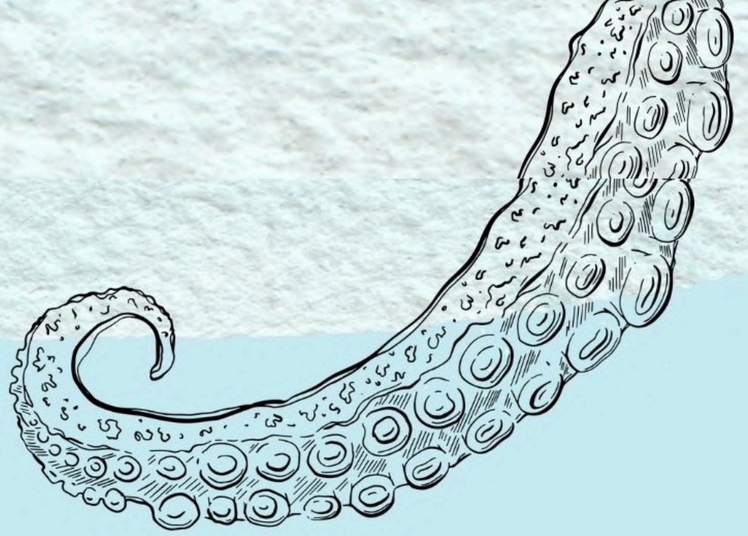


January 2026

not just soup

shark stories,
turtle tales
& more...

Issue 9

Dear Reader,

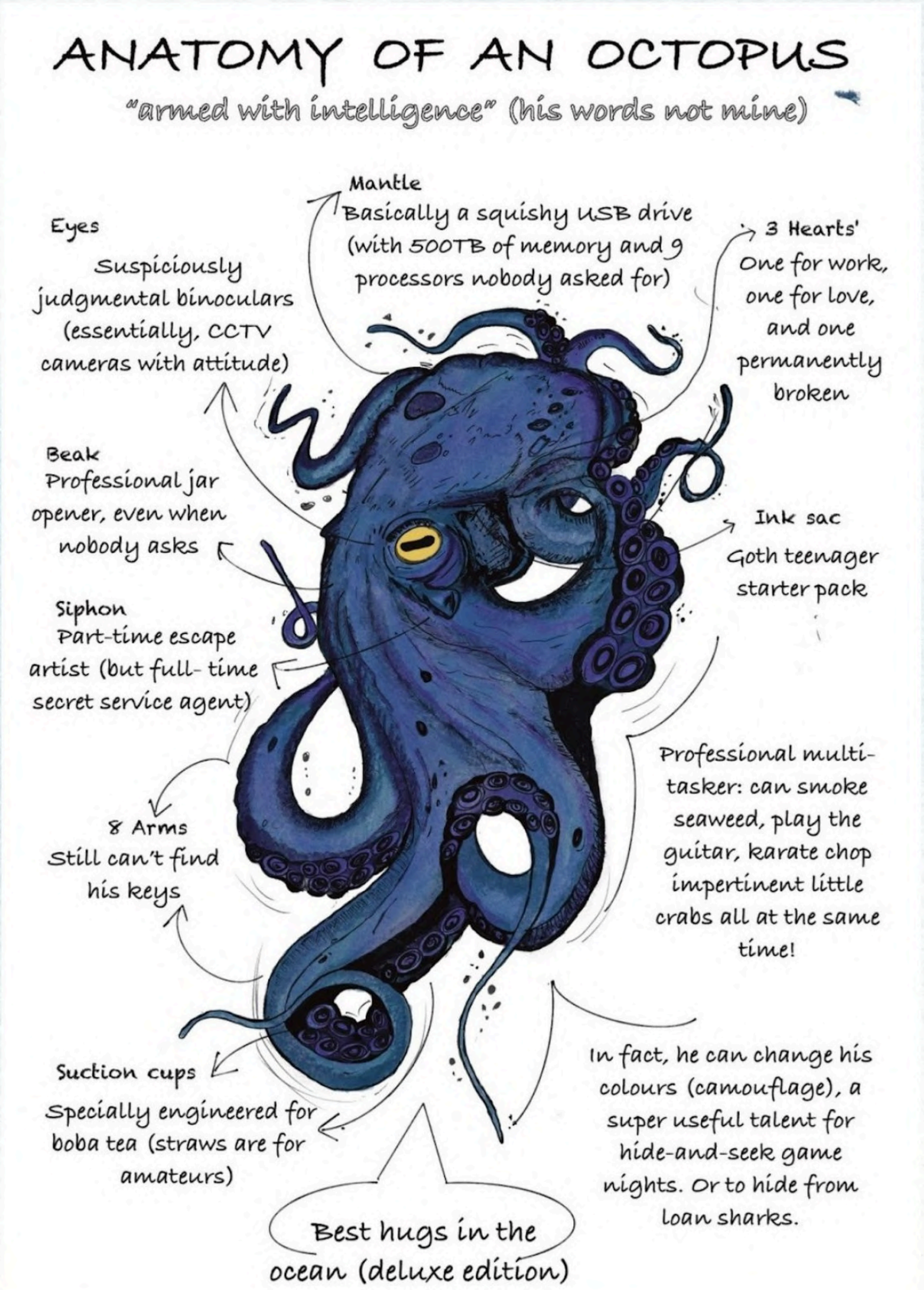
How fun would it be to turn yourself invisible? Keeping aside the thin line between adventurous and creepy, wouldn't it be useful to hide from nosy neighbours who want the full backstory of every person who visits you? Or from that professor who is expecting your final draft while you were busy doomscrolling till the deadline? Definitely useful to hide from your ex if you accidentally bump into them at a party you didn't want to attend in the first place. And if invisibility isn't an option, blending into the background would do just fine.

If you're a Marvel movie fan, you might remember *Drax the Destroyer* from *The Guardians of the Galaxy*, standing ridiculously still, failing spectacularly to blend in, yet confidently declaring, "*I've mastered the ability of standing so incredibly still that I become invisible to the eye.*" Sigh. Sadly, we don't have *Harry Potter*'s *cloak of invisibility* nor the *One Ring* from *The Lord of the Rings* that renders its wearer unseen. We could try channelling *The Talented Mr Ripley*, but that wouldn't do, would it? None of us wants to become impostors… not while the law still exists, anyway.

But in the ocean? Impostor syndrome can save lives. Because camouflage underwater isn't a party trick or a superpower- it's a survival strategy. Imagine your survival depending on your wardrobe decisions. Octopuses live this reality daily, without turning into *Davy Jones* (*argh*, *faux pas*) or donning an *Oswald* (*from Pogo*) hat. Even for mundane tasks like floating around or minding their business, they keep their tickling tentacles alert, ready to switch guises faster than you can blink. Nudibranchs, meanwhile, keep hogging the limelight with their bold, bright style…not because they love photoshoots, but because they need to send warning signals with their fashion sense, to keep predators at bay. Jellyfish, on the other hand, float around without the need for invisibility cloaks thanks to their translucent bodies, blending seamlessly in the water and unconcerned with fashion critics, though occasionally finding themselves quite unexpectedly inside the jaws of a leatherback turtle.

I'm not saying it's not marvellous. If I could be a sea slug, I'd want to slay *and* escape predators. But I'd still struggle to choose whether I want to look like a sensible spotted hanky, a fancy-shmancy, elegantly-riffled chocolate-orange cookie, or a piece of one of Ranveer Singh's fluorescent *Dil Khush* shirts that's come alive. Nudibranchs, frankly, look like they were designed by someone three hours into a mushroom trip.

The ocean fully supports this creative chaos. After all, it runs on deception. If you thought *Damon Salvatore* from *The Vampire Diaries* was unpredictable, prepare to have a few neurons do backflips underwater, because sea creatures will surprise you, shock you and occasionally punch you. Yes, I recently read a paper suggesting octopuses may punch fish purely out of spite. Imagine swimming to school with your friends, taking a detour, only to get slapped by a huge octopus around the bend.



This issue dives into marine camouflage, and as you've probably guessed, I've fallen headfirst into this rabbit hole. There's far more to unpack here, but we'll save some of that unhinged chaos for the next issue. For now, I've broken down octopus anatomy through art, just in case anyone else is as obsessed with them as I am.

Are you ready for a somewhat psychedelic dive into this new issue?

Meanwhile, I shall continue being concerned that 80% of my wardrobe is filled with neutral shades.

"Superpowers aren't just about looks
When you have three hearts and blue blood
Blurring the lines between menace, miracle, mystery
They call you a sea alien... occasionally playing detective"

~Debangini Ray

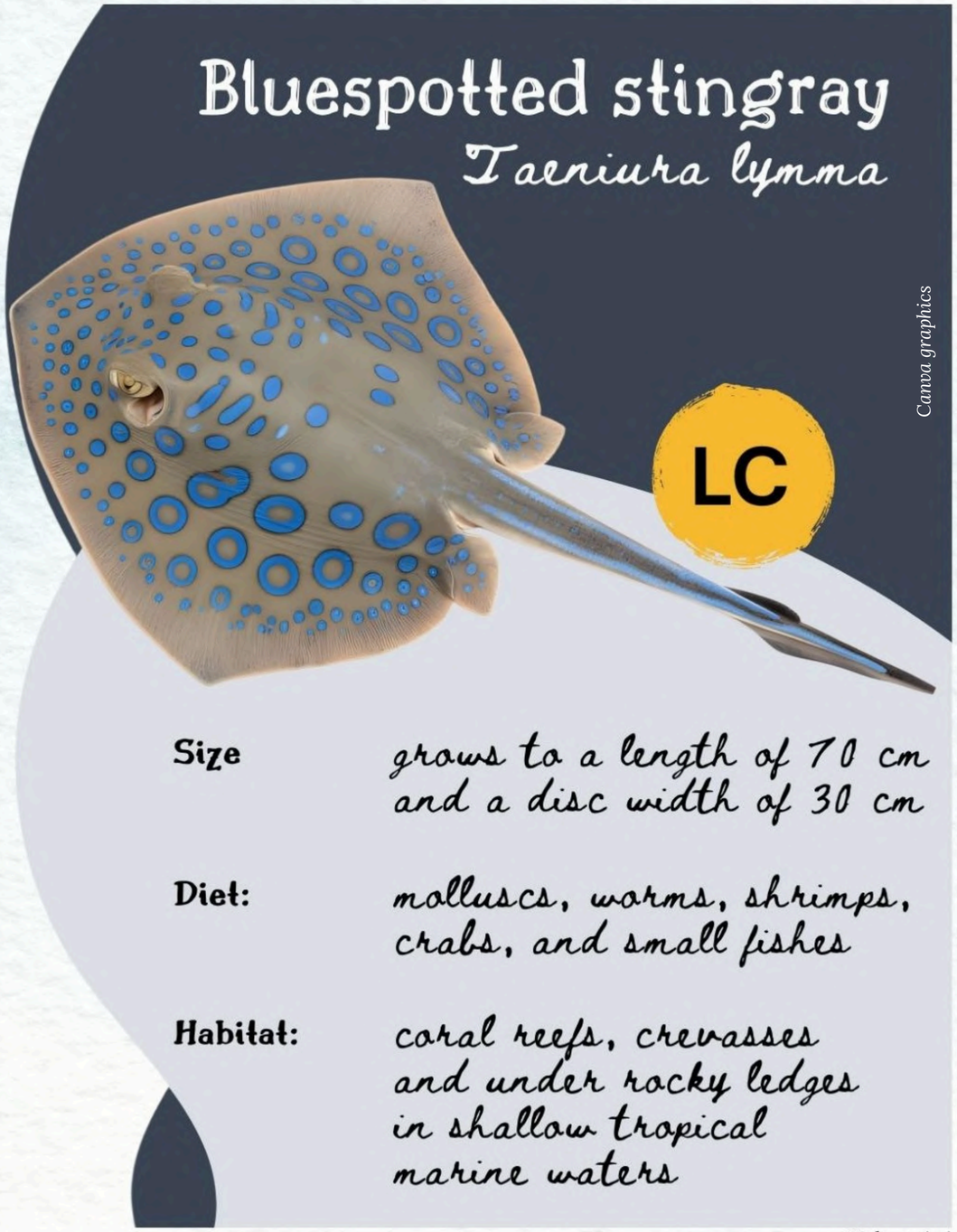
Species Spotlight

Bluespotted stingray (*Taeniura lymma*)

At first glance, the bluespotted ray, sometimes using the middle name “ribbontail”, “fantail”, or “lagoon”, depending on its mood, looks anything but discreet. Electric-blue spots scattered across its oval, elongated disc feel more like a fashion statement than a survival strategy. Yet in the dappled light of shallow reefs and sandy lagoons, these bold spots break up its outline, helping it vanish in plain sight. Its stout tail carries vivid blue stripes and a few venomous spines, used sparingly and only when truly threatened.

This ray is found across the Indo-West Pacific, from the Red Sea and East Africa to Japan, the Solomon Islands, and northern Australia, reaching as far south as northern New South Wales. It favours coral reefs and nearby sandy flats, venturing out in small groups during rising tides to feed on molluscs, worms, shrimps, crabs, other crustaceans, and small fishes. As the tide falls, it retreats to crevices and ledges rather than burying itself in sand, relying on pattern, light, and stillness to stay unnoticed.

Generally shy, the bluespotted ray will swim away when approached. Although listed as *Least Concern* by the IUCN, it faces increasing pressure from inshore fisheries, reef degradation, destructive fishing practices, and demand from the aquarium trade.



Debangini

Further reading:

1. *International Union for Conservation of Nature. (2020). Taeniura lymma. The IUCN Red List of Threatened Species 2020: e.T130435A104017422. https://www.iucnredlist.org*

2. *Froese, R., & Pauly, D. (Eds.). (2025). Taeniura lymma (Bluespotted ribbontail ray). FishBase.https://www.fishbase.se/summary/5399*

Researcher's Isle

Tete-a-tete with Titus Immanuel

Tell us about your current work.

I currently work with Dakshin Foundation, where I am closely involved in facilitating and conducting field-based research at our field station in the Andamans. I work across multiple projects that focus on understanding how coral reef ecosystems respond to both natural processes and human pressures. I have also been conducting long-term monitoring of reef fish diversity in protected and unprotected areas, studying sponge diversity along sedimentation gradients, and examining how sponges and corals compete for space on reefs. Together, these projects help build a clearer picture of how reefs function as living systems and how subtle changes can influence their long-term health.
Alongside this research, I am involved in developing and supporting educational programmes for young and aspiring marine researchers, helping them gain hands-on exposure to field-based science in the islands.

What has your journey been like till this point?

My journey in marine research began when I came to the Andaman Islands. What started as a strong curiosity for observing marine life slowly evolved into asking deeper questions about these ecosystems. Over the years, this curiosity has taken me from classroom teaching to fieldwork in remote islands, from exploring mangrove ecosystems to coral reefs, and even to modelling how coral larvae move across oceans.

Earlier, my work was rooted in documentation of corals, fishes, sponges, mangroves, and seagrasses, often in places where very little baseline information existed. Along the way, I've had the chance to wear many hats, including that of a researcher, a dive professional, a field biologist, a teacher, a mentor, and sometimes even a logistics coordinator! I've worked across academic institutions, government organisations, and an international research lab, with each experience adding a different perspective on how marine biology and conservation function in the real world.

Some challenges you've faced along the way or continue to face even today...

One of the challenges I faced initially was navigating research environments that didn't always align with the values of integrity and curiosity that had drawn me to research. Because of this, within the first couple of years, I decided to step away and work as a dive professional instead. While it felt like a detour at the time, it gave me perspective, confidence, and a renewed sense of direction. Eventually, I found my way back into research and was fortunate to join a lab that was a much better fit for me with a mentor who was genuinely supportive and nurturing, which made a huge difference to both my work and my confidence.

During my PhD, I faced a major setback when the project supporting my research lost its funding unexpectedly. This brought my work to a sudden halt and was deeply disheartening.

Completing my PhD after that required considerable support from colleagues and family. While the process was challenging and not without self-doubt, it reinforced the value of community, resilience, and perseverance in academic life.

Spending long stretches in the Andaman Islands has meant being away from family and missing important moments, including weddings and milestones of close friends and relatives.

Advice you would give to those considering a career in marine research and conservation...

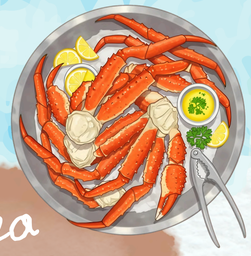
I feel it's important to find a balance between our work and our personal lives. It's easy to pour everything into research, especially when you truly love what you do, but there is a whole world outside your work that also deserves your time and attention.

Progress in this field can be slow, so it's important to celebrate small wins along the way. Acknowledging the effort it takes to learn new methods, surviving tough field seasons, and being able to ask better questions than you did before- these go a long way!

Finally, remember that not everyone starts from the same platform. Be kind to fellow researchers, support them where you can, and help create environments that are welcoming and inclusive.

You can write to Titus at titus@dakshin.org, titusimmanuel@gmail.com or connect with him on Instagram @titusimmanuel86

From the Galley



ginataang alimango with sitaw at kalabasa

Filipino Ginataang Alimango with Sitaw at Kalabasa (*crab cooked in coconut milk with vegetables*) *is a comforting seafood dish that features crab (alimango or alimasag), long beans (sitaw), and squash (Filipino kalabasa) cooked in a flavorful coconut milk-based sauce. Typically served over rice, this dish is a popular choice in Filipino cuisine, showcasing the country's love for combining fresh seafood with the indulgent creaminess of coconut milk.*

This recipe has been shared by Abby from the Philippines on her website Manila Spoons, as part of her grandmother's authentic recipe for crab and squash stew.

Image: Wikimedia Commons

Source: *Abigail. (2024, January 27). Crab cooked in coconut milk (Ginataang Alimango with Sitaw at Kalabasa). Manila Spoon. https://www.manilaspoon.com/crab-cooked-in-coconut-milk/*

ingredients

- 1 tablespoon oil
- 6 cloves garlic, thinly sliced
- 2 medium shallots, sliced
- 1 plum tomato, finely diced
- 2.2 lbs (*1 kilo*) crab (*alimango or alimasag*)
- 13.5 oz can of coconut milk
- 2-3 tablespoons fish sauce or to taste, see notes
- 1 bunch long beans, cut into 3-inch lengths (*roughly 1 1/2 cups or more*)
- 1/2 Filipino squash or butternut squash (*roughly 2 cups or more*)
- 2 banana peppers or red chili pepper, adjust the amount to the level of spiciness desired
- 13.5 oz can coconut cream, as needed
- Salt and pepper, to taste

how to cook...

1. Heat oil. Sauté garlic briefly, just until aromatic, then add the shallots. Sauté for about 1 minute, then add the diced tomato.
2. Add crabs and pour in the coconut milk. Add fish sauce to taste. Bring to a boil.
3. Cook crab until they fully change colour. Stir and turn the crab on its side if needed to cook evenly.
4. Add the vegetables and the green banana pepper or red chilis. Continue to cook until the vegetables are tender, 3-5 minutes.
5. Add just enough coconut cream to thicken the sauce slightly and allow it to boil.
6. Mix everything as needed to ensure even cooking. Taste and adjust seasoning with extra salt and pepper, if needed.
7. Serve hot with rice. Drizzle the sauce all over.

SEAmbiosis

Reefwear: *How sea creatures dress to survive*

Debangini

If the ocean had a dress code, it would be complicated, contradictory, and deeply context-dependent. Some animals blend in so well they might as well be wearing invisibility cloaks. Others go full unicorn and rainbows, exploding into a riot of colour, advertising their existence like they're in a *Tim Burton* movie. And a few refuse to commit to a single outfit at all, changing patterns, textures, and colours on the fly *(sounds like my tribe)*.

Camouflage in the sea is an entire wardrobe documentary waiting to happen. Let's browse through some of the styles and decode them ourselves.

The Bright, the Bold, and the Untouchable Club

Not all camouflage is about hiding. Some animals survive by being unmistakably visible. Nudibranchs are masters of this strategy. Many are toxic, distasteful, or both, and their explosive colours- electric blues, flaming oranges, impossible pinks- act as clear warnings to predators: "don't eat me" *(now read that in a Vecna voice)*. This strategy is called *aposematism*- when being loud, bright, and obvious is safer than being subtle.

In some cases, multiple unpalatable species converge on the same look through *Müllerian mimicry*. Here, genuinely dangerous species share a common warning

pattern so predators learn the lesson faster and remember it longer. A 2018 *study* from *the University of Queensland* documented several species of red-spotted sea slugs along the Australian coast sharing nearly identical colour patterns despite being unrelated and possessing different chemical defences. To a predator, they all register as equally bad news, making avoidance a learned and efficient response (*did someone say red flag*?).

Lionfish and blue-ringed octopuses play a similar game. Their striking patterns aren't meant to conceal them; instead, they announce danger, turning visibility itself into protection.

The Shape-Shifters of Coral Reef Street

If nudibranchs are billboards, cephalopods are high-resolution LED displays. This is active camouflage-camouflage that's constantly adjusted in real time rather than fixed at birth. Unlike animals that simply match their background, cephalopods actively choose how to look depending on context.

Cuttlefish and octopuses possess one of the most sophisticated camouflage systems in the animal kingdom. Specialised pigment cells called *chromatophores* rapidly alter colour, pattern, and contrast, while *iridophores* and *leucophores* reflect and scatter light to fine-tune the illusion. Some species can even change the texture of their skin, raising bumps and ridges to mimic rocks, corals, or sand.

In a 2023 *experiment by Woo and colleagues*, cuttlefish were presented with different fabric backgrounds.

Rather than instantly matching the background, individuals adjusted their appearance gradually, pausing as if assessing the result before refining it further. When shown the same background again, they didn't repeat their previous solution- they improvised. Camouflage here wasn't reflexive; it was responsive. And if all else fails, cephalopods still have a last-ditch exit strategy: releasing a cloud of ink to obscure their escape. Sneaky bastards!

The mimic octopus takes this a step further. It impersonates venomous or unpalatable animals such as lionfish, jellyfish, or sea snakes, depending on the threat it faces. It doesn't just look different, it acts differently, choosing the disguise least likely to be challenged. This is *Batesian mimicry*, where a harmless species imitates the warning signals of dangerous ones, relying on predators' learned fear to stay alive.

The Merry Masqueraders of Swim School

Some animals don't hide in their environment - they hide *as* their environment. Here, camouflage isn't about rapid colour changes or flashy warnings. It's about being so convincingly ordinary that predators simply don't register you as food. This kind of disguise comes in two closely related forms: *masquerade* and *background matching.*

Masquerade works by making an animal resemble an inanimate or irrelevant object, something predators mentally categorise as not prey. The animal may be visible, but it's dismissed. Leafy sea dragons, pipefish, and seahorses are classic examples. With elongated bodies, leaf-like appendages, and muted colour palettes, they don't just blend into seagrass and kelp- they become it. Their slow, drifting movements reinforce the illusion, making them indistinguishable from floating vegetation. Poor swimmers by design, leafy sea dragons rely almost entirely on this deception, letting currents do the work while predators look straight past them.

Background matching, on the other hand, is about closely resembling the colours, textures, and patterns of the surface beneath or around, effectively dissolving into it. Flounders and other flatfishes take this strategy to extremes. By adjusting pigmentation on their upper surface, they can closely match sand, gravel, or rocky seabeds with uncanny precision. What looks like an empty patch of ocean floor is often very much alive, waiting patiently for prey... or hoping not to become it.

The Illusionists of Kelp Academy of Magic Arts

What do you do when there is nowhere to hide?

In the open ocean, where there are no rocks, reefs, or plants to blend into, camouflage takes a different turn. Instead of matching backgrounds, many animals reduce visual cues altogether, using two very different tricks: *transparency* and *countershading.*

Jellyfish, ctenophores, and salps have soft, gelatinous bodies and minimal internal structures. For them, transparency becomes one of the most effective forms of camouflage, allowing these animals to all to blend into the water so well that predators often fail to detect them. For larger, more muscular swimmers like sharks and barracudas, the solution is countershading. This classic misdirection strategy involves a dark back and a lighter belly. Seen from above, the darker dorsal surface blends into deeper, darker water below. Seen from underneath, the pale underside fades into the brightness of the sunlit surface. Either way, the animal becomes harder to spot.

Sources & Further Reading

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- Hanlon & Messenger (2018) – Cephalopod Behaviour. The go-to scientific reference on octopus and cuttlefish camouflage, behaviour, and skin wizardry.
- Woo et al. (2023) – Cuttlefish camouflage and visual decision-making
- University of Queensland Brain Institute – Warning colours and mimicry in nudibranchs
- Stevens et al. (2014) – Rapid adaptive camouflage in flounder
- National Geographic – How scientists learn from the masters of invisibility: Octopus

Winners of the Funky Fuzzy Fashion Week 2026

Images: Tanmay Wagh

Sea Board

Inspiring ocean curiosity across Havelock's schools!

In October 2025, Dakshin's *Ocean Literacy Programme* made its way to schools in Havelock, with outreach sessions at Government Middle School, Kalapather and Government Senior Secondary School on the 17th and 18th. Over two days, nearly 90 students from Classes 1–8 spent time exploring the world of marine life through interactive presentations and creative activities.

One of the highlights was a drawing exercise where students imagined their own ocean creatures and gave them unique adaptations. The ideas were thoughtful, inventive, and a reminder of how naturally children connect with the sea when given space to imagine and ask questions. Teachers shared encouraging feedback, especially on how the videos and visuals helped students better understand marine concepts. To keep the learning going beyond the sessions, we also shared turtle posters and copies of *Moonlight in the Sea* with both schools.

Outreach spanning classrooms and much beyond!

Towards the end of the year, Dakshin's outreach work spanned classrooms, zoos, and forest divisions, engaging students and frontline staff with stories from the field.

In Karnataka, Rahul MS led two sessions focused on reptiles and marine ecosystems. At Kargal, he took part in *National Reptile Awareness Day* organised by the Karnataka Forest Department, delivering a session on '*Turtles, Tortoises, and Sea Turtles of India*' for around 120 participants, including students from Kargal and Sagara, and Forest Department staff.

Shortly after, at Mysore Zoo, Rahul met with *Youth Club* students to talk about ocean ecosystems, sea turtles, and Dakshin's long-term monitoring work, along with the threats these ecosystems face.

Our outreach continued at the *Satavauni Interpretation Centre* in Odisha's Bhadrak Division, where forest guards and ground staff gathered for a capacity-building session on marine wildlife rescue and sea turtle monitoring, again led by Rahul. The training covered turtle tracks, nest relocation, hatchery management, mass nesting censuses, and safe hatchling release. Participants were also provided with outreach materials to support their field work.

Reef Festival/Sagarmela 2025

We celebrated *Reef Festival/Sagarmela* 2025 across Swaraj Dweep, Wandoor (South Andaman), and Sri Vijaya Puram, and it brought together island communities, students, educators, fishers, researchers, and conservation partners to celebrate the marine ecosystems of the Andaman Islands. Supported by Axis Cares, the festival created engaging spaces for learning, creativity, and collective reflection around coral reefs and coastal environments.

Kids led the way through hands-on activities and guided experiences with Dakshin's marine biologists and ANET's research team. From discovering intertidal species and building clay reefs to visiting the *Marine Interpretation Centre* at *Mahatma Gandhi Marine National Park*, participating in beach clean-ups, and engaging in ecosystem-themed games, students connected deeply with the oceans that shape island life. Cultural performances, creative competitions, and interactive exhibits added energy and colour across all locations.

In loving memory of

Mahendra Nayak

(Moyo)

27 April 1984 - 29 September 2025

Moyo has been an integral part of Dakshin since 2008, especially the Marine Flagships team. For over two decades, Moyo contributed to sea turtle conservation through hatchery management, nest relocation, and monitoring. His skill and care ensured that high-quality data was collected year after year on this globally important population, which contributes to assessments of conservation status and to management plans.

Beyond his field expertise, he was known for his proficiency in sample collection and dissection, assisting researchers and students alike with patience and generosity. His work contributed immensely to both conservation and science.

Moyo's legacy lives on in the turtles he has worked for, the research he supported, and the bonds he built within the community. He will be remembered with immense respect and affection by the many researchers he worked with, the people of Ganjam and all of us at Dakshin.

Rest in peace, Moyo.

Dakshin Foundation at SCCS 2025

#throwbackpost

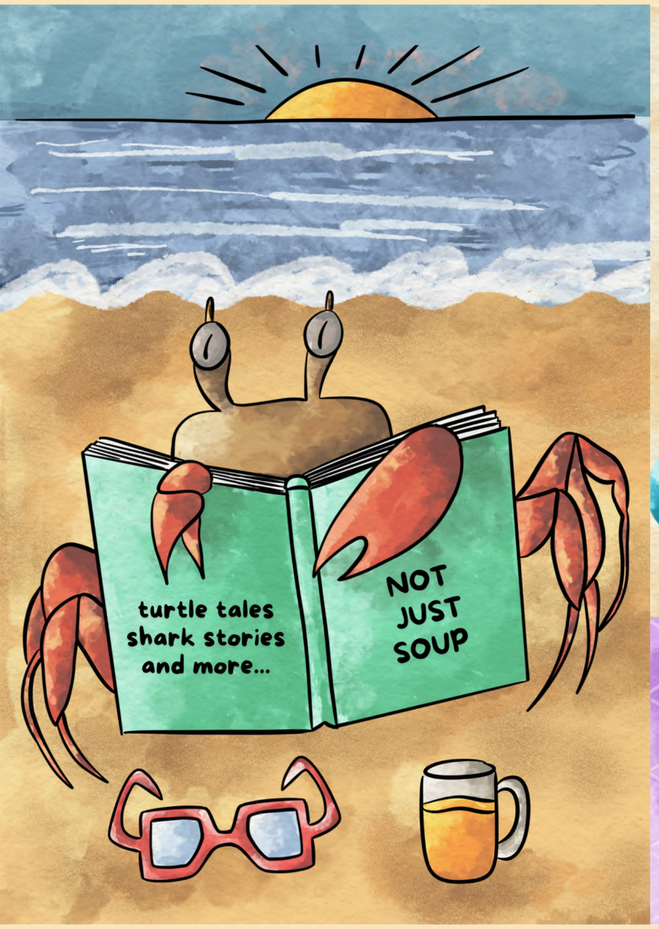
From lively conversations at our Dakshin outreach stall to insightful talks, posters, and workshops, our team had a wonderful time engaging with participants from across the country at SCCS 2025 in Bengaluru. Being part of a space that brings together research, ideas, and people passionate about conservation was inspiring!

These beautiful reef illustrations, conceptualised by *Kartik Shanker* and illustrated by *Kamya Kiran*, have been one of our community favourites. We've brought it alive in a few outreach events as part of our awareness efforts, and many of you have asked if it will return.

If you love this artwork or wish to support *Not Just Soup* as it grows, write to us at marineflagships@dakshin.org. We'll keep you in the loop about future outreach editions and ways you can be part of creating more such ocean-love stories with us.

Don't forget to write to us!

Drop us an **email** with your feedback and suggestions.
Send us your artwork and articles on marine wildlife.
Share your work on marine research and conservation with us.
You may get featured in our next issue!



Not Just Soup

shark stories, turtle tales and more...

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