

SOME DATA ON THE BIOLOGY OF *POLYMETME CORYTHAEOLA* (PHOSICHTHYIDAE), FROM OFF THE PORTUGUESE SOUTH COAST, NORTH EAST ATLANTIC. Afonso MARQUES, Laboratório Marítimo da Guia, IMAR, Universidade de Lisboa, Faculdade de Ciências Estrada do Guincho, 2750 Cascais, PORTUGAL. [amarques@fc.ul.pt]

RÉSUMÉ. Quelques données sur la biologie de *Polymetme corythaeola* (Phosichthyidae) sur la côte sud du Portugal, Atlantique nord est.

Le régime alimentaire et les rapports entre la bathymétrie, l'indice gonado-somatique et le sexe-ratio d'une espèce benthopélagique, *Polymetme corythaeola* capturée sur la côte sud du Portugal, sont décrits. Le sexe-ratio semble dépendre de la bathymétrie. Les euphausiacés ont été les seules proies observées.

Key words. - *Polymetme corythaeola* - ANE - Portugal - Diet - Sex-ratio - Gonado-somatic index.

Polymetme corythaeola (Alcock, 1898), is a dioecious benthopelagic fish that inhabits off continental and island slopes and seamounts of all 3 major oceans, mainly at depths of 300-500 m. It is the only species of this genus known in the CLOFNAM area (Badcock, 1984). Its distribution ranges from northwest Africa and to the coasts of Lisbon, with the northern record at 51°39.7'N-14°16.5'W. It is absent in the Mediterranean (Badcock, 1984). It is a by-catch species on the Portuguese slope below 300 m (Saldanha, 1966).

The Deep Resources Cruises team from the Portuguese Institute of Marine Research (IPIMAR), surveyed the Portuguese south coast in January 1995 (Fig. 1), aboard the NI "Noruega".

A commercial otter trawl (mouth opening

2.2 m high and 23 m wide) with a 35 mm shrimp net was used. Towing speed was around 2 knots. Three sampling operations provided 47 *Polymetme corythaeola*: 10 from 650 m, 31 from 620 m and 6 from 330 m deep. All specimens were frozen aboard the ship. At the laboratory, 22 males and 25 females were measured and weighted, their stomach extracted and the contents analysed under a stereomicroscope. Female gonads were analysed macroscopically using the following maturity scale: Stage I - no visible oocytes; Stage II - visible oocytes; Stage III - large oocytes; Stage IV - translucent large oocytes and Stage V - flaccid gonad with few oocytes in Stage IV. They were weighted fresh and the gonado-somatic index was calculated ($GSI = \text{gonad weight} / \text{Body weight} \times 100$).

The number of individuals with stomach contents under the total number of individuals expressed the vacuity index. Specimens were studied separately by depth and those lacking any field data were discarded.

The species is distributed between 330 and 650 m deep in the survey (Table I) and only adults were caught. The largest specimens, both males and females, were captured at 330 m deep. Only the gonado-somatic values of females was calculated for every depth. The results show that, at least in January, spawning females arise from deep to shallow waters (Fig. 2).

The females provided by the 330 m haul showed gonads at stage IV and V, indicative of a spawning period. Stomach content analyses showed that crustaceans were the main prey and one *Meganyctiphanes norvegica*, an eucarid crustacean of the family Euphausiidae was identified. No stomach eversion was observed and the estimated vacuity index was 0.50.

At 620 m deep the individuals were smaller than at 330 m and the females were larger than males. Sex-ratio was about 1:1 (16 females

Table I. Mean total length, mean weight, mean gonad weight and mean gonado-somatic index of *Polymetme corythaeola* specimens at each depth.

Depths	330 m	620 m	650 m
n	6 (4 ♀; 2 ♂)	31 (16 ♀; 15 ♂)	10 (♀)
Females length (cm)	173.5 ± 12.79	146.7 ± 18.66	156.5 ± 20.16
Males length (cm)	135.0 ± 9.90	126.3 ± 13.19	-
Females weight (g)	30.24 ± 7.07	14.49 ± 5.33	22.91 ± 9.50
Males weight (g)	13.02 ± 3.74	9.28 ± 3.53	-
Gonad weight (g)	0.88 ± 0.63	0.16 ± 0.23	0.64 ± 0.52
Gonado-somatic index	2.91 ± 1.93	0.88 ± 1.12	2.44 ± 1.84

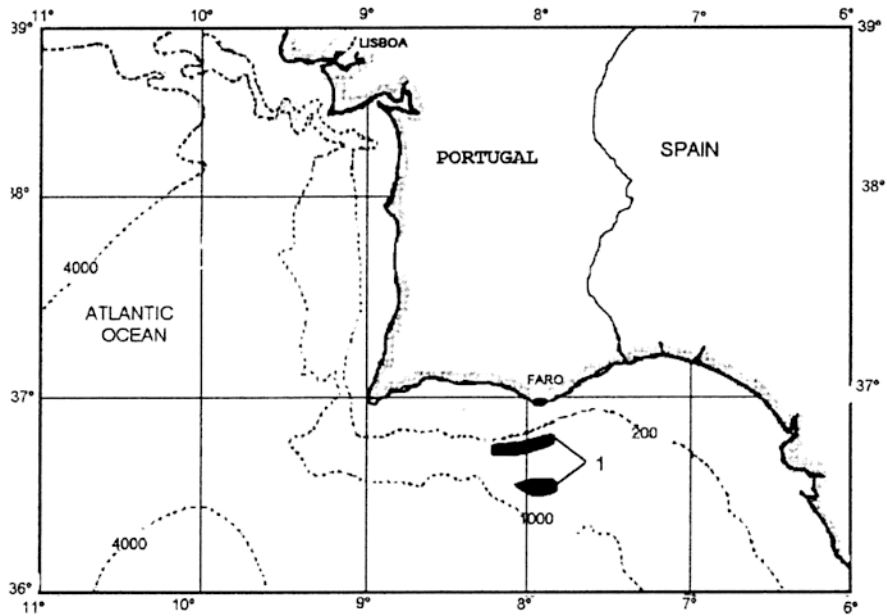


Fig. 1. Sampling area (1) where specimens of *Polymetme corythaeola* were caught (300-650 m deep).

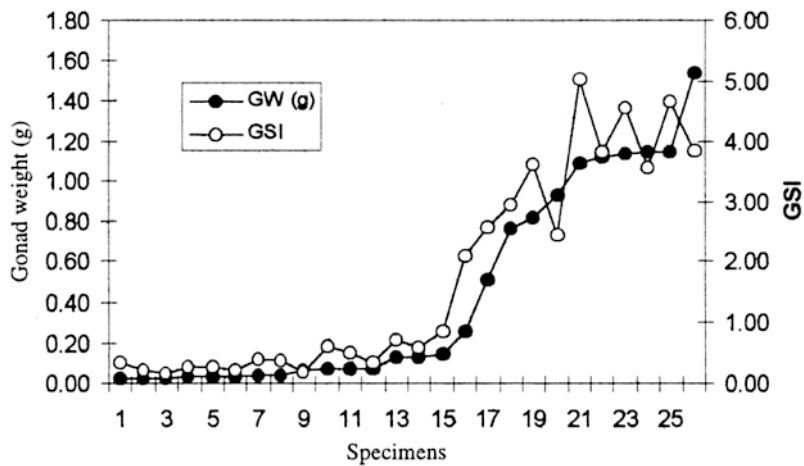


Fig. 2. Gonad weight (GW) and gonado-somatic index (GSI) of *Polymetme corythaeola* females (total number = 25) collected during the cruise (values are presented in ascending order).

and 15 males): 1 female in stage I; 8 in stage II; 1 in stage III; 3 in stage IV and 1 in stage V. Compared with those from the previous sample, the macroscopic observation and gonado-somatic proportions suggest that at this depth fishes are going through a pre-spawning gonad growing period. No stomach eversion was observed and 26

M. norvegica were identified in 10 stomachs with food. Vacuity index was 0.68 and the mean number of prey per stomach rounds 2.6.

Fishes from the 650 m haul had the same size range as those of the 330 m haul. This sample was comprising 10 specimens - all females - 4 of them in stage II and 5 in stage III (one specimen

lacking data was discarded). Gonado-somatic index varied from 0.392 to 5.016. Also a gonad growing period was detected in these samples. All these specimens had their stomachs full, the only observed prey being 18 *M. norvegica*.

Polymetme corythaeola has, at least, a spawning period in January and females seems to seek shallower waters to spawn. Since this species does not evert the stomach during hauling we conclude that crustaceans exclusively constitute its diet, namely the benthopelagic euphausiid *M. norvegica*.

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