

Offshore aquifers

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Why in news?

Recently, the international scientists have discovered the existence of large aquifer, under the Atlantic Ocean, first global expedition to drill systematically under the sea for freshwater.

- **Offshore aquifers -**

- The offshore aquifer is just one of many depositories of freshwater known to **exist in shallow salt waters** around the globe.
- Like aquifers on land, offshore aquifers are **bodies of rock or sediment which contain freshwater**.
- Scientists believe that offshore aquifers can **extend up to 90 kilometres** off the coast and contain more freshwater than all the water that has ever been removed from aquifers on land.

- **Extent -** The scientists have confirmed the existence of offshore aquifers at several locations, including **off the coasts of Australia, China, North America, and South Africa**.

- It is estimated that there was a million cubic kilometers of freshwater beneath the sea floor **about 10% of all terrestrial fresh groundwater**.

- **Source of freshwater -** There are two theories -

- **Ice Age Hypothesis** - The water might have reached beneath the sea floor, when sea levels were lower and large areas that are currently covered by the ocean were dry land.
- As a result, rain trickled into the ground, building up large volumes of freshwater.
- **Connection Hypothesis** - Offshore aquifers could be connected to onshore aquifers, which regularly supply them with water after rainfall.

- **Freshwater Preservation -** The freshwater beneath offshore aquifers may not be getting mixed with salty water **due to a cap rock layer**, built

from compacted clay-rich sediment, over the aquifers.

- **Challenges in extraction** - offshore drilling is quite expensive; not clear about the impact of the ecology and marine life; and the issues of ownership and rights.
- **Significance** - Offshore aquifers can be untapped freshwater reserves and help deal with water scarcity on land.

*According to a 2023 **United Nations report**, the world is currently facing an unprecedented water crisis, with global freshwater demand predicted to exceed supply by 40% by 2030.*

***A triple crisis** - misusing water, polluting water, and changing the whole global hydrological cycle*

Reference

[Indian Express | Offshore aquifers](#)

