

REPRODUCTIVE CYCLE OF *POLLICIPES POLLICIPES* AT CABO DE SINES, SOUTH-WEST COAST OF PORTUGAL

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The reproductive cycle of the pedunculate barnacle *Pollicipes pollicipes* from two intertidal levels (mid and low) at Cabo de Sines, south-west coast of Portugal has been described. *Pollicipes pollicipes* larger than 12.5 mm (rostracarinal distance, RC) are simultaneous hermaphrodites. Minimum size for maturity of the female gonad was 12.5 mm (RC) whilst sperm production is achieved at a smaller size (10 mm). The breeding season was from April to September. Reproductive activity was similar at both tidal levels and was significantly correlated with seawater temperature. Brooding activity was most pronounced in late spring and summer when seawater temperature ranged from 18 to 21°C. Throughout the year, sperm was stored in the seminal vesicles, although the testes regressed from October–December. The female gonad was resting in October–January and active during March–September. During resting, only a few empty ovarioles were observed. At the beginning and in the middle of the reproductive season (March to August), the ovary was completely disrupted after fertilization and ovary recovery occurred simultaneously with egg development. During the end of the reproductive season (September–October), synchrony was retarded as recovery of the ovary was slower than egg development. The pattern of functioning of the female gonad should allow production of several broods during the season.

INTRODUCTION

Of the three species of the pedunculate barnacle genus *Pollicipes*, *P. pollicipes* (Gmelin, 1790) occurs in the north-eastern Atlantic from southern Britain to north-west Africa (Stubbings, 1967). In Spain and Portugal, it is highly prized as food and heavily exploited (Goldberg, 1984; Bernard, 1988). In comparison with acorn barnacles, studies of reproduction of pedunculate barnacles are scarce (Barnes, 1989, 1992, 1996; Anderson, 1994, for review). A few detailed studies of the reproductive biology of *P. polymerus* have been made by Hilgard (1960), Lewis & Chia (1981), Cimberg (1981), and Page (1984) in North America. In Europe, the most comprehensive paper to date is a recent contribution on *P. pollicipes* from northern Spain (Molares et al., 1994b). These authors proposed a scale for staging gonads based on histological examination. Few histological studies have been made on the developing ovaries and testes of either acorn or pedunculate barnacles (Honma & Nakajima, 1973; Fyhn & Costlow, 1977; Yoshino & Konno, 1987; Green et al., 1994; Molares et al., 1994b).