Batch fecundity of the Mediterranean pilchard (*Sardina pilchardus sardina* Risso) on the Turkish Coasts of the Aegean Sea

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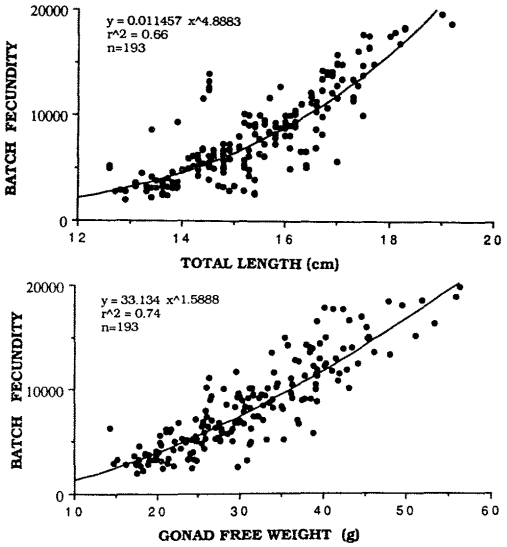
Pilchard's (*S. Pilchardus pilchardus*) batch fecundity was determined for the first time in the Atlantic, Iberian Peninsula by PEREZ *et al.* (1989). In this study, the Mediterranean pilchard's *S. pilchardus sardina*) batch fecundity is presented.

Pilchard (*Sardina pilchardus*) is a serial spawner with protracted spawning seasons and a high number of spawnings per year (BLAXTER & HUNTER, 1982).

The Mediterranean pilchard's reproduction process on the Turkish Coasts of the Aegean Sea takes place between the months of September to May. According to the sexual maturation index (Gonadosomatik Index), the maximum reproduction period occurs during the months of December, January and February in which sea water temperatures reach to annual minimum (CIHANGIR, 1991).

Ovary of 193 female pilchard in hydrated and advanced condition were collected on the Turkish Aegean Coasts by purse-seiner fishing boats during the peak of the spawning months in 1989-1990.

Fish preserved in a 4% buffered formaldehyde solution (HUNTER, 1985), were analysed in the laboratory for fecundity determination. Hydrated and Oocyte Size-Frequency methods were applied on pilchard ovaries. Ovaries were examined for presence of post ovulatory follicles. Ovaries which contain post ovulatory follicles were not used for batch fecundity estimations due to some oocytes being already released. The method is described in HUNTER *et al.* (1985).



In this study, batch fecundity is found to be 2000-3000 eggs/female for the lengths of 12-13 cm and 10000-15000 eggs/female for the lengths of 16-17 cm. The highest batch fecundity is 20000 eggs/female in 19.1 cm indivudial. Batch fecundity, the number of eggs released per spawning event, of pilchard increases with fish size. The relationship of batch fecundity and total length, ovary free weight are shown in the figures.

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Preliminary note on the pattern of otolith rings formation in juveniles of *Merluccius merluccius* L. in the Northern Tyrrhenian Sea

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This work is part of a wide research project aimed to clarify the growth pattern of Mediterranean hake, *Merluccius merluccius* L. Identification of the first winter annual ring is a primary goal to understand the pattern of otolith rings formation. Examined otoliths came from fishes collected both by sampling of commercial landings and by trawl surveys carried out in the Northern Tyrrhenian Sea from October 1990 to September 1991. Otolith rings were measured along their longitudinal axis through a micrometric binocular according to a methodology suggested by ALDEBERT Y., MORALES-NIN B. and OLIVER P. in the frame of the EEC research project MA-1-232 (pers. comm.). Fish length composition of the sample was restricted to fish smaller than 21. 0 cm in total length (T.L.) to ensure the coverage of all rings formed during the first year of life. Two specimens were sampled for each 1 cm size class in T. L. every month. Here we deal with one aspect only of the problem that is in a sample of otolith rings those formed periodically rather than occasionally will appear more often. Moreover a consistent measurement of the length of all rings on every otolith of a sample will produce a frequency distribution of length at which rings occur in the studied sample.

Fig. 1 shows the average number of visible rings measured in each otolith by 3 cm size class of T.L. It is evident that the number of false rings change in accordance with T.L., at least in the first 20.0 cm of fish T.L.; an overall average number of 4 false rings has been found and we can have up to 9 rings in the last size class of 18.0 cm. These findings are similar to those reported by GONI (1983) and GONI and PINEIRO (1988).

The overall frequency distribution of rings length by 0.32 mm size class is shown in Fig. 2. This distribution exhibits several modes that need a further analysis in order to be explained. Splitting of this polymodal distribution through Batthacharya's method is currently in progress.

Fig. 1: average number of rings by 3 cm T.L. size class

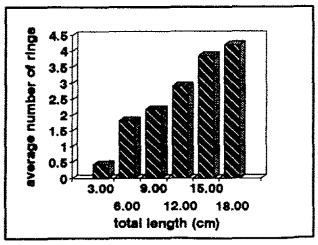
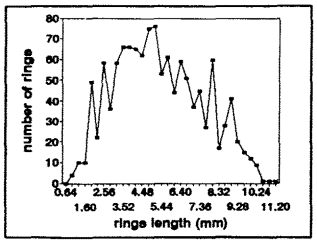


Fig. 2: frequency distribution of otolith rings measurements



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