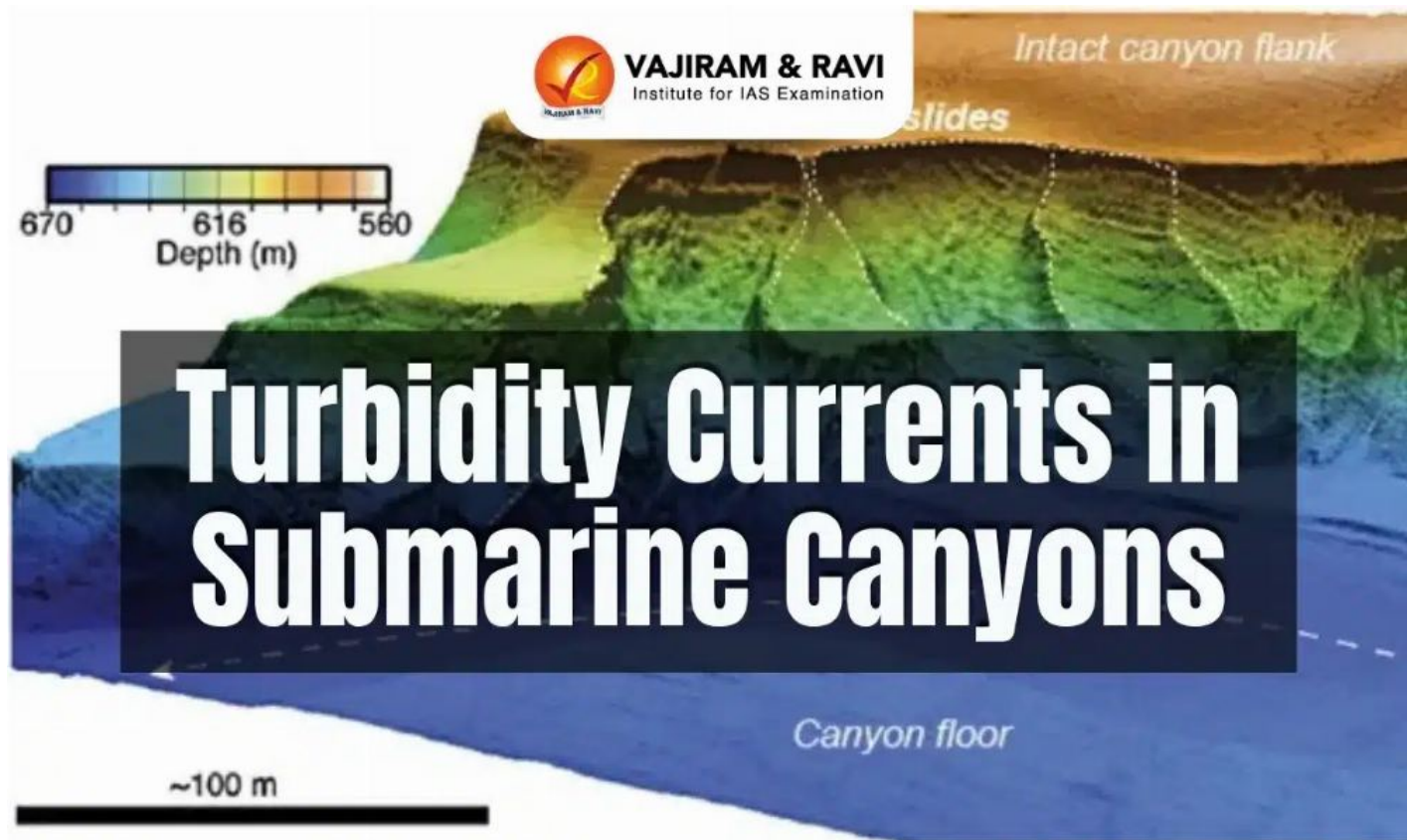


Turbidity Currents in Submarine Canyons

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Turbidity Currents in Submarine Canyons Latest News

A recent study published in ACS Environmental Science & Technology has provided the first direct evidence of turbidity currents transporting microplastics into the deep sea through submarine canyons, even in areas not fed by rivers (e.g., Whittard Canyon off Ireland).

What are Turbidity Currents?

- **Turbidity currents** are **rapid, downslope flows** of water heavily laden with **sediments**, increasing the water's **density**.
- They function similarly to **underwater avalanches**, triggered by:
 - **Earthquakes**
 - **Submarine landslides**
 - **Slope failures** and other **geological disturbances**
- **Key Features of Turbidity Currents**
 - As turbidity increases, water becomes **denser and less transparent**.

- These flows **erode the seafloor**, forming and enlarging **submarine canyons**.
- They deposit **sediment in graded layers**, with **coarser particles settling first** and finer ones later.
- Aid in **deep-sea sedimentation** and **shaping oceanic topography**.

Submarine Canyons

- **Submarine canyons** are **narrow, steep-sided underwater valleys** found on **continental slopes and rises**, often extending from the **continental shelf** into the **deep ocean**.
- They are carved out mainly by **erosional forces** like **turbidity currents**, similar to how river canyons are formed on land.
- Globally, there are about **9,477 known submarine canyons**, covering nearly **11% of continental slope areas**.
- **Canyons on active margins** (tectonically active zones) tend to be **steeper and shorter**, while those on **passive margins** are more gradual.
- Their walls can be **nearly vertical** and are prone to **collapse**, adding sediment to turbidity flows.

Types of Submarine Canyons

- **Bank**: A **flat-topped elevation** on continental margins, formed by **erosional and depositional processes**, e.g., **Dogger Bank** in the **North Sea**.
- **Shoal**: A **shallow area of sediment accumulation**, often **hazardous to navigation**, and generally found at depths **<10 meters** at low tide.
- **Reef**: Built from **calcareous skeletons** of corals and algae; coral reefs are **biodiversity hotspots** and prominent in the **Pacific Ocean**, associated with **guyots and seamounts**.

Source: PHY

Source: <https://vajiramandravi.com/current-affairs/turbidity-currents-in-submarine-canyons/>

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