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Rising seas could flood olive ridley nesting sites by 2050: study

The finding is predicated on the moderate climate-change scenario and is based on studies of digital elevation models.

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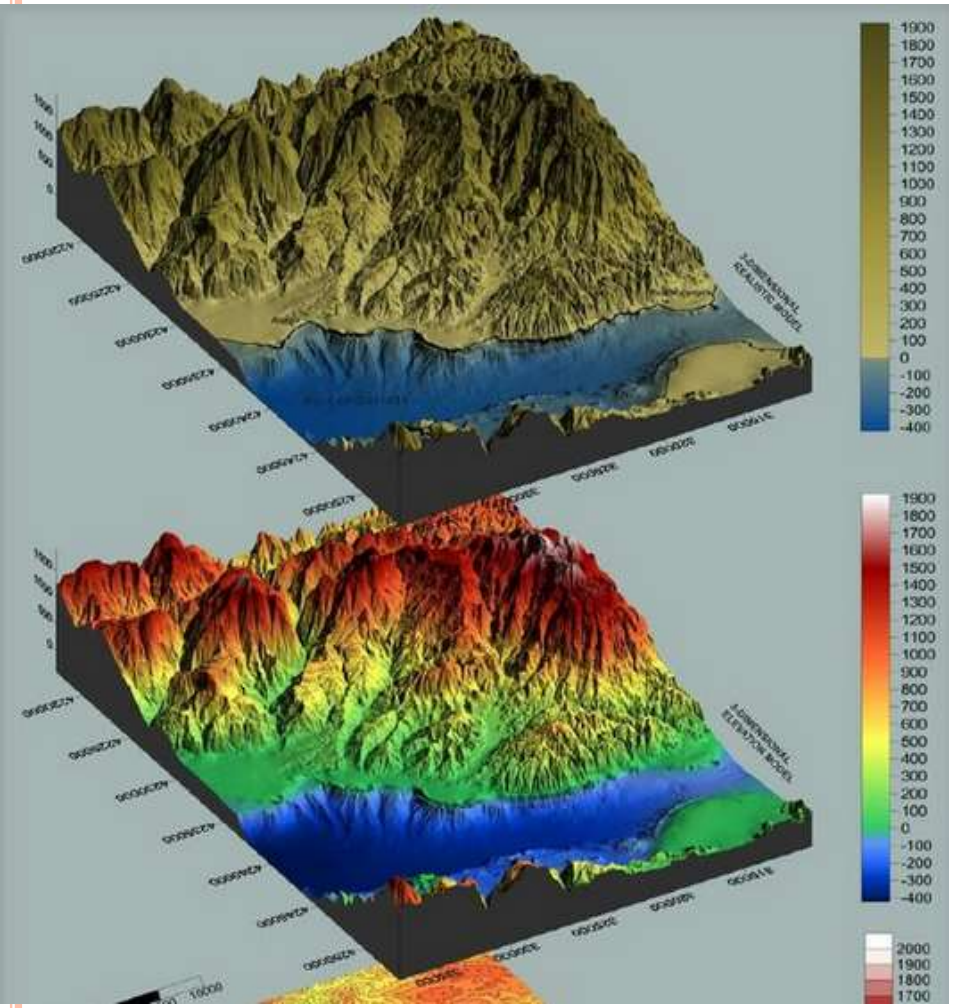
T.V. PARMA

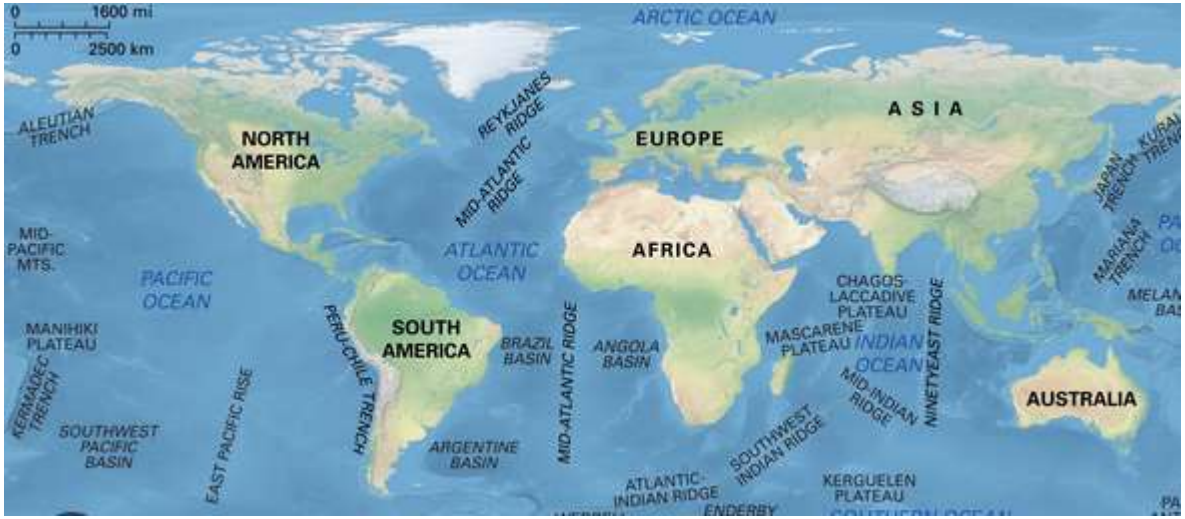
The Rushikulya beach in Odisha hosted 6.37 lakh turtles from February 23 to March 3, 2023. | Photo Credit: Biswaranjan Rout/The Hindu



A Digital Elevation Model (DEM) is **a representation of the bare topographic surface of the Earth excluding trees, buildings, and any other surface objects**.

DEMs are created from a variety of sources, primarily from topographic maps.

- Team of researchers combined freely available digital elevation models for continental and remote island beaches across different ocean basins, with projections of sea-level rise, to examine the possible impact on five of the world's seven living sea-turtle species.



These turtle species are

leatherback turtles (*Dermochelys coriacea*),
loggerhead turtles (*Caretta caretta*),

hawksbill turtles (*Eretmochelys imbricata*),

olive ridley turtles (*Lepidochelys olivacea*), and
green turtles (*Chelonia mydas*).

Findings of the study

If warming continue under moderate climate-change scenarios, leave alone drastic ones, some sea-turtle nesting habitats, including those of the olive ridleys that visit India every year, will be completely flooded by 2050.

In more extreme carbon emissions scenarios, they could completely vanish, a new study has found.

Previous studies attempted to address these problems but focused mainly on local regions and considered only one or two species at a time.

Their techniques varied as well: regional field surveys often suffered from low accuracy, while the combination of 'light detection and ranging' (LiDAR) and biological data was more accurate but also more expensive, and thus not very repeatable.

What is notable about the study?

The current team's method, using digital elevation models, should solve these problems, according to its members.

"Considering that most sea turtle rookeries (habitats)across the globe are located in remote areas in low and middle income countries, less costly approaches for field surveys are often preferred and can provide baseline data to identify areas most at risk," their paper reads.

How can the findings apply in India?

The scientists used a small number of case studies to show that flooding can be very severe at some beaches in the future

"The same analytical approach can be used to study the effect of sea level rise on sea turtle nesting beaches in India and across the world," he said.

Sea Turtle

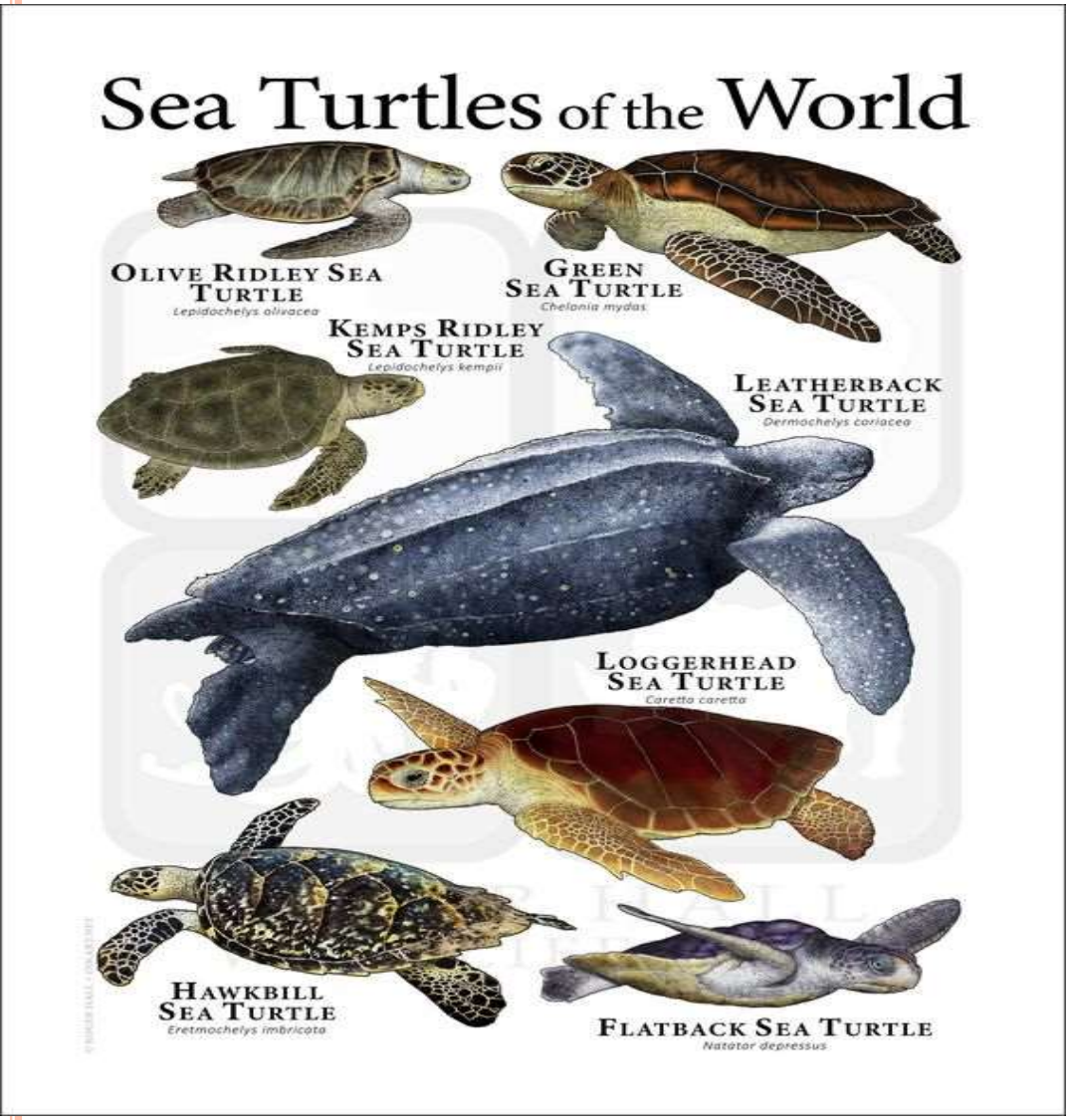
•It can reside inside **freshwater or saltwater.**

•Turtles are **cold-blooded species.**

•They have very **slow metabolism** and **can survive without food and water for a long time.**

Significance:

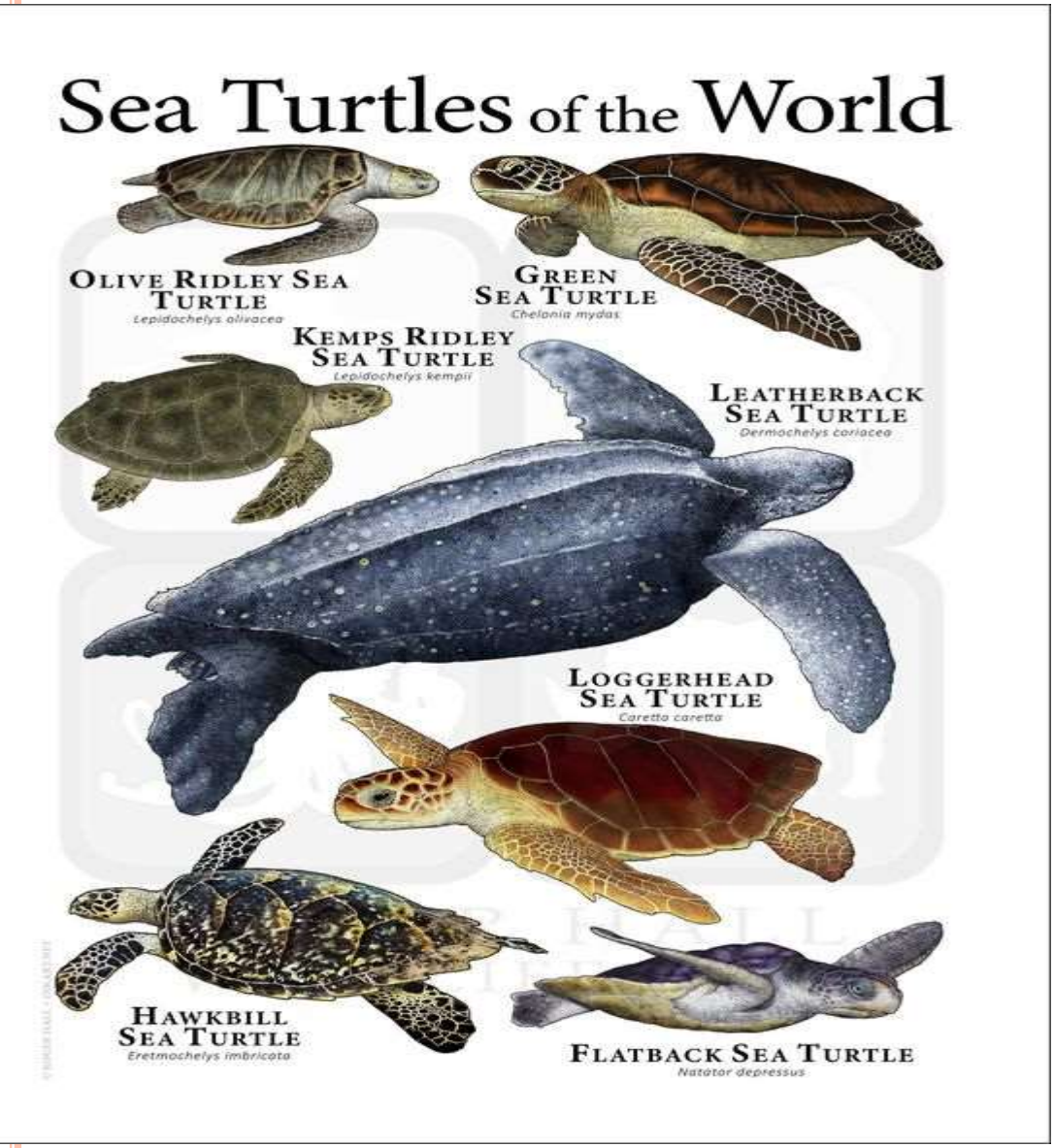
Turtles **play an important role** in the **river** by **scavenging dead organic material** and diseased fish by **controlling the water pollution**.



There are **seven sea turtle species in world**

•**five species in Indian waters** i.e.

- **Olive Ridley**,
- **Green turtle,**
- **Loggerhead,**
- **Hawksbill,**
- **Leatherback.**



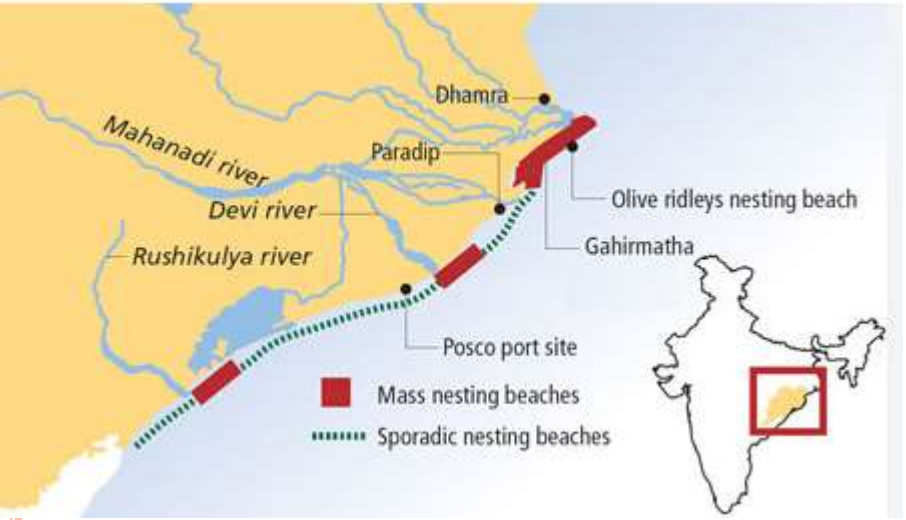
- The **Olive Ridley, Leatherback and Loggerhead** are listed as **'Vulnerable'** on the IUCN Red List of Threatened Species.
- The **Hawksbill turtle** is listed as **'Critically Endangered'** and
- **Green Turtle** is listed as **'Endangereed'** on the IUCN Red List of Threatened Species.
- protected in **Wildlife Protection Act of 1972**, under **Schedule I.**
-
- Turtles have been **protected in** India under the **Biodiversity Conservation and Ganga Rejuvenation** programme.

Sea Turtle Project, 1999

•MoEFCC initiated the **Sea Turtle Conservation Project** in collaboration of UNDP in **1999** with **Wildlife Institute of India, Dehradun** as the **Implementing Agency** with the

• **objective of conservation** of **olive ridley turtles** and other endangered marine turtles,

•The project is being **implemented in 10 coastal States** of the country with **special emphasis in State of Orissa.**



Olive ridley turtles

➢IUCN status- v**ulnerable**

➢The Olive ridley turtles are **the smallest and most abundant of all sea turtles** found in the world.

➢They **inhabit warm waters of the Pacific, Atlantic and Indian oceans.**

➢These turtles, **along with** their cousin **the Kemps ridley turtle,** are **best known for** their unique mass nesting called **Arribada**,

➢where **thousands of females come together** on the same beach **to lay eggs.**

➢**Rushikulya coast** in the Ganjam district of Odisha, **Gahirmatha beach and** the **mouth of the Debi River, are the major nesting sites in Odisha.**

Question : which of the following statement is correct about Olive Ridley Turtle?

1. they are smallest and most abundant of all sea turtles
2. They live in warm waters of Pacific, Atlantic and Indian oceans
3. The Coromandel coast in India is the largest mass nesting site for Olive Ridley turtle

Select the correct answer

A. 1,2,3
B. 1 & 2
C. 2 &3
D. 1 only

Answer: B

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