

cats of kochiStory

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See the kavaru bioluminescence: science behind the glowing water near Kochi

Kavaru is the blue glow seen in the Kumbalangi and Chellanam backwaters near Fort Kochi from March to May. Millions of small organisms called sea sparkle make it.

In this page

Drag your hand through the water near Kumbalangi on a dark summer night, and your fingers leave a trail of electric blue light. It is not a trick. You have just scared millions of small living things that make their own light to fight you away. Nature is fascinating. Is it not?

Locals call it kavaru (captivating). Science calls it bioluminescence. Every year between March and May, it shows up in the backwaters and pokkali fields near Fort Kochi. It appears around Kumbalangi and Chellanam, about 12 to 15 kilometres from the Fort Kochi city centre.

Quick guide to the magic of bioluminescence

- What: Small organisms called sea sparkle flash blue when you disturb the water. Locals call it kavaru.
- Where: Kumbalangi and Chellanam backwaters, about 12 kilometres from Fort Kochi.
- When: March to May, dark moonless nights, best after midnight.
- How: Kayak or boat, flashlight off, wait 15 minutes for eyes to adjust.
- Want the science? See How it glows. See Why it glows. See Why pokkali fields.

Why do locals call it “Kavaru”?

In Malayalam, the root word “Kavar” (□□□) or “Kavaruka” means to captivate, fascinate, or even to steal (like stealing someone’s heart).

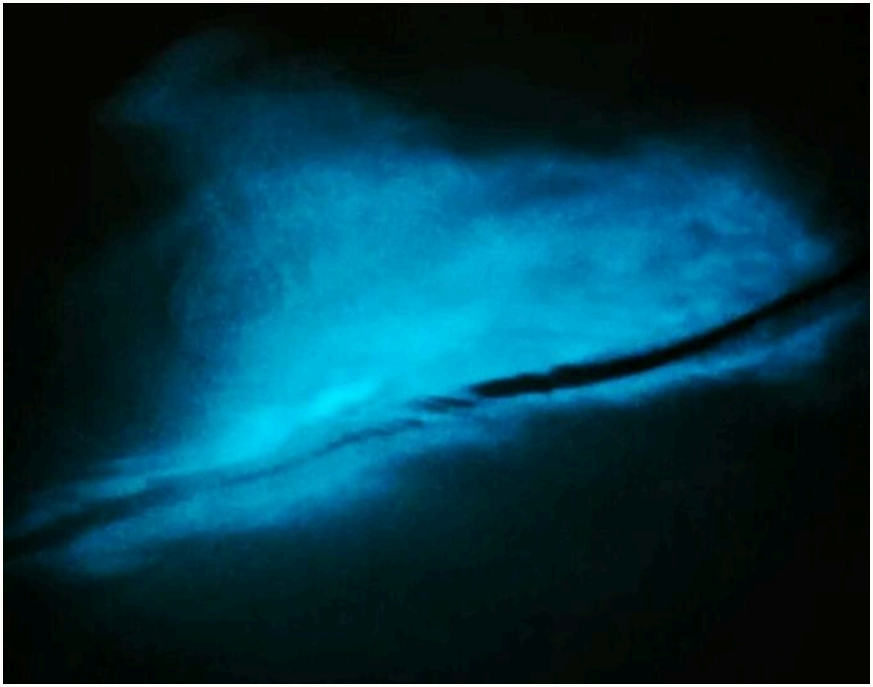
If you saw the 2019 Malayalam film “Kumbalangi Nights”, you have already seen it. Bonnie and Nylah row through glowing blue water. That scene made kavaru famous across India. But this phenomenon has been part of life in these fishing villages for generations, long before any camera captured it.

Tips for seeing it

Choose a dark, moonless night. The glow is nearly invisible when the moon is bright. In early March, when the full moon is up, kavaru is hard to spot before 2 a.m. By mid-March onwards, as the moon wanes, you can see it from dusk.

Go by kayak or traditional vanji (wooden boat) if possible. Every paddle stroke sets off the glow right next to you. Some homestays in Kumbalangi arrange night kayaking sessions.

Keep your phone flashlight off. Your eyes need 15 to 20 minutes to adjust to the dark. One flash of white light resets that clock.



Kavaru — the bioluminescent blue glow that can appear in the backwaters near Kochi on dark, moonless nights.

Talk to local fishermen. They have known kavaru for generations and can tell you exactly which stretch is glowing on any given night.

The pokkali fields are working farms. Be respectful. Stick to paths. Do not trample the bunds.

If you are visiting Fort Kochi and want to see this for yourself, check with local homestays in Kumbalangi or Chellanam. The cats of kochi guide to things to do in Fort Kochi is updated regularly with seasonal activities. Remember that you need a dark night, no moonlight, and patience.

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Here is how it actually works. You could explain it to a 10-year-old over lunch.

Meet the creature that makes the light

The star of the show is a small organism that scientists lovingly call sea sparkle. How small? Each one is about the size of a pinhead and has one cell. It has no eyes, no brain, and no legs. It is a round, jelly-like blob floating in the water with a little whip-like tail.

Most of them make their own food from sunlight (like plants). Some hunt and eat other small things (like animals). They eat bacteria and small algae. They also eat fish eggs, swallowing them whole through a little mouth on its body.

But eating is not what makes sea sparkles famous. Their party trick is light.

How does a small blob make light?

Here is where it gets good. Inside its body, there are two special chemicals. One is luciferin, the fuel, like the match. The other is luciferase, the spark, the enzyme that lights the match.

Both chemicals are kept separate inside small pockets called scintillons. As long as they stay apart, nothing happens. The creature floats in the dark, minding its own business.

But the moment something disturbs the water, the cell gets jostled. This can be a wave, a paddle, a fish swimming past, or your hand dragging through the water. This opens a kind of chemical gate. Acid floods in from one pocket to another, changing the form of the luciferase enzyme and releasing the luciferin fuel.

Both chemicals finally meet. In the presence of oxygen, luciferin gets oxidised, which is a fancy way of saying it reacts with oxygen. That reaction releases energy. It releases light, not heat. A flash of blue light lasts about 80 milliseconds, less than a blink.

Now multiply that by millions of organisms, all flashing at once because you disturbed the water. That is kavaru. Kavaru is brightest between midnight and the early hours before sunrise.

But why? Why would a small blob want to glow?

Good question. Scientists call it the “burglar alarm” theory.

Imagine you are a small creature trying to eat sea sparkles in the dark. You bump into it. Suddenly, a bright flash of blue light goes off, like a burglar alarm in a quiet house. Now every bigger predator in the area can see you. The flash does not protect sea sparkle directly.

Instead, it attracts the attention of larger fish that might eat the attacker. That is like a friend in school who tells the teacher that your best friend copied the homework. That friend tries to get the focus elsewhere. It is like screaming “HEY LOOK, THERE’S A THIEF HERE!” so that the neighbourhood dogs come running.

Where and when does kavaru happen near Kochi?

Kavaru is most commonly seen in two areas near Fort Kochi. Kumbalangi is an island village about 12 kilometres from Kochi city centre, famous as India’s first eco-tourism village. The best spots are in the south-western parts of Kumbalangi, around Kallanchery, Anjilithara, Attathadom, and Kulakkadavu. Chellanam is a fishing village a little further south, with large pokkali paddy fields that flood with salt water during summer.

The season typically runs March to May, peaking when summer heat raises the salinity of the backwaters. Here is what triggers it. After the monsoon rains end and summer sets in, the water in the pokkali fields and backwaters gets saltier. Salinity levels climb to around 30 to 35 parts per thousand. At the same time, nutrient levels rise from agricultural and urban runoff.

This creates ideal conditions for sea sparkles to multiply rapidly, sometimes exceeding half a million organisms per litre of water. When the population gets this dense, the daytime water can actually look red or pink,

what scientists call a red tide. But at night, any disturbance turns the water blue.

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What are pokkali fields? And why does kavaru happen there?

Pokkali is a traditional farming system unique to the coastal areas of Ernakulam, Thrissur, and Alappuzha districts. The idea is simple but clever. For six months, you grow rice. For the other six months, you farm shrimp and fish in the same fields.

During summer, when the fields flood with salt water for aquaculture, the salinity rises sharply. Nutrients from the previous rice crop, from the fish, and from surrounding drainage all accumulate. These are exactly the conditions that Noctiluca loves. Noctiluca loves warm, salty, nutrient-rich conditions.

So kavaru is not random. It shows up in pokkali fields because the farming cycle creates the perfect environment for these organisms to bloom. Now you know more about kavaru than 99% of the people who photograph it.:)

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Kumbalangi
Village
Fort KochiMattancherryChellanam Beach Kochi
Beach