VARIABLE TORPEDO RAY TORPEDO SINUSPERSICI OLFERS, 1831 WITH FULLY DEVELOPED FOETUS CAUGHT IN SHORE SEINE OPERATED FROM THIRUVANANTHAPURAM, KERALA

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Abstract: This paper describes the uterine fecundity of variable torpedo ray Torpedo sinuspersici caught from Thiruvananthapuram coast, Kerala. A total of 15 foetuses (11 females and 4 males) were recovered from a female specimen examined.

Keywords: Gulf Torpedo, Marbled Electric Ray, Reproduction

The varied reproductive strategies adopted by the elasmobranchs have been the primary reasons for their survival and successful existence in world’s oceans in millions of years. The variable torpedo ray (Gulf Torpedo, Marbled Electric Ray) Torpedo sinuspersici von Olfers, 1831 is one of the most widely distributed electric rays of the Western Indian Ocean (Carvalho et al., 2002, 2016). There is no targeted fishery for the torpedo rays in India and they are often landed as bycatch in trawl nets and other fishing gears. This species is categorized as Data Deficient in the IUCN Red List of Threatened Species because of the lack of distribution and biological information, derived mainly from uncertainty over its systematic status (Smale, 2006).

While compared with non-chondrichthyan species rays have complex reproductive methods and life histories such as slow growth, late sexual maturity, long life spans and low reproductive potential (Stevens et al., 2000). Electric rays have internal fertilization and are yolk sac viviparous species (previously known as ovoviviparous) (Last et al., 2016). We collected one female specimen of T. sinuspersici from a commercial shore seine operated from Puthenthope, Thiruvananthapuram, Kerala (Fig.1) landed with the shore seine catch on 11th October 2017. The specimen measured 420mm in total length, 240mm in disc length and 290mm in disc width. The stomach was unusually large and we cut opened the stomach from the cloacal region (Fig. 2) and recorded the presence of foetuses arranged freely on uteri located in either side of stomach (Fig. 3). The right uterus had 9 foetuses and left uterus had 6 foetuses (Fig. 4). All foetuses measured in between 100mm- 110mm and were sexually differentiated (Fig. 5). The presence of clasper at the point of posterior pelvic fin joining differentiate male from female. Right uterus had 6 female and 3 male and left uterus had 5 female and 1 male. All foetuses possessed both external and internal yolk sacs (Fig. 5).

Females of common torpedo rays with fully developed foetuses are caught in the months of October to December (Capape et al., 2000). Uterine fecundity is recorded as 1-9 in T. torpedo (Quignard and Capape, 1974), 2-13 in T. mamorata (Capape, 1979), 5 in T. fuscomaculata (Capape and Farrugio, 1986), 6-15 in T. mackayana (Capape et al., 2001) and 9-22 in T. sinuspersici (Compagno et al., 1989). In all the species males outnumber females in the number of foetuses. A study on the reproductive biology of T. sinuspersici inhabiting the east coast of India by
Fig. 1. *T. sinuspersici*- dorsal view

Fig. 2. *T. sinuspersici*- ventral view showing the left uterus

Fig. 3. *T. sinuspersici*- uterus cut open, showing the foetus

Fig. 4. Fifteen foetuses collected from a *T. sinuspersici*

Fig. 5. Ventral view of male(a) and female(b)
Srikanya and Sujatha (2014) recorded that they are dioecious species having internal fertilization and external live bearing. They reported that *T. sinuspersici* with fully matured foetus were caught frequently in the months of March and April with a gestation period of 6 to 8 months (October to April). Uterine fecundity is 8-16 in number and males were high in ratio. The fully developed foetus measured 102-118mm in length.

The female of *T. sinuspersici* caught from the west coast of India in the month of October showed fully matured foetus in the uterus, indicating that the termination of gestation period in October (post-monsoon season). Further, in the sex ratio of foetus, females (11) outnumbered males (4), unlike the earlier reports on the genus *Torpedo*. This observation warrants further studies on the reproductive biology of *T. sinuspersici* in the west coast of India. The knowledge on reproductive biology is essential as it provides useful information for the management of this species in India.

REFERENCES


