Environment & Ecology · GS - III

Explain how ocean circulation influences the spread of marine pollution. Discuss the importance of scientific monitoring in coastal pollution management.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 24/10/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Ocean currents, tides, waves, pollutant dispersion, marine ecosystems, tracer studies, coastal monitoring.

Model Answer

Introduction:

Marine pollution is not always confined to the location where it originates. Ocean circulation can transport contaminants across coastal regions, affecting ecosystems and human livelihoods.

Role of ocean circulation:

1. Currents: Carry pollutants away from their source and distribute them over wider areas.
2. Waves and tides: Influence mixing, dispersion and movement along coastlines.
3. Weather conditions: Winds and storms can alter circulation and accelerate pollutant transport.
4. Ecological impact: Contaminants can affect marine organisms, fisheries and coastal communities.

Importance of scientific monitoring:

1. Tracer-dye experiments help visualise water movement.
2. Satellite observations, sensors and oceanographic models can identify pollution pathways.
3. Early-warning systems support timely responses to oil spills and other contamination events.
4. Shared coastal data improves coordination among agencies and neighbouring regions.

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Conclusion:

Understanding ocean circulation is essential for predicting pollution pathways and designing effective coastal protection strategies.