

A little-known living world

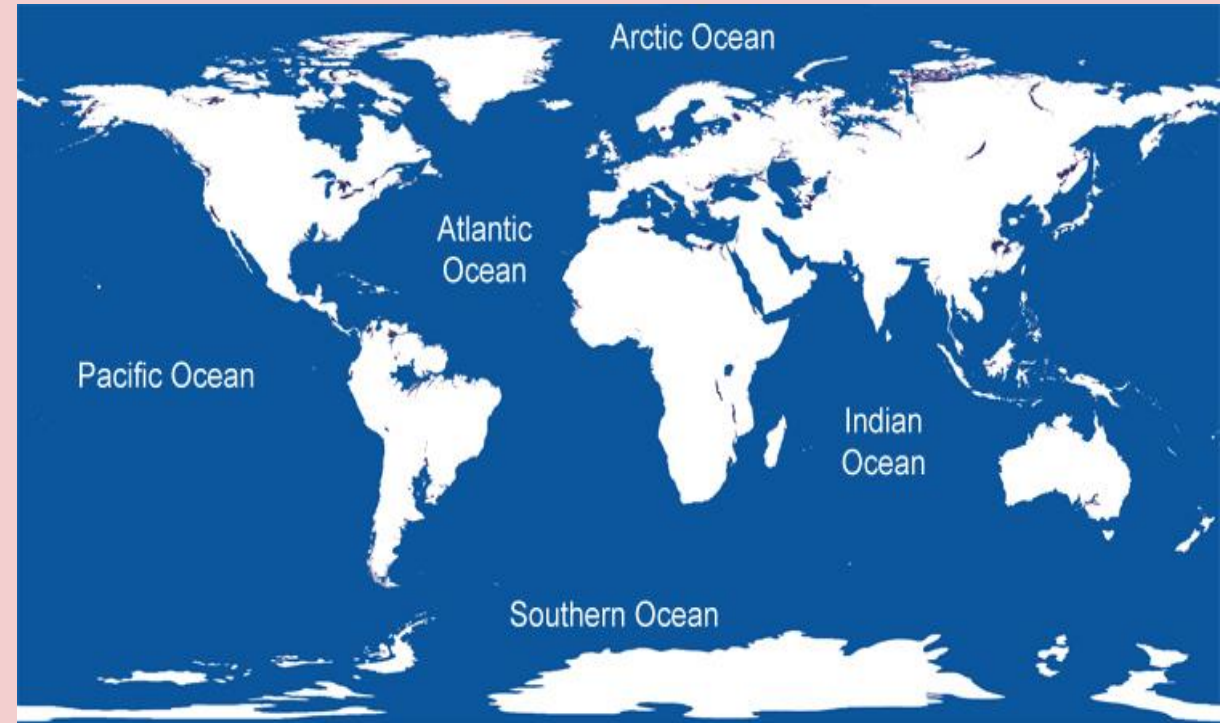
The ocean, Earth's largest ecosystem

- ▶ The Global Ocean is the interconnected mass of saline water that encompasses planet Earth, including polar and equatorial climate zones. It covers 71% of Earth's surface (1), holds approximately 94% of total hydrosphere volume, and accounts for 99% of habitable space. It is divided into five major regions: the Pacific (165 million km²), the Atlantic (106 million km²), the Indian (73 million km²), the Antarctic - or Southern - (20 million km²) and the Arctic (14 million km²) (2). This Ocean produces a little over half of all the atmosphere's oxygen and is essential for life on earth (3).

A yet unexplored marine world

- ▶ Oceans are the cradle of life and hold great wealth and potential. However, over 80% of this immense marine expanse remains unexplored to this day. The absence of light, freezing temperatures and elevated pressure slow down the exploration of ocean depths (4).

The world's oceans



Source: Surfertoday

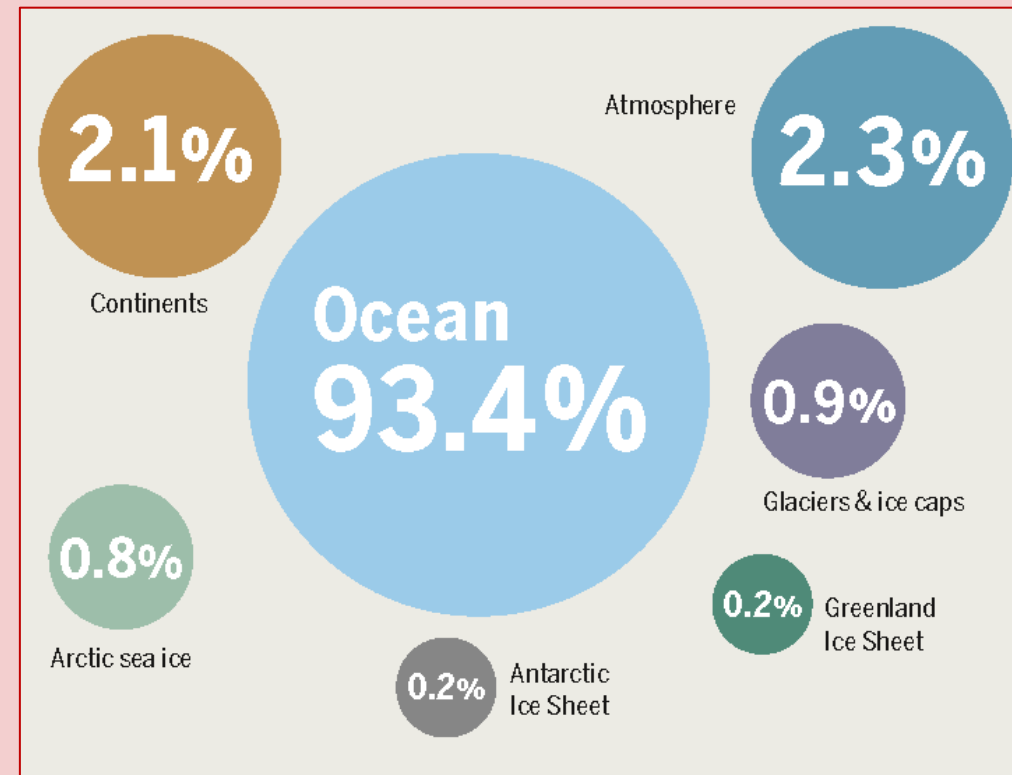
<https://www.surfertoday.com/environment/what-are-the-five-oceans-of-the-world>

A little-known living world

Oceans: resources, potential and climate regulator

- ▶ Oceans absorb almost a third of CO2 emissions from human activities (5). By doing so, they help reduce greenhouse effects.
- ▶ They therefore play a major role in regulating climate since they absorbed 93% of heat emissions since the industrial revolution (6). Excess heat is predominantly propagated towards the seabed. Consequently, surface temperatures only rise slowly and thus limit global warming.
- ▶ Without the ocean's action, temperatures would be even higher than they are.
- ▶ In addition to water resources, oceans abound in mineral resources (manganese nodule, cobalt, copper, nickel, ...) and in coveted renewable energy. This spans different forms of energy such as osmotic energy (from salinity), tidal energy (using the tides), hydrolic energy (from currents), wave energy or energy from waves (swell),

The ocean absorbs much of the excess heat from CO2 emissions



The ocean absorbs much of the excess heat from CO2 emissions which adds to natural greenhouse effects

Source: Atlas de l'océan, 2018; IPCC (7)

A little-known living world

References

1. Coutansais, C., 2015. *La Terre est bleue*. Les Arènes. Coll AR. Atlas. p.186
2. Surfrider Foundation Europe. *Carte des océans et des continents* [En ligne] disponible sur : <https://fr.oceancampus.eu/cours/u37/carte-des-oceans-et-des-continents>
3. Plateforme Océane & Climat. *L'Océan, origine de la vie* [En ligne] disponible sur <https://ocean-climate.Org/sensibilisation/locean-origine-de-la-vie/>
4. National Oceanic and Atmospheric Administration. *How much of the ocean have we explored?* [En ligne] disponible sur : <https://oceanservice.noaa.gov/facts/exploration.html>
5. Plateforme Océan et Climat, 2019. *Océan et Changement climatique : les nouveaux défis. Focus sur 5 grands thèmes du Rapport Spécial "Océan et Cryosphère"* . p.38
6. Albarede, F. *Où la Terre a-t-elle puisé son eau ?*, in Centre national de la recherche scientifique et technologique (CNRST).
7. Heinrich-Böll-Stiftung, 2018. *Atlas de l'Océan : faits et chiffres sur les menaces qui pèsent sur nos écosystèmes marins*. p 24