

## 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 ratification 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, **Leptoseria or the wrinkle coral**.

<b>United Nations High Seas Treaty</b>
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- 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](#)

