



Tool-Using Fish Species Found in the Laccadive Sea

[Source: TH](#)

Why in News?

Recent findings indicate that [three fish species](#) (**Jansen's wrasse, checkerboard wrasse, moon wrasse**) in the [Laccadive Sea](#), off the southwest Indian coast, **exhibit tool-use capabilities**.

Which are the Three Tools Using Fish Species?

▪ About:

- While primates, [birds](#), [otters](#), **octopuses**, and many other animals are known to be capable of using tools.
 - The **use of tools by fish seems impossible**, as they lack hands, claws, or tentacles **to grasp and manipulate objects**.
- However, the three fish species use [live or dead coral structures](#) as **anvils** to break the hard shells of [sea urchins](#) so they can get to the edible bits inside.
 - The **Jansen's wrasse (*Thalassoma jansenii*)** and the **checkerboard wrasse (*Halichoeres hortulanus*)** have never been reported using tools before.
 - On the other hand, this is the first documented instance of the **moon wrasse (*Thalassoma lunare*)** using tools in the wild.

▪ Sea Urchins & the Discovery:

- Due to their **spiny, hard shells**, only a limited number of fish could consume **E. molaris sea urchins**.
- However, Jansen's, checkerboard, and moon wrasses were **observed using tools** to crack open the **urchin skeletons**, much like cracking open a walnut shell.
- **Wrasses** don't have specialised mouthparts like **archerfish (tool using fish)**, so they use **clever behaviours** to eat burrowing sea urchins.
 - They carefully **turn the urchin over** to reach its softer underside, then crack it against hard coral to eat the soft parts inside.
 - Wrasses **use the coral reef** both as a tool to flip the urchin and to crack it open for food.

▪ Importance of the Findings:

- Scientists have only observed anvil use in about **18 fish species worldwide**, all from the **Labridae family**.
 - The recently discovered **three tool-using species also belong to the same family**.
- These fish [prey on invertebrates](#) such as crabs, clams, and urchins and vertebrates like baby sea [turtles](#), but their sizes, approaches, prey handling, and locations differ.

Which Other Marine Species Use Tools?

- **Octopuses:** These **cephalopods** are known for their **exceptional problem-solving skills** and tool use.
 - They have been observed using **coconut shells** and other objects for shelter, dragging around discarded shells for protection, and even dismantling and reassembling equipment in aquariums.

- **Dolphins:** Some [dolphin species](#) use marine sponges to protect their rostrums (snouts) while foraging on the seafloor.
 - This behavior, known as "**sponging**," is a form of tool use unique to certain populations of dolphins.
- **Sea Otters:** These mammals are known to use rocks and other hard objects as tools to break open shellfish, such as clams, for food.
 - They typically place the rock on their chests and use it to smash the shell against, **known as an anvil technique**.
- **Fish:** The blackspot **tuskfish**, found in coral reefs, demonstrates learning and adaptability by using rocks to open clamshells, **similar to how archer fish use water jets to shoot down prey above the surface**.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims:

Q. Consider the following kinds of organisms: (2021)

1. Copepods
2. Cyanobacteria
3. Diatoms
4. Foraminifera

Which of the above are primary producers in the food chains of oceans?

- (a) 1 and 2
- (b) 2 and 3
- (c) 3 and 4
- (d) 1 and 4

Ans: (b)

Q. With reference to the evolution of living organisms, which one of the following sequences is correct? (2009)

- (a) Octopus - Dolphin - Shark
- (b) Pangolin - Tortoise - Hawk
- (c) Salamander - Python - Kangaroo
- (d) Frog - Crab - Prawn

Ans: (c)