

**LIFE CYCLE OF CULTURED BOBTAIL SQUID,  
*EUPRYMNA HYLLEBERGI* NATEEWATHANA, 1997**

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**ABSTRACT:** The bobtail squid, *Euprymna hyllebergi*, was cultured in the laboratory through three generations. Eggs were deposited as single egg capsules, pyramid shape with a calcified chorion. The incubation period was  $14.0 \pm 1.8$  days at  $28^\circ\text{C}$ . Hatchlings were temporarily planktonic becoming benthic after 6–8 hrs. Mean mantle length was  $2.20 \pm 0.04$  mm and weight  $0.0041 \pm 0.0006$  g. The squids were fed on larvae and postlarvae of penaeid shrimps, mysids and gobiid fish during the first month after hatching. After one month, squids were trained to accept pieces of fish meat. The squids were solitary in habit and cannibalism was observed in culture tanks. Mating and spawning was observed after  $93.9 \pm 12.8$  days of age. Spawning was more terminal to the life span compared to other cultured sepioid cuttlefish. Average total numbers of eggs per female was  $191.3 \pm 107.4$  capsules. At the age of 100 days, mean mantle length was  $22.4 \pm 0.6$  mm and body weight  $5.88 \pm 0.17$  g. Instantaneous growth rate from hatching to 100 days of age was  $2.41 \pm 0.46$  % by mantle length and  $7.51 \pm 1.75$  % by weight. Growth was similar among the three generations. Life span was average  $98.9 \pm 13.6$  days due to death of both sexes after the last spawning.

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## INTRODUCTION

The sepiolid bobtail squids of the genus *Euprymna* are small (less than 100 mm mantle length), neritic and strictly nektobenthic species, inhabiting coastal waters of the Indo-Pacific region (Summers 1985, Norman and Lu 1997). *Euprymna* spawn single egg capsules with a leathery outer coat like most other sepiolid eggs (Boletzky 1998) and the embryos possess unique bilobed external yolk sacs (Arnold *et al.* 1972). Like sepiid cuttlefishes, the bobtail squids can completely bury themselves in the substrate (Anderson 1997). The interesting behaviour of *Euprymna* is the capability to retain a “carapace” (Moynihan 1982, 1985) or “coat” of sand or other debris on their back when they emerges from burial to hunt prey (Anderson *et al.* 2002). The sand-coat makes the squid difficult to be detected visually from above and functions presumably to prevent them from being seen by predators (Anderson and Mather 1996; Shears 1988). The stickiness of the coat depends upon secretions of the ectodermal epithelium

(Moynihan 1982). The choice between sticky and non-sticky is voluntary and fluctuative or obligate (Moynihan 1982). Shears (1988) suggested that the ability to use a sand-coat for camouflage of *E. scolopes* might have evolved from the initial use of the behaviour for sand consolidation when the squid is buried.

*Euprymna* is a well-studied group, especially since the symbiotic association between *E. scolopes* and the bioluminescent bacterium *Vibrio fischeri* has been a recent focus as a model system for investigating the process of bacterial colonization of host tissues and its effect on host development (Ruby and Lee 1998). *V. fischeri* and other luminous bacteria form a variety of pathogenic and cooperative associations with marine animals; they are increasingly recognized as causes of invertebrate diseases (Ruby and Lee 1998). Understanding the factors controlling both benign and pathogenic bacterial association and hosts will significantly benefit biotechnological and biomedical sciences (Ruby 1999). Since the process of