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**5th Mar 2026**

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2. Megalithic Rock-Cut Chambers
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## SHTIL MISSILES

ddnews.gov.in

### Defence Ministry signs Rs 5,083 crore deals for ALH Mk-III (MR) helicopters, VL-Shtil missiles

The Ministry of Defence on Tuesday signed contracts worth Rs 5,083 crore for the procurement of six Advanced Light Helicopters (ALH) Mk-III...



### Why in News

- The **Ministry of Defence** signed defence contracts worth **₹5,083 crore** to enhance maritime security, including procurement of **Shtil surface-to-air missile (SAM) systems** for frontline **Indian Navy warships**.



### Strategic Defence Capability

- Shtil is a **ship-based surface-to-air missile system** designed to intercept **aircraft, helicopters, UAVs, and anti-ship missiles** threatening naval vessels.
- It provides **medium-range air defence** for naval fleets operating in contested maritime environments.
- The system enables warships to defend themselves against **simultaneous aerial threats** during naval combat operations.

### Technological Architecture

- The missile system is derived from the **Russian Buk missile family**, a well-known air-defence platform.
- It incorporates a **Vertical Launch System (VLS)** allowing missiles to be fired in multiple directions without rotating launchers.
- The system operates in **all-weather conditions** and supports **day-and-night interception capabilities**.
- Integration with **naval radar and fire-control systems** improves target detection, tracking, and engagement accuracy.
- The system was developed by **Russian defence industries** and exported through **JSC Rosoboronexport**.
- It is deployed on frontline warships to strengthen the **layered air-defence architecture** of naval task forces.

## Strategic Significance for India

- It enhances the **survivability and combat capability of Indian Navy warships** operating in the **Indian Ocean Region (IOR)**.
- The system complements other naval air-defence platforms such as **Barak-8 missile systems** to build a **multi-layered defence shield**.
- Strengthening naval missile defence supports India's broader objective of maintaining **secure sea lines of communication (SLOCs)** and maritime deterrence.

## MEGALITHIC ROCK-CUT CHAMBERS

TH The Hindu

### Ancient laterite rock-cut chamber unearthed at Panayal in Kasaragod

Ancient laterite rock-cut chamber linked to the Megalithic period discovered in Kasaragod, revealing insights into historical burial...



## Why in News

- A **2,000-year-old laterite rock-cut chamber** belonging to the **Megalithic period** was discovered during construction activities in **Panayal, Kasaragod district, Kerala**.

## Archaeological and Cultural Context

- Megalithic rock-cut chambers are **subterranean burial structures carved directly into laterite rock** used for funerary practices.
- They reflect the **Megalithic culture of South India**, where the dead were buried along with **grave goods such as pottery, iron tools, and beads**.
- These burial practices indicate **complex beliefs regarding afterlife and ancestral rituals**.

## Historical Chronology and Geographic Distribution

- These structures are associated with the **Iron Age/Megalithic period**, dating roughly **2,000–2,500 years ago**.
- They are predominantly found in **laterite-rich regions of Kerala and coastal Karnataka**.
- Archaeological evidence helps trace the **transition from the Neolithic to the Iron Age in the Western Ghats region**.

## Architectural Features

- The chambers usually contain a **circular internal burial chamber carved into laterite rock**.
- Entry is provided through a **narrow vertical shaft**, typically sealed with a **large stone slab**.

- Many chambers include a **small circular aperture at the top**, possibly used for ritual offerings or symbolic passage of the spirit.
- These structures often occur near other megalithic monuments such as **Umbrella Stones (Kudakkallu)** and **Cap Stones (Toppikallu)**.

### Regional Cultural Terminology

- In Kerala, these chambers are locally known by names such as **Muniyara, Pandava Cave, Peeranki Cave, Nidhikuzhi, and Kalppathayam**.
- These local names reflect **folk traditions and mythological associations** connected with ancient burial sites.

## OPERATION SANKALP

**MI** Marine Insight

### Indian Navy Deploys Warships To War-Stricken Middle East As Part Of Operation Sankalp

Indian Navy warships are deployed in the Middle East amidst the U.S-Iran war, as part of Operation Sankalp.



### Why in News

- Indian Navy warships deployed under Operation Sankalp have been placed on standby for Humanitarian Assistance and Disaster Relief (HADR) operations amid tensions in West Asia.

### Operational Framework

- **Operation Sankalp** is an **Indian Navy maritime security mission** launched on **19 June 2019**.
- It aims to protect **Indian-flagged merchant vessels** and maintain stability in the **Indian Ocean Region (IOR)**.

### Strategic Objectives

- The operation ensures safe passage through key maritime routes such as the **Strait of Hormuz, Gulf of Oman, and Gulf of Aden**.
- It addresses threats like **piracy, maritime terrorism, and attacks on commercial shipping**.

### Operational Features

- The **Indian Navy deploys frigates, destroyers, maritime surveillance aircraft, and MARCOS (Marine Commandos)** for continuous monitoring and escort missions.

## Strategic Significance

- Supported by the **Maritime Anti-Piracy Act, 2022**, which criminalizes piracy.
- Safeguards India's energy trade as nearly **40-50% of India's crude oil imports come from the Persian Gulf region.**

## WTO'S 14TH MINISTERIAL CONFERENCE (MC14)

 World Trade Organization

### WTO MSME Group welcomes expansion, highlights successful entrepreneurs and MC14 plans

The Informal Working Group on Micro, Small and Medium-sized Enterprises (MSMEs) on 2 March welcomed South Africa as the 105th member participating in the...



## Why in News

- **India** has submitted proposals for the **14th Ministerial Conference of the World Trade Organization (MC14)** focusing on **food security and protection of traditional fishermen's livelihoods.**

## Institutional Framework

- The **Ministerial Conference** is the **highest decision-making body of the WTO**, comprising ministers from **166 member countries.**
- It was established under the **Marrakesh Agreement, 1994**, and must be held **at least once every two years.**

### Previous Ministerial Outcomes

- **MC1 Singapore (1996):** Introduced Singapore Issues.
- **MC4 Doha (2001):** Launched the Doha Development Agenda (DDA).
- **MC9 Bali (2013):** Adopted Trade Facilitation Agreement (TFA) and Peace Clause.
- **MC12 Geneva (2022):** Fisheries subsidies deal and TRIPS waiver for COVID-19 vaccines.
- **MC13 Abu Dhabi (2024):** Admitted Comoros and Timor-Leste as WTO members.

## MC14: Key Details

- **Venue: Yaoundé, Cameroon; Dates: March 2026.**
- Major agenda items include **public stockholding for food security, fisheries subsidy regulation, restoration of the WTO Appellate Body, and the moratorium on customs duties on electronic transmissions.**

## India's Key Priorities

- India demands a **permanent solution for public stockholding** to support programs like the **Public Distribution System (PDS).**
- It also seeks safeguards for **small-scale and traditional fishermen** while addressing concerns of **overfishing.**

## REPATRIATION OF TIRUMANKAI ALVAR STATUE

Moneycontrol.com

Stolen 500-year-old bronze statue from Tamil Nadu temple found in UK museum, set to return to India

A 16th-century bronze statue of Saint Tirumankai Alvar that was taken from a temple in Tamil Nadu is set to be returned to India from the...



### Why in News

- The **Ashmolean Museum, University of Oxford**, will return a **16th-century bronze statue of Tirumankai Alvar** to India.

### Historical Background

- He is one of the **twelve Alvar saints** of the **Vaishnavite Bhakti tradition**.
- The idol originally belonged to the **Soundararajaperumal Temple, Thadikombu (Tamil Nadu)**.
- The Alvars composed devotional hymns called the **Divya Prabandham**.

### Heritage Governance

- The **Indian High Commission and Archaeological Survey of India (ASI)** investigated the artefact's origin.
- Scientific analysis confirmed its link to the temple, leading to the decision to **repatriate the sculpture to India**.

## DARK OXYGEN

TOI The Times of India

'Dark oxygen' discovered 4,000 meters below the Pacific Ocean where sunlight has never reached

Science News: For decades, school textbooks have explained that oxygen on Earth is mainly produced through photosynthesis, a process that...



### Why in News

- Scientists detected "**Dark Oxygen**" about **4,000 m below the Pacific Ocean surface**, where sunlight does not reach.

### Scientific Discovery

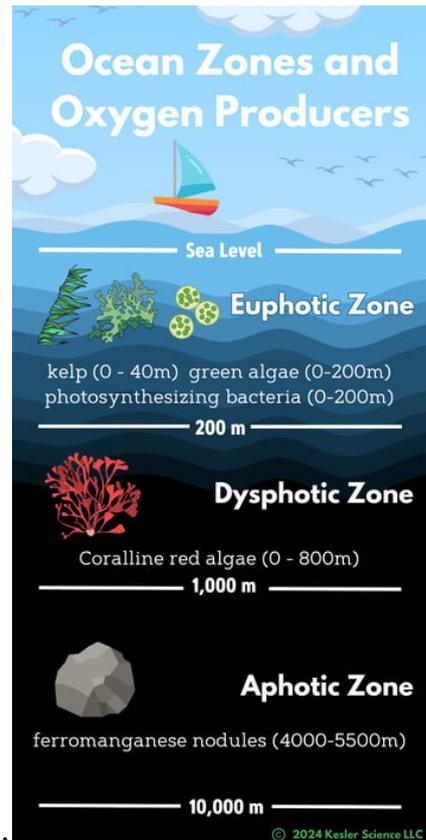
- The finding was reported in **Nature Geoscience** during deep-sea research in the **Clarion-Clipperton Zone (Pacific Ocean)**.
- Researchers observed that **oxygen levels increased inside sealed benthic chambers**, even though photosynthesis cannot occur in deep-sea darkness.

### Role of Polymetallic Nodules

- The seabed in the region contains **polymetallic nodules** rich in **manganese, nickel, cobalt, and copper**.
- Scientists propose these nodules may enable **electrochemical reactions that split seawater molecules**, producing oxygen without sunlight.
- These nodules form slowly over **millions of years on abyssal plains**.

### Scientific Significance

- The discovery challenges the assumption that **oxygen formation depends only on photosynthesis**.
- It has implications for **astrobiology**, as oxygen in planetary atmospheres may not always indicate life.
- It also raises concerns that **deep-sea mining** could disturb poorly understood ecosystems.



## OTHER IMPORTANT NEWS OF THE DAY

Places in News

### ECHINUS GEYSER

USGS.gov

Echinus Geyser is back in action! For now... | U.S. Geological Survey

The world's largest acidic geyser is located in Norris Geyser Basin. Lately, it's been putting on quite a show.



### Why in News

- **Echinus Geyser** in **Yellowstone National Park (USA)** erupted again after nearly **six years of inactivity**.

### Geographical Context

- It is in the **Norris Geyser Basin**, the **hottest geothermal area** of Yellowstone.
- Yellowstone hosts **the largest concentration of geysers in the world**.



### Unique Characteristics

- Echinus is **the largest acidic geyser globally** and has a **pool about 66 feet wide**.
- When active, eruptions occur every few hours and reach **20–30 feet** in height.
- Mineral deposits of **iron, aluminium, and arsenic** create red, orange, and yellow colours around the pool.

### Geological Significance

- Acidic water usually dissolves silica channels required for geysers, making **acidic geysers extremely rare**.
- Echinus erupts due to a balance between **neutral groundwater and acidic volcanic gases**.
- Scientists confirm Yellowstone’s **volcanic activity remains normal**, despite renewed eruptions.

Environ-  
ment

## DUSKY EAGLE-OWL

### Why in News

- The **Dusky Eagle-Owl (Ketupa coromanda)** was sighted in the **Phato tourism zone of Terai West Forest Division, Uttarakhand**, after a **15-year absence**.



### Taxonomy and Status

- It belongs to the **family Strigidae** and its scientific name is **Ketupa coromanda**.
- According to the **International Union for Conservation of Nature (IUCN)**, it is listed as **Least Concern**.

### Habitat and Distribution

- The species occurs across **South and Southeast Asia**, including **India, Nepal, Bangladesh, and Pakistan**.
- It prefers **lowland riparian forests near water bodies**, plantations, and woodland habitats, usually at **0–250 m elevation**.

	<p><b>Key Characteristics</b></p> <ul style="list-style-type: none"> <li>➤ A <b>large greyish-brown owl (48–58 cm)</b> with <b>yellow eyes and prominent ear tufts</b>.</li> <li>➤ It is <b>partly diurnal</b> and hunts birds, rodents, fish, reptiles, and insects.</li> <li>➤ It usually nests in <b>abandoned stick nests of large birds</b> such as kites or eagles.</li> </ul>
	<p><b>Ecological Significance</b></p> <ul style="list-style-type: none"> <li>➤ Considered an <b>indicator of healthy ecosystems</b> due to its dependence on intact habitats and abundant prey.</li> <li>➤ The recent sighting suggests <b>improved habitat conservation in the Corbett landscape</b>.</li> </ul>

## UTTAR PRADESH IN NEWS

### RESTORATION OF SUAV RIVER STATUS

#### Why in News

- The **National Green Tribunal (NGT)** directed the **Uttar Pradesh government** to restore the **Suav’s classification from a drain (nullah) to a river** in official records.

#### Judicial and Administrative Directions

- The **NGT** instructed the **District Magistrate of Balrampur** to correct revenue records within **three months** and publish the change in the **Official Gazette and local newspapers**.
- The tribunal also prohibited **new construction or infrastructure development in the Suav floodplain** until the **active flood zone is scientifically demarcated**.
- Non-compliance with the order will attract penalties under **Section 26 of the National Green Tribunal Act, 2010**.

#### Geographical and Hydrological Importance

- The **Suav River** is a tributary of the **Rapti River** located in **Balrampur district of Uttar Pradesh**.
- The river flows for about **120 km** before joining the Rapti, which is part of the **Ganga river basin**.

- It contributes to **flood mitigation, groundwater recharge, and sustenance of wetlands, ponds, and lakes** along its course.

### **Historical Identity and Misclassification**

- **Early 20th-century gazetteers** recorded the Suav as an important tributary of the Rapti River.
- Over time, **encroachments, land reclamation, and development activities** led to its incorrect classification as a **nullah or drain** in official records.

### **Environmental Governance and Monitoring**

- The NGT directed **pollution control authorities** to monitor water quality, including **treated sewage and industrial effluents** entering the river.
- **District Ganga Committees** were instructed to promote **community-led river rejuvenation initiatives** to restore the Suav's ecological health.