

BREEDING OF LABORATORY REARED SPINY LOBSTER *PANULIRUS*  
*HOMARUS* (LINNAEUS) UNDER CONTROLLED CONDITIONS

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ABSTRACT

Juveniles of the spiny lobster, *Panulirus homarus* reared in the laboratory attained sexual maturity under controlled conditions. They successfully mated and spawned in captivity for the first time in India. The carapace length of the two females at the first sexual maturity and berried condition were 57.8 mm and 57.9 mm. The approximate incubation period of the berry was found to be 15 days.

Observations on the biology and breeding characteristics of *Panulirus homarus* in the fishery of the southwest coast of India and of the South African coast were made by George (1967) and Berry (1970, 1971) respectively. Berry (1971) reported that female *P. homarus* bred repetitively up to four breeding cycles in an year. The breeding of the laboratory reared *P. homarus* is reported here for the first time in India. Chittleborough (1974) successfully reared the western rock lobster from puerulus stage to maturity and spawned them in captivity under controlled conditions

In the field laboratory of the Central Marine Fisheries Research Institute at Kovalam near Madras, *P. homarus* were grown in groups provided with sufficient shelter. Groups of juveniles of the species with a mean carapace length of 35 mm were stocked in large tanks of 10,000 litres capacity during January 1977. The lobsters were fed *ad libitum* daily at 7 p.m. with mussels (*Mytilus* sp.), clams (*Katylesia* sp.) or fishes (*Thrissocles* sp.). The holding tanks were cleaned and filled with fresh seawater every fortnight. The temperature of the water in the tank varied between 26.1°C and 29.8°C. The carapace length (measured along the mid dorsal line from the ridge behind the eyes to the posterior margin of the carapace), total length (measured from the anterior ridge of the carapace to the tip of the telson), total bodyweight and maturity conditions were recorded during water change in the tanks. During the course of observation on 25-3-1978 two berried females of (a) carapace length 57.8 mm, total weight 185 g; and (b) carapace length 57.9 mm and total weight 204 g were noticed in berried condition in the tanks. The berry of the former specimen was in an advanced stage of development and that of the latter with orange coloured eggs. The lobsters were transferred to a breeding tank filled

with fresh filtered sea water and fed daily with estuarine clams, *Katylesia* sp. in excess. The lobster with advanced-stage eggs, on examination showed the developing embryos with eyes, and the eggs hatched out into phyllosoma larvae on the night of 3-4-1978. The berry of the other lobster did not undergo further development and completely shed the eggs after a few days. The freshly hatched out phyllosoma larvae were carefully transferred to another tank containing fresh filtered sea water and fed with newly hatched *Artemia* nauplii. These larvae were reared for 15 days when they developed into the second phyllosoma stage. Thereafter, the larvae perished due to heavy ciliate attack.

The experiment indicated that the laboratory reared juvenile *P. homarus* attained maturity at carapace length of about 57.9 mm. The tar-spot indicating the mated condition of the female, with eggs in advanced stage of incubation was observed on 4-3-1978. Since the berried condition was not observed on 19-3-1978 when regular fort-nightly observation of the lobsters were made, it is apparent that the fertilization and transfer of eggs have occurred in between 19-3-1978 and 25-3-1978. It is therefore deduced that the approximate incubation period of the eggs in the pleopods could be a maximum of 15 days. Berry (1970) reported an incubation period of 30 days for *P. homarus* off east coast of Southern Africa. Chittleborough (1976) has reported an inverse relationship between incubation period of eggs (19-68 days) and water temperature in *P. longipes cygnus*. In the lobster with orange coloured eggs the tar-spot was not observed. It is probable that these eggs were infertile eggs and were shed by the animal subsequently.

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