



CURRENT AFFAIRS



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RESTORATION OF SEAGRASSES

This article covers “Daily Current Affairs” and the topic details “Restoration of Seagrasses”. The topic “Restoration of Seagrasses” has relevance in the “Ecology and Environment” section of the UPSC CSE exam.

For Prelims:

What are seagrasses?

For Mains:

GS3: Biodiversity Conservation

Why in the news?

Citizen divers in Germany are restoring seagrass meadows in the Baltic Sea.

SeaStore joint project

The SeaStore joint project aims to provide comprehensive guidelines for protecting and reintroducing seagrass meadows in the southern Baltic. These guidelines will assist government authorities and other stakeholders in assessing, planning, and successfully implementing reintroduction projects. The approach is unique for several reasons:

- Thorough Research
- Investigation of Overlooked Factors such as the diversity of microorganisms on seagrasses and the seafloor.
- Growing Aid to help newly planted grasses withstand currents and wave action. This support allows small seedlings to grow rapidly into large, healthy seagrass meadows.

What is seagrass?

- Seagrasses, which originated from land plants, are submerged plants resembling their terrestrial counterparts.
- They possess leaves, flowers, seeds, roots, and connective tissues, and they carry out photosynthesis to produce their own food.
- Unlike land plants, seagrasses lack strong stems for support, relying instead on the buoyancy of water around them.
- Seagrasses are not true grasses. They are more closely related to terrestrial lilies and gingers than grasses.
- They are found on all continents except Antarctica.
- Seagrasses thrive along the coast in clear and shallow waters where sunlight can penetrate for photosynthesis.
- Under favourable conditions, seagrasses form dense underwater meadows, some of which are so vast that they can even be seen from space.

Significance of Seagrass

- **Diverse Habitat for Marine Wildlife**
- **"Lungs of the Sea"**
- **Abundant Biomass Accumulation**
- **Filtration of Pollutants and Pathogens**
- **Impact on Global Warming**
- **Increasing Importance for Climate and Biodiversity Crisis**

Threats to Seagrass Meadows

- **Pollution**
- **Eutrophication**
- **Sedimentation**
- **Dredging**
- **Overfishing**
- **Cyclones**
- **Fungal Infestations**
- **Marine Heatwaves**

Significance of Seagrass

- **Diverse Habitat for Marine Wildlife**
 - Seagrass meadows serve as vital habitats and food sources for a wide range of marine organisms.
 - Various species, including fish, octopuses, sea turtles, shrimp, blue crabs, oysters, sponges, sea urchins, anemones, clams, and squid, thrive in these underwater ecosystems.
- **"Lungs of the Sea"**
 - A crucial aspect of seagrass meadows is their role as "the lungs of the sea." Through photosynthesis, they release oxygen into the water, contributing significantly to the overall health of marine ecosystems.
- **Abundant Biomass Accumulation**
 - Seagrass meadows exhibit extensive rhizome and root systems, leaf growth, and epiphytic growth, resulting in the accumulation of substantial biomass.
- **Filtration of Pollutants and Pathogens**
 - Seagrass meadows, along with their associated microbiomes, act as natural filters for pollutants and pathogens present in seawater.
- **Impact on Global Warming**
 - These meadows play a crucial role in mitigating global warming.
 - By fixing large amounts of carbon dioxide, primarily in their roots, they make a significant contribution to reducing greenhouse gas levels.
- **Increasing Importance for Climate and Biodiversity Crisis**
 - Given the ongoing climate and biodiversity crisis on our planet, the health and preservation of seagrass meadows are becoming increasingly crucial for environmental well-being.

Threats to Seagrass Meadows

- **Human Activities**
 - **Pollutants**, such as **chemicals** and **excessive nutrients from fertilizers**, flow off the coast and accumulate in seagrass beds.
 - This leads to **harmful algal blooms** that block sunlight and disrupt the delicate balance within the ecosystem.

- **Sediments and dredging** can physically damage and fragment seagrass meadows.
- **Boat anchors and large marine debris** can also inflict harm.
- **Overfishing**
- Overfishing sets off a chain reaction that **disturbs the seagrass food web**. The absence of certain fish, like sharks, causes an increase in intermediate predators that feed on invertebrates.
- This, in turn, reduces populations of helpful pollinators and other small creatures.
- An abundance of herbivorous fish can also lead to overgrazing of seagrass meadows.
- **Natural Causes**
- **Cyclones, intensive grazing, fungal infestations, and diseases** impact seagrass populations.
- Intertidal seagrasses are especially vulnerable to **drying out**, while estuaries can suffer from **increased freshwater incursion and siltation**.
- **Marine Heatwaves**
- These **sudden spikes in sea temperature** have been increasing in frequency and intensity. Such events can be devastating to seagrass meadows, especially since they **cannot easily move to escape the extreme heat**.
- Studies show that increased marine heatwaves are linked to **reduced seagrass density**.

Baltic Sea

- The Baltic Sea is a sea located in northern Europe, connecting with the North Sea and forming an arm of the Atlantic Ocean.
- It receives the flow of various rivers, including the Vistula and Oder.
- The Baltic Sea is surrounded by several countries, including **Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Poland, Germany, and Russia**.
- It features two prominent arms known as the Gulf of Bothnia and the Gulf of Finland.
- Unlike some other seas, the Baltic Sea is not significantly influenced by the North Atlantic Current, leading to lower salinity levels, containing only about one-fourth as much salt as the oceans.
- Additionally, due to its lower salinity and cold temperatures, the sea tends to freeze relatively easily.



Sources:

In Baltic Sea, citizen divers restore seagrass to fight climate change Indian Express, 27 July 2023, pg. 12, Delhi Edition
Map: Britannica

Q1. With reference Seagrasses, consider the following statements:

1. Seagrasses possess leaves, flowers, and fruits, but they lack roots and connective tissues.
2. Seagrasses rely on the buoyancy of water around them since they lack strong stems for support like land plants.
3. Seagrasses thrive along the coast in clear and shallow waters where sunlight can penetrate for photosynthesis.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) None

Answer: (c)

Q2. The Baltic Sea is surrounded by how many of the following countries?

- Norway
- Denmark
- Sweden
- Finland
- Poland
- France

Select the correct code from the codes given below:

- (a) Only three
- (b) Only four
- (c) Only five
- (d) All six

Answer: (b)

Q3. What are seagrasses? Discuss the ecological significance of seagrass meadows and their role in supporting marine biodiversity.

Gaurav Nikumbh

CYBER CRIME

This article covers "Daily Current Affairs" and the topic details "Cyber Crime". The topic "Cyber Crime" has relevance in the Security section of the UPSC CSE exam.

For Prelims:

*What is Cyber Crime?
Types of Cyber Crime?*

For Mains:

*GS 3: Security
Challenges Related to Cyber Security in India?
Measures to Tackle Cyber Crimes in India?
Government Initiatives to Deal with Cyber Crimes in India?*

Why in the news?

Over the past six months, the world has experienced the immense potential of AI, along with the concerning challenges it poses, including misinformation, deepfakes, and the impact on job displacement.

What is Cyber Crime?

Cybercrime is a form of criminal activity in which computers or digital devices are either the target or the means used to commit offenses. It encompasses a wide range of illegal or unauthorized activities that exploit technology to perpetrate various forms of crimes.

Types of Cyber Crime:

- **Distributed Denial-of-Service (DDoS) Attacks:** Overwhelming an online service by flooding it with traffic from multiple sources, causing the website or network to become unavailable.
- **Botnets:** Networks of compromised computers controlled by remote hackers to conduct spamming or launch attacks on other computers.
- **Identity Theft:** Criminals gain access to personal or confidential information to tarnish a person's reputation or demand a ransom.
- **Cyberstalking:** Using online platforms, social media, websites, and search engines to harass and intimidate an individual.
- **Phishing:** Deceptive techniques to trick individuals into revealing sensitive information like login credentials and credit card details.



Challenges Related to Cyber Security in India:

- **Profit-Focused Infrastructure Mindset:** Private sector investments in IT, electricity, and telecom sectors often prioritize profitable infrastructure over cyber-attack preparedness.
- **Non Availability of Separate Procedural Code:** Currently, India lacks a specific procedural code dedicated to the investigation of cyber or computer-related offenses.
- **Trans-National Nature of Cyber Attacks:** Cybercrimes often transcend international borders, making evidence collection from foreign territories complex and time-consuming.
- **Expanding Digital Ecosystem:** The digitalization of various economic factors in India increases the risk of cyber threats, especially with technologies like 5G and the Internet of Things (IoT).
- **Limited Expertise and Authority:** Offenses related to cryptocurrency are under-reported due to limited capacity to investigate such crimes. Cyber labs need recognition as 'Examiners of Electronic Evidence' by the central government.

Measures to Tackle Cyber Crimes in India:

- **Cybersecurity Awareness Campaign:** Conduct extensive awareness campaigns to educate the public about cyber frauds, strong passwords, safe use of public Wi-Fi, etc.
- **Cyber Insurance:** Develop tailored cyber insurance policies for different businesses and industries to mitigate financial losses from cyber incidents.
- **Data Protection Law:** Implement stringent data protection regulations, inspired by global frameworks like the EU's General Data Protection Regulation and India's Personal Data Protection Bill.
- **Collaborative Trigger Mechanism:** Establish a collaborative approach to quickly respond to cyber threats, involving all stakeholders, law enforcement agencies, and private companies.

Government Initiatives to Deal with Cyber Crimes in India:

- **Indian Cyber Crime Coordination Centre (I4C):** Coordinates efforts to combat all types of cybercrimes nationwide.
- **National Cyber Forensic Laboratory:** Provides early-stage cyber forensic assistance to investigating officers of all State/UT Police.
- **CyTrain Portal:** Offers online courses for capacity building of police officers, judicial officers, and prosecutors on cyber-crime investigation and forensics.
- **National Cyber Crime Reporting Portal:** Allows the public to report cybercrimes, with a focus on crimes against women and children.
- **Citizen Financial Cyber Fraud Reporting and Management System:** Assists in lodging online cyber complaints and reporting financial frauds through a toll-free helpline.
- **Cybercrime Prevention against Women and Children (CCPWC) Scheme:** Provides financial assistance to states for developing capabilities of law enforcement agencies in investigating cybercrimes.
- **Joint Cyber Coordination Teams:** to improve coordination among law enforcement agencies across different states and union territories, especially when dealing with cyber issues that involve multiple jurisdictions.
- **Central Assistance for Modernization of Police:** provides financial assistance to states and union territories to acquire modern weaponry, advanced communication, forensic equipment, and cyber policing tools.

Conclusion:

Global cooperation, information sharing, and joint efforts in cybersecurity research and development are crucial in combating cybercrime, which often originates beyond national borders. Corporates and government departments must identify gaps in their cybersecurity strategies and implement a layered security system with intelligence sharing among different layers to effectively tackle cyber threats.

SOURCE:

<https://indianexpress.com/article/technology/artificial-intelligence/what-is-fraudgpt-dark-webs-dangerous-ai-for-cybercrime-8866138/>
Infographics Credit: Shutterstock

Q.1 Which of the following statements is/are false regarding the Indian Cyber Crime Coordination Centre (I4C)?

1. I4C is a government initiative under the Ministry of Electronics and Information Technology (MeitY) to combat cybercrimes in India.

2. The center facilitates the reporting of cybercrimes through the National Cyber Crime Reporting Portal, with a special focus on crimes against women and children.
3. I4C provides financial assistance to victims of cybercrimes for their recovery and rehabilitation.

Select the correct option using the codes below:

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

ANSWER: C

Q.2 What is the “CyTrain Portal” in the context of cybercrime management in India?

- (a) A government initiative to provide cybersecurity training to school students.
- (b) An online platform for reporting cybercrimes and seeking immediate assistance.
- (c) A portal offering specialized online courses for capacity building in cybercrime investigation.
- (d) A collaborative platform for international cooperation in combating cyber threats.

ANSWER: C

Q.3 Discuss the challenges posed by cybercrime in the modern digital era and examine the measures that governments and organizations can adopt to enhance cybersecurity and combat cyber threats effectively.

Rishabh

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