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Pituitary Changes and Reproductive Cycles in the Common Goby, *Pomatoschistus microps* (Krøyer)

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Seasonal changes in the pituitary of the euryhaline, repeat-spawner, *Pomatoschistus microps* have been studied in conjunction with phenological parameters, using histological, histochemical and ultrastructural methods.

The results, revealed eight types of cell distributed within 3 parts distinguished in adenohypophysis, e.g. prolactin cells massed in the RPD, and STH, GTH, and basophil-2 cells located in the PPD, as well as two types of cell (viz. PAS positive and PbH positive) in the PI were completely distinguished.

Peak breeding season in this dioecious goby was found to last from April to July. In females, gonad maturation starts in the early spring with a coincident increase of GTH cell index values. The relationship of GTH cell index and gonadosomatic index (GSI) indicates positive correlation, and the GTH cell index decreased after a decline in GSI over the spawning season.

In *P. microps*, it may be noted that increasing photoperiod, rather than temperature, appears to initiate the process of gonad maturation by an influence in GTH function. Lavels of GTH accumulated prior to breeding and the dynamics of further function and production under feedback from maturing gonads, followed by decreasing photoperiod and then temperature, are capable of supporting repeat maturation and spawning of a long breeding season.

Introduction

Sexual maturation and reproduction is a long-term process under genetic adaptation as part of a life-history strategy to ensure continuation of the species. Reproduction features can be related to mortality patterns and life-expectancy subject to abiotic environmental influences such as light, temperature, salinity, etc., as well as biotic factors, and also to resource availability and population density within the ecosystem (Stearns, 1976; Miller, 1979b). Such adaptations are mediated by an internal control system which involves the regulation of endocrine function. Genetically, determined responsiveness to environmental cycles will govern the timing of reproduction and ancillary activities such as breeding migrations. The environmental cues can be transmitted through neuroendocrine mechanisms and then translated into physiological action by pituitary and nervous integration.

The endocrine control of reproduction is based mainly on the gonadotrophin (s), prolaction and steroid hormones., Morphological and inmunological identification of the GTH cells in teleosts has been established in a voluminous literature (see Ball and Baker, 1969; Moiseyeva, 1970; Schreibman *et al.*, 1973; Baker *et al.*, 1974; Fontaine and Olivereau 1975; Doerr-Schott, 1976).

Various investigators have purified and demonstrated the properties of gonadotropin in several fish species, but the results have not settled the number of gonadotropin involved (see Burzawa-Gerard, 1972; Donaldson, 1973; Haider and Blüm, 1977; Idler *et al.*, 1975). This aspect remains controversial. The question is also raised as to whether the difference between gonadotrophins is phylogenetic or due to functional variations. The different categories of GTH cell may be correlated with changes in the control manifested by the pituitary on

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