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Alberto Rico, Ulla Fernandez  **Arcaya, Toni Quetglas, María Valls**, 2023. [Reproductive traits and feeding activity of the commercially exploited common cuttlefish *Sepia officinalis* L. \(Mollusca: Cephalopoda\) in the Balearic Islands](#)

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Abstract: This paper investigates the basic reproductive parameters, ecology, and size structure of the common cuttlefish *Sepia officinalis*. A total of 1217 individuals were sampled monthly from both offshore bottom trawling and inshore small-scale fishery off Mallorca Island's coast (western Mediterranean) during 2017–2019. Inshore individuals were larger than the individuals inhabiting offshore and males were more abundant than females both inshore and offshore waters. The estimated size at first maturity (L50) was 87 mm for females and 78 mm for males.

S. officinalis has a semi-continuous reproduction cycle throughout the year with a spawning peak between March and June. Oocyte size-frequency distribution (OSFD) analysis showed an asynchronous oocyte development. Advanced mode fecundity (FAM) ranged between 8 and 326 oocyte/female with a mean of 158 ± 14 oocyte/female. The Stomach Fullness Index (SFI) was found to decrease during reproductive development in inshore specimens, while the stomach vacuity index (SVI) followed the opposite trend for both inshore and offshore individuals, indicating a lessening of the feeding activity specially during spawning. However, once at shallower waters, spawning females displayed higher SFI values compared to males, which was probably linked to the higher energetic demand associated with reproduction. Digestive gland index (DGI) showed little variation in females across maturation stages, while males' values decreased, especially during spawning, reflecting sexual differences in the energy allocation strategy. Those results suggest that common cuttlefish fulfil the cost of reproduction through both current food intake and accumulated somatic reserves.

Keywords: Fecundity, Feeding habits, Size structure, Reproductive cycle, *Sepia officinalis*