

Reef sites

Opportunistic mimicry by a Jawfish

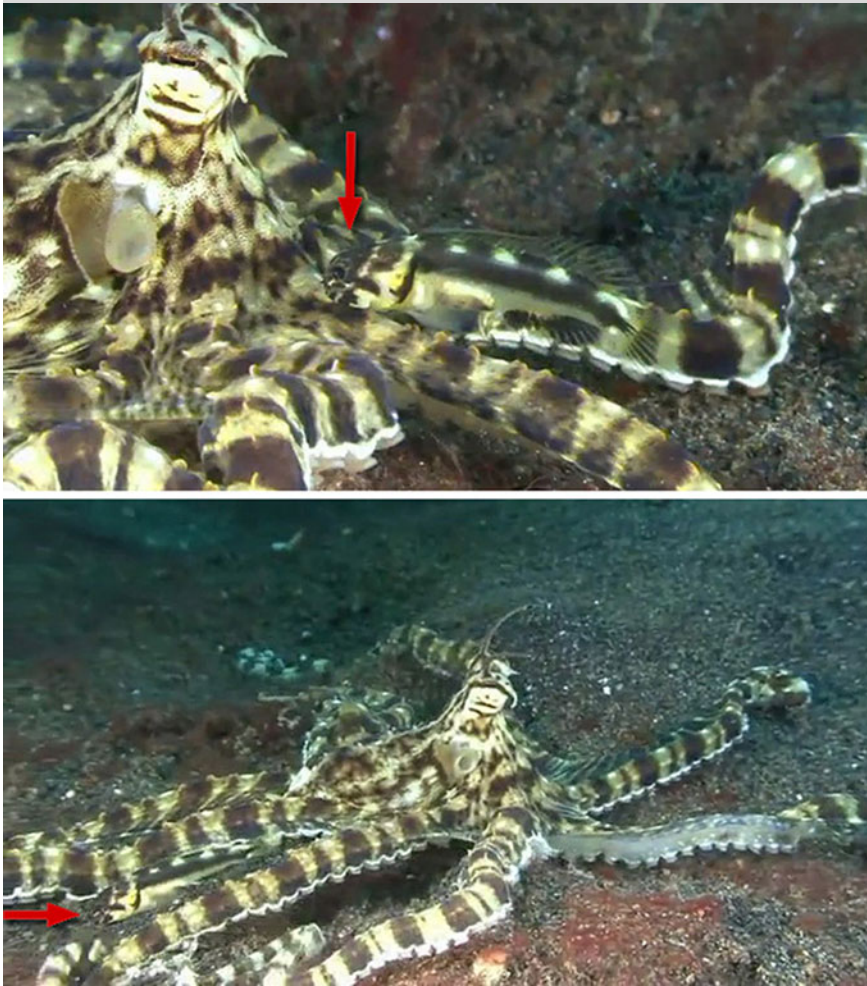


Fig. 1 Frames from the video showing the Black-Marble Jawfish (*Stalix* cf. *histrio*) closely following the Mimic Octopus (*Thaumoctopus mimicus*). Red arrows point to the head of the Jawfish. The entire video can be seen at <http://www.youtube.com/watch?v=u4kZAgny5eg/>

2005). In our case, we think the Black-Marble Jawfish takes advantage of the presence of the Mimic Octopus in certain areas and follows it presumably to forage away from its shelter.

References

- Cote IM, Cheney KL (2005) Animal mimicry: Choosing when to be a cleaner-fish mimic. *Nature* 433:211–212
- Norman MD, Finn J, Tregenza T (2001) Dynamic mimicry in an Indo-Malayan octopus. *Proc R Soc Lond B* 268:1755–1758
- Smith-Vaniz WF (1989) Revision of the jawfish genus *Stalix* (Pisces: Opistognathidae), with descriptions of four new species. *Proc Acad Nat Sci Phil* 141:375–407

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The Mimic Octopus (*Thaumoctopus mimicus*) is a remarkable imitator, apparently assuming shape and behaviour similar to models as diverse as poisonous Lionfish, Soles and Sea Snakes (Norman et al. 2001). All of those models share in common striped brown and beige or black and white colour patterns. During a diving trip to the Lembeh Strait (North Sulawesi, Indonesia) in July of 2011, the third author filmed a Mimic Octopus for about 15 min and recorded an unexpected relationship: the Black-Marble Jawfish (*Stalix* cf. *histrio*) followed the Mimic Octopus for several minutes, remaining very close to the octopus' arms (Fig. 1; Electronic Supplemental Material). The colour of the Jawfish matched the banded pattern and colour tone of the octopus.

Jawfish are poor swimmers and usually spend their entire adult lives very close to burrows in the sand, to where they quickly retreat, tail first, upon sight of any potential predator (Smith-Vaniz 1989). In the photos and video presented here, the Black-Marble Jawfish seems to have found a safe way to move around in the open. The Mimic Octopus looks so much like its poisonous models that it is relatively safe from predation, even when swimming in the open (Norman et al. 2001), and by mimicking the octopus' arms, the Jawfish seems to also gain protection.

Since the Black-Marble Jawfish is distributed from Japan to Australia (Smith-Vaniz 1989), whereas the Mimic Octopus is restricted to the Indo-Malay region (Norman et al. 2001), we think this is a case of opportunistic rather than obligate mimicry. Opportunistic mimicry has been reported for other fish, including the Bluestriped Fangblenny, which mimics the Cleaner Wrasse where they co-occur, but does not in other areas (Cote and Cheney

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