

Aspects of Sexual Dimorphism and Feeding in *Petroscirtes variabilis* Cantor (Osteichthys: Blenniidae)¹

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Abstract—Length, coloration, and gut contents of 15 specimens of *Petroscirtes variabilis* from the Philippines were determined. Males were found to be orange-brown and larger than the green females. A variety of sessile benthic organisms, small crustacean appendages, and fish scales were contained in the guts. *P. variabilis* probably browses its food off the *Thalassia* substrate with which it is generally associated, and appears to have extended its browsing habits to include the scales of fishes. The large canine teeth of this species seem not to function in feeding.

Introduction

Petroscirtes is one of the genera of saber-toothed blennies which are characterized by what Herre (1939) referred to as “preposterously large” canine teeth. The extant literature provides little information on the function of these canines in *Petroscirtes* (cf. Smith-Vaniz 1976). Herre (1939) and Smith (1959) noted that captured individuals attempted to bite their handler. *Petroscirtes thepassi* snapped at A. Emery (Smith-Vaniz 1976) as he tried to collect them. Losey (1972) incurred a very painful bite from *Meiacanthus atrodorsalis*, a close relative of *Petroscirtes*. In contrast to these reports, which suggest a defensive function for the canines, Ruppell (in Herre 1939) observed a nemophine blenny impaling prey organisms with its ‘fangs’.

In the Philippines, *Petroscirtes variabilis* is quite common (V. G. Springer, pers. comm.). We have observed and collected specimens from the market on several occasions. To our knowledge, gut contents of this species have never been analyzed. By examining the food habits of this species, we hoped to determine whether or not the canines functioned in food gathering.

Methods

On 9 February 1979, 15 specimens of *Petroscirtes variabilis* were obtained from

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the fish market of Bolinao (lat 16°25'N and long 119°54'E) Pangasinan, Luzon. Descriptive notes of the coloration and patterning were made prior to freezing the specimens. Gut content analysis were performed at the University of the Philippines Marine Sciences Center laboratory. For each specimen, sex, standard length, fresh coloration, and gut contents were recorded. A single live specimen was obtained and observed in a laboratory aquarium.

Results

The standard length, sex, and gut contents of the examined specimens are presented in Table 1. The mean standard length of males (65.5 mm) was significantly greater ($t_s = 4.232$, $p < .001$) than for females (54.4). The coloration of freshly caught females was sea grass green dorsally and lighter below. The color pattern of males was similar to that of females; the color, however, was orange-brown. A darker midlateral band was observed on an unstressed male in an aquarium. The band quickly disappeared when the fish was disturbed and did not reappear for several hours.

Table 1. Standard length (SL), sex, and gut contents of 15 specimens of *Petroscirtes variabilis* from the Philippines.

SL (mm)	Sex	Gut contents
76.5	male	foraminifera, sponge spicules gurry
63.5	male	gurry
67	male	ctenoid fish scale, gurry
6	male	gurry
53	female	crustacean appendages, gurry
59	female	sponge spicules, cycloid fish scale, gurry
64.5	male	sponge spicules, gurry foraminifera
70	male	gurry
56	female	fish scale, gurry
51	female	ctenoid fish scale, gurry
56	female	crustacean appendages, gurry
54.5	female	gurry
51.5	female	foraminifera, sponge spicules crustacean appendages, gurry
54	female	gurry
53	male	filamentous algae

All of the guts contained, primarily, structureless organic matter (gurry). Various types of nonmotile benthic organisms (foraminifera, sponges, and filamentous algae) and crustaceans had been ingested. In addition, one fish scale was found in each of four guts.

Discussion

A pronounced sexual dimorphism appears to exist in *Petroscirtes variabilis*. Males are generally larger than females and orange brown instead of green. Smith-Vaniz (1976) previously reported only slight sexual dimorphism in the length of the second dorsal fin spines, pelvic fins, and caudal fins. Smith-Vaniz's detailed color description of *P. variabilis* (based on Cantor 1850) appears to be based on a female specimen.

The presence of sessile benthic organisms in 50% of the guts examined (excluding those containing only gurry) suggests that this species feeds on or very near to the turtlegrass substrate, its usual habitat (Emery in Smith-Vaniz 1976). Crustaceans, which appear to form the bulk of the diet of these organisms (Smith-Vaniz 1976) are probably browsed off of the substrate. Fish scales were found in 40% of the guts which had contents other than gurry. Thus, *P. variabilis* has apparently extended its browsing habits to include the scales of fishes in a manner similar to that of the Lake Malawi scale eating cichlid *Genyochromis mento* (Fryer and Iles 1972).

The strategy of scale biting in *P. variabilis* is probably very different from that of the other known fish-nipping blennies (e.g., *Aspidontus taeniatus* and *Runula tapinosoma*). In the aquarium, *P. variabilis* spent most of its time hovering motionlessly in midwater, head up. Emery (in Smith-Vaniz 1976) observed this same vertical orientation during field observations of the closely related *P. thepassi*. Further aided by their predominantly green or brown coloration, these fishes could, conceivably, satisfactorily resemble *Thalassia* blades. This would allow for the close, undetected approach of the predator to its prey. From this position, the blenny could quickly attack its prey by darting, still head up (Emery in Smith-Vaniz 1976 and personal observation), remove scales, and again blend in with the surrounding plants.

Although we have not observed this activity, the hypothesis stated above parsimoniously explains the presence of fish scales in the guts of *P. variabilis*, based on available, albeit limited, information on the biology of the species.

Browsing of microcrustaceans off *Thalassia* blades or scales off fishes do not, however, seem to require large canine teeth. Thus, it appears that the primary, if not sole function of these canines must be defensive. The tenacity with which the closely related *P. thepassi* (Emery in Smith-Vaniz 1976), and nemophine blennies in general (Herre 1937, Losey 1972) use their canines suggest that they serve that function well.

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