

# Evolution of Blennioidei in the Mediterranean Sea

by

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The pattern of evolution of some Blennioidei (Pisces, Perciformes) is discussed briefly with respect to paleohistorical events during the tertiary and quaternary.

Two species of the genus *Triptygion*, *T. tripterotonotus* and *T. xanthosoma* are very similar in morphological characteristics, but differ in inhabiting distinct biotopes. This situation can be explained by a twofold immigration of their ancestor from a West African refuge into the Mediterranean Sea, which occurred at different intervals after the end of the glacial periods. The first immigrants did not follow the ascending water surface caused by a further melting of the polar ice, whereas the second wave of *Triptygion* stayed near the water surface. After establishing sexual barriers these two populations could develop towards different species.

In contrast to *Triptygion*, the evolution of the *Blennius* species which are endemic in the Mediterranean Sea must have occurred these after the end of the glacial periods. Within the short space of about 10 000 years a multiple differentiation took place producing sibling species which are very similar in morphological characteristics but differ in ecological demands (Table 1).

*Blennius fluviatilis* shows a perimediterranean distribution in fresh waters. This species could have descended from an ancestor in the Mediterranean Sea itself during the Miocene as this area has become desalinated. This descendant had been euryptent in respect to salinity and temperature, so that since the Pliocene an extension in the whole Mediterranean Sea and an immigration in diverse fresh water areas was possible. Because of their tolerance of cold temperatures these fishes could survive glacial periods. The close relative of *B. fluviatilis*, *B. pavo* living in marine and brackish waters of the East Atlantic and the Mediterranean Sea must have descended from a common ancestor in the Atlantic refuge and immigrated after the end of the glacial periods.

The example of the Blennioidei may illustrate the patterns of pylogeny of the Mediterranean faunal elements.

Table 1 : Morphological and ecological comparison of 8 *Blennius* species (after EGGERT, 1931; ABEL, 1962; ZANDER, 1972b)

species-group	species <i>Blennius</i>	morphology	ecology		
			light demands	water movement	salinity
Sphinx	<i>sphinx</i>	very similar	photophil.	euryklyd.	stenohaline
	<i>rouxi</i>		photophil.	euryklyd.	stenohaline
	<i>zvonimiri</i>		photophob.	klydophob?	stenohaline
	<i>incognitus</i>		euryphot.	klydophob.	stenohaline
Canevae	<i>canevae</i>	very similar	euryphot.	euryklyd.	stenohaline
	<i>nigriceps</i>		photophob.	?	stenohaline
	<i>adriaticus</i>		photophil.	klydophob?	stenohaline
	<i>dalmatinus</i>		photophil.	klydophob.	euryhaline

Rapp. Comm. int. Mer Médit., 22, 7, p. 57 (1974).

