

Methodology

- Identify the ray using the given identification chart
- Take a photograph of the dorsal (front) and ventral (back) sides of the ray with a measuring scale in the frame
- Identify the gender of the ray
- Look out for female rays with enlarged bellies and press towards the cloaca to check for release of embryos (If dead).
- Measure the dimensions of the ray as given in Fig. 1 & the given data sheets.
- Spot the kidney-shaped electric organ on the ventral side of the body; measure its length and width. Take a closer photograph to count the number of cells
- Finally, weigh the ray on the weighing machine
- Note down all the measurements in the given data sheets (A1) and (A2)
- Cut a small part (2-3 cm) of tissue from the pelvic fin region and store it in 95% ethanol



Kindly release live rays back into the sea, without delay.

Happy sampling!!

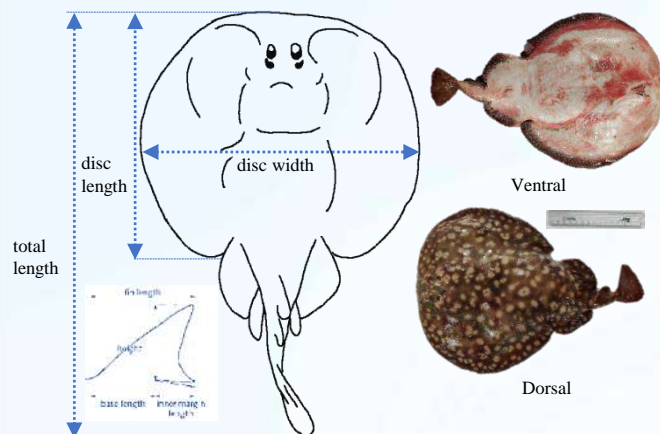


Fig. 1 Electric ray dimensions (for more details: see Appendix 1)

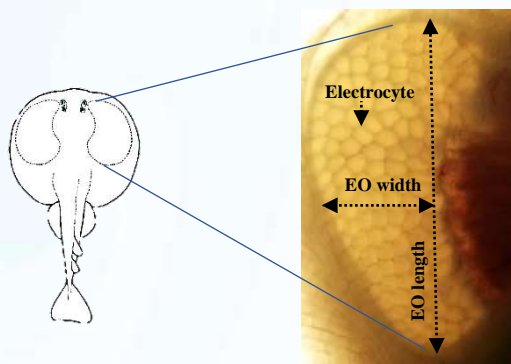


Fig. 2 Electric organ dimensions

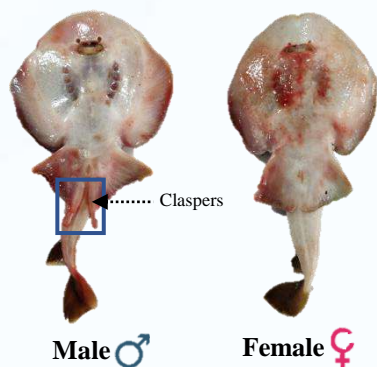
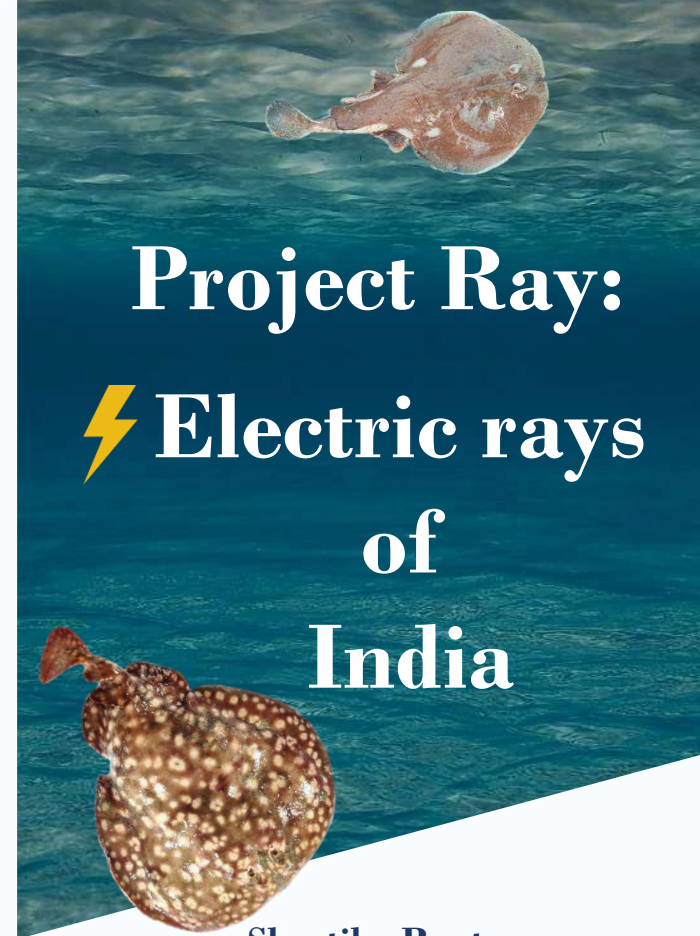


Fig. 3 Gender identification



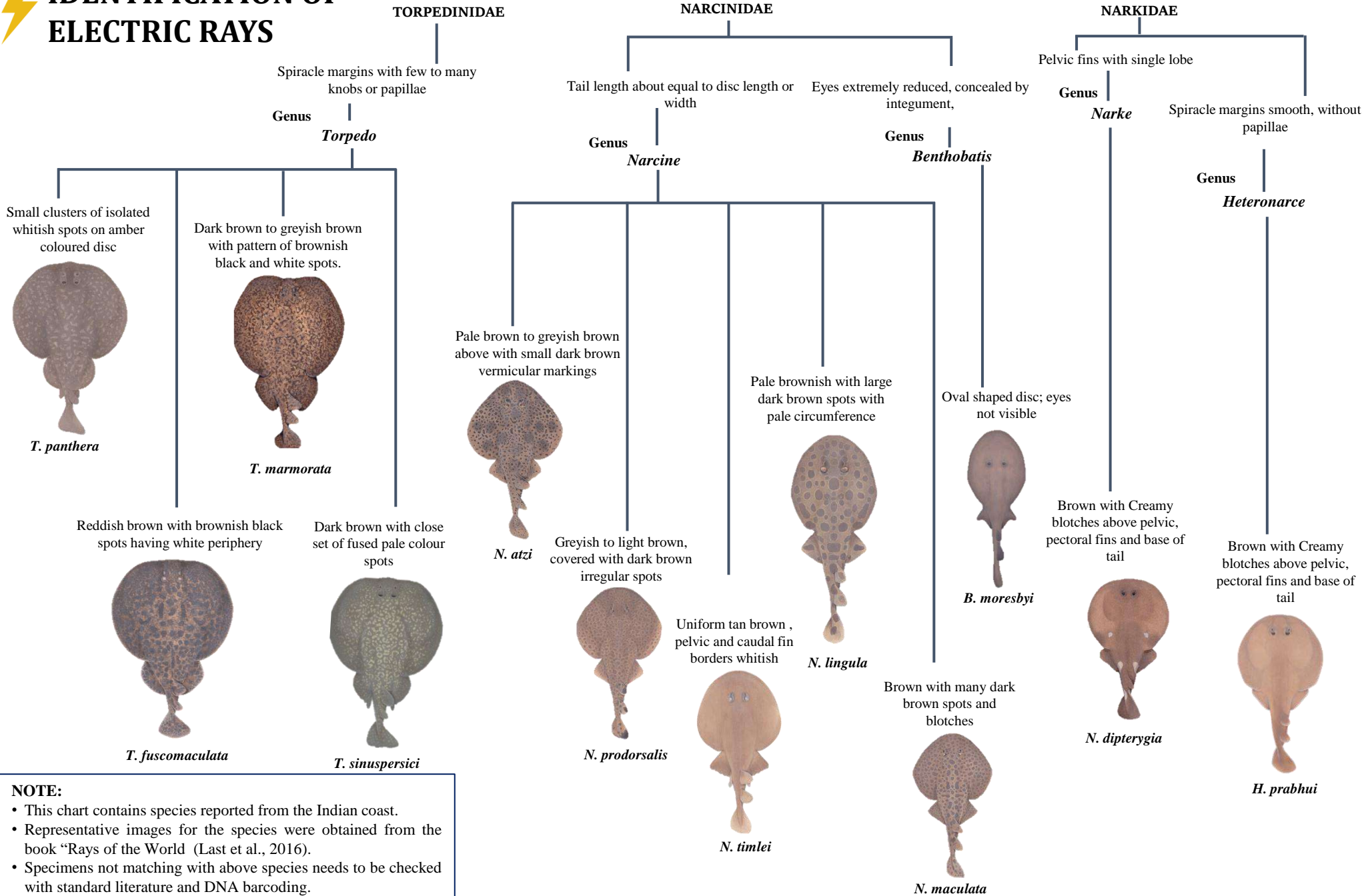
Project Ray: ⚡ Electric rays of India

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IDENTIFICATION OF ELECTRIC RAYS

TORPEDINIFORMES



NOTE:

- This chart contains species reported from the Indian coast.
- Representative images for the species were obtained from the book "Rays of the World (Last et al., 2016).
- Specimens not matching with above species needs to be checked with standard literature and DNA barcoding.

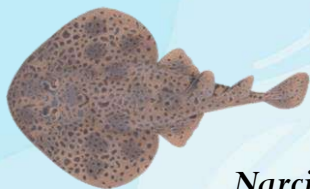
Electric Rays Of India



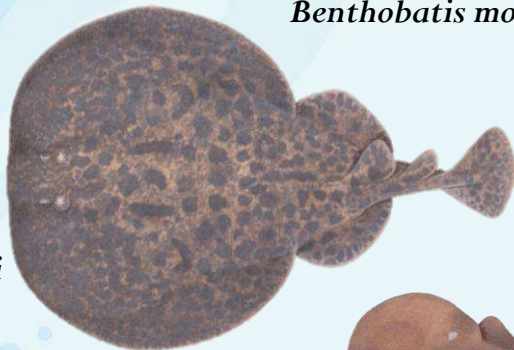
Torpedo panthera



Benthobatis moresbyi



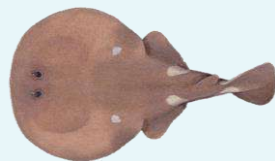
Narcine atzi



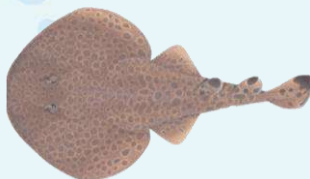
Torpedo fuscomaculata



Narcine timlei



Narke dipterygia



Narcine prodorsalis



Torpedo marmorata



Narcine maculata



Narcine lingula

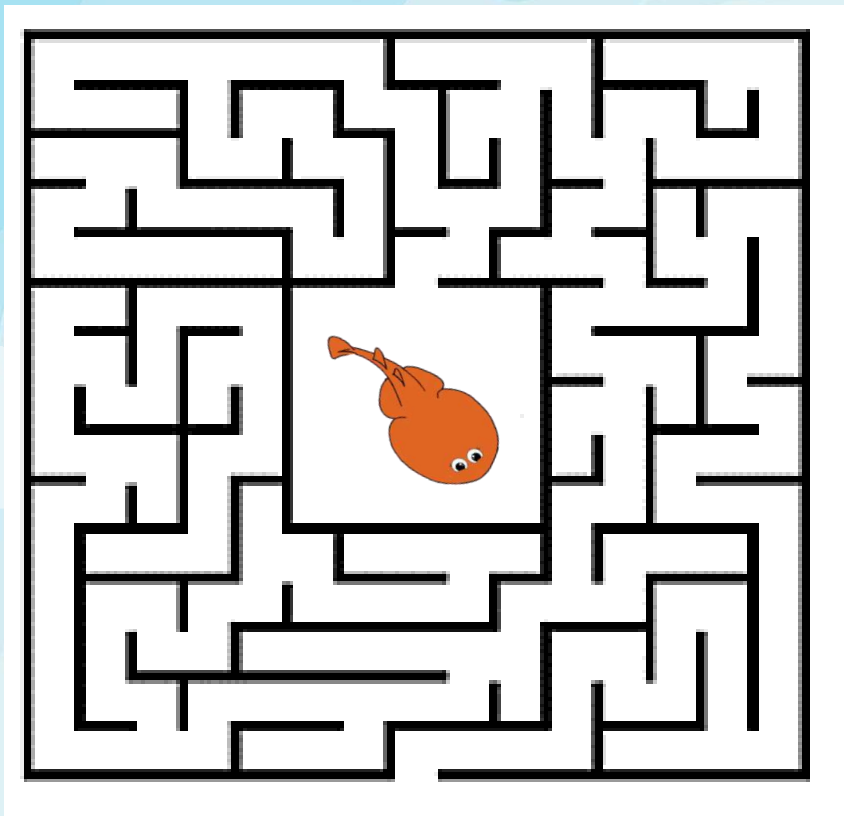


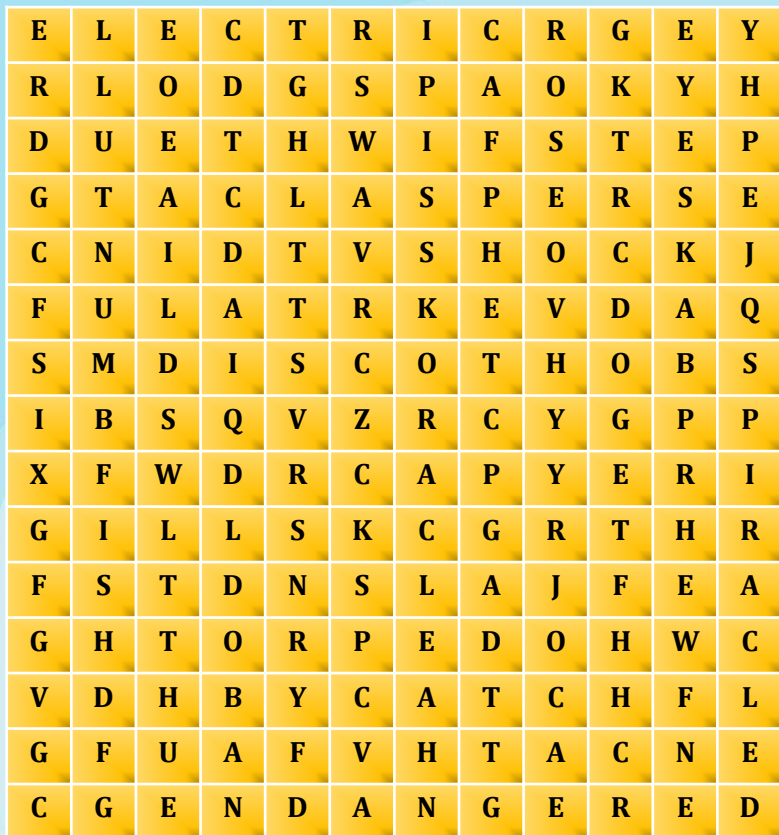
Torpedo sinuspersici



Heteronarce prabhui

HELP THE ELECTRIC RAY TO FIND ITS WAY BACK HOME





**FIND THE FOLLOWING HIDDEN WORDS RELATED TO
ELECTRIC RAYS**

ELECTRIC

EYES

SPIRACLE

GILLS

NUMBFISH

TORPEDO

BYCATCH

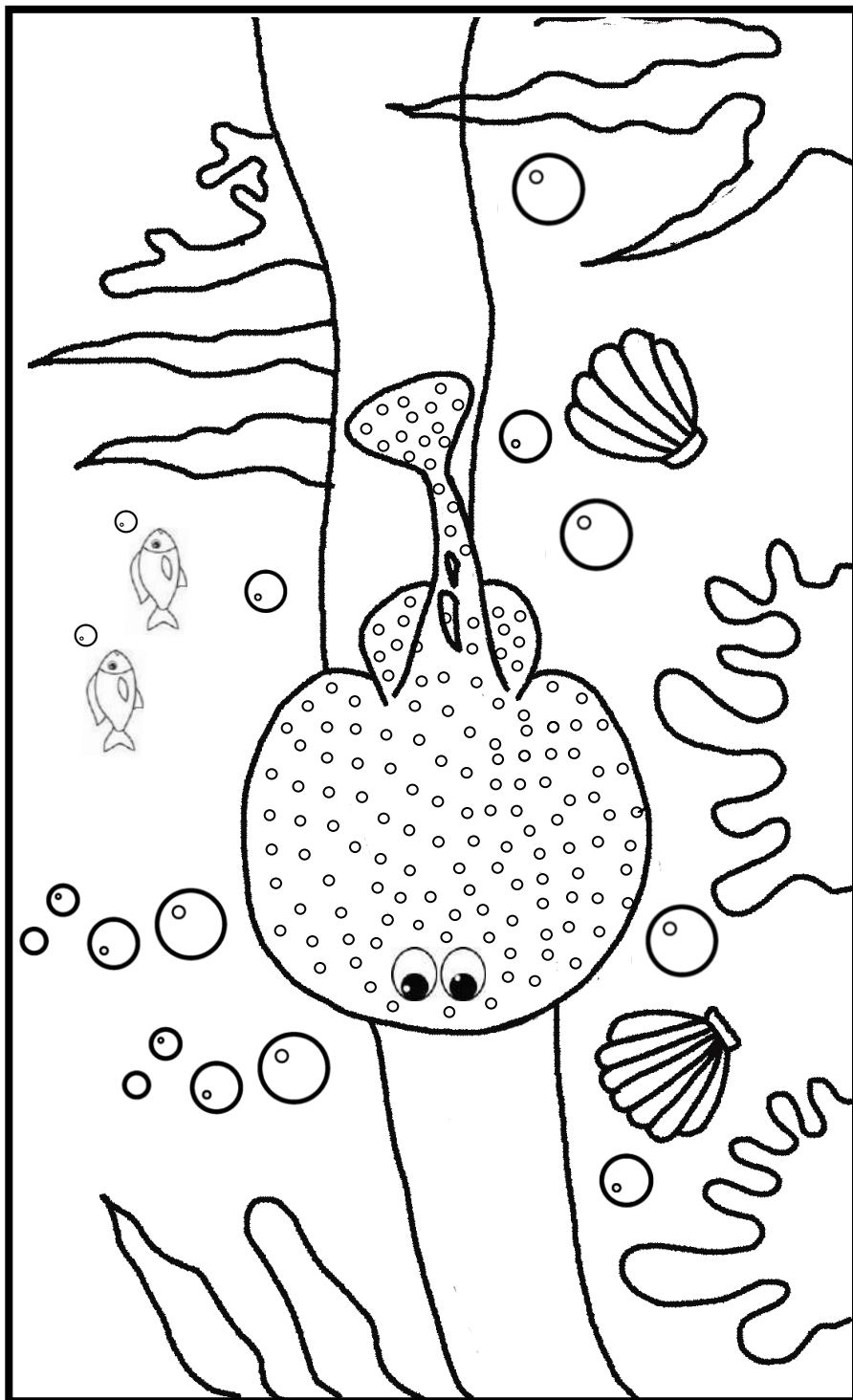
SHOCK

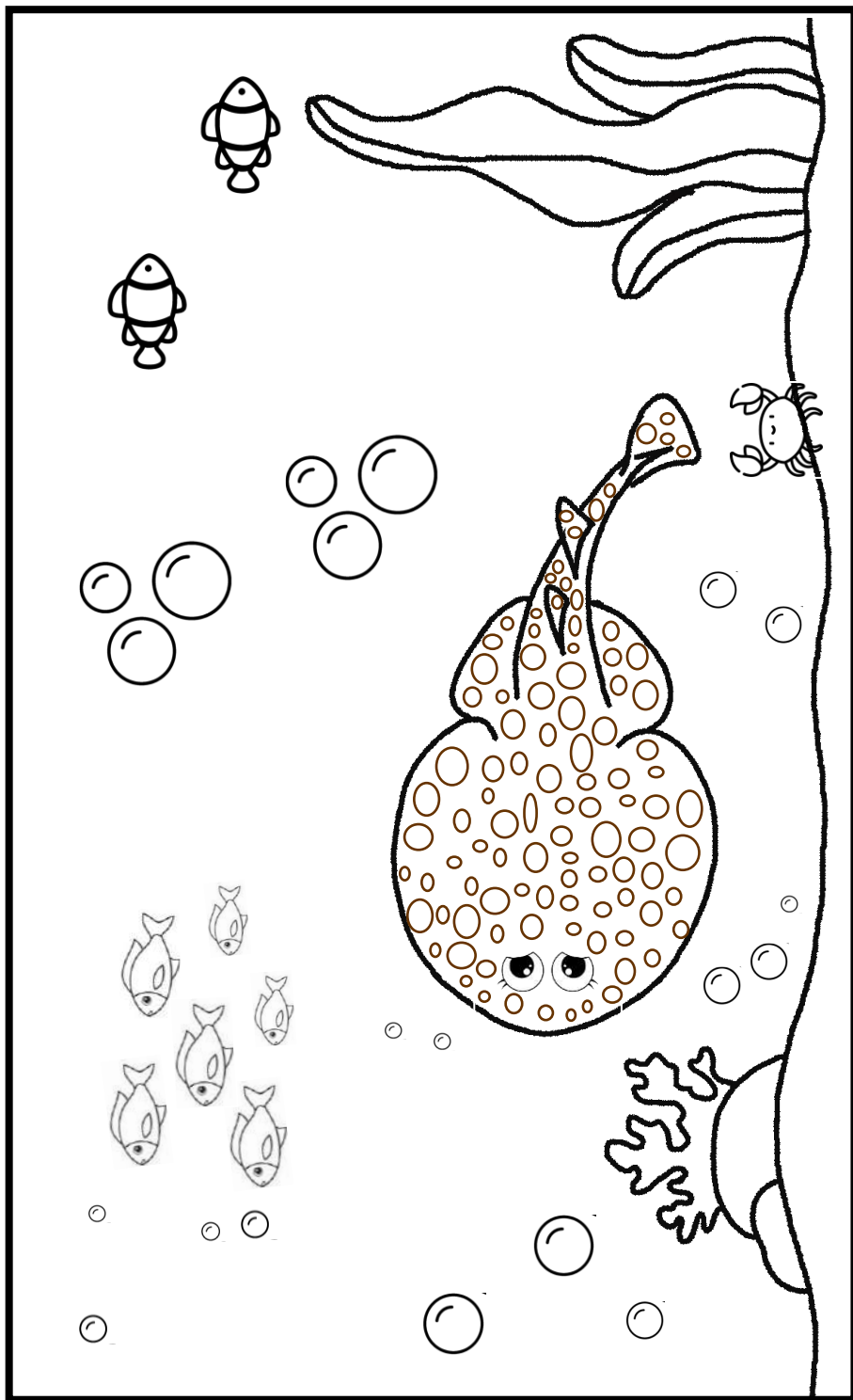
ENDANGERED

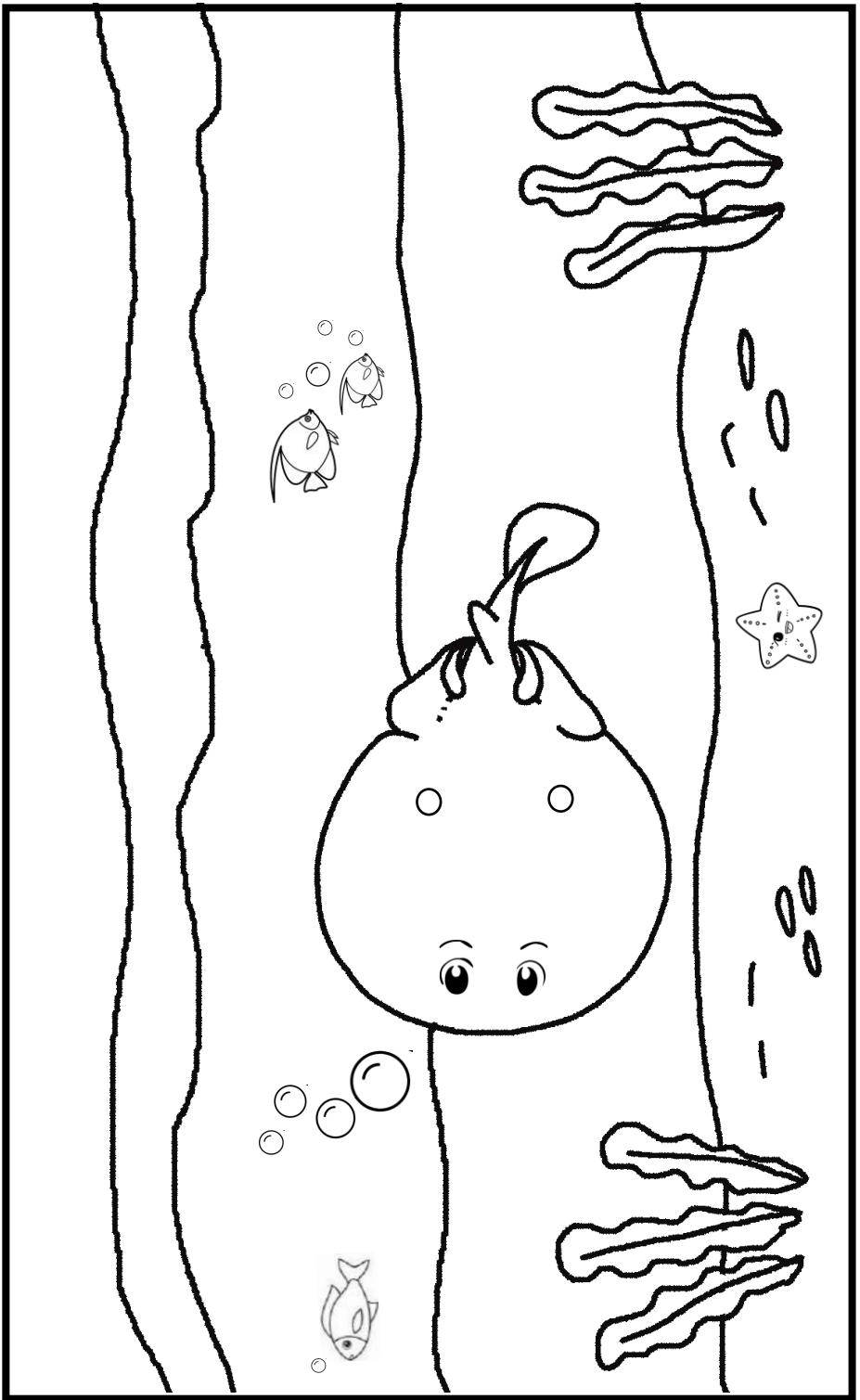
ELECTROCYTE

CLASPERS

DISC









SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY



CENTRE FOR CLIMATE CHANGE STUDIES

Please visit

projectrays.wordpress.com

OR

Scan



Proudly Present to:



For actively participating in the Electric ray awareness campaign

Electric rays are in danger today and need our attention more than ever!

Let us save them before they are gone!



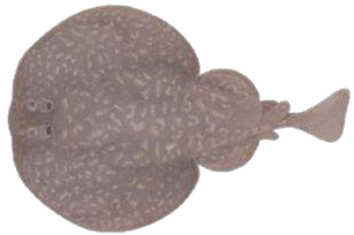
I ♥ ELECTRIC RAYS

Please visit projectrays.wordpress.com

Let us learn about them through fun activities in this book



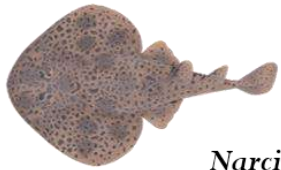
Electric Rays Of India



Torpedo panthera



Benthobatis moresbyi



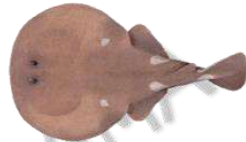
Narcine atzi



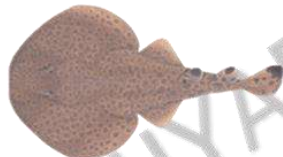
Torpedo fuscomaculata



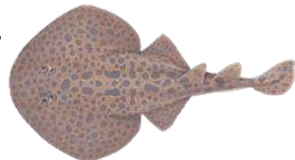
Narcine timlei



Narke dipterygia



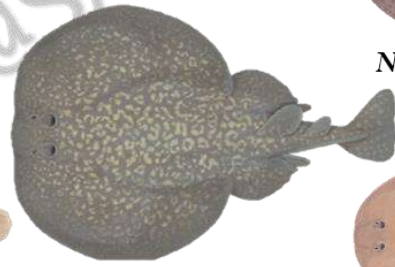
Narcine prodorsalis



Narcine maculata



Torpedo marmorata



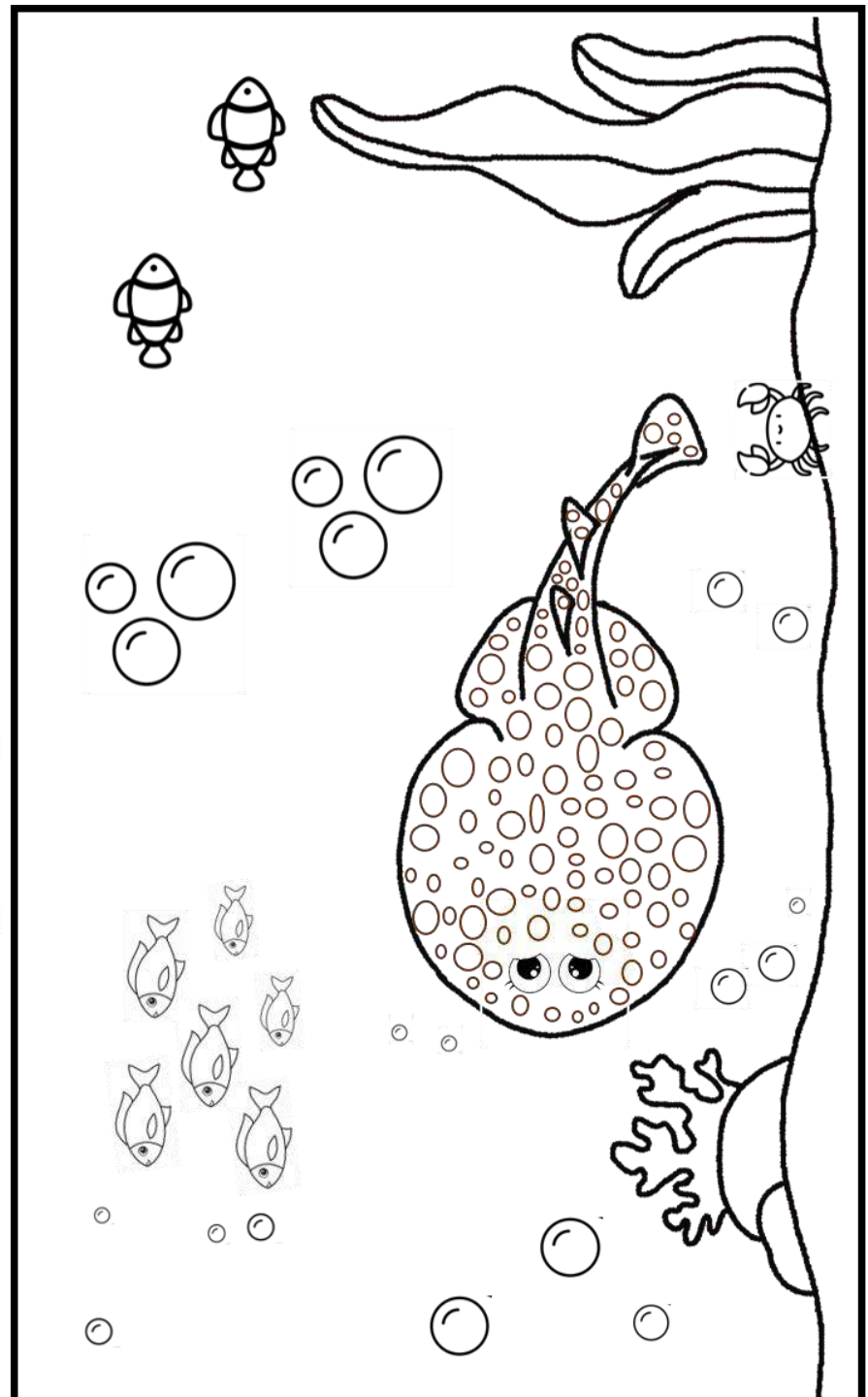
Torpedo sinuspersici

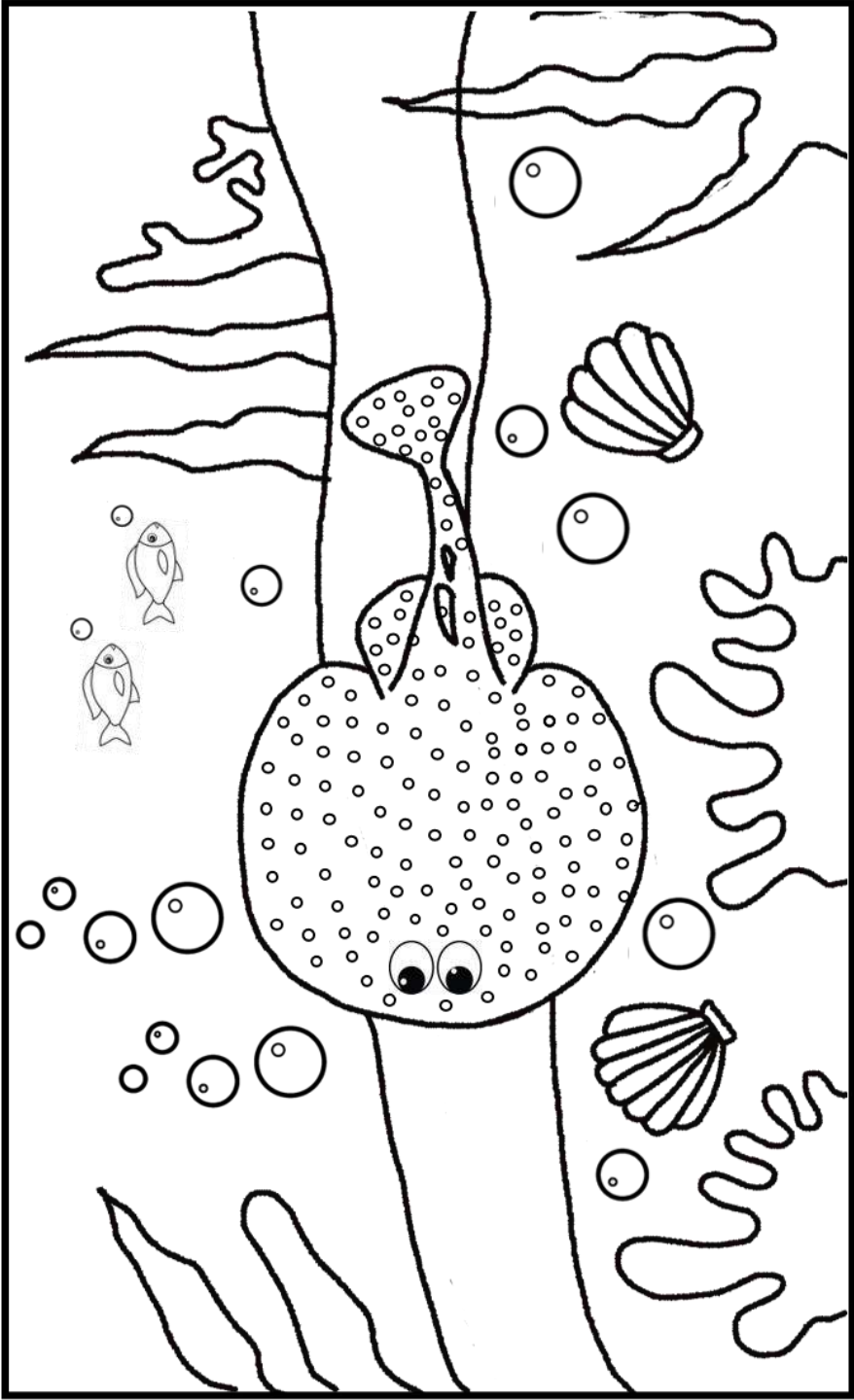
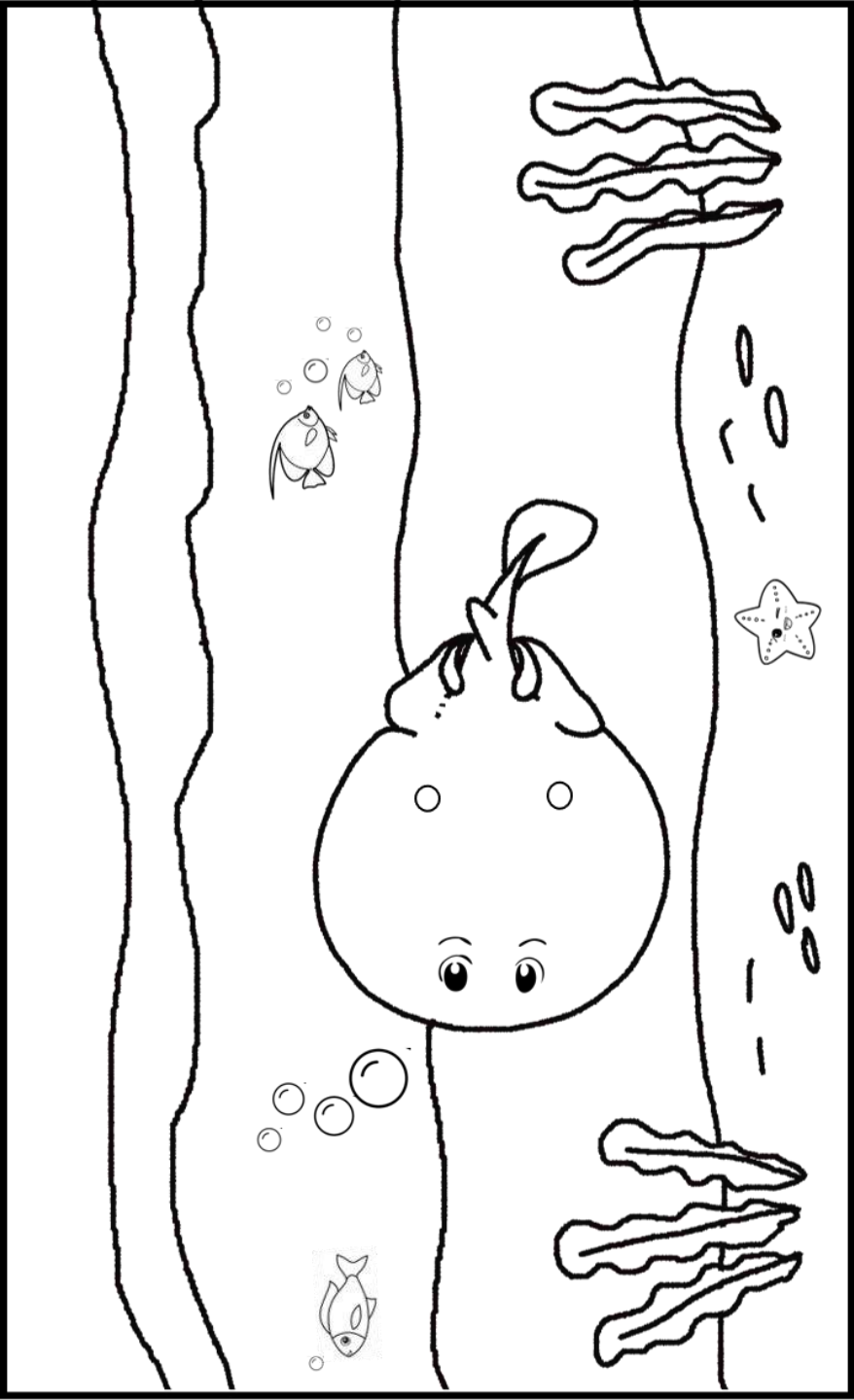


Narcine lingula



Heteronarce prabhui





Did you know?

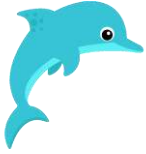
1. Electric rays are relatives of sharks, guitarfishes, Sawfishes, and skates!
2. They have skeletons made of tough tissue called **cartilage** instead of bones..
3. Electric rays can produce electrical discharges ranging from **8-220 volts**.
4. They have two special kidney-shaped organs that generate and store electricity like a battery.
5. Most electric rays bury themselves under sand during the day and come out at night to feed.
6. Electric rays' electric organs may also be used to detect prey and communicate with each other!!
7. They feed on invertebrates and small fish

To know more visit <https://projectrays.wordpress.com/>

IT'S QUIZ TIME!!

1. How many species of electric rays are reported from India?
 - a) 10
 - b) 15
 - c) 25
 - d) 13
2. How many species of electric rays are there in the world?
 - a) 100
 - b) 50
 - c) 68
 - d) 75
3. Skeletons of sharks and rays entirely made of?
 - a) Bones
 - b) Mucus
 - c) Cartilage
 - d) Muscle

Match the given animals with their names



Sea horse



Dolphin



Electric ray



Shark



Octopus



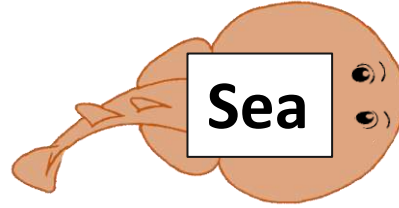
Sting ray



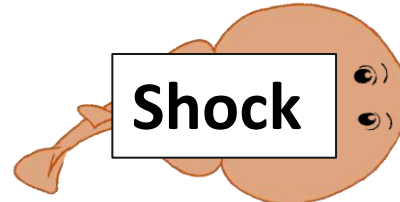
Turtle

Help the electric ray make rhyming words

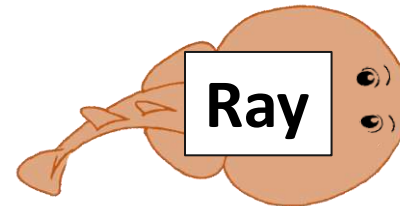
Help them find more words with the words they have



1. _____
2. _____
3. _____

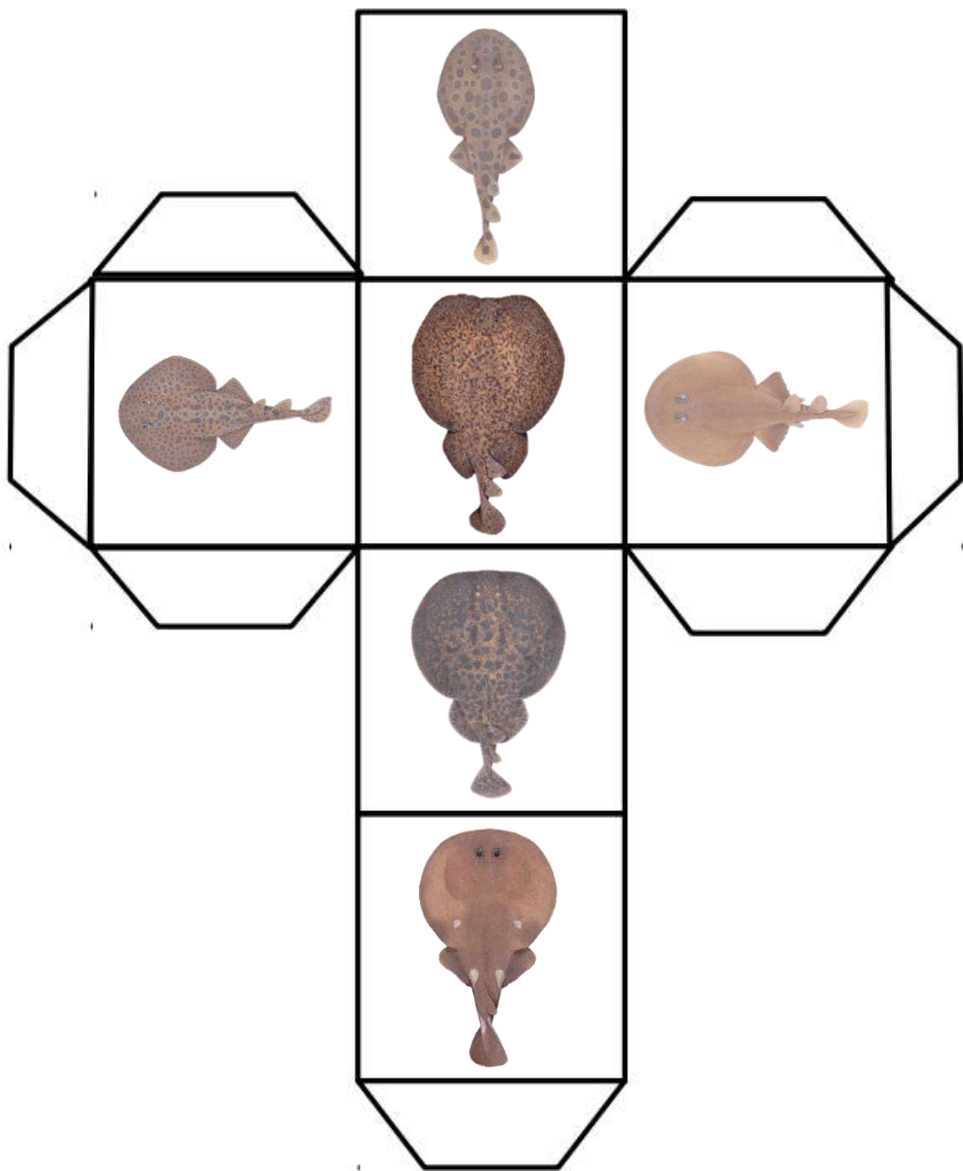


1. _____
2. _____
3. _____



1. _____
2. _____
3. _____

Cut out and fold to make a dice

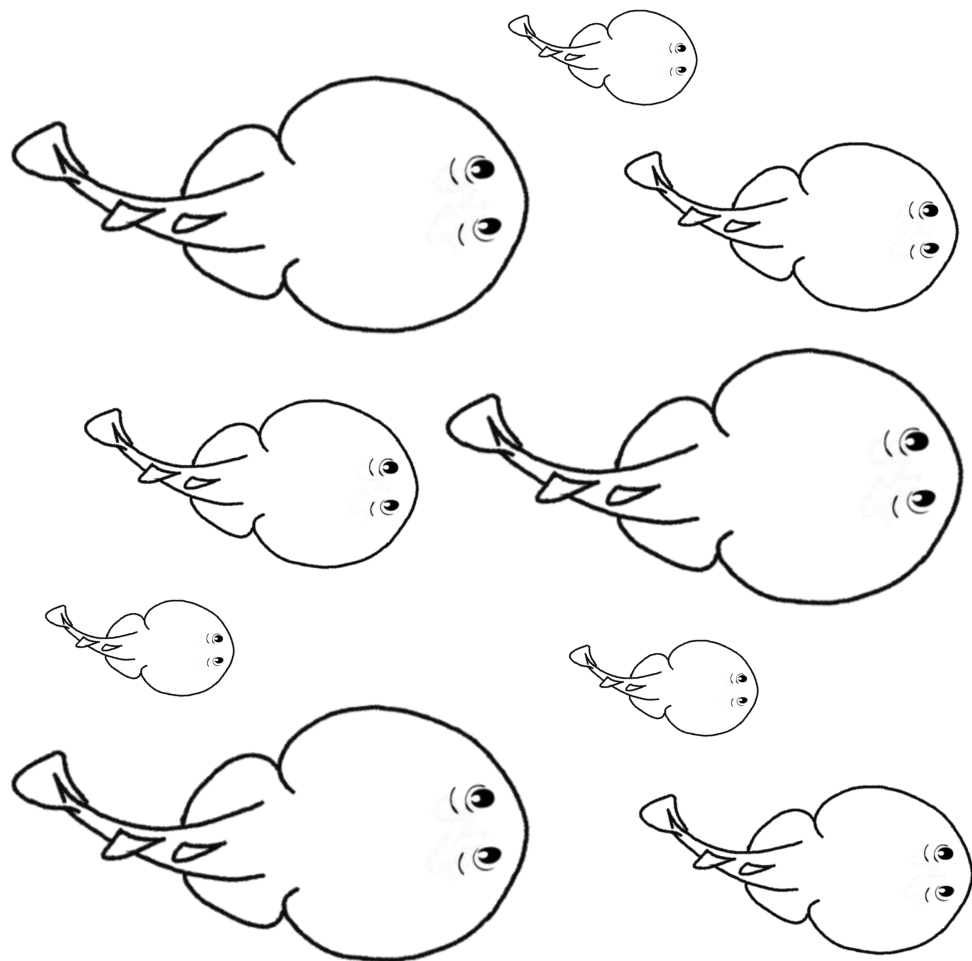


Electric ray colour by size

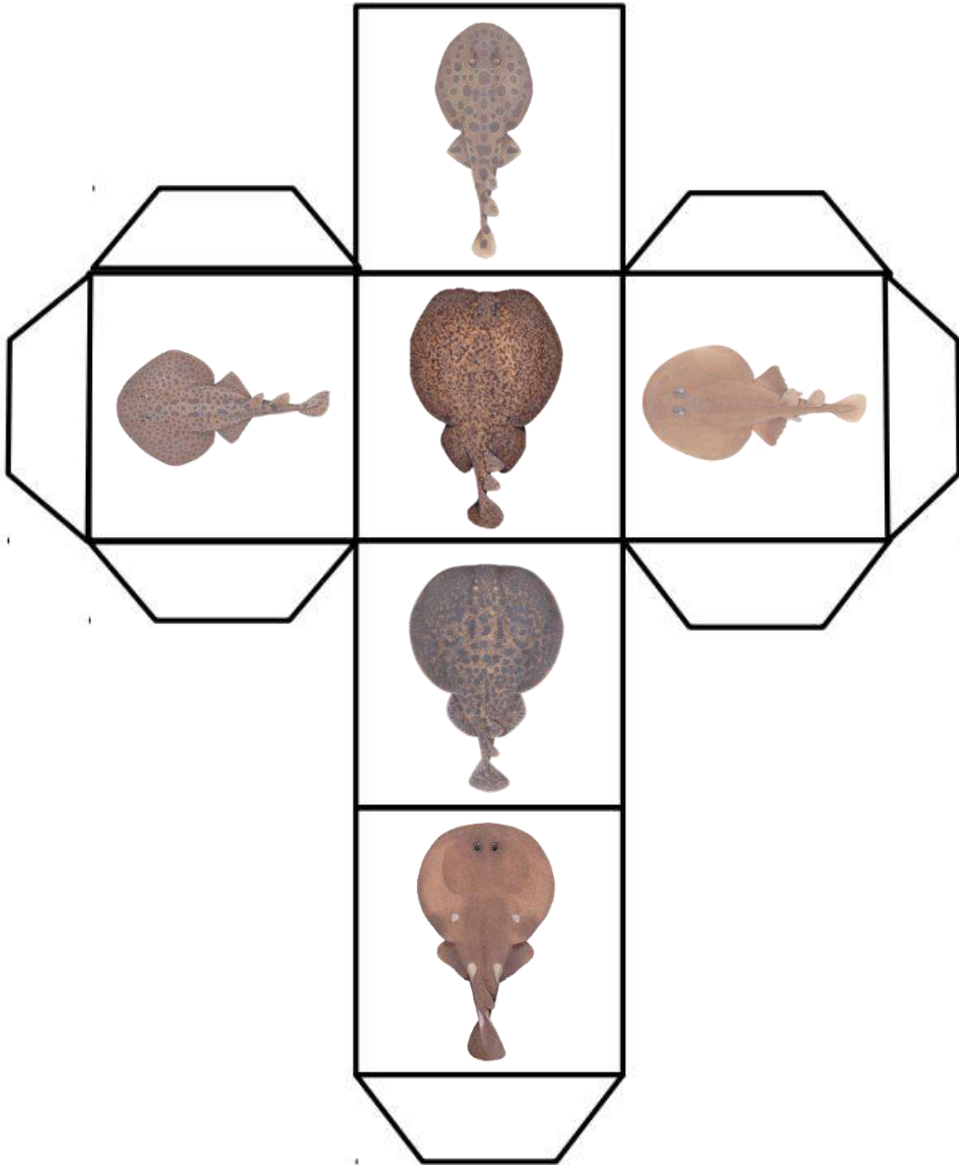
Colour the large electric rays **blue**

Colour the medium electric rays **brown**

Colour the large electric rays **yellow**



Cut out and fold to make a dice



The population of Electric rays is decreasing around the world at a very alarming rate!!

Now that you know about the amazing electric rays, let us all together do our best to protect them. 🥺

We will miss these super animals capable of producing electricity if they are gone!
Have you completed all the activities in the book?

That's great!! You're awesome!

Please send us photos of the completed activities from your parent's phone over WhatsApp and stand a chance to win electric ray merchandise!!!

(first 10 answers will be featured on www.projectrays.wordpress.com with your photo).

Contact No. : +919094486533

All the best!! Thank you!