

**BRIEF NOTE ON BIOLOGICAL PARAMETERS OF
TRISOPTERUS MINUTUS CAPELANUS (RISSO)
IN THE NORTHERN TYRRHENIAN SEA**

P. RIGHINI, R. SILVESTRI and A. ABELLA
C.R.I.P. Via dell'Ambrogiana, 257127 Livorno, Italia

The data used in this paper have been obtained from trawl-surveys with a design random stratified by depth carried out during the years 1992-93 in the Northern Tyrrhenian Sea. The only fishing gear utilized was the traditional Italian low-opening bottom trawl (tartana) with a 40 mm stretched mesh size at the codend.

The "poor cod" (cappellano) is one of the most abundant species in the assemblage of soft bottoms of the shelf edge (circalittoral bottoms) (ABELLA & SERENA, in press) with the "horned octopus" (*E. cirrhosa*) and "smallspotted catshark" (*S. canicula*). This commercial gadoid is present between 70 and 280 m of depth. The best catch rates of "poor cod" (max 22 kg/h in Summer) were obtained between 90 and 140 m of depth (with some differences relatively to the seasons).

During the surveys were collected fish total length frequencies with half-centimeter precision by sex. Sex was determined by macroscopical observations of gonads but the youngest immature specimens were not sexed (T.L. < 10 cm) and were recorded as indetermined; the young specimens were collected in Spring (the smallest with T.L. = 3.5 cm) and Summer (the smallest with T.L. = 4.5 cm).

Length-frequencies distributions by sex (with a parithetic 50% of the small unsexed individuals assigned to each sex) were used to estimate growth of this species with the program Compleat ELEFAN (PAULY, 1987). This artifact does not create any problem for the accuracy of the results.

As follows the parameters of the Van Bertalanffy growth equation, obtained for females and males, are compared to the same obtained in Adriatic Sea (GIANNETTI & GRAMITTO, 1988):

	N.Tyrrhenian Sea			Adriatic Sea		
	Loo	K	t0	Loo	K	t0
Females	28.5	0.60	-	24.72	0.802	-0.029
Males	24.0	0.48	-	23.59	0.464	-0.399

Age (yrs)	Females	Males	Females	Males
1	12.9	9.1	13.9	11.2
2	19.9	14.8	19.9	15.8
3	23.8	18.3	22.5	18.6
4	25.9	20.5	23.7	20.5
5	27.1	21.8	24.3	21.6

Growth rates of females and males show significative differences (Fig. 1); at the same age the females are more larger than males in agreement with GIANNETTI & GRAMITTO (1988). Ripe and spent females were collected in Spring (May); sexual maturity is reached over 13 cm of T.L. in agreement with FROGLIA (1981) and FROGLIA & ZOPPINI (1981).

Females Loo=28.5 K=0.60
Males Loo=24.0 K=0.48

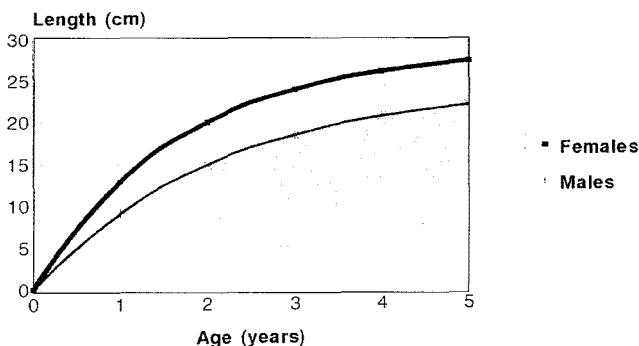


Fig. Growth curves of *T. minutus capelanus* in the N. Tyrrhenian Sea

REFERENCES

FROGLIA C. 1981. Summary of biological parameters on *Trisopterus minutus capelanus* (Risso) in the Adriatic. *FAO Fish. Rep.*, 253: 97-100.
 FROGLIA C. & ZOPPINI A.M. 1981. Observations on growth of *Trisopterus minutus capelanus* (Risso) (Pisces, Gadidae) in the Central Adriatic Sea. *Rapp. Comm. int. Mer Médit.*, 27, 5.
 PAULY D. 1987. A review of the ELEFAN system for analysis of length-frequency data in fish and aquatic invertebrates, p. 7-34. In D. Pauly and G.R.Morgan (eds.) *Length-based methods in fisheries research*. ICLARM Conf. Proc. 13, 468 p.
 GIANNETTI G. & GRAMITTO M.E. 1988. Growth of Poor Cod *Trisopterus minutus capelanus* (Lacepedé) (Pisces, Gadidae) in the Central Adriatic Sea. *Rapp. Comm. int. Mer Médit.*, 31, 2.
 ABELLA A. & SERENA F. (in press). Definizione di assemblaggi demersali nell'Alto Tirreno.

