Prelim Bits 18-04-2024 | UPSC Daily Current Affairs

Salas y Gomez

Scientists recently announced the discovery of 160 marine species in the Salas y Gomez ridge.

- Salas y Gomez is an oceanic ridge in the ***Southeastern Pacific Ocean.***
- Ecosystems in Salas y Gómez and Nazca ridges region are isolated by the ***Atacama Trench, the Humboldt Current System, and an extreme oxygen minimum zone.***
- This isolation has produced a unique biodiversity that is marked by one of the highest levels of marine endemism on Earth.
- Waters surrounding the Salas y Gómez and Nazca ridges are mostly located in areas beyond national jurisdiction (ABNJ), with smaller portions located in the national waters of ***Chile and Peru.***
- This region in whole covers over 73% of the Salas y Gómez and Nazca ridges, are unprotected and under threat.
- The Salas y Gómez Ridge is one of the many global locations under consideration for being designated as high seas marine protected area upon the ratificiation of the UN High Seas Treaty.

Recent Findings

- Scientists discovered 160 species (at least 50 are new) when exploring 10 seamounts (6 non-documented) and 2 islands.
- The findings come from the expedition across the ***Salas y Gómez Ridge to Rapa Nui, more commonly known as Easter Island.***
- They discovered squid, fish, corals, mollusks, sea stars, glass sponges, sea urchins, crabs, and squat lobsters, and other species.
- They also potentially set a record for sighting the deepest-known photosynthesis-dependent animal, ***Leptoseris or the wrinkle coral.***

United Nations High Seas Treaty

• The UN High Seas Treaty is also known as the United Nations Convention on the Law of the Sea (UNCLOS) adopted in 1982. • It is an international agreement that establishes a comprehensive framework for the regulation of all ocean activities. • It defines the rights and responsibilities of nations in their use of the world's oceans, including - Guidelines for the conservation and management of marine resources, - Protection of the marine environment, and - Settlement of disputes related to ocean use. • United States, have signed the treaty and ***India is yet to sign the treaty.*** • Once 60 nations ratify the treaty, countries can start establishing marine protected areas in international waters with enough scientific data.

References

1. The Indian Express | Salas y Gómez
2. IUCN | Salas y Gomez and Nazca ridges

Committee for queer community

The Ministry of Law and Justice recently notified a 6-member committee headed by cabinet secretary to address issues related to the queer community.

- The committee was formed in terms of the Supreme Court's Constitution bench judgment in Supriyo Vs Union of India on October, 2023.

Supriyo Vs Union of India case
• The petitioners challenged the validity of Section 4 (c) of the Special Marriage Act, 1954 on that ground that the provision discriminates against same sex couple by denying them benefits such as adoption, surrogacy, employment and retirement benefits.

- The committee will suggest measures to ensure that the queer (LGBTQIA+) community does not encounter any discrimination in
  - Accessing goods and services,
  - Social welfare schemes, or
  - Face threat of violence among others.
- The committee will look into measures to make sure that queer people are not subjected to involuntary medical treatments and surgeries, including modules to cover mental health.

- The order allows the committee to also co-opt experts and other officers if deemed necessary.

LGBTQIA+ Community
• The “L, G” and “B” refer to sexual orientation, meaning those to which one is attracted, most often referring to lesbian or gay. • Bisexual is an attraction to both males and females. • Transgender refers to one who identifies as a sex other than was named at birth. • The Q indicates questioning and queer. • Questioning is a label one might use to convey they are exploring their identity and may not want to label themselves while Queer is often used to identify oneself as a member of the LGBTQIA++ community. • The “I” speaks to intersex in which a person is born with a reproductive or sexual anatomy that doesn’t seem to fit the typical definitions of female or male. • ‘A’ refers to asexual who do not have sexual feelings. • ‘++’ suggests openness and inclusivity.

References

1. The Hindu | Centre forms panel for Queer community
2. Deccan Herald | Panel for Queer community

Soil Acidification

A recent study says that Soil Acidification may strip Indian soils of 3.3 billion tonnes of essential carbon, affecting crop growth, sequestration.

- Soil acidification is a process where the ***pH level of the soil decreases, making it more acidic.***
- This process can affect both the surface soil and subsoil.
- **Contributing factors**
  - The application of high levels of ammonium-based nitrogen fertilisers to naturally acidic soils.
  - leaching of nitrate nitrogen, originally applied as ammonium-based fertilisers.
  - harvesting plant materials (plant material is alkaline so when it is removed the soil is more acidic than if the plant material had been returned to the soil).
- **Effects**
  - Excessively acidic soils may lead to a dramatic decline in crop and

pasture production because the pH of the soil changes the availability of soil nutrients.
    - It can also lead to the leaching of toxic metals into water sources.

Soil acidification affects about 48 million hectares (mha) out of 142 mha of arable land in India.

Soil organic carbon (SOC)

- Carbon in soil can be stored in the form of SIC or soil organic carbon (SOC).
- The former includes mineral forms of carbon like calcium carbonate produced by weathering parent material in soil or from the reaction of soil minerals with atmospheric carbon dioxide.
- The latter, which plays a role in nutrient cycling, is the main component of soil organic matter such as plant and animal waste, microbes and microbial byproducts.
- Together, soils store more than thrice the quantity of carbon in vegetation or double the quantity of carbon in the atmosphere.
- India is likely to be most affected by Soil Inorganic Carbon (SIC) losses due to relatively large stocks of SIC and the magnitude of soil acidification associated with nitrogen additions.

Soil Inorganic carbon (SIC)

- SIC plays a dual role in storing carbon and supporting ecosystem functions that depend on it.
- Inorganic carbon is found in ores and minerals, as opposed to organic carbon, which can be found in nature through plants and animals.

References

Down to Earth | Soil acidification in India

Changes in Green Credit Programme Norms

The Union Environment Ministry recently says that primacy must be accorded to restoring ecosystems over tree planting.

Recent changes

- The guidelines said that States must rely on to calculate what it would

cost to restore a degraded forest landscape.
- The guidelines also changed the earlier requirement that there be a minimum of 1,100 trees per hectare to qualify as reforested landscape and left it to States to specify them.
- Preference would be given to indigenous species and naturally growing seedlings would be retained.
- Moreover, companies would not be able to offset all their obligations under compensatory afforestation using green credits but could claim a portion of it.

Green Credit Programme (GCP)

- It is an innovative market-based mechanism designed to incentivize voluntary environmental actions.
- The environmental actions include across diverse sectors such as various stakeholders like individuals, communities, private sector industries and companies.
- GCP will focus on water conservation and afforestation.
- The Indian Council of Forestry Research and Education (ICFRE) serves as the GCP Administrator, responsible for program implementation, management, monitoring, and operation.
- Green Credit Registry and trading platform is being developed by ICFRE to facilitate the registration and the buying and selling of green credits.
- **Trade Market -** The green credits will be tradable and be made available for trading on a domestic market platform.

Reference

The Hindu | Centre tweaks green credit programme norms

Ringwoodite

Scientists discover a gigantic reservoir of water that is three times the size of Earth's oceans combined, 700 km beneath the planet's surface in a rock known as ringwoodite.

Recent Findings

- Scientists have unearthed a monumental reservoir of water concealed beneath the Earth's surface.
- This discovery, estimated to be 3 times larger than all the oceans

combined, is located approximately 700 km below the Earth's surface.
- The existence of this underground ocean was confirmed through the study of seismic waves generated by Earthquakes.
- This hidden but vast subterranean ocean, within a mineral known as ringwoodite.
- It gives evidence of a high water storage capacity in the minerals of the Earth’s mantle transition zone, which ranges from 410 to 660 kilometers in depth.

Ringwoodite

- Ringwoodite is a fascinating mineral comes from olivine (another mineral) that exists in the Earth’s transition zone.
- It has a unique crystal structure that allows it to absorb water and hydrogen, acting like a sponge but it can’t absorb water in liquid, solid or gas form.
- The weight of hundreds of kilometers of rock and very high temperatures above 1,000 degrees Celsius break down water into its components.
- Water is taken down into the mantle with minerals during the process known as plate tectonics.
- When the minerals containing this water reach certain depths, they break down in a process called dehydration and release the water to form magmas.
- Such "dehydration melting" is common in the shallow mantle and forms the source for magmas in many volcanoes.

References

Times of India | world's largest ocean

NBC | Earth's Rocks Contain a Hidden Ocean's Worth of Water

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