




# Movement Of Ocean Water

- Ocean water has three movements: waves, tides and currents.
- Waves and currents are horizontal movements; tides are vertical movements.
- Waves get energy mainly from wind.
- Tide is periodic rise and fall of sea level due to Moon and Sun's gravity.
- Moon has stronger tidal influence because it is closer to Earth.
- Spring tide occurs during new moon and full moon when Sun, Earth and Moon are in syzygy.
- Neap tide occurs when Sun and Moon are at right angles.
- Bay of Fundy has the world's highest tides, about 15-16 metres.
- Surface currents occur up to about 400 m depth and form about 10% of ocean water.
- Deep currents form about 90% of ocean water and are driven by temperature-salinity density differences.
- Warm currents move from low latitudes to high latitudes; cold currents move from high latitudes to low latitudes.
- Ocean Mean Temperature is more stable than Sea Surface Temperature for monsoon prediction.



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- El Niño is the warm phase of ENSO and often weakens the Indian monsoon.
  - La Niña is the cool phase of ENSO and is linked with stronger Indian monsoon rainfall.
  - Estuary is a partly enclosed coastal water body where river freshwater mixes with ocean saltwater.
  - Coral reefs are formed by coral animals secreting calcium carbonate.
  - Coral reefs need warm water above about 20°C, shallow depth and clear saline water.
  - Main coral reef types are fringing reef, barrier reef and atoll.
  - Coral bleaching is whitening of corals due to loss of zooxanthellae.
  - Ocean warming, acidification, pollution, marine debris and sedimentation damage coral reefs.




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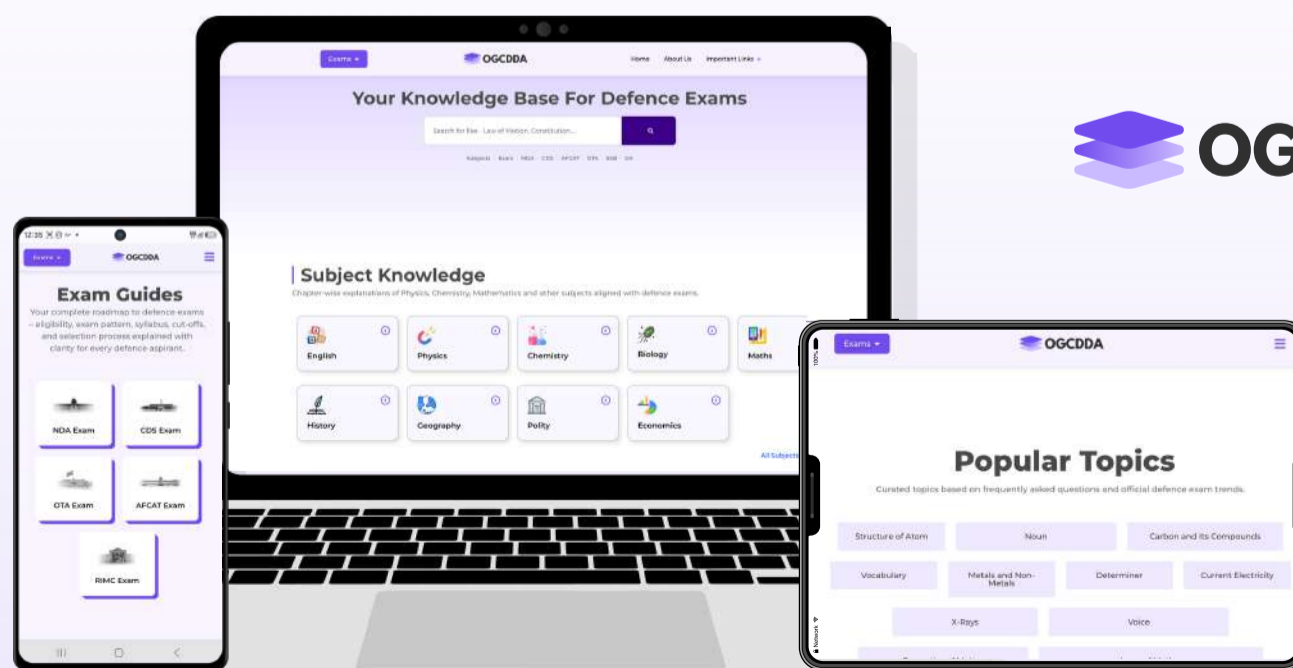
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