

Modern Relational Databases for the identification of Fish Larvae of the Mediterranean Sea

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Identification of fish larvae is a difficult task, because body proportions and pigmentation may change considerably in the course of the larval development.

In this paper we suggest a key of 278 fish larvae species of the Mediterranean Sea, dealing with modern relational databases. The first key of this form concerns 126 species of fish larvae of the Northeast Atlantic (FROESE and PAPASSISI, 1989).

The commercial software package DataEase 4.0 was used for the database. Modern relational databases provide features like choice fields (only one choice from a list of predefined entries is allowed for a field), query-by-forms (very user-friendly way of searching) and graphics. About 80 descriptive, meristic and morphometric characters of post-larvae have been defined as useful for identification. The data in the fields are taken from the literature. All measurements and characters used in the database were extracted from drawings and descriptions provided by the following authors: ABOUSSOUAN 1964, AHLSTROM 1984, BERTOLINI et al 1931-56.

The test of this database identification system was conducted with larvae sampled in the Gulf of Kissamos (Krete 1988-89) and pre-identified by C. Papassisi. The results have proved that all larvae could be identified by using a few characters and can be summarized as follows:

- All larvae could be identified by using all measurements and 1-4 characters.

- Some identifications were performed with 1 to 4 morphometric characters and with 1 to 5 descriptive ones.

The proposed strategy for searching is the use of 7 measurements, with some range and then if necessary, the proceeding with additional characters.

An example from the tested larvae follows.

Species	Characters used	Possible species
Blennius ocellaris	all measurements	23
Blenniidae	strikingly large pectorals late	3
	ventral row on tail	2
	additional descriptive characters	1

	strikingly large pectorals late	9
	ventral row on tail	3
	additional descriptive characters	1

The results demonstrate that this database identification key has remarkable advantages over traditional identification keys, because the identification can be succeeded quickly by using the morphometric characters and some descriptive ones, instead of searching for uncertain characters.

References

- ABOUSSOUAN, A. 1964. Contribution a l'etude des oeufs et larves pelagiques des poissons teleostéens dans le Golf de Marseille. Rec. Trav. St. Mar. End., 32(48): 87-171
- AHLSTROM, A. et al. 1984. Ontogeny and systematics of fishes. Special Publication Number 1. American Society of Ichthyologists and Herpetologists: 760 pp.
- BERTOLINI, F.; D'ANCONA, U.; MONTALENTI, G.; PADOA, E.; RANZI, S.; SANZO, L.; SPARTA, A.; TORTONESE, E.; VIALLI, M. 1931-1956. Uova, larve e stadi giovanili de Teleostei. Fauna e Flora del Golfo di Napoli, Mon 38, 1-4, pp 1064.
- FROESE, R. and C. PAPASSISI 1989. The use of modern relational databases for identification of fish larvae. ICES C.M. 1989/L:12:13pp.