1. **Study on Coral Cover :** Recently, a comprehensive 24-year-long scientific study has brought to light a stark reality about **coral cover** in the **Lakshadweep archipelago**.
    - It shows that coral cover has declined largely due to repeated marine heatwaves caused by global climate change.

- **Key Highlights :** Study titled "Local Environmental Filtering and Frequency of Marine Heatwaves Influence Decadal Trends in Coral Composition", published in **Diversity and Distributions**.
    - Introduces a **predictive framework** to identify: **Vulnerable reefs**
        - ✓ **Potentially resilient reef zones** across the Lakshadweep archipelago and possibly beyond.
    - Coral cover in **Lakshadweep declined by ~50%**, from **37.24% in 1998 to 19.6% in 2022**.
    - Primary cause: **Repeated marine heatwaves**, especially during **El Niño years (1998, 2010, 2016)**, worsened by **global climate change**.
    - Local conditions like **wave exposure and reef depth** play a critical role in **shaping bleaching impact and recovery**.
- **About Coral : Sessile marine animals** that attach to the ocean floor. They live in **symbiosis with zooxanthellae** (algae) that provide nutrients via photosynthesis.
    - Corals also **capture food using tentacle-like structures**.
    - An individual coral animal is called a **polyp**, and many polyps form a **colony**.
    - **Hard corals** have limestone skeletons and **build coral reefs** over thousands of years but **soft corals** do not.
    - Coral reefs are known as the **"rainforests of the sea"**, existing for over **450 million years**.
    - They are **critical marine ecosystems**, supporting thousands of marine species.

2. **Indian Regional Navigation Satellite System (IRNSS) :** Recently, in a move to strengthen India's indigenous navigation capabilities, the **Indian Space Research Organisation (ISRO**) announced plans to launch three new satellites for the **Indian Regional Navigation Satellite System (IRNSS)** by 2026.
    - The first satellite in the upcoming series, **NVS-03**, is scheduled for launch **by the end of 2025**. The subsequent satellites, **NVS-04 and NVS-05**, are expected to follow in **six-month intervals**, bringing the navigation fleet closer to its intended capacity.

- **About IRNSS :** Also known as **NavIC** (Navigation with Indian Constellation), is an **indigenous, standalone navigation system** developed by ISRO. Operational since **2018**, it is **fully under Indian control**, including the space, ground, and user segments.
  - Aims to **reduce reliance on foreign satellite navigation systems**, particularly in **strategic and defence sectors**.
- **Key Features : Satellite Constellation**: 7 satellites (3 in **Geostationary Orbit** , 4 in **Inclined Geosynchronous Orbit**).
  - **Ground Segment**: Includes control centres, monitoring stations, timing facilities, and ranging stations.
  - **Service Area**: **Primary**: India and region up to **1500 km** from its borders.
    - ✓ **Extended**: Between **30° S to 50° N latitude** and **30° E to 130° E longitude**.
  - **Services Provided**: **Standard Positioning Service (SPS)** – for all users.
    - ✓ **Restricted Service (RS)** – encrypted, for authorised users only.
- **Significance and Need : Strategic Autonomy**: Ensures independent navigation capability, crucial during conflicts (e.g., GPS denial during Kargil War).
  - **Civilian Utility**: Supports accurate navigation for aviation, transport, maritime, agriculture, and public services.
  - **Disaster Management**: Aids in real-time location tracking for effective disaster response and risk reduction.
- **Global Navigation Satellite Systems (GNSS)** include: **GPS** – United States, **GLONASS** – Russia, **Galileo** – European Union & **BeiDou** – China

3. Scheme for Promotion of Culture of Science (SPoCS): Recently, 27 Science Centres have been established across India under the **Scheme for Promotion of Culture of Science (SPoCS),** launched by the Ministry of Culture, to actively promote scientific temper among the youth.

- **About SPoCS :** Aims to establish **Science Cities and Science Centres** across all states to promote scientific temper and innovation.
  - **Implementing Agency**: Executed by the **National Council of Science Museums (NCSM)**, under the Ministry of Culture.

- **Key Components**: **Science Cities** – Offer immersive, experiment-based learning environments to foster inquiry and creativity.
  - ✓ **Science Centres** – Promote hands-on learning through interactive exhibits and self-discovery of scientific concepts.
  - ✓ **Innovation Hubs** – Act as platforms to nurture new ideas and innovations.

4. **SC/ST (Prevention of Atrocities) Act, 1989 :** Recently, the Madras High Court ruled that any complaint under the SC/ST (Prevention of Atrocities) Act, 1989 that discloses a cognisable offence must lead to immediate registration of an FIR, without the need for a preliminary inquiry.
   - **About SC/ST (Prevention of Atrocities) Act, 1989 :** Aims to **prevent atrocities** against members of **SCs and STs** by persons not belonging to these communities.
     - Ensures **protection, legal remedies**, and **justice** for victims.
     - **Key Provisions: Punitive Measures**: Prescribes punishment for 37 identified offences that violate the dignity, rights, and self-respect of SCs/STs.
       - ✓ **Exclusion Clause**: Does not apply to crimes committed **between SCs and STs**.
       - ✓ **Central Authority**: Central Government empowered to frame rules; State Governments implement the Act with central assistance.
     - **Investigation:** Offences under the Act must be investigated by a police officer not below the rank of **Deputy Superintendent of Police (DSP)**.
     - **Exclusive Special Courts** to be established in each district for speedy trials.
     - **Punishments: Minimum punishment**: 6 months' imprisonment.
       - ✓ **Maximum**: Up to **life imprisonment** or **death penalty** (in severe cases).
       - ✓ **Neglect by Public Servants**: Section 4 penalizes officials (non-SC/ST) for **willful neglect** of duties under the Act (up to 6 months' imprisonment).
     - **Immediate Relief:** As per **PoA Rules, 1995**, relief in **cash/kind** to be provided by District/Sub-Divisional Magistrates.
       - ✓ Includes **food, water, shelter, clothing, transport, medical aid**, and other basic necessities for victims and their dependents.

5. **Sohrai, Pattachitra, and Patua :** Recently, a group of artists practising Sohrai, Pattachitra, and Patua art forms called on the President of India, at Rashtrapati Bhavan.

- These artists from Jharkhand, Odisha, and West Bengal participated in the second edition of Kala Utsav 2025 under the 'Artists in Residence Programme'.



- **About Sohrai Painting:** Primarily in **Jharkhand** (especially Hazaribagh). Also found in parts of **Bihar**, **Odisha**, and **West Bengal**
  - **Theme**: Based on **nature and animal motifs** – forests, rivers, birds, cattle, etc. Often linked with **agricultural cycles** and the **Sohrai harvest festival** Symbolizes harmony between humans and nature
  - **GI Tag**: **Sohrai Khovar painting** from **Hazaribagh, Jharkhand** has received the **Geographical Indication (GI) tag**



- **About Pattachitra (Patachitra)**: Practiced in **Odisha** and **West Bengal**
  - **Theme**: **Hindu mythology** (Jagannath, Krishna Lila, Dasavatara) in Odisha, **Goddess Durga** and **folk tales** in Bengal. Decorative borders, floral motifs, temple architecture, and deities
  - **GI Tag**: Odisha version registered as **"Orissa Pattachitra"**
    - ✓ Bengal version registered as **"Bengal Patachitra"**



- **About Patua Art** : Originates from **West Bengal** and **Bangladesh**
  - **Theme**: Traditional storytelling of **epics (Ramayana, Mahabharata)**, Local myths (**Radha-Krishna**, village lore)
    - ✓ **Modern** : social awareness, environment, health, gender, etc.

6. **Lumpy Skin Disease:** Recently, with over 900 cattle infected and new cases reported daily, Pune district of Maharashtra is facing a growing threat of reduced milk production due to the spread of **Lumpy Skin Disease**.
   - **About Lumpy Skin Disease:** A **highly contagious viral disease** that affects **cattle and water buffalo** across all breeds.
     - It is caused by the **Lumpy Skin Disease Virus (LSDV)**, which belongs to the **Capripoxvirus** genus in the **Poxviridae** family (which also includes smallpox and monkeypox viruses).
     - **Zoonotic Potential**: LSDV is **not transmissible to humans**.
     - **Geographical Spread**: Once endemic to **Africa and the Middle East**, the disease is now spreading rapidly in **Europe and Southeast Asia**.

- **Seasonal Pattern**: Outbreaks are most common during **wet summer and fall**, especially in **low-lying, water-rich regions**, but can also occur in **dry seasons**.
- **Affected Species**: While both **cattle and buffalo** can be infected, **cattle suffer more severely**, with higher **morbidity and mortality**.

- **Economic Impact:** Significant **reduction in milk production**, affecting dairy farmers' income.
  - It can cause **temporary or permanent infertility in bulls**, hampering breeding efforts.
  - The disease results in **damage to the hides**, reducing their commercial value.
  - In severe cases, especially in animals with **low immunity or no prior exposure**, the infection can **prove fatal**.
- **Transmission:** By **blood-feeding insects** such as certain species of **mosquitoes, flies, and ticks**.
  - Also shed through **saliva and nasal secretions**, contaminating shared **feed and water sources**.
- **Treatment** : Vaccination is the most effective prevention, while infected animals are given supportive care with antibiotics, pain relievers, and antiseptic wound treatment.

7. Henley Passport Index 2025 : Recently, the **Henley Passport Index 2025** revealed a notable rise in global mobility, with more than 80 countries climbing at least 10 positions in the rankings.

- **Key Highlights : Singapore** holds the top position in 2025, offering **visa-free access to 193 destinations**.
  - **India's passport** has improved notably, rising from **85th to 77th rank** within the first half of 2025.
  - **Japan and South Korea** share the **second spot**, with visa-free travel to **190 destinations**.
  - **The United States** has dropped from **9th to 10th place**, providing access to **182 countries**.
  - The **global average for visa-free access** has significantly increased, going from **58 countries in 2006** to an estimated **109 in 2025**.
- **About Henley Passport Index** : It ranks global passports based on the number of destinations a holder can access **without a prior visa**.
  - It uses data provided by the **International Air Transport Association (IATA)**.
  - First launched in **2006** as the **Henley & Partners Visa Restrictions Index (HVRI)**.
  - The index currently covers **199 passports** and **227 travel destinations** worldwide.