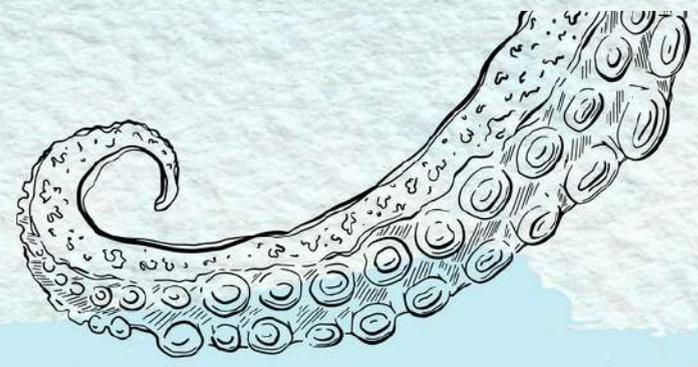
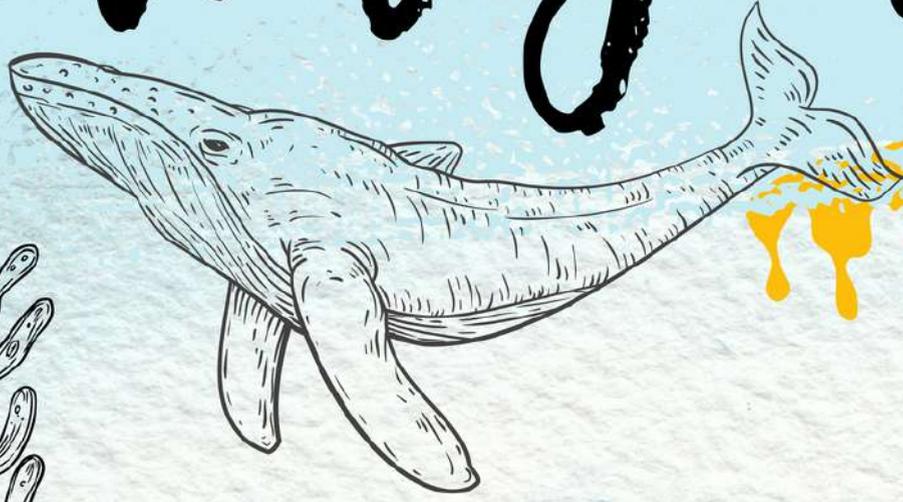




December 2022



not just soup



shark stories,
turtle tales
& more...

Issue 1

Dear Reader,

There are no fancy Harvards or Oxfords for fish. Nor for sharks, rays or turtles for that matter. Do they need to be educated to survive underwater? We think not. They've managed for millennia and have their social life sorted. For the most part. There is another species above the sea, however, that does have to go to school to learn about life under the sea. Some members of this species devote many of the best years of their lives trying to study marine organisms, fighting the futility of knowing so little about so vast a space. This newsletter is for them, whose hearts and minds wander with the plankton and the things that eat them.

“If we did understand
the origami of the ocean
the symphony of the sea
the turn of the tides
the chaos of the corals
Would things be different?”
~ *Debangini*

Welcome to the first issue of Not Just Soup. Let's dive right in...



~*Marine Flagships team*

Know Your Ray

Ocellated eagle ray (Aetobatus ocellatus)



A giant ray with a flat snout that resembles a duck's bill, the ocellated eagle ray has powerful pectoral fins with pointed apexes and a small dorsal fin with a broadly rounded apex. The caudal fin is modified into a whip-like tail that usually has one or two venomous tail spines but can occasionally have up to five. Its dorsum is slate grey, olive grey, or almost black, with numerous small white spots or rings.

It occurs in the Indian Ocean and the West/Central Pacific, inhabiting mainly tropical and subtropical seas, sandy bays, coral reefs, rocky outcrops and sometimes even brackish estuaries. This ray feeds on hard-shelled, benthic invertebrates, such as hermit crabs, oysters, clams and other molluscs. It is often seen in large schools, but may also be solitary and shy especially around scuba divers, making close passes if not pursued!

Did you know?

The ocellated eagle ray (*Aetobatus ocellatus*) has recently been redescribed as a separate marine species from the Atlantic white spotted eagle ray (*Aetobatus narinari*) and the Pacific white spotted eagle ray (*Aetobatus laticeps*), which are found in the Tropical East Pacific.



Stay tuned to this section to get to know our lesser-known seafarers better.

Photo by E Haripriya

Sources:

1. Kyne, P.M., Ishihara, H., Dudley, S.F.J, Dudgeon, C., & White, W.T. (2016). *Aetobatus ocellatus*: IUCN Red List of Threatened Species. IUCN Red List of Threatened Species.
2. White, W.T, Last, P.R, Naylor, G.J.P, Jensen, K., & Caira, J.N. (2010). Clarification of *Aetobatus ocellatus* (Kuhl, 1823) as a valid species, and a comparison with *Aetobatus narinari* (Euphrasen, 1790) (Rajiformes: Myliobatidae). pp. 141-164. In Last, P.R, White, W.T and Pgonoski, J.J (eds). *Descriptions of New Sharks and Rays from Borneo*. CSIRO Marine and Atmospheric Research Paper 32.

Researcher's Isle

Meet Anne Heloise Theo



Tell us about your current work-

Currently, I'm wrapping up my PhD work, which focuses on mixed-species foraging in reef fish, a type of behaviour where different species of fish come together and form groups. What's interesting about this is its ubiquity. I had started this work half expecting to not see many groups but was pleasantly surprised to see that they're actually everywhere! A recent study has even found sharks forming mixed-species groups.

What has your journey been like till this point?

The journey has been pretty much a mixture of good, bad and ugly. I feel lucky to have ended up in the places that I did, both in institutions and on the field. Somehow, I have had the privilege of being surrounded by supportive advisors, colleagues and friends.

Some of the challenges you have faced along the way or continue to face-

Working in academia can sometimes feel like a struggle. Having gone through it myself, I feel that there's this pressure we put on ourselves to achieve; and especially if you're in a prestigious institution, it can feel like you're never as good as everyone else. Additionally, the uncertainty around funding, permits and publishing can seem like an uphill battle.

Advice you would want to give to those who want a career in marine research and conservation-

Collaborate. Help people around you and also ask for help yourself. The way that our systems are set up can sometimes be isolating and disheartening. But we don't have to feel that way. Treat yourself and the people around you with kindness and construct communities that support each other.

You can reach out to Anne at anneheloise.theo@gmail.com.



Straight From The Field

A sneak peek at the Forest Department hatchery in Lamia Bay, North Andaman Islands by Adhith Swaminathan. With scarcely any sand, this narrow beach is filled with pebbles and gets almost fully inundated during the spring tide. Despite these features, it hosts over a 100 nests of olive ridley turtles each year! In fact, during the mass nesting event in Cuthbert Bay in Middle Andamans, the Lamia Bay beach is filled with turtles nesting in synchrony.

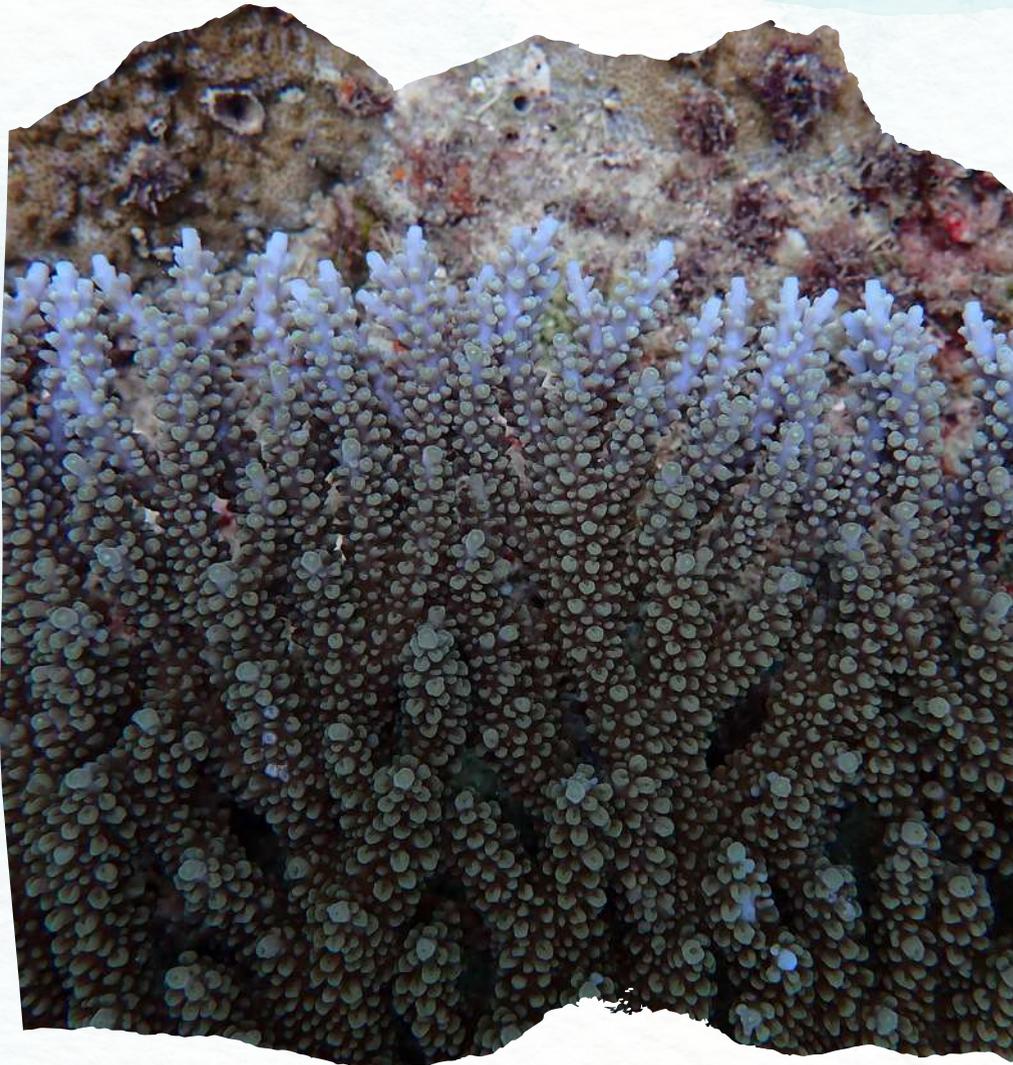


SEAmbiosis

Underwater Networks & Services



Coral reefs, coral reefs, corals all the way!

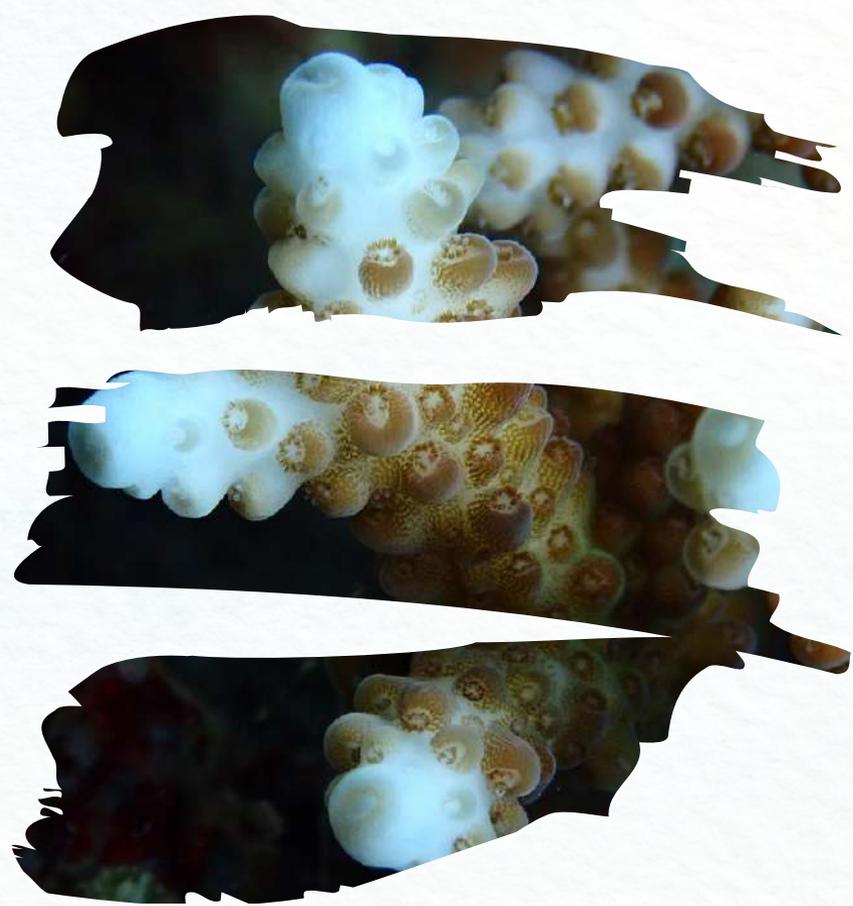


Throughout their 450 million years of existence, coral reefs have seen it all, including sharing the Earth with dinosaurs and giant megalodon sharks! Complex and productive ecosystems built primarily by calcifying (skeleton-building) activities of corals, coral reefs are among the most biologically diverse ecosystems on Earth. Corals as we know, are colonies of soft-bodied invertebrates called polyps that are closely related to jellyfishes and can be divided into two groups: stony corals (Order: Scleractinia) and soft corals (Order: Alcyonacea). It is the Scleractinian corals that are primarily responsible for building and laying the foundations of reef structures.

Can you recall how reefs are formed?

It all begins with free-swimming coral larvae called planulae attaching themselves to submerged hard edges of islands or continents. On finding a suitable substratum to settle, the planula secretes an exoskeleton of calcium carbonate and multiplies into more skeleton-secreting polyps by a mode of asexual reproduction called budding. This results in the formation of a coral colony. Several such colonies of planulae belonging to different species build a complex coral reef ecosystem; the Great Barrier Reef of Australia is the world's largest single structure made by living organisms and is visible from outer space!

Humans and corals have shared an intricate relationship dating back thousands of years. Nearshore reefs are a source of income and nutrition for coastal communities and nearly 500 million people depend on these hyper-productive and unique ecosystems. Apart from providing important ecological services like carbon cycling and nitrogen fixation, they also have cultural, spiritual, and religious values amongst traditional coastal communities.





They are also a source of several harvestable goods, including seafood and algal products, ornamental materials, medicinal compounds, and construction materials. Unfortunately, the services offered by coral reefs are under rising threat from climate change and anthropogenic pressures, making coral reef conservation an utmost priority in the present day.

Stay tuned to this column for more information on reef ecosystems!

Photos by Adhith Swaminathan and Tanmay Wagh

Sources:

1. NOAA: Coral Reef Information System
2. Moberg, F., & Folke, C. (1999). Ecological goods and services of coral reef ecosystems. *Ecological economics*, 29(2), 215-233.
3. Hoegh-Guldberg, O., Pendleton, L., & Kaup, A. (2019). People and the changing nature of coral reefs. *Regional Studies in Marine Science*, 30, 100699.
4. Williams, G. J., & Graham, N. A. (2019). Rethinking coral reef functional futures. *Functional Ecology*, 33(6), 942-947.

Pearls of Fishdom



Did you know that when flipped over, sharks go into a trance called 'tonic immobility'? Marine researchers studying sharks are known to use this tactic to get up close and personal with them, as in this state, their muscles relax and their breathing becomes deep and rhythmic.

Source: *The Shark Trust*



Brain Surf

True or False?

[Look for answers at the end of the newsletter]

1. One can differentiate between sea snakes and eels by looking for the presence of a dorsal fin.
2. Sea snakes cannot actually breathe underwater.



From the Galley

The following is an extract from 'Letters from the Andamans', Hamadryad, penned down by renowned sea turtle biologist Satish Bhaskar. A keen observer of the local culture, he often wrote about the customs of the indigenous communities he interacted with. Here is one such interesting observation about the Onges,

*"A hunting party of Onges had set up camp by the seashore. The Onges were not present. A green turtle had been freshly roasted over a fire and carved up. Many portions had been carefully wrapped among the leaves of a *Crinum asiaticum* plant which grew nearby, and placed over the still-warm embers of the fire. A few choice parts – portions of what appeared to be liver and flippers – had been roasted (the liver incompletely so) and placed on an elevated grating made of sticks below which another fire had been made. The turtles' carapace was found nearby. Its outer aspect was charred black. A monitor lizard prowled about the site and entered the hollow space below the empty carapace."*

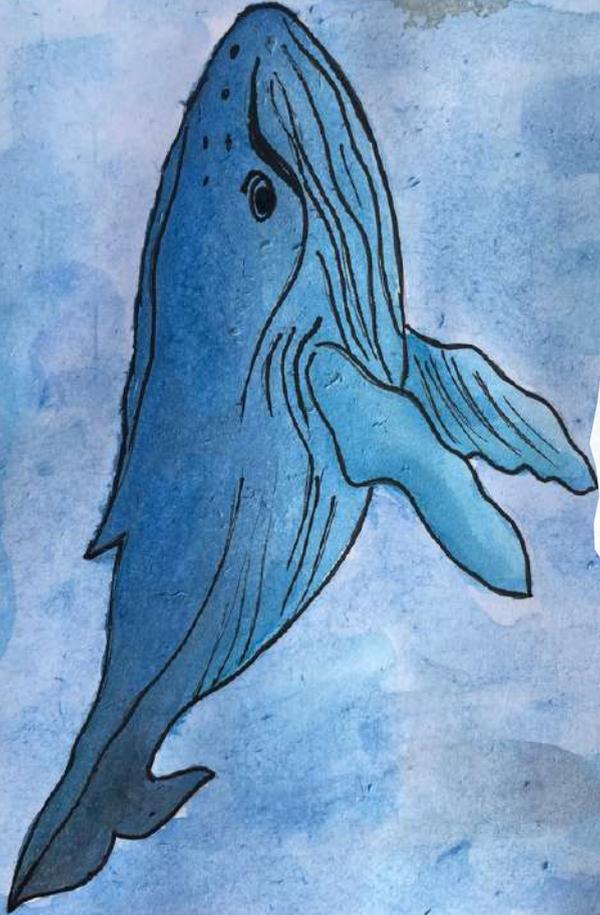
Source: Bhaskar, S. (1979). Letters from the Andamans, Hamadryad 4(2): 3–6.



From My Seabook

A glimpse into Debangini's nature journal:

“I was fascinated with The Rime of the Ancient Mariner when I was in school. I soon after became obsessed with The Old Man and the Sea. Who knew the rich visual imagery such literature produced in my mind would be permanent? Even with no background in marine sciences or biology, I find myself gasping with excitement when I see marine wildlife (be it in real, in print or in media). I truly feel that the underwater world is magical, and we humans have been allowed only a very limited ‘View Only’ access to it. From Moby-Dick to DC Comics Aquaman, from brush strokes to ocean playlists, I simply enjoy letting the magic of the sea wash over me in waves, just like I did with this quick sketch.”



Psst... Here's a kriller joke *wink*

What did the hammerhead's boss say when he did a good job?



Nailed it!

Answers to Brain Surf:

1. True. Eels have a ridge or fin that runs the length of their bodies, while sea snakes do not.
2. False. Most sea snakes have evolved valve-like flaps that can move over their nostrils when underwater, which prevents them from breathing in any salty water.

Making Waves: News from the coasts



1. A new species of giant turtle that lived between 83.6 to 72.1 million years ago has been discovered in northern Spain. Read more about this exciting discovery.

2. A ray of hope arises for mantas in the Raja Ampat archipelago in Indonesia. Read about the first ever published evidence of reef manta ray populations increasing anywhere in the world.

3. A new study by the University of Otago, New Zealand has found that ocean warming disrupts the early-stage development of Giant Kelp, the largest marine algae that are intrinsic to sea life, leading to a rapid decline in kelp forests across the world. Read the paper.

Sea Board



1. Read 'The island hoppers: how foraging influences green turtle (Chelonia mydas) abundance over space and time in the Lakshadweep Archipelago, India' by Kale et al. 2022.

2. Listen to a podcast on Sea turtles, Island fever and Magical mysteries: the adventures of an evolutionary ecologist by Dr Kartik Shanker.





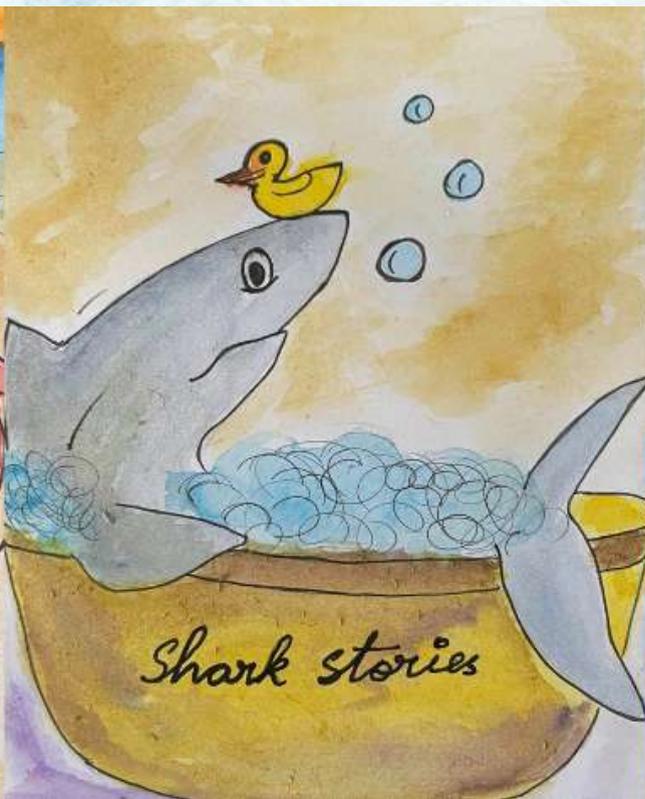
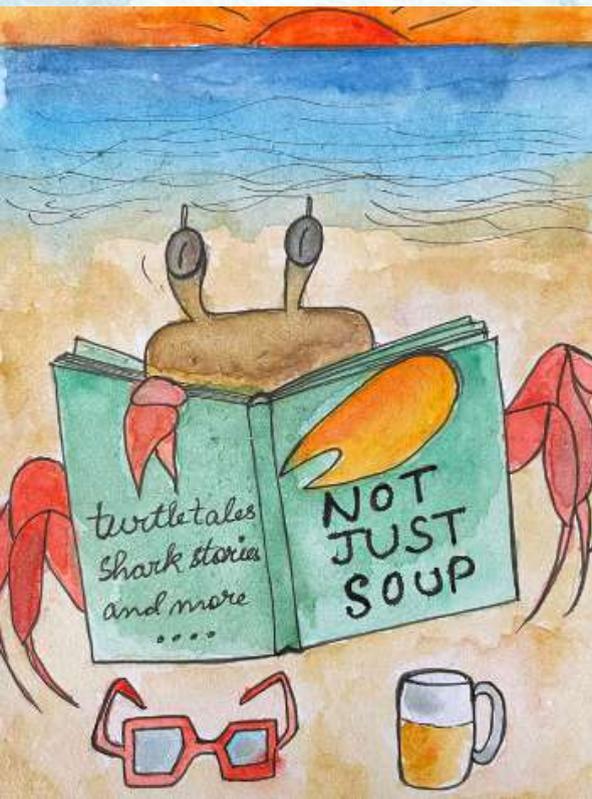
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