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Vaquita Porpoises

- Mexico's decision to loosen its policy of keeping a fishing free zone around a protected area in the Gulf of California region was a "setback" to keeping alive a near-extinct vaquita porpoise species.
- Vaquita porpoise, the world's rarest and the smallest marine mammal, is on the edge of extinction.
- It is also known as "the panda of the sea" for the distinctive black circles around its eyes. This porpoise was discovered in 1958.
- It is unique among the porpoises as it is the only species of that family found in warm waters, and the size of the dorsal fin is believed to be an adaptation to that, allowing for extra body heat to dissipate.
- **Habitats** - Found only in the northern Gulf of California (Sea of Cortez) in Mexico. Most commonly seen in shallow waters up to 50 metres deep.
- **Threats** - They are caught and drowned in gillnets set up by poachers to catch totoaba, an endangered species of marine fish sought by Chinese buyers on the black market for its prized swim bladders.
- This species die more each year in fishing nets than are being born.
- **IUCN Status** - Critically Endangered

Caterpillar Slug

- A new study has predicted that Purcell's hunter slug or caterpillar slug (Laevicaulis haroldi), native to South Africa, could soon become an invasive species attacking western and Peninsular India.
- It is listed as an **endangered** species and was first described in 1980.
- It entered India around 2010-2012 accidentally, through international trade via Mumbai.
- It feeds on the leaves and bark of mulberry plants. It was also sighted on neem trees, papaya, and calotropis plants.
- **Scenarios** - Two future climate change scenarios of the Intergovernmental Panel on Climate Change (IPCC) were studied to decode which places may be vulnerable to the slug attack.
    a. RCP 2.6 scenario represents the best-case scenario where we control emissions and limit anthropogenic climate change.
    b. RCP 8.5 scenario represents the worst that could happen. We don't

follow any mitigation rules and have a high-risk future in terms of temperature and other climatic conditions.

- Under both the scenarios, AP, Karnataka, southern parts of Telangana, northeast TN, Gujarat, western MH, coastal Odisha, West Bengal, and some states in North East India are highly suitable for the slug.
- **Management** - Early detection and control are the key for managing newly introduced species before they become invasive.
- Awareness needs to be created among the people to detect, manage and control this newly introduced species.
- Non-toxic methods of controlling this pest need to be developed.
- Also, a strict quarantine in the ports should be in place to avoid further introductions.

Invasive Species

- Invasive alien species are any biological species that are introduced outside their natural range.
- They would negatively impact the native biodiversity, ecosystem function, health and human welfare.
- They could reproduce rapidly and out-compete the native species for food, water and space. They are the second-biggest cause for biodiversity loss, next to habitat destruction.
- **Impacts** - An international study reported that invasive species have cost nearly $1.3 trillion dollars to the global economy since 1970 and an average of $26.8 billion per year.
- Also, several studies have noted invasive alien species are responsible for the extinction of native and endemic species.

Faridabad Cave Paintings

- Mangar Bani hill forests in Faridabad, Haryana will be given state protection under the Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1964.
- It will be protected as this Stone Age (prehistoric) location has large number of sites with cave paintings and tools of the Palaeolithic age.
    - The art includes what appear to be symbols, markings, some are drawings that are very old, but what exactly it is, only the archaeology department will be able to tell.
- On the basis of tool topology, this site may be from about 1,00,000 to about 15,000 years ago. But there are also found evidence of later habitation, even up to 8th-9th century AD.
- It may be one of the biggest Palaeolithic sites in the Indian subcontinent,

where Stone Age tools were recovered from different open air sites as well as from rock shelters.

Detergent Footprint

- Water pollution caused by detergents is a big global concern.
- The per capita detergent consumption in India is around 2.7 kg per year. It is around 10 kg in the United States of America.

- **Nonylphenol**, a hazardous chemical present in detergents, is known to enter water bodies and the food chains.
- It bio-accumulates and can pose serious environmental and health risks.
- It has been detected in human breast milk, blood and urine, and is associated with reproductive and developmental effects in rodents.
- Bureau of Indian Statistics (BIS) has set the standard of phenolic compounds in drinking water (0.001 mg/L) and surface water (5.0 mg/L).
- **Carcinogens and Non-biodegradables** - The detergents contain suspected carcinogens, and ingredients that do not fully biodegrade.
- Many laundry detergents contain approximately 35 to 75% phosphate salts. Phosphates can cause a variety of water pollution problems.
- Non-biodegradables can't be eliminated by wastewater treatment.
- **Eutrophication** - Some phosphate-based detergents can cause eutrophication. Phosphate-enrichment can cause the water body to become choked with algae and other plants.
- Eutrophication deprives the water of available oxygen, causing the death of other organisms.
- **Oxygen-Reducing Substances** - Detergents also contain oxygen-reducing substances that may cause severe damage to the fishes and other marine animals.
- [Oxygen-Reducing Substances are chemical compound that readily transfer oxygen atoms.]
- They are capable of destroying the external mucus layers that protect the fish from bacteria and parasites, causing severe damage to the gills.
    - Fish die when detergent concentrations are near 15 parts per million (ppm);
    - Fish eggs die when detergent concentrations as low as 5 ppm.
- **Anthropogenic components** like herbicides, pesticides and heavy metals present in the detergents can cause the water to grow murky.
    - This block out light and disrupting the growth of plants.
    - Turbidity clogs the respiratory system of some species of fishes.
- Pathogens from these toxic water bodies cause diseases, some fatal, in human or animal hosts diseases.

- Drinking water contaminated with detergents can be hazardous to human health.

School Innovation Ambassador Training Program

- Union Education Minister and Union Tribal Affairs Minister jointly launched the School Innovation Ambassador Training Program (SIATP).
- SIATP would train 50,000 school teachers on Entrepreneurship, Innovation, IPR, Design Thinking, Product development, etc. The training will be delivered in online mode only.
- The program has been designed by the Education Ministry's Innovation Cell, Ministry of Tribal Affairs, CBSE and AICTE for School Teachers.
- It been designed based on its "Innovation Ambassador Training Program for Higher Educational Institution's faculty members".
- Through this unique capacity building programme for teachers, prominence has been given to development of creativity, collaboration , critical thinking and communication skills among children.
- The Students of Eklavya Model Residential Schools (EMRS) for tribal children will greatly benefit from SIATP since it is the endeavour of Tribal Affairs Ministry to give the best education to the tribal children.
- The Ministry of Tribal Affairs has launched an Adi-Prashikshan portal which is also a repository of training inputs. It will be of great benefit if SIAP training module also gets connected to this portal.

Hubble Telescope in Safe Mode

- NASA plans to fix a glitch that has stopped the Hubble space telescope from being used for science work for more than a month.
- The Hubble telescope - launched in 1990 - is currently running in "safe mode", leading to all non-essential systems being shut down.
- It was put "safe mode" after a problem appeared with its payload computer, which controls and coordinates the science instruments onboard the observatory.
- There is also an issue with the Power Control Unit (PCU).
    - The PCU contains a power regulator that provides a constant five volts of electricity to the payload computer and its memory.
    - It also contains a "secondary circuit", which tells the payload computer that it should cease operations if the voltage falls below or exceeds allowable levels.
- Both the payload computer and the PCU are part of Hubble's Science Instrument Command and Data Handling (SI C&DH) unit.
- **About** - Named after astronomer Edwin Hubble, the observatory is the first major optical telescope to be placed in space.

- It is larger than a school bus in size, has a 7.9 feet mirror.
- It captures stunning images of deep space playing a major role in helping astronomers understand the universe by observing the most distant stars, galaxies and planets.

Source: PIB, The Indian Express, Down To Earth

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