

## Impact of Warming Waters on Marine Life

### Why in News?

According to a recent analysis by Down To Earth (DTE), nearly 20% of species residing in UNESCO's World Heritage marine sites have lived in unsuitable warm waters.

- **Global sea surface temperature (SST)** - At present, it is roughly 1 degrees Celsius higher than 140 years ago, according to National Oceanic and Atmospheric Administration.
- The warmest future climate scenario or SSP 8.5 (best estimate projected warming of 4.4°C by the end of the century).
- **Impact** - Ocean heat content has impacted all the 6 major oceans since 1998.
- But the most significant warming has been in the southern oceans.
- **Induce migration** - Ocean warming is shifting marine species into cooler and deeper waters from their natural habitats.
  - Warming waters have compelled white-beaked dolphins found in cooler North Atlantic waters to move north-west from the southern areas during 1991-2017.
- **Impacts reproduction of mammals** - Female sperm whales are unable to conceive at their known rates due to warm waters.
- **Affect survival rates of mammals** - As species migrate for new suitable waters, they become more vulnerable to new pathogens.
- **Affect water movement** - It impacts oxygen levels between the surface waters and deeper waters that naturally circulates, providing nutrients to marine species.
- **Alter species behaviour** - For instance, bacteria which use oxygen as fuel has now switched to nitrate, eventually releasing nitrogen gas and impacting water and atmosphere characteristics.
- **Thermal limit breaching** - 881 of 4,406 species studied have breached their thermal limits includes.
- UNESCO's eDNA Expeditions inventoried 21 of 51 marine sites have exceeded their living thermal limits.

Location	Species living beyond their thermal limits
Coiba National Park, Panama	26.6%
Everglades National Park, US	24.4%
Banc d'Arguin National Park, Mauritania	23.9%
<b>Sundarbans, Bay of Bengal</b>	19.8%

**Environmental DNA (eDNA)** is an on-invasive sampling method developed by UNESCO, maps ocean life and create an inventory of marine biodiversity in 21 of its 51 World Heritage marine sites.

## References

1. [Down to Earth| Impact of Warming Waters on Marine Life](#)
2. [UNESCO | World Heritage Marine](#)
3. [UNESCO| Environmental DNA Expeditions](#)

