

OCEAN FACTS



Due to modern fishing methods, humans are catching fish at a rate that is unsustainable. 34% of species are currently below sustainable levels and nearly 60% are at, or close to their maximum sustainable yield. We have to address our global fisheries management processes and the devastating impact of many existing fishing practices.

Did you know that we are currently allowing around 8 million tons of plastic to get into our oceans every year? This plastic pollution is having a terrible impact on ocean wildlife, spreading through marine ecosystems, acting as a vector for pollutants and affecting our well-being, and potentially our health.

We live on a Blue Planet. A massive 70% of the Earth's surface is water, yet just 5% of the ocean is protected from damaging human activities.

The largest animal migration by mass on the planet occurs in the ocean every single day and it's not geographical, but vertical. Every night millions of deep-sea creature's travel thousands of meters upwards to feed on plankton that rise to the surface, before retreating back to the depths before morning. It is known as the Diel Vertical Migration.

Weird! The sand in the Sahara Desert is mostly made up of the skeletons of diatoms, a type of phytoplankton that live inside silica housing, who used to live in an ocean above Northern Africa millions of years ago.

Greenland sharks can live for over 400 years! This means there are Greenland sharks currently swimming around the arctic that were born in the 1600's. Researchers discovered this by looking at the levels of radioactivity in the growth rings of their eye lenses caused by cold war nuclear bomb tests.

Only 5% of the seafloor has been accurately mapped by scientists. In fact we know more about the surfaces of the moon and mars than we do about our own ocean floor. However new technological advances could hopefully be able to change this over the coming decades.

The average depth of the ocean is 3,688 meters (12,100ft). The deepest point is 10,994 meters down at Challenger Deep in the Mariana Trench, where the pressure is a crushing eight tons per square inch! At this depth you could fit Mt Everest and the summit would still be over a mile below the surface.

Because only the first few hundred meters of the ocean are illuminated by the sun and half the planet is constantly experiencing night time, up to 99% of the ocean is actually in complete darkness all the time. Yet this is something that we rarely consider when thinking about our oceans.

Coral reefs are alarmingly declining. The world's coral cover on tropical reefs has substantially declined over the last 40 years. Some causes of the decline of coral reefs include climate change, over-fishing, pollution, declining water quality, and unsustainable coastal development. Consequently, this decline poses a threat to the habitats of indigenous islands since they feed on coral.

The global ocean conveyor belt, responsible for the constant movement of water around our oceans, moves much slower than wind or tidal driven currents. It is estimated to take a parcel of water up to 1000 years to complete a full cycle around it! It is also constantly moving over 100x more water than the Amazon River.

The top 10 meters of our oceans has the same mass as our entire atmosphere, the top 2.5 meters holds an equivalent amount of heat and the top 2.5 centimeters holds as much water. The oceans also store 38,000 gigatons of carbon (1 gigaton =1 billion tons), which is 16x more than the entire terrestrial biosphere.

A plastic bag is the deepest recognized piece of plastic trash because it resides in the Mariana Trench. The Mariana Trench is the deepest point in the ocean. It spans 10,975 meters (36,000 feet) down the remote part of the Pacific Ocean. The lowest known point is called challenger deep.

At its widest point (between Indonesia and Columbia) the Pacific Ocean is wider than the moon. In fact, at 12,300 miles across, it is 5x the diameter of the moon! It also contains over 25,000 islands.

'Point Nemo' in the Pacific is the furthest point in the ocean from land, located over 1,000 miles from any landmass. Quite often the closest humans to this point are the astronauts on the International Space Station as they pass overhead.

The Mid-Ocean Ridge, which stretches over 65,000km across the seafloor of all major oceans, is 4x longer than the Andes, Rockies and Himalayas combined!

The Denmark Strait Cataract, located in the Atlantic between Iceland and Greenland, is and sub-surface waterfall that consists of 5 million meters cubed of water continuously falling 3,505 meters (3x taller than Angel Falls). It is formed by a temperature difference either side of a large underwater ridge.

Experts predict that there are more historical artefacts on the seafloor than in all of the world's museums combined! UNESCO believes there are as many as 3 million shipwrecks in our oceans, each one brimming with a wealth of different historical treasures. There is also 20 million tons of gold in the oceans, most of which is dissolved in sea water at a concentration of a few parts per trillion.

The current world record for the deepest scuba dive is 332.5m, set by Ahmed Gabr in the Red Sea in 2014. It took him just 12 minutes to reach that depth, but it took over 15 hours for him to safely ascend to the surface!

Did you know that half of America is underwater Because of its Exclusive Economic Zone (EEZ), which extends 200 miles along its long continental coastlines, Alaskan peninsula and other island territories, over half of the USA is actually in the ocean!

Coral reefs only cover less than 1% of the seafloor, but support up to 1/4 of known marine species. Because of this they also provide food and income to hundreds of millions of people, in addition to storm protection and medicines. As a result, they are currently valued at around \$30 billion per year by NOAA (which many experts believe is actually an underestimate).

Life originated in our oceans around 3.2 billion years ago, but only made its way onto land around 440 million years ago, meaning around 86% of evolutionary history was spent underwater. As a result, there are also more major animals' groups in our oceans (28) compared to on land (11). In fact, up to 95% of life on Earth is found in the oceans!

Amazingly, half the air we breathe comes from plankton! Trillions of photosynthetic microbes in the ocean, known as phytoplankton, produce as much oxygen as all the plants on land put together (some experts would argue it's even more). This means that on average every other breath you take has come from the oceans, including oxygen produced by seagrass meadows and kelp forests.

Dolphins can technically see through other animals! The high-pitched sound they produce for echolocation only rebounds of hard surface such as bone and cartilage, but passes through soft tissue. This allows them to see (or more accurately, hear) through other animals.

Astonishingly, corals can be used to replace human bone. The chemical composition and structure of some corals is so similar to our own bones, that they can actually be used in bone grafts! Some alterations have to be made to the coral before insertion, but it is actually beneficial for the patients who require less surgery.

Sharks don't kill people... people kill sharks!!! On average less than 20 people are killed by sharks per year, but people kill over 11,500 sharks per hour! Keep that in mind the next time you hear about a 'shark attack'. It is estimated that 70 million sharks are killed every year for their fins to be sold illegally to Asia. So, who are the real monsters here?

Sperm whales have the biggest nose in the animal kingdom. Sperm whales use their enormous snouts to create loud booming noises in the deep ocean, by reverberating sound waves in a large 'drum' in their noses. This is likely used for communication in the pitch-black waters they hunt in.

Did you know, a starfish can be born square? Some starfish suffer from an extremely rare birth defect and are actually square in shape! It can only happen to sea stars with five points and the exact nature of the mutation is still unknown.

Friiled sharks have the longest gestation period of any vertebrate, capable of pregnancies as long as three and a half years (that's 42 months!) and if that wasn't bad enough the litter size can be as big as 15 offspring.

The sea level is rising by 3.4 millimeters per year. As a result of warmer ocean temperatures as well as melting glaciers and ice sheets, global sea levels are rising.

The blanket octopus (aka the rainbow octopus) have one the most extreme cases of sexual dimorphism (where different sexes are sized or shaped differently) in the animal kingdom. Whereas females grow to six feet in length, males only grow to be an inch long!

Size doesn't matter to harlequin shrimps! Harlequin shrimps feed on starfish up to 10x their size by flipping them over so they cannot escape. They will then feed on them throughout the next few days whilst they are still alive!

The ocean is becoming more acidic! The average PH of the ocean is 8.2, which is basic or alkaline. However, as the ocean absorbs carbon dioxide released into the atmosphere by humans, the PH decreases. Therefore, it becomes acidic.

Thank goodness, great white sharks have LOTS of teeth. Great white sharks can lose well over 20,000 teeth in a lifetime! They can have around 300 teeth at any one time, most of which lie out of sight waiting to replace those that regularly fall out. Gumming a seal to death, might be a challenge!

Pufferfish create elaborate nests. Male white-striped pufferfish create one of the most intricate nests found anywhere on Earth. They create these beautiful mandala circles using only their anal fin and once they've attracted a female to mate with, they will guard the eggs in the center of it.

Sea turtles cannot process all of the salt from the seawater they drink in their kidneys. Therefore, they secrete excess salt through a gland

below their eyes, often giving the impression they are crying when on land. Therefore, Sea turtles 'cry' salt.

Sometimes baby sharks eat each other. The embryos of sand tiger sharks will eat their siblings inside their mother's uterus. It is known as embryonic cannibalism and whilst a mother may start with 10 embryos (which can also belong to different dads) she will only ever give birth to a max of two.

Lobsters pee on their partners? The complex courtship behavior between most lobster species actually involves urinating on each other. Lobsters can mix powerful pheromones into their urine which they use to communicate and also control one another's behavior.

The sun is what makes the ocean blue.

Marine iguanas have trident-shaped teeth that are specially designed for scraping algae off rocks. It gives them the appearance of little hands that wave at you from their gaping smiles.

Undersea cables power the global internet. Global communication is made possible by undersea cables. The internet relies on cables crossing the ocean floor between continents and land masses. This network has a length of over half a million miles. It consists of over 200 independent systems of connected cables and carries over 95% of global communication. Today more than 99% of international communications are carried over fiber optic cables, most of which are undersea.

Little skates are the only known organism that are able to regrow and repair their own cartilage skeletons. This discovery has led to trials to see if the same technique can be used to do the same in humans.

About 75% of deep-sea creatures create their own light. A large variety of animals like fish, worms, jellyfish, octopuses, squid, and crustaceans can emit their own light. This phenomenon is called bioluminescence. Bioluminescence is an ecological trait expected of all animals living in water because of its immense importance. These sea creatures use this light to hunt, ward off predators, or attract mates.

The oxygen isotopes of barnacle shells can be used to track the migration routes of the whales they are attached to like a whale GPS. In fact, even fossilized barnacles can be used to do this for whales that lived millions of years ago!

The loudest sound ever recorded was made by an iceberg. In 1997, the sound was recorded and named, "The Bloop." It was said to be heard from more than 3,000 miles away.

Most of the picturesque white sand on tropical beaches is actually parrotfish poop. These colorful reef fish scrape algae off corals, often eating just as much coral as algae, which they break down and excrete as sand. The average parrotfish will poop out over 100kg of sand a year.

The mantis shrimp has the most powerful punch in the animal kingdom. They can strike their claws at 50mph with the equivalent force of a .22 caliber bullet and can even create sparks underwater! Simply put, the mantis shrimp pack a punch

Ninety percent of the earth's volcanic activity happens in the ocean.

There are more historic artifacts under the sea than in all of the world's museums.

There are 16 species of ultra-black fish, whose skin absorbs over 99.5% of the light that hits them. This allows them to remain practically invisible in the deep ocean and sneak up on their prey, whilst avoiding predators.

Some pygmy seahorses stay on the same sea fan their entire life and may only ever move around within an area the size of a dinner plate.

It is estimated there are more than 3 million shipwrecks on the ocean floor.

Sea sponges were around more than 640 million years ago. Experts believe they are closely related to the very first multi-cellular organism. They can also live for over 11,000 years, making them the most long-lived animals ever! Putting it into perspective, Sea sponges are older than the dinosaurs.

The great barrier reef in Australia can be seen from the moon.

The deepest recorded fish is a ghost or 'ghost fish"! The deepest living fish ever recorded is the ghost fish, filmed during a dive into the Mariana Trench at a depth of 8,143m!

The largest blue whale on record was 108 feet long. That's as tall as an 11-story building.

Do basking sharks actually have teeth? Despite being filter feeders that only consume plankton and other micro-organisms, basking sharks do actually have teeth. Their residual gnashers only grow to a tiny 2mm in length and despite having little use for them they still have around 1,500 of them.

The longest known mammal migration was achieved by a gray whale travelling 22,511km over the course of 172 days!

There are more than 400 species of sharks in the ocean.

Octopuses actually have 3 hearts, a systemic heart which pumps blood around the body and 2 branchial hearts that pump it through their gills. If that wasn't weird enough their blood is also blue, because it contains copper instead of iron.

Seaweeds can be really useful. Special compounds extracted for the cell walls of brown algae, known as alginates, are used widely in everyday products including beer, ice cream, adhesives, ceramics, paper, explosives, waterproof fabrics and antacids, as well as being trialed in bone and brain tissue regeneration experiments.

Boxer crabs use anemones as 'boxing gloves' to fight off predators. In this form of symbiosis, the anemones get free travel and food in return for being used as a stinging weapon to protect its crustacean host.

Researchers have shown that distinct groups of dolphins from the same species show variation in the sounds they make to communicate. This is one of the strongest pieces of evidence that these cetaceans have actually developed a language which is passed down through generations. Therefore, Dolphins have accents and dialects!

The world's longest mountain range is underwater: The longest mountain range in our world lies in the oceans. It's the Mid-Ocean Ridge with a size close to 40,390 miles long. It dwarfs the longest mountain range above the waters, the Andes, which is about 4300 miles long.

It's super interesting that over 60% of octopus cognition happens in their arms! Unlike most other animals, octopus' neural networks actually extend out of their centralized brain and into their arms. This means each arm has its own 'separate' brain and can act individually from the rest of the body, this is what allows them to have such incredible control over their arms and individual suckers. Because they can re-grow detached arms, this also means they have the ability to re-grow brain tissue.

To finish of the list here's a list of some of the coolest marine animal group names...

- Squid** – an audience
- Lobsters** – a risk
- Sharks** – a shiver
- Stingrays** – a fever
- Manta rays** – a squadron
- Fish (generally)** – a school
- Barracuda** – a battery
- Herring** – an army
- Sea turtles** – a bale or nest
- Clams & oysters** – a bed
- Dolphins** – a pod
- Sea otters** – a romp
- Crabs & octopuses** – a consortium
- Sea urchins & whales** – a herd
- Jellyfish** – a fluther, bloom or smack
- Sea birds** – a wreck
- Starfish** – a galaxy

