Welcome to the

OCEANARIUM

Sea fun for all ages!

PLEASE REMEMBER TO TAKE YOUR TRASH

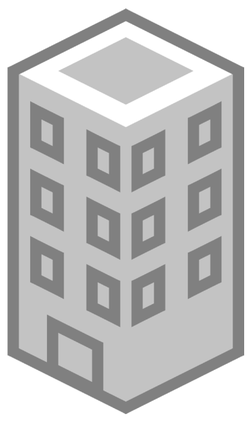
3 times more rubbish is dumped into the ocean than the total weight of fish caught per year.

No. 1	Cigarettes & Cigarette Filters	No. 6	Bags (Paper)
No. 2	Bags (Plastic)	No. 7	Straws & Stirrers
No. 3	Food Wrappers & Containers	No. 8	Plates & Cutlery
No. 4	Caps & Lids	No. 9	Beverage Bottles (Glass)
No. 5	Beverage Bottles (Plastic)	No. 10	Beverage Cans

Approximately 11,439,086 items of debris are found in the ocean per year, according to the Ocean Conservancy 2013 International Coastal Cleanup. 83% of that total is comprised of the top ten offenders shown here. Do your part to keep the ocean clean, and use the rubbish bins provided at every exit!

MARINE EXHIBT

CHARACTERISTICS



Oceans absorb between 30% and 50% of the carbon dioxide produced by burning fossil fuel. Carbon dioxide is transported downwards by plankton. Any change in the temperature of the ocean water, influences the ability of plankton to take up carbon dioxide. This has consequences for the ecosystem, because plankton form the base of the food web.

Some scientists estimate that the oceans contain as much as 50 quadrillion tons of dissolved solids. If the salt in the ocean could be removed and spread evenly over the Earth's land surface it would form a layer more than 500 feet (166 m) thick, about the height of a 40-story office building.

Atlantic sea water is heavier than Pacific sea water due to its higher salt content. The freezing point of sea water depends on its salt content. Typical ocean water has about 35 grams of salt per liter and freezes at -19 degrees C.

Under the enormous pressures of the deep ocean, sea water can reach very high temperatures without boiling. A water temperature of 400 degrees C has been measured at one hydrothermal vent. The average temperature of all ocean water is about 3.5° C. Almost all of the deep ocean temperatures are only a little warmer than freezing (39°F).

The density of ocean water varies. It becomes more dense as it becomes colder, right down to its freezing point of -1.9 degrees C, unlike fresh water, which is most dense at 4 degrees C, well above its freezing point.

ICE IN THE OCEAN

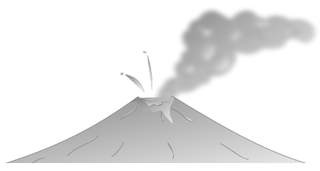
Antarctica has as much ice as the Atlantic Ocean has water. The Arctic produces 10,000 to 50,000 icebergs annually. The amount produced in the Antarctic regions is inestimable. Icebergs normally have a four-year life-span; they begin entering shipping lanes after about three years.

REEFS

Over 60% of the world's coral reefs are threatened as a result of pollution, sedimentation and bleaching due to rising water temperatures caused by global warming. Global Coral Monitoring Network (GCRMN) states that currently 27% of all coral reef worldwide has disappeared and around 2050 only 30% will be left.

VULCANISM

90% of all volcanic activity on Earth occurs in the ocean. The largest known concentration of active volcanoes (approximately 1,133) on the sea floor is located in the South Pacific.



TERRESTRIAL EXHIBT

COASTLINES

The total length of the world's coastlines is about 315,000 miles, enough to circle the Equator 12 times!

As coastal zones become more and more crowded, the quality of coastal water will suffer, the wildlife will be displaced, and the shorelines will erode. 60% of the Pacific Coast shoreline and 35% of the Atlantic Coast shoreline are eroding at a rate of a meter every year.

By the end of the millennium 13 out of 15 of the world's largest cities will be located on or near the coast. Growing population in coastal areas leads to more marine pollution and distribution of coastal habitats. Some 6,5 million tons (6,500,000,000 kilo) of litter finds its way into the sea each year.

More than half the world's population live within a 100 km (60 miles) distance from the coast. This is more than 2.7 billion people, and includes almost half of all Americans. Rapid urbanization will lead to more coastal mega-cities containing 10 million or more people.

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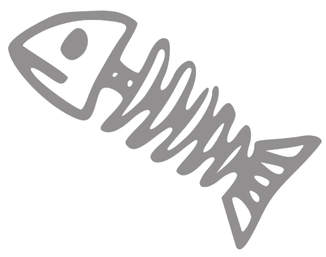
FISHERIES

The sea provides the biggest source of wild or domestic protein in the world: fish!



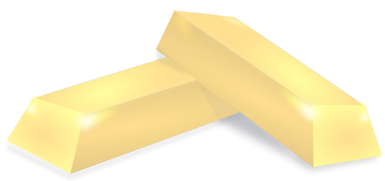
Each year some 70 to 75 million tons of fish are caught in the ocean. Of this amount around 29 million tons is for human consumption. The global fish production exceeds that of cattle, sheep, poultry or eggs. Fish can be produced in two ways: by capture and by aqua culture. The total production has grown 34% over the last decade. Species of fish endangered by overfishing are: tuna, salmon, haddock, halibut, and cod.

In the 19th century, codfish weighing up to 200 pounds used to be caught. Nowadays, a 40 pound cod is considered a giant. Reason: overfishing.

PRECIOUS METALS

The worlds oceans contain nearly 20 million tons of gold. If all the gold suspended in the world's seawater were mined, each person on Earth could have about 9 pounds of gold.

Oil is one of the ocean's greatest resources. It gives us heat for our homes, endless consumer products, and the ability to run the engines of cars, planes, and boats for auto transport all over the world. Nearly one-third of the world's oil comes from offshore fields in our oceans which, as we've seen can have devastating effects on our ocean's ecosystems. The transport of ocean oil from the Arabian Gulf, The North Sea, and the Gulf of Mexico reaches all corners of the globe on a daily basis.



A single quart of motor oil can contaminate up to 2 million gallons of drinking water.

SEA LEVEL

The sea level has risen with an average of 4 to 10 inches (10 to 25 cm) over the past 100 years and scientists expect this rate to increase. Sea levels will continue rising even if the climate has stabilized, because the ocean reacts slowly to changes.

In the unlikely event that all the polar ice were to melt, the sea level all over the world would rise 500 to 600 feet. As a result, 85 to 90% of the Earth's surface would be covered with water as compared to the current 71%. The U.S. would be split by the Mississippi Sea, which would connect the Great Lakes with the Gulf of Mexico.

10,000 years ago the ocean level was about 330 ft (110 m) lower than it is now.

39 FACTS ABOUT OUR OCEAN

1. 1.The deepest point in the ocean is 36,198 feet (11,033 m) in the Mariana Trench in the western Pacific. **2.** The average depth of the ocean is 12,200 feet (3,720 m). **3.** The top ten feet of the ocean hold as much heat as our entire atmosphere. **4.** The oceans provide 99 percent of the Earth's living space- the largest space in our universe known to be inhabited by living organisms. **5.** More than 90% of this habitat exists in the deep sea known as the abyss. **6.** Less than 10% of this living space has been explored by humans. **7.** Mount Everest (the highest point on the Earth's surface 5.49 miles) is more than 1 mile shorter than the Challenger Deep (the deepest point in the ocean at 6.86 miles). **8.** The longest continuous mountain chain known to exist in the Universe resides in the ocean at more than 40,000 miles long. **9.** The Monterey Bay Submarine Canyon is deeper and larger in volume than the Grand Canyon. **10.** The Antarctic ice sheet that forms and melts over the ocean each year is nearly twice the size of the United States. **11.** The average temperature of the oceans is 2°C, about 39°F. **12.** Water pressure at the deepest point in the ocean is more than 8 tons per square inch, the equivalent of one person trying to hold 50 jumbo jets. **13.** The Gulf Stream off the Atlantic seaboard of the United States flows at a rate nearly 300 times faster than the typical flow of the Amazon river, the world's largest river. **14.** The color blue is least absorbed by seawater; the same shade of blue is most absorbed by microscopic plants, called phytoplankton, drifting in seawater. **15.** A swallow of seawater may contain millions of bacterial cells, hundreds of thousands of phytoplankton and tens of thousands of zooplankton. **16.** The blue whale, the largest animal on our planet ever (exceeding the size of the greatest dinosaurs) still lives in the ocean; it's heart is the size of a Volkswagen. **17.** The gray whale migrates more than 10,000 miles each year, the longest migration of any mammal. **18.** The Great Barrier Reef, measuring 1,243 miles, is the largest living structure on Earth. It can be seen from the Moon. **19.** More than 90 percent of the trade between countries is carried by ships and about half the communications between nations use underwater cables. **20.** More oil reaches the oceans each year as a result of leaking automobiles and other non-point sources than was spilled in Prince William Sound by the Exxon Valdez. **21.** Fish supply the greatest percentage of the world's protein consumed by humans. **22.** The Grand Banks, the pride of New England fishing for centuries, are closed due to overfishing. **23.** Three-quarters of the world's mega-cities are by the sea. **24.** By 2010, 80 per cent of people will live within 60 miles of the coast. **25.** Death and disease caused by polluted coastal waters costs the global economy US$12.8 billion a year. The annual economic impact of hepatitis from tainted seafood alone is US$7.2 billion. **26.** Plastic waste kills up to 1 million sea birds, 100,000 sea mammals and countless fish each year. Plastic remains in our ecosystem for years harming thousands of sea creatures everyday. **27.** Over the past decade, an average of 600,000 barrels of oil a year has been accidentally spilled from ships, the equivalent of 12 disasters the size of the sinking of the oil tanker Prestige in 2002. **28.** Tropical coral reefs border the shores of 109 countries, the majority of which are among the world's least developed. Significant reef degradation has occurred in 93 countries. **29.** Although coral reefs comprise less than 0. 5 per cent of the ocean floor, it is estimated that more than 90 per cent of marine species are directly or indirectly dependent on them. **30.** There are about 4,000 coral reef fish species worldwide, accounting for approximately a quarter of all marine fish species. **31.** Nearly 60 per cent of the world's remaining reefs are at significant risk of being lost in the next three decades. **32.** The major causes of coral reef decline are coastal development, sedimentation, destructive fishing practices, pollution, tourism and global warming. **33.** The High Seas, areas of the ocean beyond national jurisdiction, cover almost 50 per cent of the Earth's surface. They are the least protected part of the world. **34.** Although there are some treaties that protect ocean-going species such as whales, as well as some fisheries agreements, there are no protected areas in the High Seas. **35.** Studies show that protecting critical marine habitats, such as warm-and cold-water coral reefs, seagrass beds and mangroves, can dramatically increase fish size and quantity. **36.** More than 3.5 billion people depend on the ocean for their primary source of food. In 20 years, this number could double to 7 billion. **37.** Populations of commercially attractive large fish, such as tuna, cod, swordfish and marlin have declined by as much as 90 per cent in the past century. **38.** Each year, illegal longline fishing, which involves lines up to 80 miles long, with thousands of baited hooks, kills over 300,000 seabirds, including 100,000 albatrosses. **39.** As many as 100 million sharks are killed each year for their meat and fins, which are used for shark fin soup. Hunters typically catch the sharks, de-fin them while alive and throw them back into the ocean where they either drown or bleed to death. The annual global by-catch mortality of small whales, dolphins and porpoises alone is estimated to be more than 300,000.