

## **1. Microplastic Pollution**

**Prelims Syllabus:** Pollution & Waste Management

**Mains Syllabus:** GS-III Conservation, environmental pollution and degradation, environmental impact assessment.



### **Context:**

- According to a new study, an estimated 170 trillion plastic particles weighing about 2 million metric tons are currently afloat in the oceans across the world, and if no urgent action is taken then this number could nearly triple by 2040.

### **About Microplastics:**

- Microplastics are defined as synthetic solid particles sized ranging from 1 micrometre to 5 millimetres (mm), which are insoluble in water.
- They are particularly harmful to the oceans as they don't readily break down into harmless molecules and adversely affect the health of marine organisms, which mistake plastic for food.

### **Key findings of the new study:**

- They found that from 1990 to 2005, the number of plastic particles more or less fluctuated due to the effective implementation of important policy measures like MARPOL Annex 5 which enforced laws against dumping trash at sea.
- The concentration of plastic particles including microplastics in the ocean has skyrocketed in the oceans since the mid-2000s, and it continues to increase.
- If the world fails to take any drastic action about the issue, there will be a 2.6-fold increase in plastic flowing into aquatic environments by 2040.

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### How do microplastics impact the oceans and marine life?

- Mechanical problems, such as lacerations and blockages to internal systems of organisms.
- Ingested plastics can cause chemical problems by leaching absorb chemicals into organisms.
- Microplastics absorb many hydrophobic compounds, like DDT, PCBs and other industrial chemicals, and evidence shows they can be released when ingested.
- Microplastics can also disrupt the carbon cycle of the oceans.

### What can be done to limit plastic pollution in oceans?

- There is an urgent need to implement a global resolution to limit the production of single-use, throwaway plastic.
- Need to reduce the number of chemical additives in new plastic products.

### Initiatives Taken to tackle microplastics:

- **Global Initiatives:**
  - ✓ Global Partnership on Marine Litter (GPML)
  - ✓ GloLitter Partnerships Project
  - ✓ London Convention, 1972
- **India-Specific Initiatives:**
  - ✓ Elimination of Single Use Plastic
  - ✓ Plastic Waste Management Rules, 2016
  - ✓ Un-Plastic Collective