



The **Lobster** *NEWSLETTER*

ANNOUNCEMENTS



ROCK LOBSTER CONFERENCE

QUEENSTOWN 2019

The next Trans-Tasman Rock Lobster Conference will be held in Queenstown, New Zealand, from August 11th – 13th 2019. The organiser is the CRA8 Rock Lobster Industry Association in conjunction with the New Zealand Rock Lobster Industry Council.

Due to interest shown in attending this Conference, the organisers will provide a small number of places for interested parties from outside of Australia and New Zealand. For more information on this, or any other query, please see the contact details on the Conference website:

www.lobsterconference2019.co.nz

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**Growth, maturation and
breeding of the clamkiller
slipper lobster *Scyllarides
tridacnophaga* Holthuis, 1967 in
captivity**

The clamkiller slipper lobster *Scyllarides tridacnophaga* Holthuis, 1967, (Family Scyllaridae) is known to be distributed in the Indo-West Pacific region, from East Africa, Red Sea, Gulf of Aden and Pakistan to the west coast of Thailand. It has been reported from the western Bay of Bengal along the south-east coast of India from Rameswaram (Radhakrishnan et al., 1995) and Kovalam (Kizhakudan et al., 2013). Native to the Indian Ocean, the species is known to live on coral and rocky reefs at depths of 5 - 112 m (MacDiarmid et al., 2011).

Four live specimens (two males and two females) have been obtained within a span of 6 years from the western Bay of Bengal from depths of 12-40 m off Kovalam coast to the south of Chennai in south-east India. The lobsters were caught by bottom-set gill nets operated over sedimentary rock patches. Details of the lobsters collected are presented in Table 1.

The collected specimens were transferred to the lobster rearing facility at the Kovalam Field Laboratory of Madras Research Centre of Central Marine Fisheries Research Institute (CMFRI) for studies on growth and reproduction. The animals were reared in the fluidized *in situ* bed filter type recirculatory broodstock tanks of 3 ton capacity with reduced light intensity and minimum rearing water exchange. The sea water quality was maintained without much variation, by monitoring the biofiltering efficiency.

Table 1. Details of live specimens of *Scyllarides tridacnophaga* collected from the western Bay of Bengal off Kovalam

Specimen	Date obtained/sampled	CL (mm)
Male 1	Jul-11	75
	Jun-15	80
	Aug-16	80
	Mar-17	81
	Mar-18	82
Female 1	Jun-13	95
	Jan-14	100
	Jul-15	105
	Dec-17	110
Female 2	Jul-13	70
	May-14	74
	Sep-15	78
	Dec-16	84
	Sep-17	89
Male 2	Sep-17	74

A female specimen (Fig. 1A) weighing 570 g and measuring 105 mm carapace length (CL) and 222 mm total length (TL) mated successfully in the late evening hours on 25th June 2015 with a smaller but active male of 80 mm CL, 170 mm TL and 230 g weight. Spawning was observed during the early morning hours with the male attaching the gelatinous matrix embedded sperms on to the posterior part of the ventral sternum of the female, mostly on the sides of the 5th walking leg bases and the protruding knobs on the sternum (Fig. 1B). The newly extruded eggs were bright yellow in colour and under the microscope they appeared oval and soft (Fig. 2). The eggs were seen pushed inside the membranous follicle and strung on to the pleopodal seta on the abdomen. Most of the eggs were scattered on to the sternum, outside the pleopodal area and were lost in the water.

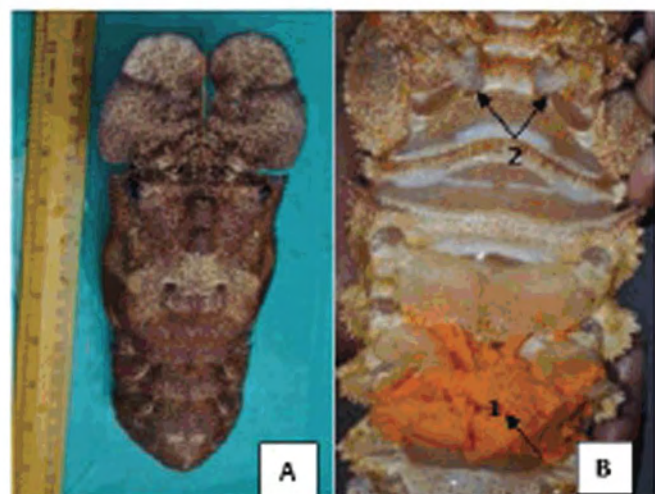


Figure 1. Female scyllarid lobster *Scyllarides tridacnophaga* A. Dorsal View; B. Fertilized eggs (1) and sperm attachment on the sternum (2)

The freshly extruded eggs measured 510-520 μ m in diameter. By the second day the eggs became more spherical with the diameter stabilizing at 530-550 μ m. The colour of the developing eggs changed progressively from bright yellow to orangish to rusty brown as cell division progressed and the yolk was pushed to a corner of the egg. Both

the male and female specimens had moulted 3-4 weeks prior to the mating, although the male did not show much increment in size and weight while the female showed substantial increment from 100 mm to 105 mm CL.

The observed egg diameter for this specimen is slightly higher than the values recorded for the hunch back locust lobster *Petrargus rugosus* (395-470 mm) but is considerably smaller than the slipper lobster *Thelus unimaculatus* (850-910mm). Therefore, the anticipated larval period (more than 8 phyllosomal stages) is expected to be longer than that of *P. rugosus* and *T. unimaculatus*, which are the two lobsters for which larval cycles have been completed in captivity in India (Kizhakudan, 2004).

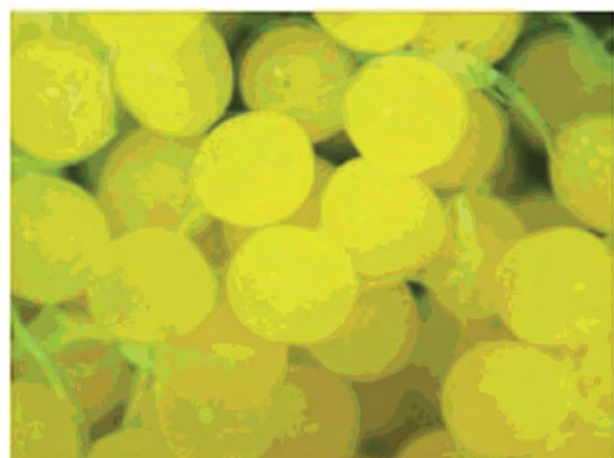


Figure 2. Fertilized eggs just after spawning

Unlike slipper lobsters of the genus *Thelus*, *S. tridacnophaga* does not exhibit burrowing behavior and shows a preference for crevices as hiding places. It is of a shy disposition and resorts to hiding at the slightest sign of disturbance in its immediate environment. Holthuis (1991) and Lavalli et al. (2007) have observed that this nocturnal species shelters during the day and forages at night, feeding on dead fish and molluscs and that it opens and feeds on giant clams (*Tridacna* sp.). In the course of our observation of its behavior in captivity we have found that the

lobster strongly prefers darkness, is very adept at opening and feeding on clams, does not exhibit cannibalism and does not prey upon other lobsters or fishes. It appears to be a very hardy and long-lived species with very slow growth rates. There also appears to be differential growth between sexes, with males being smaller and showing extremely small growth increments, compared to females. This species has been assessed as "Least Concern" in the IUCN Red List (MacDiarmid et al., 2011).

References

- Holthuis LB (1991) *Marine lobsters of the world. An annotated and illustrated catalogue of species of interest to fisheries known to date*. FAO species catalogue 13(125). FAO, Rome.
- Kizhakudan Joe K, Thirumulu P, Rajapackiam S, Manibal C (2004) Captive breeding and seed production of scyllarid lobsters - opening new vistas in crustacean aquaculture. *Marine Fisheries Information Services (Technical & Extension Series)*, 181. pp. 1-4. CMFRI, Kochi, India.
- Kizhakudan JK, Krishnamoorthi S, Thiagu R (2013) First record of the scyllarid lobster *Scyllarides tridacnophaga* from the Chennai coast. *Marine Fisheries Information Services (Technical & Extension Series)*, 211. p. 13. CMFRI, Kochi, India.
- Lavalli KL, Spanier E, Grasso F (2007) Behaviour and Sensory Biology of Slipper Lobsters. In: KL Lavalli and E Spanier (eds), *The Biology and Fisheries of the Slipper Lobster*, pp. 133-182. CRC Press, Taylor and Francis Group, Florida.
- MacDiarmid A, Cockcroft A, Butler M (2011) *Scyllarides tridacnophaga*. The IUCN Red List of Threatened Species 2011: e.T169991A6701043.

<http://dx.doi.org/10.2305/IUCN.UK.2011-1.RLTS.T169991A6701043.en>

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Radhakrishnan EV, Kasinathan C, Ramamoorthy N (1995) Two new records of scyllarids from the Indian coast. *The Lobster Newsletter*, Volume 8, Number 1. p. 9.

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