

for every child

HORSESHOE CRABS

A Youth4Water Plus Factsheet

For more details contact - Dr. Biswajeet Panda +91 97768 78930 | biswajeetpandanature@gmail.com

INTRODUCTION

Horseshoe crabs, often regarded as living fossils, are a group of ancient marine arthropods that have roamed the Earth's oceans for hundreds of millions of years. These remarkable creatures, although are not true crabs, but share a distant evolutionary relationship with arachnids like spiders and scorpions. Horseshoe crabs are renowned for their distinctive appearance, featuring a hard exoskeleton, a long and pointed tail spin, and large compound eyes.

CO CRABB

While horseshoe crabs are found in various parts of the world, including the Atlantic coast of North America and parts of the Indian Ocean, This Factsheet will focus on the unique Indian Horseshoe Crabs, namely Tachypleus gigas and Carcinoscorpius rotundicauda found along the coastlines of India, Bangladesh, Myanmar, and Sri Lanka. These species have their own intriguing characteristics and contribute to the intricate ecosystems of the Indian subcontinent.

These living relics of the past continue to capture the imagination of scientists, conservationists, and nature enthusiasts alike, and understanding their role in our planet's biodiversity is essential for their preservation.



Taxonomy of Horseshoe Crabs

Characteristics	Giant Indian Horseshoe Crab (Tachypleus Gigas)	Mangrove Horseshoe Crab (Carcinoscorpius Rotundicauda)
Kingdom	Animalia	Animalia
Phylum	Arthropoda	Arthropoda
Subphylum	Chelicerata	Chelicerata
Class	Merostomata	Merostomata
Order	Xiphosura	Xiphosura
Family	Limulidae	Limulidae
Genus	Tachypleus	Carcinoscorpius
Species	gigas	rotundicauda

More Information About Indian Horseshoe Crabs

Characteristics	Giant Indian Horseshoe Crab (Tachypleus Gigas)	Mangrove Horseshoe Crab (Carcinoscorpius Rotundicauda)
Size	Larger of the two species, with a carapace width that can reach up to 40-45 centimeters.	Smaller in size, with a carapace width ranging from about 20 to 25 centimeters.
Carpace Shape	The carapace is more elongated and narrower, resembling a pointed horseshoe shape.	Broader and more rounded carpace, giving it a more circular or rounded horseshoe shape.
Coloration	The carapace and abdomen tend to be brownish or greenish in color, with a somewhat darker appearance.	Reddish-brown or rust-colored carapace and abdomen, with a distinctive coloration that differs from T. gigas.
Spine	The telson (the long, pointed spine at the rear end) is typically longer and slenderer.	Typically shorter and broader compared to T. gigas



Distribution of Horseshoe Crabs in India-

The eastern coastline of India along the Bay of Bengal is a significant habitat for horseshoe crabs. States like West Bengal, Odisha, Andhra Pradesh, and Tamil Nadu have reported populations of horseshoe crabs along their shores.



Distribution of Horseshoe Crabs in Odisha -

Baleswar is known for its horseshoe crab populations. 11000 range, 4000 range, Kasafal, Dogra, Kirtaia, Bichitrapur, Talsari, in particular, has been recognized as a significant habitat for horseshoe crabs. Apart from that they are sparsely distributed in Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam.

Behavioral Patterns of Horseshoe crabs in contrast to Lunar cycle

Spawning Behavior

Horseshoe crabs are known to come ashore during high tide, especially during the new and full moons. During these times, they gather in large numbers along coastal areas to spawn, which involves the female laying eggs in sandy substrates, and the males fertilizing them. This spawning behavior is often synchronized with the lunar cycle. Horseshoe crabs especially use spring tides to their advantage for successful reproduction. The high tides provide the necessary water depth for them to approach the shoreline and lay their eggs.

2 Lunar Tides

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The lunar cycle influences the tides, with higher high tides and lower low tides occurring during the new and full moons, which are known as spring tides.



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Identifying Lunar Moon:

The moon goes through a cycle of phases, which include New Moon, First Quarter, Full Moon, and Third Quarter, among others. Here's how to recognize them: **New Moon :** The moon is not visible at all; it's completely dark.

First Quarter : Half of the moon is illuminated on the right side.

Full Moon : The entire face of the moon is illuminated and appears as a complete circle.

Third Quarter : Half of the moon is illuminated on the left side.

Breeding Season

Horseshoe crabs typically have a breeding season that corresponds to the warmer months of the year, typically from spring to early summer. Within this period, their spawning activity tends to peak during the new and full moons.

Nighttime Activity

Horseshoe crabs are nocturnal creatures, and their spawning activities often occur during the night, coinciding with high tides influenced by the lunar cycle.

5 Availability for Observation

Due to their synchronized spawning behavior, horseshoe crabs are more readily available for observation, research, and conservation efforts during the periods around the new and full moons when they come ashore to spawn.



Threats to Horseshoe Crabs

- 1. Over harvest and Exploitation by Bio medical industry.
- 2. Accidental trapping of crabs in fishing's nets.
- 3. Horseshoe Crabs getting entangled in the ghost nets thrown in the sea.
- 4. Large number of horseshoe crabs are used to provide bait for fisheries, including the American eel and Conch Fisheries.
- 5. Shoreline development and subsequent habitat degradation is likely an important threat to horseshoe crabs.
- 6. Pollution has the potential to adversely impact the horseshoe crab population and their habitat.
- 7. Horseshoe crabs concrete inshore seasonally to spawn which makes them vulnerable to exploitation.
- 8. Horseshoe crabs' sanctuaries are also threat to their population as they are kept in artificial habitat for spawning.



Conservation Challenges

Horseshoe crabs, including Indian species, are ancient marvels of the natural world. Conservation efforts are essential to ensure the continued existence of these unique creatures and to preserve the ecological balance of their habitats.

- 1. Reducing the impact of shoreline development and habitat loss
- 2. Educating and facilitating Fisherfolk community to release horseshoe crab back into sea.
- 3. Discarding of ghost nets from sea shore to dustbins.
- 4. Reducing the dependence upon horseshoe crabs for bacterial endotoxin testing.
- 5. Reducing the dependence of horseshoe crabs as a bait for fisheries
- 6. Reducing mortality during Spawning
- 7. By annual spawning surveys to check their number in regular interval.







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