

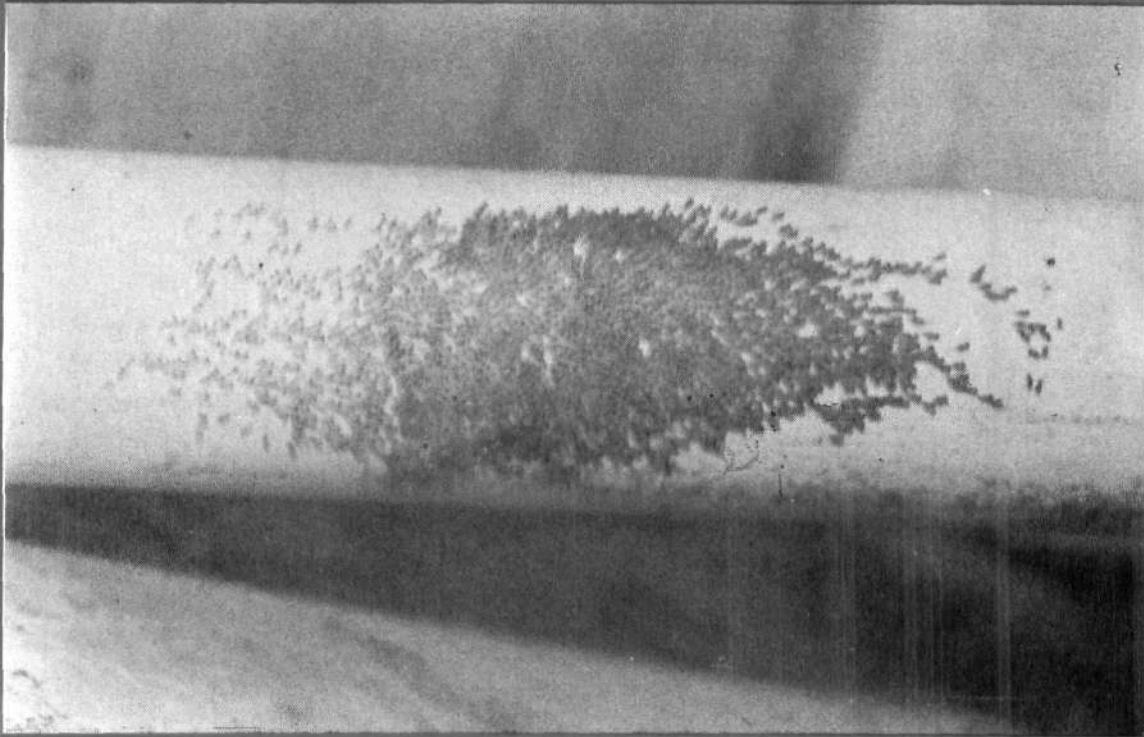
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**907 SUCCESSFUL BREEDING AND HATCHERY EXPERIMENTS OF THE SPINELESS CUTTLFISH SEPIELLA INTERMIS AT TUTICORIN SHELLFISH HATCHERY**

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The spineless cuttlefish, *Sepiella inermis* is a shallow water species widely distributed in the Indian waters. At the hatchery of the Tuticorin Research Centre this cuttlefish was reared and it attained sexual maturity and deposited viable eggs under captivity. The hatchlings are also being successfully reared. Till recently in cephalopod hatchery the egg masses were collected from the natural spawning grounds and further rearing experiments were done, whereas now for the first time in the country, hatchery production of cuttlefish seed has been possible from the second generation. The result of the experiment widens the scope for promoting cephalopod culture in India.

*S. inermis* is an important cephalopod com-

ponent forming a bycatch of shrimp trawlers throughout the coastal belt of India. At the Tuticorin Research Centre of CMFRI experiments on cephalopod culture were initiated right from 1985. Cuttlefishes lay the eggs in asses in sheltered and calm areas in the in-shore waters. Egg masses of this cuttlefish were collected from Manapad near Tuticorin, east coast of India in September 1998 and kept in filtered seawater. Hatching started the very next day and it took 10 days for the entire egg mass to hatch out and release the young ones (Fig.1). The mantle length of the hatchlings was 2 mm. Initially the hatchlings were fed with mysids but subsequently they were given a mixed diet of *Acetes* and mysids. The hatchling showed good growth rate and after





Fig.1. Young ones of *Sepiella inermis* hatched out from the egg mass.

a period of 75 days they had a mean weight of 37.9 g and a mean length of 57.2 mm. The two and a half month old cuttlefish mated and spawned in the rearing tanks.

During mating the male and female cuttlefishes swam together with their heads close to each other while male deposit the spermatophores in the seminal receptacle of the female cuttlefish. Cephalopod researchers at the Woods Hole Laboratory Massachusetts have commented that this method of mating popularly termed Aristotles position was rarely observed in captive conditions. In the usual method of spawning the partners swim side-



Fig. 2. Female cuttlefish depositing egg mass on the nylon rope.

by-side and the spermatophores are attached to the mantle wall of the female near the oviduct or on the surrounding viscera. After mating the female cuttlefish deposit the eggs on the aeration tubes and on nylon ropes (Fig. 2) inside the tanks. The first batch of eggs were deposited on 18.11.'98 in the hatchery tanks. When it was observed that nylon ropes are ideal substrates for egg deposition additional ropes were provided in the rearing tanks to collect more eggs. In the subsequent days more and more females deposited eggs on the nylon ropes. Eggs were deposited one by one at an interval of approximately 40 seconds. All the eggs were fertilised and had viable embryos which started developing inside the egg capsule (Fig. 3). After an incubation period of 13 days the first batch of hatchlings were released. Thus for the first time in India young ones of the spineless cuttlefish were produced in the hatchery from F1 generation.

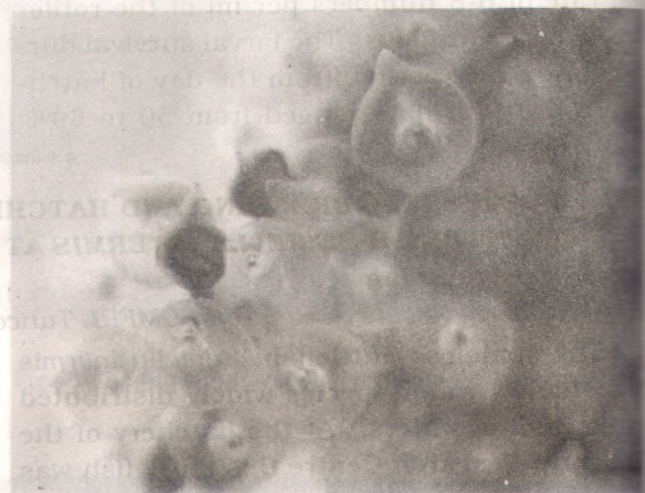


Fig. 3. Developing embryos inside the egg capsule.

The present work is a remarkable achievement since it gives valuable information on the life cycle, behaviour and culture requirements which are essential for developing cephalopod hatchery techniques. With the current achievement *Sepiella inermis* has emerged as a potential species for aquaculture. The fast growth rate, short life cycle, high fecundity, good hatching rate and absence of larval stages support *Sepiella inermis* as a suitable species for aquaculture.

In India studies have been conducted on the hatching and post hatching behaviour of the Palk Bay squid, *Sepioteuthis lessoniana* and the pharaoh cuttlefish, *Sepia pharaonis*. Though valuable information on the growth of young cephalopoda was obtained it was not possible to develop a complete hatchery technology. Cephalopods have been successfully reared under captivity in Thailand. Based on the present results it can be stated that cephalopod culture is possible through hatch-

ery produced seeds. With grow out period of 75 to 90 days it will be possible to take three crops per year. Apart from its use for human consumption, another possible target is the aquarium market. Fishery management and aquaculture development activities in other nations have focussed on conservation for augmenting the cephalopod stock by protecting the breeding grounds and sea ranching of hatchlings.

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