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Date: 26 September 2023

ARTIFICIAL REEFS

This article covers "Daily Current Affairs" and the topic details "Artificial Reefs". This topic has relevance in the "Environment and Ecology" section of the UPSC CSE exam.

For Prelims:

What is Artificial Reefs ?

What is its significance

For Mains:

GS3: Environment and Ecology

Why in the news?

The Department of Fisheries is implementing the installation of artificial reef units as part of the 'Integrated Modern Coastal Fishing Villages' initiative under the Pradhan Mantri Matsya Sampada Yojana (PMMSY). The objective is to educate and involve local fishermen in the potential benefits of artificial reefs for marine fishing.

Coral Reefs:

- Coral reefs are underwater ecosystems composed of reef-building corals, colonies of tiny animals called polyps that secrete a calcium carbonate skeleton.
- They consist of diverse and interconnected ecosystems formed by the accumulation of coral skeletons over thousands of years.
- **Symbiotic Relationship with Zooxanthellae:**
- Corals have a mutualistic relationship with photosynthetic algae called zooxanthellae that live inside their tissues.
- The algae provide corals with essential nutrients and oxygen through photosynthesis, while corals offer the algae a protective environment and access to sunlight.

Artificial Reefs

- Artificial reefs are human-made substitutes for natural reefs, designed to provide habitat and support marine life.
- These reefs aim to create new habitats, boost fish production, reduce wave damage, and support recreational activities.
- They are strategically located in relation to coral reefs to enhance their function and support ecological connectivity.
- The structure of artificial reefs resembles natural reefs, providing substrate for corals, algae, and other marine organisms.
- Materials such as inert ceramics are commonly used to construct artificial reefs.

Significance of Artificial Reefs:

- **Marine Environment Restoration and Boost in Fish Production:**
- Artificial reefs contribute to the restoration of the marine environment by creating new habitats and increasing biodiversity.
- By serving as an artificial habitat, artificial reefs enhance coastal fish production.

- **Wave Damage Reduction and Carbon Sink:**

- Artificial reefs play a significant role in protecting coastal areas from wave damage.
- Additionally, artificial reefs can act as a carbon sink. They absorb and store carbon dioxide from the surrounding water, helping mitigate climate change's effects and promoting a healthier marine ecosystem.

- **Support for Marine Life and Recreational Activities:**

- Artificial reefs create thriving ecosystems by attracting a wide range of marine life.
- Furthermore, artificial reefs enhance recreational fisheries by providing additional fishing grounds.
- This benefits local communities and tourism by offering opportunities for activities such as sport fishing and diving.

About Pradhan Mantri Matsya Sampada Yojana (PMMSY)	
Ministry	Department of Fisheries under Ministry of Fisheries, Animal Husbandry and Dairying
Aim	To achieve a Blue Revolution by promoting sustainable and responsible development in the fisheries sector.
Funding	Estimated investment of Rs. 20050 crores.
Term	5 years, from fiscal years 2020-21 to fiscal years 2024-25.
Objective	Bridge critical gaps in the fisheries value chain, including fish production, productivity, quality, technology, post-harvest infrastructure, and marketing.
Features	<ul style="list-style-type: none"> • Modernise and strengthen the value chain, improve traceability, and establish a robust fisheries management framework. • Focus on the socio-economic welfare of fishers and fish farmers to ensure their prosperity alongside sector development.
Components	<ul style="list-style-type: none"> • The PMMSY comprises the <ul style="list-style-type: none"> ○ Central Sector Scheme (CS) ○ Centrally Sponsored Scheme (CSS). • The CSS has both non-beneficiary-oriented and beneficiary-oriented subcomponents/activities, categorised into three main areas: <ul style="list-style-type: none"> ○ enhancement of production and productivity, ○ infrastructure and post-harvest management, ○ fisheries management and regulatory framework.

Sources:

Department of Fisheries is promoting Artificial Reef (AR) under PMMSY for rejuvenating coastal fisheries

Q1. With reference to Pradhan Mantri Matsya Sampada Yojana (PMMSY) , consider the following statements:

1. PMMSY aims to achieve a Blue Revolution by promoting sustainable and responsible development in the fisheries sector.
2. PMMSY is funded 100% by the Union Government.
3. The term of the PMMSY is ten years, from fiscal years 2014-15 to fiscal years 2024-25.

Which of the statements given above is/are NOT correct?

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

Answer: (b)

Q2. Consider the following:

1. Acts as a carbon sink
2. Coastal protection from wave damage
3. Ability to predict tsunamis
4. Medicinal use

How many of the above mentioned are benefits of Artificial Reefs?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All Four

Answer: (c)

Q3. Discuss the significance of the Blue Revolution in India's fisheries sector, including its objectives and challenges. How do initiatives like introducing artificial reefs contribute to the Blue Revolution's goals?

Gaurav Nikumbh

