

# Reimagining the Merlion

With the head of a lion and tail of a fish, the mythical Merlion is an apt symbol for Singapore – a city that roared its way from a tiny fishing village to a thriving metropolis. This National Day, **AUDREY TAN** and **CHNG CHOON HIONG** speak to experts to piece together the anatomy of the Merlion, based on established science. We learn how even the unlikely of creatures can beat the odds, just as Singapore did.

## Experts

**Dr Tan Heok Hui**, Fish scientist, Lee Kong Chian Natural History Museum, National University of Singapore (NUS)

**Mr Marcus Chua**, Mammal scientist, Lee Kong Chian Natural History Museum, NUS

## Name: Merlion

(*Leoaquaticus singaporensis*)

- The scientific name of a species, which is always italicised, allows people of all tongues to refer unambiguously to an animal.
- Scientific names are in Latin, and usually reference a physical trait of the creature, where it was found, or the person who discovered it.
- If *Leoaquaticus singaporensis* was truly the scientific name for the Merlion, it would literally translate to "aquatic lion from Singapore".



## COLOUR

- Grey. But turns red under threat in a startle display.
- Like the mosaic reef crabs native to Singapore, its colour warns predators of its poison and to stay away.

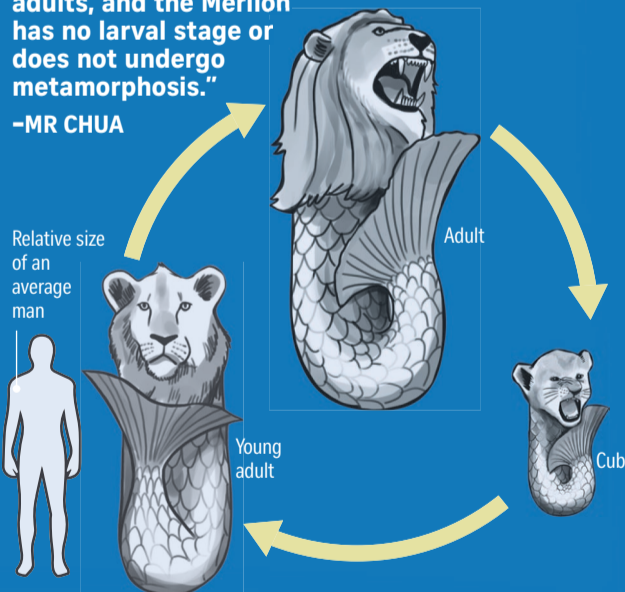
**"In a world where the big fish eat small fish and the small fish eat shrimps, Singapore must become a poisonous shrimp."**

–FOUNDING PRIME MINISTER  
LEE KUAN YEW

## REPRODUCTION

**"As smaller forms look identical to large ones, it can be assumed that the young are identical in form to the adults, and the Merlion has no larval stage or does not undergo metamorphosis."**

–MR CHUA



- There is not enough information to determine if the young are born live, like most mammals, or if they hatch from eggs, similar to fish.

## Did you know?

Metamorphosis is a biological process of change, through a series of life stages, from caterpillar to butterfly, for instance.

## FEEDING

- It could bite off chunks of larger prey, feeding like a killer whale, or go after small fish or land animals by snapping them up in its jaws after "shooting" them with water jets.
- Many whales and dolphins also suck a bountiful amount of prey such as squid into their mouths. "If that is true, marine trash is certainly a threat to the Merlion," said Mr Chua.

## Did you know?

Plastic debris was found in the gut of a sperm whale found dead in Singapore waters in 2015.

## EARS

- Large external ears are unusual for marine animals, which usually have tiny ones to reduce heat loss, or none at all.
- This suggests that Merlions live in tropical waters, and that they make sounds above water like otters, perhaps to establish territory or call to mates.

## EYES

- The ability of an organism to produce its own light is common in deep sea creatures. Merlions with bioluminescent eyes – like the one that once stood on Sentosa – can probably hunt for food in deeper waters.

**"The large eyes in front of the head of the Merlion probably give it good binocular vision where each eye sees an overlapping image of the other eye. This gives it a good depth perception like that of humans and wolves. Useful when judging distance of prey when hunting."**

–Mr Chua

## NOSE

Nostrils on the tip of its nose close to the top of its head mean it can submerge itself almost totally while still breathing air, just like a crocodile.



## SNOUT

- Whiskers fulfil a sensory function that helps it navigate the murky waters around Singapore, or aids night movement.

## Did you know?

Whiskers are a thicker type of the same hair that covers the bodies of mammals. They often grow in places that enhance the function of sensitive nerves.

## WATER SPOUT

There are a few hypotheses as to why the Merlion spouts like a fountain from its mouth:

- **Predatory:** The jet can be aimed at prey, similar to how archerfish hunt.
- **Defence:** Just like other native marine creatures such as giant clams, the Merlion may spout water to ward off predators.
- **Movement:** It may use it to propel itself through water, like an octopus.

## Did you know?

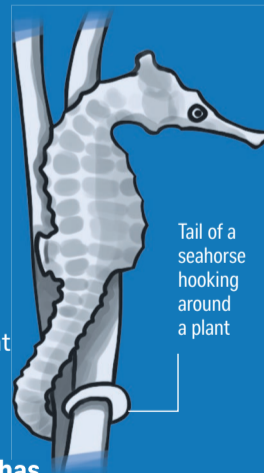
Archerfish are surface-dwelling fish that have been recorded using water streams to bring down prey from above the water surface, such as land insects on branches. There are two archerfish species native to Singapore – *Toxotes jaculator* and *Toxotes chatareus*.

## TAIL

- It is possible that the Merlion hooks its tail around seaweed or coral to prevent it from being swept away by a current, like a seahorse.

## Did you know?

Animals use their tails for different purposes. Kangaroos, for instance, use theirs to maintain their balance, while seahorses use them as an anchor.



## POSTURE

The Merlion is likely to move around in an upright posture, similar to the seahorses in Singapore's intertidal areas.

**"The Merlion probably has a good sense of balance."**

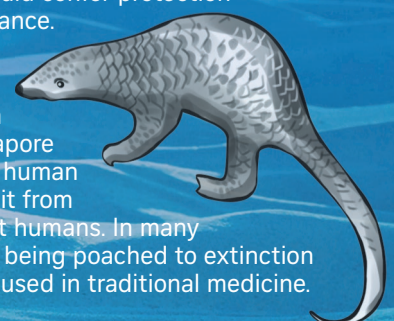
–DR TAN

## BODY

- Covered in large scales, similar to those on fish like sea bass or the pangolin, the world's only scaly mammal.
- Overlapping scales could confer protection and reduce water resistance.

## Did you know?

The scales of the Sunda pangolin native to Singapore are made of keratin like human fingernails, and protect it from most predators – except humans. In many countries, this animal is being poached to extinction for its scales, which are used in traditional medicine.



## THREATS

- Marine trash (due to suction feeding)
- Poaching (for scales)
- Coastal development (due to habitat preference)
- Covid-19 and other pathogens from human contact (tourism)

