFORCEMENT with animals: in the event that an animal performs an unwanted behavior, its way of saying "what you just did is not okay" is to ignore the behavior for a few seconds, to give way to another new opportunity.

Reinforcement is not always food, reinforcement is anything that the animal wants and likes, such as a specific toy, or caresses in certain areas of the body, and even being close to another animal with which it has a very strong bond.

VARIABILITY in reinforcement is the most important thing. To achieve this, it is necessary to know each individual very well and establish a bond based on PLAY and TRUST between animal and trainer.

Finally, the movement made with the target, after several repetitions, will be replaced by a SIGNAL that the animal will associate with the desired behavior and will be completed.

BUTTERFLIES

INTRODUCTION

The Earth is made up of a great diversity of ecosystems, each with its own climatic conditions, species and natural balances. Among them, stable temperatures, high humidity and dense vegetation create the perfect setting for tropical ecosystems to become the most biodiverse environments on the planet: a great variety of plants and animals that coexist in a complex and dynamic balance.

In these ecosystems, life is organized into different levels or strata: trees that form the canopy, understory plants that take advantage of the shade and moisture, and a large number of organisms that directly depend on this plant structure to survive. The constant interaction between plants, insects, and other animals is what keeps the system functioning naturally. Within this ecological framework, butterflies play a particularly relevant role.

They are organisms highly sensitive to environmental changes and depend directly on vegetation, both for food and to complete their life cycle. Their presence is a clear indicator of the quality of the ecosystem, as they only thrive in balanced environments, with the right conditions of temperature, humidity and resource availability.

SPECIES OF BUTTERFLIES

SPECIES WITH GREAT VISUAL IMPACT

They stand out for their large size, slow flight and intense structural colors. Its visible activity attracts attention and facilitates observation by the visitor.

Archaeoprepona demophon

Genus Caligo

Morpho peleides

ACTIVE FLYING SPECIES AND NATURAL BEHAVIOR

These species bring constant movement to the butterfly garden, interacting with areas of light, shade and nectar-bearing plants. Natural behaviors are easily observable, bringing dynamism and life to the space.

Siproeta epaphus

Siproeta stelenes

Eryphanis polyxena

EMBLEMATIC AND EDUCATIONAL SPECIES

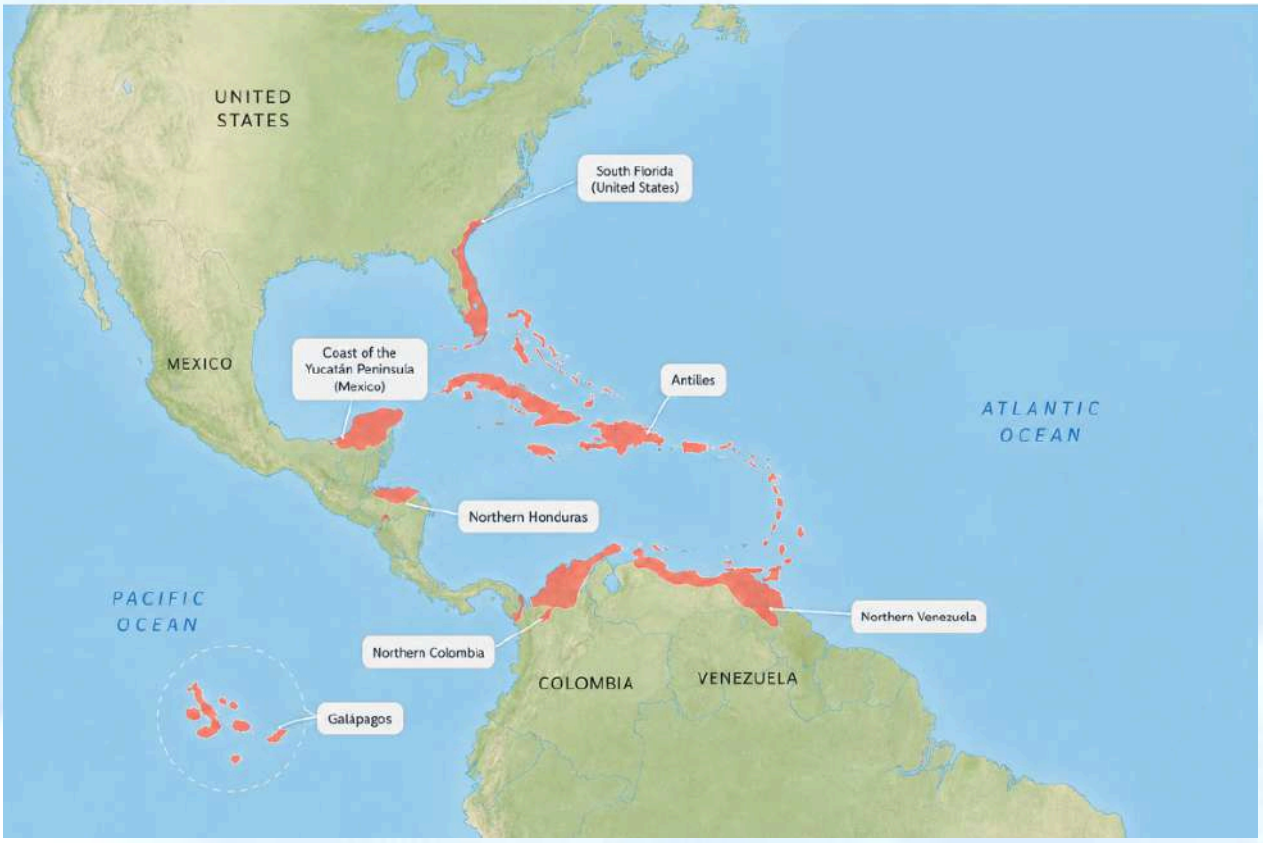
They have a high educational value and are widely known by the public. They allow us to explain migration, life cycles and plant-butterfly relationships, being ideal for educational activities.

Papili thoas

Danaus plexippus

FLAMINGOS

The Caribbean flamingo or red flamingo (Phoenicopterus ruber) is a bird of the Phoenicopteridae family that lives in tropical areas of America, including the Antilles, the coast of the Yucatan Peninsula, northern Colombia and Venezuela, south of Florida in the United States, the Galápagos and northern Honduras.



The Caribbean flamingo reaches 1.20 to 1.40 m in height. The male weighs an average of 2.8 kg and the female 2.2 kg. It is the largest flamingo on the continent, and the second largest in the world.

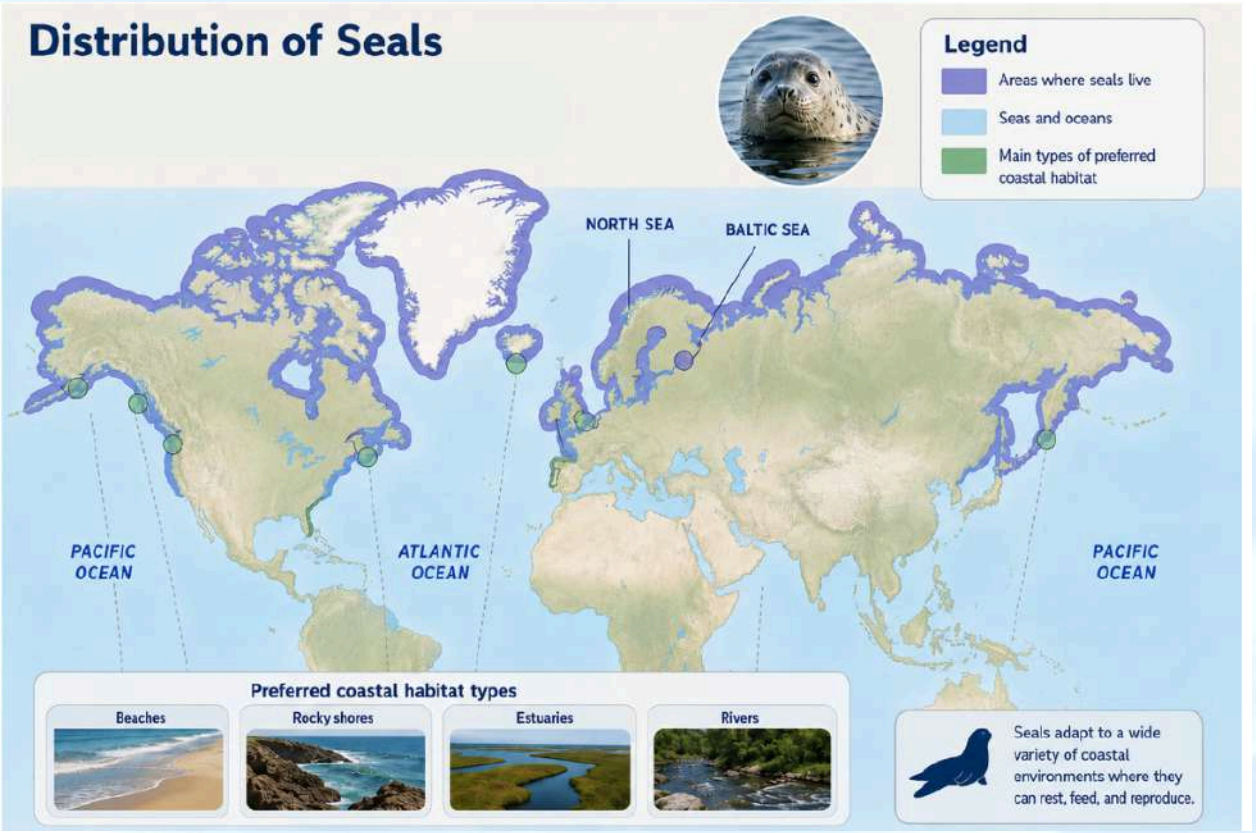
Flamingos are not born pink (they are gray or white), they acquire this pink color due to their diet. To feed, they filter water with their beaks upside down.

They can sleep standing on one leg, possibly to conserve heat or rest their muscles alternately.

SEALS

DISTRIBUTION AND HABITAT

It lives on the coasts of temperate and cold seas in the northern hemisphere, in both the Atlantic and Pacific Oceans, as well as the North Sea and the Baltic Sea. It prefers coastal areas, such as beaches, rocky shores, estuaries and even rivers.



PHYSICAL CHARACTERISTICS

COMMON SEAL (Phoca vitulina)
Color: Brown, gray or cinnamon with spots.
Characteristic V-shaped nose
Size: up to 1.85 m in length
Weight: 130 Kg

FOOD

The seal's diet is mainly based on:

Fish (herring, cod, sea bass, anchovies)

Herrings

Cod

Sea bass

Anchovies

Squid and crustaceans

Squid

Crustaceans

SKILLS

They are excellent swimmers, can dive up to 457 meters and remain underwater for about 10 minutes.
In addition, they have a highly developed sensory system that allows them to detect water movements, orient themselves and locate prey even without seeing them.

REPRODUCTION

They mate underwater, with males competing for females, who give birth once a year.

THE PUPPIES

They are born well developed, feed on mother's milk for 3-6 weeks and can swim a few hours later.

STATE OF CONSERVATION

World population: 400,000 - 500,000 individuals.
In general, they are not in danger but some local populations are threatened by:

- Disease
- Human activity
- Accidental catches in fishing nets

That is why in many countries they are protected by law.