

Coryphopterus lipernes (Peppermint Goby)

Family: Gobiidae (Gobies)

Order: Perciformes (Perch and Allied Fish)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Peppermint goby, *Coryphopterus lipernes*.

[<http://reefguide.org/pixhtml/peppermintgoby2.html>, downloaded 27 October 2016]

TRAITS. *Coryphopterus lipernes*, also known as the peppermint or blue-nose goby (IUCN, 2015), is distinguished by a golden-yellow translucent body and bright blue coloration on the snout that extends to the upper eye and continues along the body (Fig. 1). Markings include blue and pale yellow to white lines along the anterior body, eyes are large, and the mouth is terminal. The body is elongate, narrow and capable of reaching a maximum length of 3.0cm (De Kluijver et al., 2016). The dorsal fin has 6-7 spines and 9 soft rays; 1 anal spine and 9 anal soft rays (Randall, 1996). Males are distinguished by a comparatively longer second spine of the dorsal fin (De Kluijver et al., 2016). A sucker is formed from the fused pelvic fins (Fig. 2).

DISTRIBUTION. Wide distribution from the Florida Keys, the Gulf of Mexico, the Caribbean Sea including Trinidad and Tobago, and the western Atlantic (IUCN, 2015) (Fig. 3).

HABITAT AND ECOLOGY. Found in tropical waters and coral reefs, especially groove, spur and drop-off reefs, at depths of 10-60m. Samples gathered at depths of 15-50m showed *Coryphopterus lipernes* as ranking 13th species in abundance in Puerto Rico. The species is diurnal and is often noted resting on live coral heads at various times of the day, venturing off the coral and into algal mats for feeding (IUCN, 2015). They are detritivorous and omnivorous, the diet includes microalgae, crustaceans, and detritus (STRI, 2016).

REPRODUCTION. The peppermint goby displays sequential protogynous hermaphroditism - changing their sex from female to male via a coordinated sequence of events due to the small difference between the male and female genitals (IUCN, 2015). Sex change occurs by the dominant female when the dominant male of the group is dead, to facilitate mating. They lay eggs on substrates such as coral surfaces which are guarded by males who also fan the eggs to supply oxygen (Wikipedia, 2016). The larval life cycle is slow, pelagic and lasts 60 days after which rapid maturity to adulthood occurs. The adult stage has a high-mortality rate (IUCN, 2015).

BEHAVIOUR. The peppermint goby is one of the few species that live in a symbiotic relationship with live corals, often resting on live coral heads, venturing off the coral and into algal mats for feeding (IUCN, 2015). They are solitary, but may be seen in small groups near reefs (IUCN, 2015).

APPLIED BIOLOGY. The IUCN Red List shows the peppermint goby as Vulnerable, due to dependency on declining coral habitats (59% decline over the past 41 years in the Caribbean), and predation by invasive lionfish. No conservation methods employed for species, no successful methods employed to cease coral decline. Popularly found as aquarium species (IUCN, 2015).

REFERENCES

- De Kluijver, M., Gijswijt, G., de Leon, R. and da Cunda, I. (2016). Peppermint goby (*Coryphopterus lipernes*) http://species-identification.org/species.php?species_group=caribbean_diving_guide&id=238 downloaded 6 October 2016.
- Froese, R. and Bailly, N. (2016). *Coryphopterus lipernes* Peppermint goby Böhlke & Robins, 1962. <http://www.fishbase.org/summary/3846#> downloaded 6 October 2016.
- IUCN. (2015). *Coryphopterus lipernes*. The IUCN Red List of Threatened Species 2015: e.T185958A1794593. <http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T185958A1794593.en>. downloaded on 27 October 2016.
- Randall, J.E. (1996). Caribbean reef fishes. Third Edition - revised and enlarged. T.F.H. Publications, Inc. Ltd., Hong Kong. 3rd ed. 368 p.
- STRI. (2016) Species: *Coryphopterus lipernes*, Peppermint goby. STRI Shorefishes of the Greater Caribbean online information. <http://biogeodb.stri.si.edu/caribbean/en/thefishes/species/4120>, downloaded 8 October 2016.
- Wikipedia. (2016). Goby. <https://en.wikipedia.org/wiki/Goby#Gobiinae> downloaded 12 October 2016.

Author: Meiling Chow

Posted online: 2016



Fig. 2. Peppermint goby clinging to a boulder star coral with pelvic sucker.

[<http://www.thelivingsea.com/underwater/photos/6115735261/Peppermint-goby-perches-on-boulder-star-coral---Coryphopterus-lipernes.html>, downloaded 27 October 2016]



Fig. 3. Distribution of *Coryphopterus lipernes*.

[http://www.aquamaps.org/receive.php?type_of_map=regular, downloaded 27 October 2016]