

# Hydrosphere – SSC Notes

## 1. Definition of Hydrosphere

- **Hydrosphere:** All water bodies on Earth → Oceans, seas, rivers, lakes, glaciers, groundwater, atmospheric water
- **Importance:**
  - Supports life → Drinking, irrigation, industries
  - Regulates climate & weather
  - Transportation & trade
  - Energy → Hydro power

## 2. Distribution of Water on Earth

Water Type	Percentage	Features
Oceans	97%	Saline, largest → Pacific, Atlantic, Indian, Arctic, Southern
Glaciers & Ice Caps	2%	Freshwater → Antarctica, Greenland, Himalayas
Groundwater	0.6%	Aquifers → Drinking & irrigation
Rivers, Lakes, Streams	0.3%	Freshwater, surface water
Atmospheric Water	0.1%	Clouds, precipitation, humidity

## 3. Oceans & Seas in India

- Coasts of India → Arabian Sea (West), Bay of Bengal (East), Indian Ocean (South)
- Major Seas → Laccadive Sea, Andaman Sea, Arabian Sea, Bay of Bengal
- Importance: Fisheries, transport, climate moderation, minerals

## 4. Rivers of India

### A. Himalayan Rivers

- Source: Glaciers
- Perennial → Flow throughout the year

- Examples → Ganga, Yamuna, Brahmaputra, Indus
- Characteristics: Deep, navigable, fertile plains

## **B. Peninsular Rivers**

- Source: Hills / Plateaus
- Non-perennial / Seasonal → Flow mainly during monsoon
- Examples → Godavari, Krishna, Kaveri, Mahanadi, Narmada, Tapi
- Characteristics: Shorter, shallow, rapids & waterfalls

## **5. Lakes & Reservoirs**

- Types of Lakes:
  1. Tectonic → Formed by Earth movement → Chilika, Wular
  2. Glacial → Himalayan origin → Dal Lake, Sela Lake
  3. Artificial / Reservoirs → Dams → Bhakra, Hirakud
  4. Saltwater Lakes → Rann of Kutch

## **6. Groundwater**

- Definition: Water stored in underground rocks & aquifers
- Importance: Irrigation, drinking, industries
- Problems: Over-extraction → Depletion & salinity intrusion

## **7. Ocean Currents**

- Definition: Continuous horizontal flow of ocean water
- Types:
  1. Warm Currents → Northward in N.H., Eastward in S.H. → Gulf Stream
  2. Cold Currents → Southward in N.H., Westward in S.H. → Peru Current, Canary Current
- Importance: Influence climate & rainfall, navigation, fisheries

## **8. Tides & Waves**

- Tides → Rise & fall of sea level due to moon & sun's gravitational pull
  - High tide & Low tide → Semi-diurnal & diurnal
- Waves → Surface water movement → Caused by wind
- Importance: Coastal erosion, navigation, energy

## **9. Water Cycle / Hydrological Cycle**

- Process: Evaporation → Condensation → Precipitation → Collection → Evaporation
- Importance: Maintains freshwater balance, supports agriculture & life

## **10. Important SSC Points – Hydrosphere**

- Water on Earth → 97% oceans, 3% freshwater

- **Himalayan rivers → Perennial → Ganga, Yamuna, Brahmaputra**
- **Peninsular rivers → Seasonal → Godavari, Krishna**
- **Major seas → Arabian, Bay of Bengal, Laccadive, Andaman**
- **Lakes → Tectonic, Glacial, Saltwater, Reservoirs**
- **Groundwater → Aquifers, important for irrigation & drinking**
- **Ocean currents → Warm (Gulf Stream), Cold (Peru)**
- **Tides → Caused by Moon & Sun → High & Low**
- **Hydrological cycle → Evaporation, Condensation, Precipitation, Collection**