

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 <u>roughly 1 degrees Celsius</u> <u>higher than 140 years ago</u>, according to National Oceanic and Atmospheric Administration.
- The warmest future climate scenario or SSP 8.5 (best estimate *projected warming of* $4.4^{\circ}C$ 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.

	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%
Sundarbans, Bay of Bengal	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. <u>UNESCO | World Heritage Marine</u>
- 3. UNESCO Environmental DNA Expeditions

