



My Drift

Title: The Oceans

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While there is only one global ocean, the vast body of water that covers 71 percent of the Earth is geographically divided into distinct named regions. The boundaries between these regions have evolved over time for a variety of historical, cultural, geographical, and scientific reasons.



Historically, there are four named ocean basins: the Atlantic, Pacific, Indian, and Arctic. However, most countries - including the United States - now recognize the Southern (Antarctica) as the fifth ocean basin. The Pacific, Atlantic, and Indian are the largest and most commonly known.

What is the difference between an ocean, a sea, a gulf, a bay, and a strait?

The answer can be quite confusing due to overlaps and mislabeled bodies of water. As we learned earlier, there is only one big global ocean on earth that has been divided into five ocean basins: The Pacific, the Atlantic, the Indian, the Arctic and the Southern (Antarctica). Now keep this in mind – Seas, gulfs, bays, and straits are all part of the ocean but have been labeled such due to their size, shape, and location.

Seas

What makes a sea different from other bodies of water? That is not an easy question to answer because the definition of a sea leaves some room for interpretation. In general, a sea is defined as a portion of the ocean that is partly surrounded by land. Given that definition, there are about 50 seas around the world.

Moreover, in some cases, a sea is completely landlocked. The Caspian Sea is the most famous example, though this sea, which lies between Russia and Iran, is also referred to as the world's largest lake. Other seas surrounded by land include the Aral Sea and the Dead Sea. They contain saltwater and have been called seas forever, but most oceanographers are more inclined to call them saltwater lakes. You know, like the Great Salt Lake in Utah.

The North Sea is a famous sea of the Atlantic Ocean located between Great Britain (England and Scotland), Denmark, Norway, Germany, the Netherlands, Belgium, and France. The North Sea connects to the ocean through the English Channel in the south and the Norwegian Sea in the north. It is more than 600 miles long and 360 miles wide, with an area of 220,000 square miles.



Still, that leaves dozens of water bodies that fit the traditional definition of a sea, even though they can be quite different from one another. A sea can be more than 1 million square miles in area, such as the Caribbean Sea. Or, it can be as tiny as the Sea of Marmara, which is less than 5,000 square miles in area. This tiny Turkish sea connects the Aegean Sea and the Black Sea.

Gulfs and Bays

Gulfs and bays are bodies of water that jut into the land. In other words, they are mostly surrounded by land. The world's largest gulf is the Gulf of Mexico, with a total surface area of about 600,000 square miles. It is surrounded by Mexico, the southern coast of the United States, and Cuba, and contains many bays, such as Matagorda Bay in Texas and Mobile Bay in Alabama.



Gulf of Mexico



Bay of Bengal

Gulfs and bays share the same basic definition, but there are some slight nuances between the two. The main difference between a gulf and a bay is size. Gulfs are typically (though not always) much larger than bays. They're also characterized by small openings and round bodies.

The Bay of Bengal (see map above), the largest bay in the world, is a bay that is part of the northeastern Indian Ocean. This bay has played a pivotal role in the histories of the nations that surround it, including India, Bangladesh, Myanmar, and Indonesia.

Chesapeake Bay is the largest bay in the United States and North America. The Chesapeake Bay Watershed covers 64,000 square miles and includes more than 150 rivers and streams that drain into the Bay.

Straits

A strait is a narrow passageway of water, usually between continents or islands, or between two larger bodies of water. The Strait of Gibraltar is probably the world's most famous strait. It connects the Atlantic Ocean on its west with the Mediterranean Sea on its east. It also separates northern Africa from the Rock of Gibraltar on the southernmost point of Europe (Spain). Historically, almost all commerce between the Mediterranean Sea and Atlantic Ocean was routed through the Strait of Gibraltar. It is still an important route of international trade.



Strait of Gibraltar (circled in red)

Two other well-known straits are the Strait of Bosphorus and the Strait of Hormuz. The Strait of Bosphorus is located in southwestern Asia and southeastern Europe. It connects the Black Sea (from the north) and the Sea of Marmara (from the south) and splits northwestern Turkey. The Strait of Hormuz is located at the southeastern end of the Persian Gulf. It is a narrow waterway that can be (and has been) controlled to prevent ships from sailing through the gulf.

Seven Seas

Have you heard the phrase “Sailing the Seven Seas”? It originally came from ancient Greek literature where the Seven Seas were the Aegean, Adriatic, Black, Mediterranean, Red, and Caspian seas, with the Persian Gulf thrown in as a "sea." Now days, the "Seven Seas" is a phrase used for all of the world's oceans.



The Original Seven Seas

Okay, we know a little more about the bodies of water that make up the global ocean. Let's take a closer look at the five primary ocean basins:

Pacific Ocean

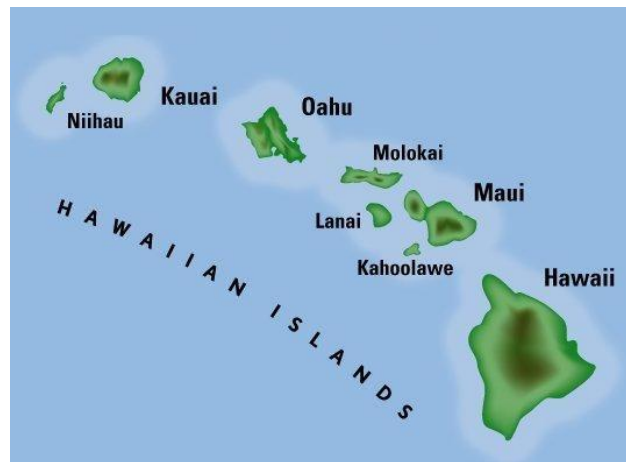
The Pacific Ocean is the largest and deepest of Earth's oceanic divisions. It extends from the Arctic Ocean in the north to the Southern Ocean (Antarctica) in the south and is bounded by the continents of Asia and Australia in the west and the Americas in the east.

At 63,800,000 square miles, this largest division of the World Ocean—and, in turn, the hydrosphere—covers about 46% of Earth's water surface and about 32% of its total surface area, making it larger than all of Earth's land area combined.



The Pacific Ocean is further subdivided into the North Pacific (north of the equator) and South Pacific (south of the equator). The Galápagos and Gilbert Islands, while straddling the equator, are deemed wholly within the South Pacific. As you probably know, Hawaii is located in the North Pacific.

The approximately 20,000 islands in the Pacific Ocean are concentrated in the south and west. Most of the larger islands are structurally part of the continent and rise from the continental shelf; these include the Japanese island arc, the Malay Archipelago, and the islands of northwest North America and southwest South America. Scattered around the Pacific and rising from the ocean floor are high volcanic islands (such as the Hawaiian Islands) and low coral islands (such as those of Oceania).



The average depth of the Pacific Ocean is 13,000 feet. Challenger Deep in the Mariana Trench, located in the western north Pacific, is the deepest point in the world, reaching a depth of 35,853 feet. That is deeper than Mount Everest is tall at 29,035 feet. The Pacific also contains the deepest point in the Southern Hemisphere, the Horizon Deep in the Tonga Trench, at 35,509 feet. The third deepest point on Earth, the Sirena Deep, is also located in the Mariana Trench.

Atlantic Ocean

The Atlantic Ocean is the second largest of the world's oceans, with an area of about 41,100,000 square miles. It covers approximately 20 percent of Earth's surface and about 29 percent of its water surface area. It separates the "Old World" from the "New World".



The Atlantic Ocean occupies an elongated, S-shaped basin extending longitudinally between Europe and Africa to the east, and the Americas to the west. As one component of the interconnected World Ocean, it is connected in the north to the Arctic Ocean, to the Pacific Ocean in the southwest, the Indian Ocean in the southeast, and the Southern (Antarctica) Ocean in the south.

The average depth of the Atlantic, with its adjacent seas, is 10,932 feet. The greatest depth, 28,232 feet, is in the Puerto Rico Trench. The width of the Atlantic varies from 1,770 miles between Brazil and Liberia to about 3,000 miles between the United States and northern Africa.

There are many islands in the Atlantic Ocean, among the most well-known are:

- Great Britain
- Ireland
- The Bahamas (southeast of the state of Florida)
- Canary Islands (Spanish islands off the coast of northwestern Africa)
- Azores (region of Portugal in the mid-Atlantic)
- Cape Verde Islands (an island country in the central Atlantic Ocean)
- Greenland (in the north Atlantic – it is the largest island on earth)

The Indian Ocean



The Indian Ocean is the third largest of the world's oceans covering 27,240,000 square miles or about 20% of the water on Earth's surface. It is bounded by Asia to the north, Africa to the west and Australia to the east. To the south it is bounded by the Southern (Antarctica) Ocean. Along its core, the Indian Ocean has some large regional seas such as the Arabian Sea, the Laccadive Sea, the Somali Sea, Bay of Bengal, and the Andaman Sea.

Along the east coast of Africa, the Mozambique Channel separates Madagascar from mainland Africa, while the Sea of Zanj is located north of Madagascar. On the northern coast of the Arabian Sea, Gulf of Aden is connected to the Red Sea by the strait of Bab-el-Mandeb. In the Gulf of Aden, the Gulf of Tadjoura is located in Djibouti and the Guardafui Channel separates Socotra island from the Horn of Africa. The northern end of the Red Sea terminates in the Gulf of Aqaba and Gulf of Suez. The Indian Ocean is artificially connected to the Mediterranean Sea through the Suez Canal (in Egypt), which is accessible via the Red Sea. The Arabian Sea is connected to the Persian Gulf by the Gulf of Oman and the Strait of Hormuz. In the Persian Gulf, the Gulf of Bahrain separates Qatar from the Arabic Peninsula.

Did you know that the Northern Indian Ocean is the most important transport route for oil as it connects the oil-rich countries of the Middle East with Asia? Every day tankers are carrying a cargo of 17 million barrels of crude oil from the Persian Gulf on its waters. 40% of the world's offshore oil production comes from the Indian Ocean, mainly from oilfields of Indonesia and the Persian Gulf.

There are many islands in the Indian Ocean, among the most well-known are:

- Mauritius (off the southeast coast of Africa)
- Reunion (a French island off the coast of East Africa near Madagascar)
- Madagascar (off the coast of East Africa – 4th largest island in the world)
- The Comores (off the southeastern coast of Africa)
- Maldives (in South Asia - situated in the Arabian Sea)
- Sri Lanka (island nation off the southern coast of India)
- Zanzibar (just off the coast of Tanzania)

Arctic Ocean

The Arctic Ocean is the smallest (5,427,000 square miles - covers about 3% of the earth's surface) and shallowest (average depth is 3,406 feet) of the world's five major oceans. It is also the coldest (average temperature is 28.8 °F which is near the freezing point of seawater).



Polar Bears

The Arctic is a vast, ice-covered ocean that is surrounded by tree-less, frozen land, which is often covered with snow and ice. The rigors of this harsh environment are a challenge to living, working, and performing research in the Arctic. None the less, the Arctic is an ecosystem that teems with life including organisms living in the ice, fish and marine mammals living in the sea, birds, land animals such as wolves, caribou, whales, walruses and polar bears plus several human societies. The Arctic region covers parts of eight countries: Canada, Greenland, Iceland, Norway, Sweden, Finland, Russia, and the U.S.

Northernmost town in the Arctic Circle? The world's northernmost town is Longyearbyen, which is located in the Norwegian archipelago of Svalbard and has 2,400 citizens. Longyearbyen is around 650 miles from the North Pole, making it the nearest town to it. It's dark for four months a year and light for another four months.

Utqiagvik, Alaska (known as Barrow up until 2016) is the northernmost U.S. town that is located in the Arctic Circle. Nearby Point Barrow is the country's northernmost point. Utqiagvik's population is about 4,000. Utqiagvik has about two months of darkness in the winter, from about November 18 to January 22. But in the summer, the sun doesn't completely set for about 82 days, from roughly May 11 until July 31.



Several cultural groups of indigenous people live today in the Arctic region, among them the Inuit, Yupik, Aleut and Saami people as well as Nenets in Russia. They try to still uphold their centuries old traditions such as reindeer herding, fishing, and hunting.

How much of the Arctic Ocean is covered in ice? Summer ice cover in the Arctic is about 50% of winter cover. Some of the ice survives from one year to the next. Currently, 28% of Arctic basin sea ice is multi-year ice, thicker than seasonal ice: around 10 to 13 feet thick over large areas, with ridges up to 66 feet thick.

Is the North Pole covered with ice? The North Pole sits in the middle of the Arctic Ocean, on water that is almost always covered with ice. The ice is usually about 10 feet thick.



The North Pole

Can humans swim in the Arctic Ocean? Yes, for about 15 minutes before they suffer unconsciousness and die.



Northern Lights

Another popular attraction for visitors to the polar region are the Northern Lights, also called the Aurora Borealis. The dancing light glow in the sky can be observed between November and April. Among the best places to see the Northern Lights are: Svalbard island in Norway, Churchill in Canada, Kangerlussuaq in Greenland, and in northern Alaska.

Southern (Antarctica) Ocean



The Southern Ocean, also known as the Antarctic Ocean, comprises the southernmost waters of the World Ocean, generally taken to be south of 60° South latitude and encircling Antarctica. As such, it is the fourth biggest (or second smallest) ocean on earth and covers only 6% of the earth's surface.

The maximum depth of the Southern Ocean lies south of 60th parallel and was surveyed by the Five Deeps Expedition in early February 2019. The expedition's multibeam sonar team identified the deepest point at a depth of 24,390 feet. The expedition leader and chief submersible pilot Victor Vescovo visited the bottom for the first time on February 3, 2019 in the manned submersible DSV Limiting Factor. The average depth has been determined to be 10,700 feet.

Why is the Southern (Antarctica) Ocean so dangerous? Icebergs!



Icebergs in the Southern (Antarctica) Ocean

Icebergs will be encountered in the Southern Ocean during any season, but during May to October there are also strong winds which make crossing the ocean even more dangerous. Big iceberg fragments (huge junks of ice) drift in the water. They can be several hundred feet high! Ice fragments are considered small if they are not thicker than 3 feet. Still even in the summer, ice-breaker ships often need to escort ships on their passage through the Antarctic waters.

Exploring the Antarctica



The low temperatures in the region, however, do not deter tourists exploring the area on special adventure travels and expeditions. More than 50,000 tourists experience the Southern Ocean every year.

A bit of history on the Southern (Antarctica) Ocean and Antarctica: The first known explorers who came in contact with the cold waters of the Southern Ocean were Bartolomeo Diaz who circumnavigated the Cape of Good Hope in South Africa in 1487 and Ferdinand Magellan who explored the Tierra del Fuego in South America in 1520. Captain James Cook searched for land in the Southern Ocean but never sighted Antarctica, he landed in Botany Bay/Australia in 1770 instead. He, however, crossed the Antarctic circle and reached as far as 71 degrees South latitude in 1773.

In 1819, for the first time, land was sighted south of 60 degrees South latitude. Only in the 19th century, Antarctica was discovered and explored during various expeditions. Sir Ernest Shackleton's expedition was the first attempt to cross Antarctica on land, but they only managed to reach 88 degrees South latitude. Roald Amundsen was the first to reach the South Pole in 1911.

The Southern Ocean is home to the emperor penguins and wandering albatrosses, blue whales, and fur seals. Some seal species hunt underwater and breed on land or on ice. The biggest of the seals are the elephant seals which weigh up to 8,818 pounds. Every spring, over 100 million birds nest on the rocky shores of Antarctica.



Emperor Penguins

Well, that's it for this article. Hope you learned something about the Earth's oceans. But guess what? This is actually only Part 1 on oceans. In my next article we are going to look under the ocean surface to see what's down there in the deep ocean.

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