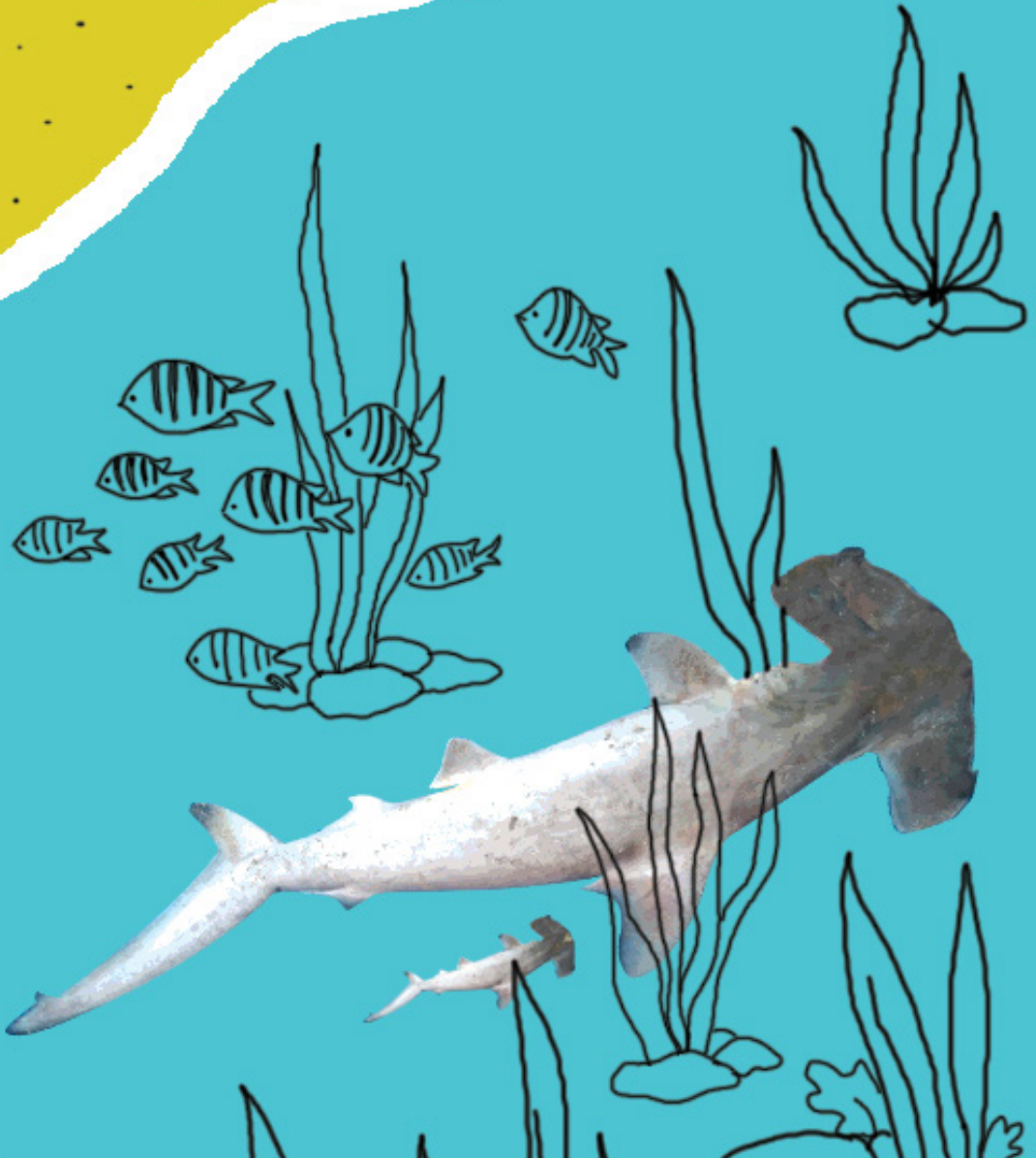




SHARKS AND RAYS OF MALVAN



This outreach book has been created by Trisha Gupta, Kaustubh Warde, Chetan Rao, Muralidharan M. and Kartik Shanker from Dakshin Foundation, in collaboration with the Mangrove Foundation of Maharashtra.

We would like to thank all the people of Malvan for their support during our study there. We would also like to thank Naveen Namboothri, Alissa Barnes, Shruthi Kottillil, Sudha Kottillil and Aloknath Baral for their contributions to this book. Finally, we thank Madhavi Rao for translating this book to Marathi.

Art Editing and Illustrations: Manini Bansal
Design and Layout: Mohor Mukherjee and Manini Bansal

Funding and Support:



Dakshin Foundation



Mangrove Foundation



Duleep Matthai Nature Conservation Trust

Legend



Vulnerable/
Near Threatened



Endangered/
Critically Endangered



Capture and sale
of that species
permitted in India



Capture and sale of
that species banned
in India



Habitat of that
species



Maximum size
of that species

Legend



Fish



Squid



Shellfish/
Bivalve



Small
fish



Shark



Turtle



Shrimp



Ray



Jellyfish



Small
shrimp





Crab



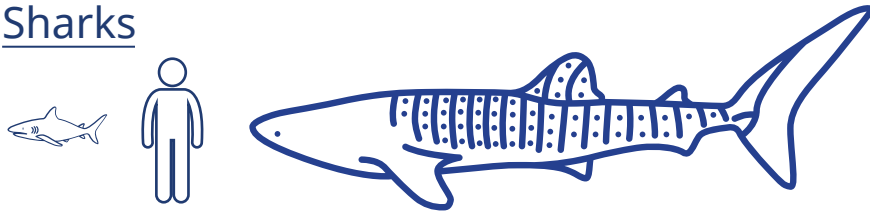
Worm


What are Sharks and Rays?

 Sharks and rays are a group of fish. They are unique due to their cartilaginous skeleton, unlike 'bony fish' such as mackerel.


 There are about 1150 species of sharks and rays across the world. More than 160 species are found in India.

Sharks

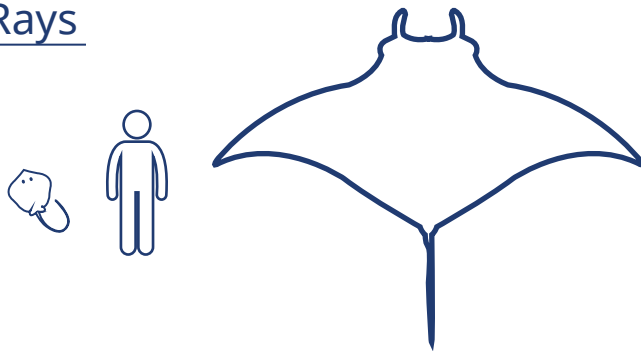



 Sharks generally have a long and cylindrical fish-like body with prominent fins.


 They can be as small as 1 foot to as big as at least 55 feet.


 Most species are known to be fast swimmers

Rays




 Rays have a flattened body, and can have different shapes.


 They can be as small as 1 foot to as big as 22 feet

 Most species live on or near the ocean floor


Habitat and Breeding


 Sharks and rays are found in all parts of the world, in shallow and deep waters.


 Some sharks and rays are migratory and travel across the world.

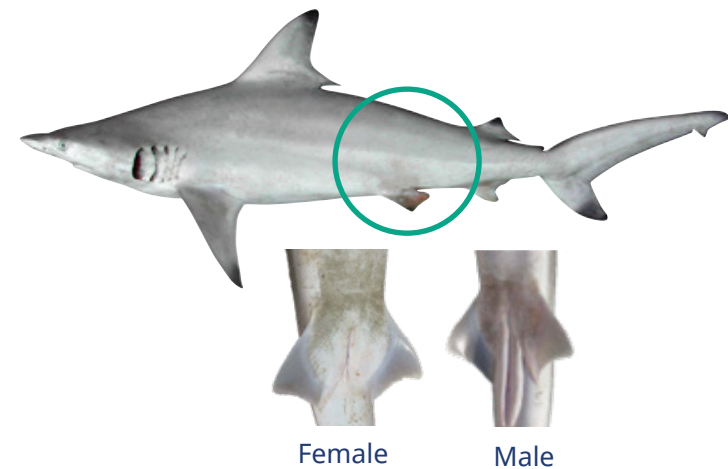
 Most sharks and rays give birth to their young, while some lay eggs. They go to specific areas in the ocean for this.

What is the difference between males and females?

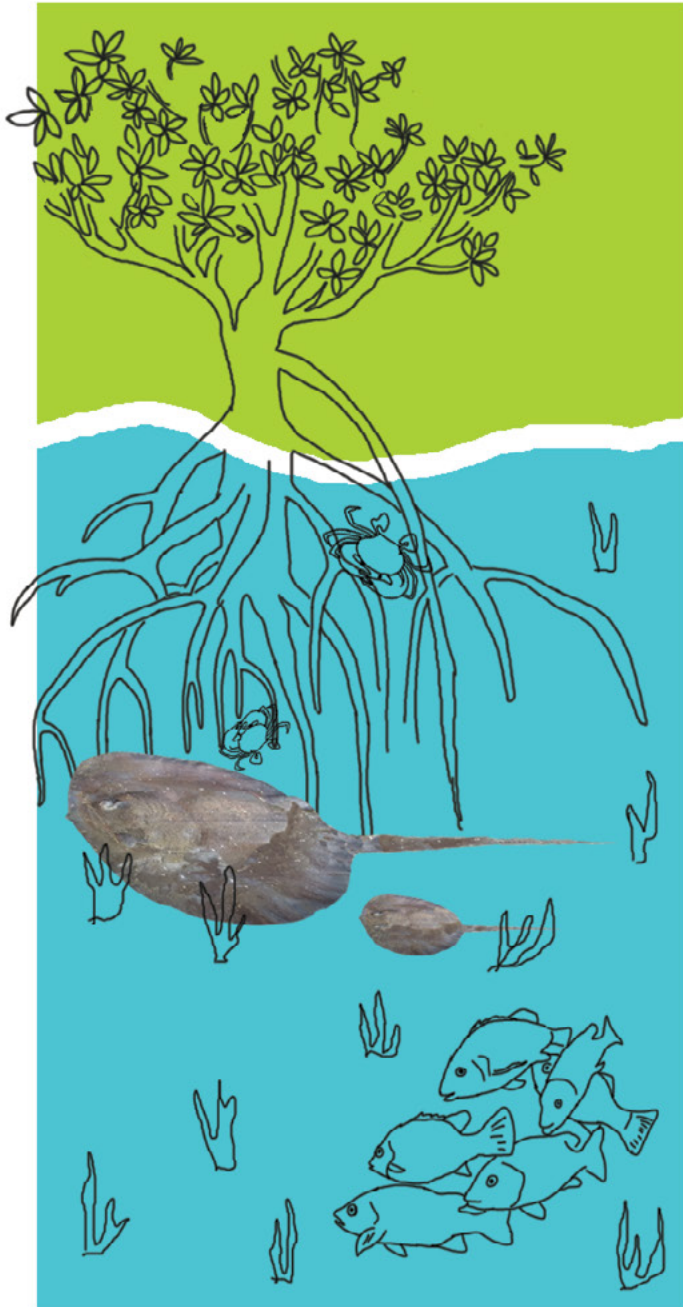
 Males and females of sharks and rays can be easily identified.

 Males have a pair of 'claspers' below their belly. This is absent for females.

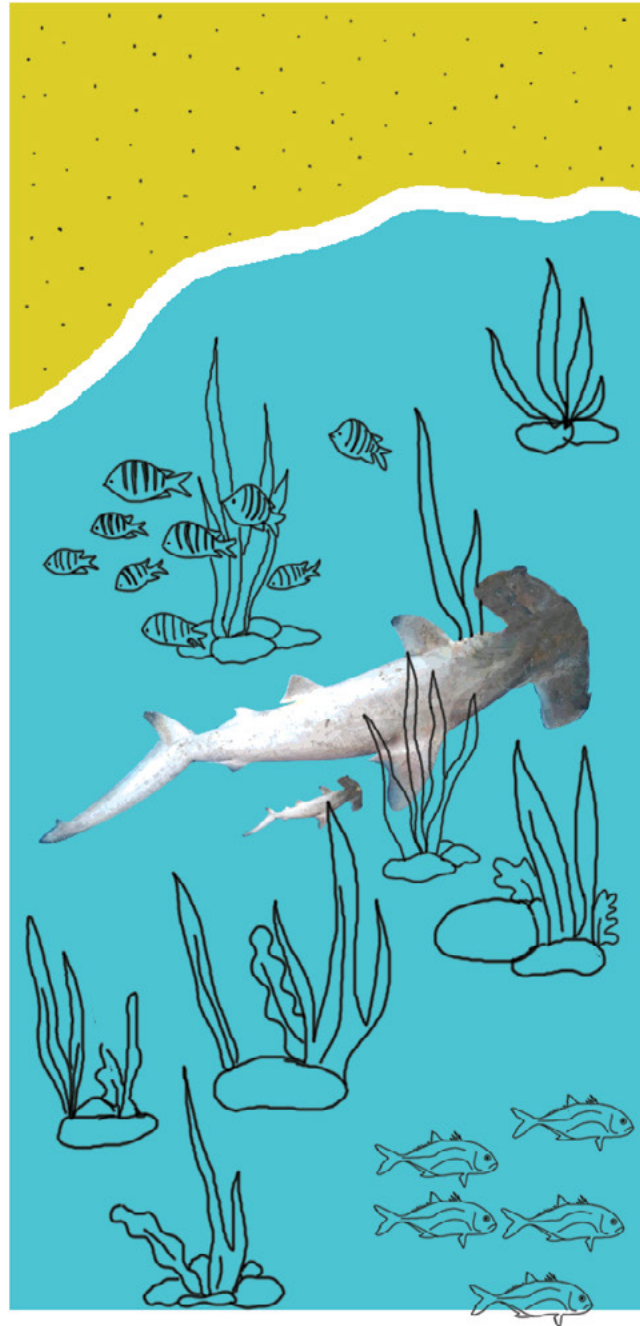
 Claspers are used for breeding.



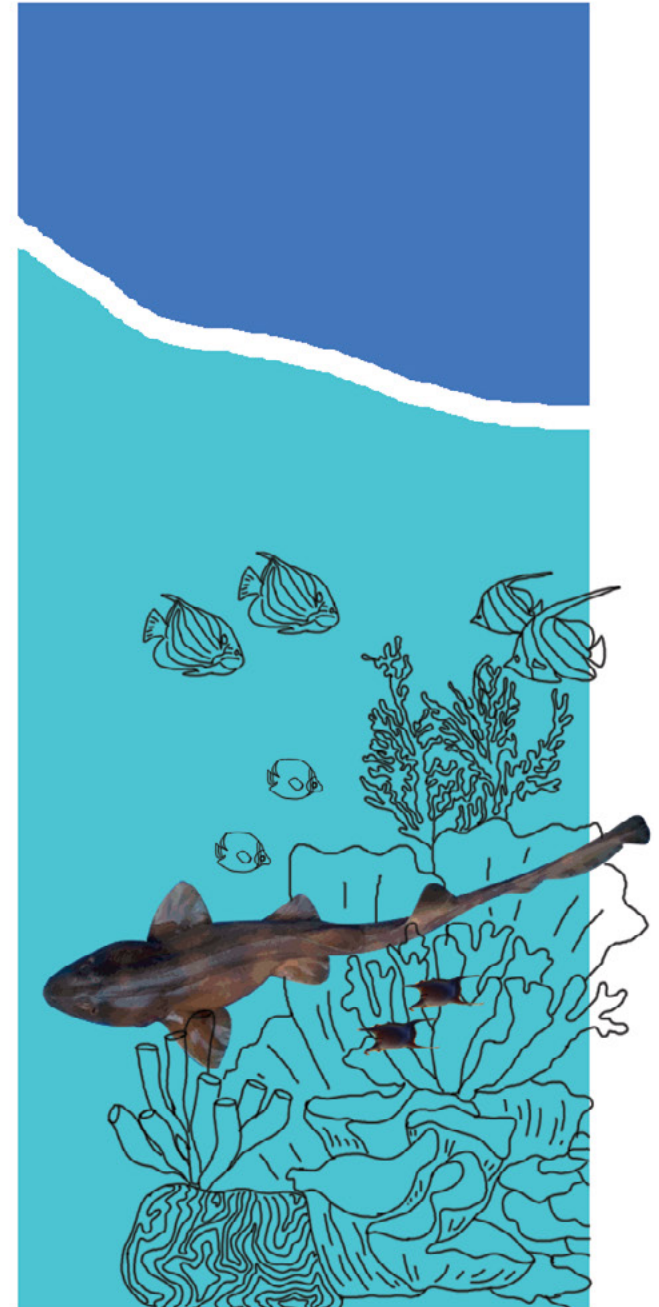
Habitat and Breeding



Some species give birth in mangrove areas

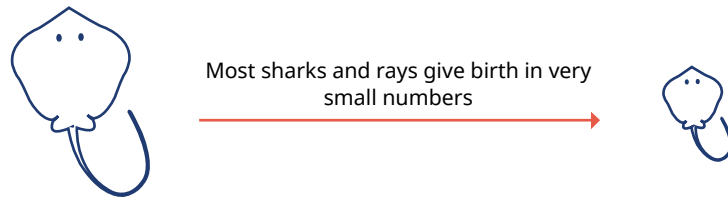
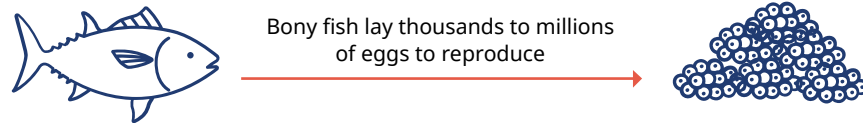





Some species give birth near rocks



Some species lay eggs near corals

Threats

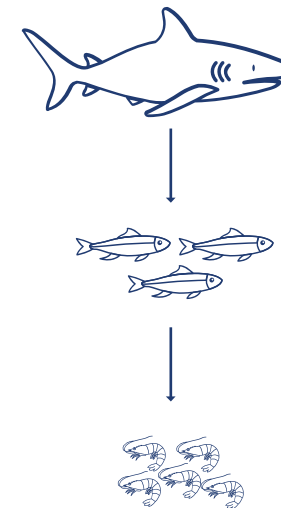


-  This makes sharks and rays very vulnerable to fishing pressure.
-  When they get overfished, their populations decrease and cannot recover as fast as bony fish populations.
-  Because of high levels of fishing, pollution and coastal development, sharks and rays are declining all across the world.

Why protect sharks and rays?

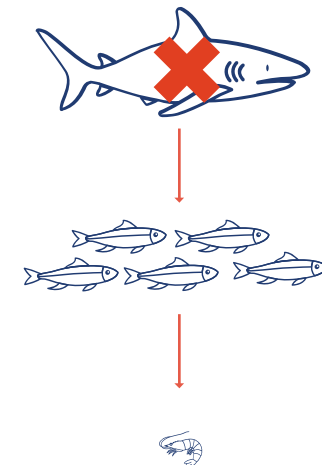
Sharks and rays are important in maintaining balance in the ocean

Sharks feed on fish like sardine, which in turn feed on shrimp



They maintain balance in ocean ecosystems

If sharks disappeared:

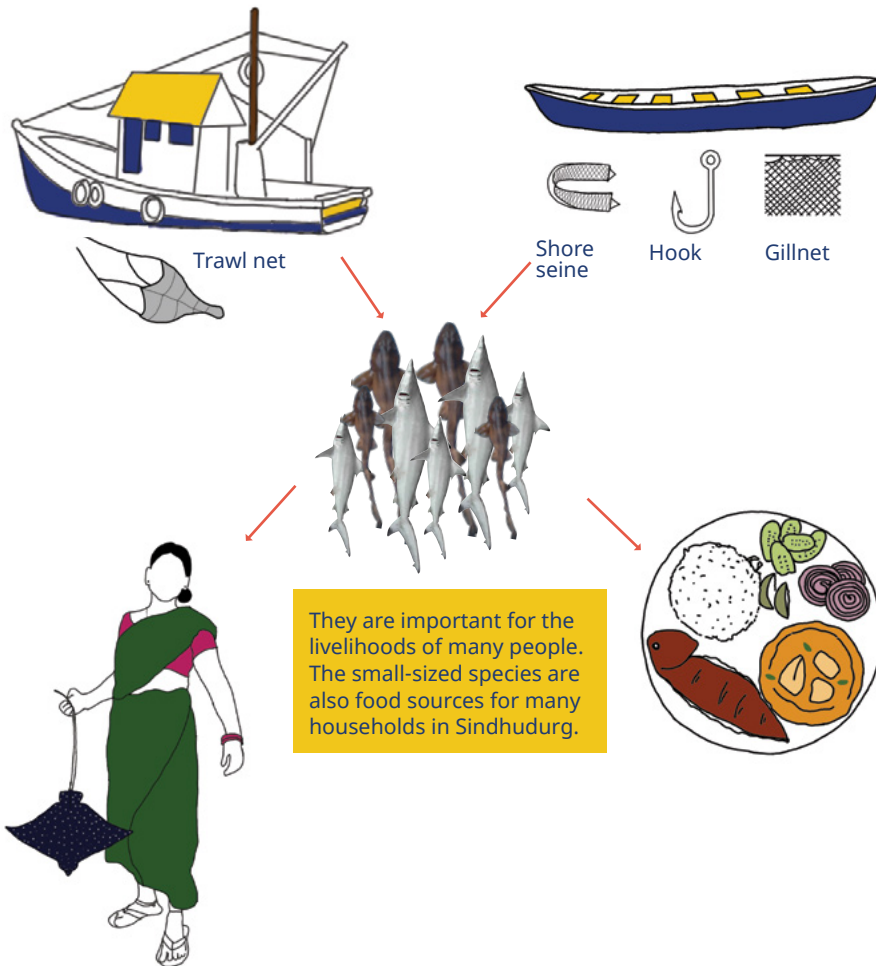


The whole food chain may collapse

Sharks and Rays of Malvan

At least 14 species of sharks and 18 species of rays have been found around Sindhudurg.

They are captured by all types of fishing boats and gear



It is important to find ways to sustainably fish sharks and rays, to maintain ecosystem balance and also protect the livelihoods and food needs of local communities.

How can Sharks and Rays be Protected?

Protected Species



Pondicherry shark



Speartooth shark



Ganges shark



Whale shark



Green sawfish



Largetooth sawfish



Narrow sawfish



Giant guitarfish





Porcupine ray

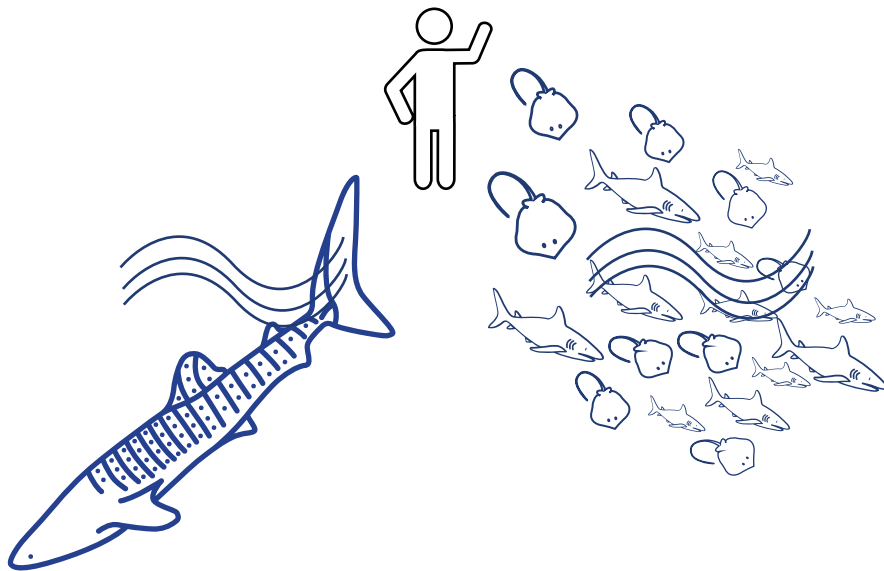


Ganges sting ray

- 10 species of sharks and rays are protected by law in India. Their capture and sale is banned.
- Some protected species – like whale shark (*behera*) and sawfish (*karvat*) are found around Sindhudurg.
- Selling and exporting of shark fins are also banned.

How can Sharks and Rays be Protected?

-  Our work here has shown that many juvenile sharks and rays also get captured in Malvan.
-  Releasing juveniles means that they can be fished when they are larger and fetch a better price.



If you accidentally catch a protected species, please release it safely into the ocean

If you catch any small juveniles of any species, please release them live, if you can.

Common shark and ray species of Malvan



English: Spadenose Shark

Marathi: Chavalayara



 Near Threatened

 Capture allowed

Breeding: Give birth, 6-18 at a time

 Up to 2.5 feet



Habitat: Nearshore waters, rocky areas, sometimes rivers



Diet: Squid, Shrimp, Small fish



Have you seen this species?

Yes ☐ No ☐

This is the most landed shark species in Malvan. These sharks breed throughout the year

English: Common Blacktip Shark

Marathi: Vato



 Near Threatened

 Capture allowed

Breeding: Give birth, 4-11 at a time

 Up to 8.5 feet



Habitat: Nearshore, around corals, rocks & estuaries



Diet: Sardine, Mackerel, Sharks, Rays



Have you seen this species?

Yes ☐ No ☐

While feeding, these sharks sometimes breach the water and spin. They come nearshore to give birth, during and after monsoon. Juveniles are especially captured in fishing boats during this time.

English: Hammerhead Shark

Marathi: Fiski



 Critically Endangered

 Capture allowed

Breeding: Give birth, 12-41 at a time

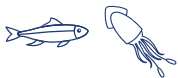
 Up to 14 feet



Habitat: offshore, sandy regions



Diet: Sardine, Squid



Have you seen this species?

Yes ☐ No ☐

These sharks are migratory and can travel long distances across the world. The hammer-shaped head helps in catching prey. Pregnant females come close to shore to give birth from September to January, after 9-12 months gestation. Juveniles aggregate in shallow coastal waters - where they get capture in fishing nets.

English: Bamboo Shark

Marathi: Suniar



 Near Threatened

 Capture allowed

Breeding: Lay eggs, 2-4 at a time

 Up to 2.5 feet



Habitat: Nearshore waters, around corals, rocky areas.



Diet: Shrimp, Small fish



Have you seen this species?

Yes ☐ No ☐

This shark is commonly found in Sindhudurg. It lives near the sea floor. It lays eggs around rocks or coral reefs. They take 80-90 days to hatch. These sharks form a cheap and important food source in Sindhudurg

English: Bull Shark

Marathi: Mori



 Near Threatened

 Capture allowed

Breeding: Gives birth, 1-13 at a time

 Up to 11 feet



Habitat: Nearshore waters as well as in rivers



Diet: Fish, Sharks, Rays, Turtles



Have you seen this species?

Yes ☐ No ☐

This is a broad and heavy shark, commonly found across the world in warm waters. They often go to rivers and creeks to give birth. The juveniles are sometimes captured by small boats. Around Malvan, these sharks are especially captured between Jan - May

English: Guitarfish

Marathi: Fadka, Khara



 Critically Endangered

 Capture allowed

Breeding: Give birth, 4-18 at a time

 Up to 7.5 feet



Habitat: Nearshore sandy regions



Diet: Shrimp, Crab, Shellfish



Have you seen this species?

Yes ☐ No ☐

At least two species are found around Malvan. They live near the sea floor and are generally found in groups. They are especially active at night. In Malvan they are captured especially by small boats. Guitarfish populations have declined across the world and are under threat

English: Whale Shark

Marathi: Behera



 Endangered

 Capture banned

Breeding: Gives birth, number unknown

 Up to 55 feet



Habitat: Inhabits coastal and deep offshore waters



Diet: Tiny shrimp, Fish spawn



Have you seen this species?

Yes ☐ No ☐

This is the largest fish in the world but is harmless to humans. It is migratory and travels across the world. Females come close to shore to give birth, where they are vulnerable to capture. They have declined due to high fishing pressure, and their capture is now banned.

English: Eagle ray

Marathi: Bhend



 Endangered

 Capture allowed

 Up to 10 feet wide

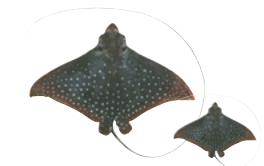


Habitat: shallow and deeper waters, near corals and estuaries

Diet: Crab, Bivalve



Breeding: Give birth, 1-4 at a time



Have you seen this species?

Yes ☐ No ☐

At least two species are commonly found around Malvan. They live near the sea surface, and sometimes leap out of the water. They come close to shore to give birth, after 12 months of gestation. In Malvan, juveniles are especially captured between May - November

English: Scaly ray

Marathi: Waghul



Near Threatened

Capture allowed

Up to 1 foot wide

Habitat: Nearshore sandy areas

Diet: Small shrimps, Crab



Breeding: Give birth, 1-3 at a time

This is the most commonly landed ray species in Malvan. They live near the sea floor. Breeding occurs throughout the year. In Malvan, these rays are captured throughout the year by trawlers and gillnets.

Have you seen this species?

Yes ☐ No ☐



English: Honeycomb/Leopard ray

Marathi: Waghul



Vulnerable

Capture allowed

Up to 6 feet wide

Habitat: Nearshore sandy and muddy areas

Diet: Shrimp, Small fish, Jellyfish



Breeding: Give birth, number unknown

These rays can grow to a large size. They are easily identified by the pattern of spots on their skin. They sometimes swim into rivers to feed.

Have you seen this species?

Yes ☐ No ☐



English: White spotted ray

Marathi: Waghul



Vulnerable

Capture allowed

Up to 4 feet wide

Habitat: Nearshore sandy areas

Diet: Shrimp, Crab, Bivalves



Breeding: Give birth, 1-4 at a time

These rays live near the sea floor. They have one venomous sting, but are not very harmful to humans. Breeding occurs throughout the year. In Malvan, juveniles captured by trawlers, adults are captured by gillnets and line fishers.

Have you seen this species?

Yes ☐ No ☐



English: Blue spotted ray

Marathi: Bhend



Data Deficient

Capture allowed

Up to 1.5 feet wide

Habitat: Near rocks and corals, in shallow and deep waters

Diet: Shrimps, Worms



Breeding: Give birth, 1-2 at a time

This is a small ray, with blue-grey spots on its body. These rays live near the sea floor. They sometimes bury themselves in the sea floor to find their prey. They have one venomous sting, which can be harmful to humans.

Have you seen this species?

Yes ☐ No ☐



Match the species with their prey



Spadenose sharks



Blacktip sharks



Blue-spotted ray



Eagle ray



Worms



Bivalves



Mackerel



Squid

Match the species with their habitat



Bull sharks



Hammerhead sharks



Guitarfish



Scaly ray

Sea floor at night

Nearshore sandy areas

Rivers

Offshore, in deeper waters

For more information, contact:

www.dakshin.org
dakshinfoundation.india@gmail.com
trishagupta0405@gmail.com
Phone: +91 80 42113509

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