

A NOTE ON THE FECUNDITY AND SPAWNING PERIOD OF
DREPANE PUNCTATA (LINNAEUS)

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ABSTRACT

A brief account of the fecundity and spawning periodicity of *Drepane punctata* (Linnaeus) caught by the mechanised boats off Porto Novo is given. The number of eggs of *D. punctata* was estimated to range between 1,49,251 to 7,96,932. The observations on stages of maturity during June-September 1972 and ova-diameter frequency of intra-ovarian eggs suggest that there is a short and restricted spawning period in this species.

Drepane punctata (Linnaeus), commonly called the spotted batfish, supports a seasonal fishery at some places along the Indian coasts. Apart from the reports of Bapat and Bal (1950) and Bhasheeruddin and Nayar (1961) on the occurrence of juvenile *D. punctata*, information on the biology of this valuable food fish along the Indian coastal waters is lacking. Hence is the present study on the fecundity and spawning of this species from Porto Novo.

D. punctata got by trawlers off Porto Novo only were examined. During the one-year period of observation from September 1971 to August 1972, continuous landings were observed only from June to August 1972. Stray individuals were met with in November 1971 and January and March 1972, while in other months there were no landings. During the period June-August 1972, it was possible to study the maturity stages of the fish landed and to collect the ovaries for estimation of fecundity and ova-diameter-frequency studies. It was observed that majority of fish with mature ovaries occurred during June-July period and a few with ripe ovaries during the latter half of August 1972.

To determine the maturity stages, the method adopted by the International Council for the Exploitation of Seas for herring (Wood 1930) was followed. For estimating fecundity, a small portion from a previously weighed ovary was cut and the weight noted. The mature ova contained in that portion were teased out and counted and from this the total number of ova in the whole ovary estimated. The number of mature ova varied between 1,49,251 and 7,96,932. Table 1 shows the data on fecundity of *D. punctata*. The average number of

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eggs in an ovary was found to be 3,89,453. The maximum number of eggs was encountered in a fish measuring 456 mm in total length with an ovary weight of 170.295 g.

TABLE 1. Data on fecundity of *Drepane punctata*.

S.No.	Total length of fish (mm)	Weight of fish (gm)	Weight of ovary (gm)	Estimated fecundity
1.	373	2.750	45.220	1,49,251
2.	380	3.250	48.470	1,52,797
3.	383	3.000	52.200	2,81,784
4.	388	3.500	53.255	2,23,390
5.	410	3.250	54.180	3,15,859
6.	418	3.500	54.670	3,59,624
7.	425	3.500	94.311	4,06,492
8.	436	3.500	105.723	4,90,819
9.	440	3.750	99.505	4,38,648
10.	443	3.500	97.005	4,29,742
11.	490	3.750	147.380	6,28,103
12.	456	3.750	170.295	7,96,932

Average number of eggs: 3,89,453

To study the ova-diameter frequency of *D. punctata*, 1,000 ova each from five mature ovaries were measured under constant magnification of a microscope following the method of Hickling and Rutenburg (1936). The size of ova in the mature ovaries of *D. punctata* ranged from 0.277 mm to 0.930 mm. As seen from the ova-frequency distribution in the ovaries of five fishes examined (Fig. 1) there is only one sharp mode between 0.68 mm and 0.89

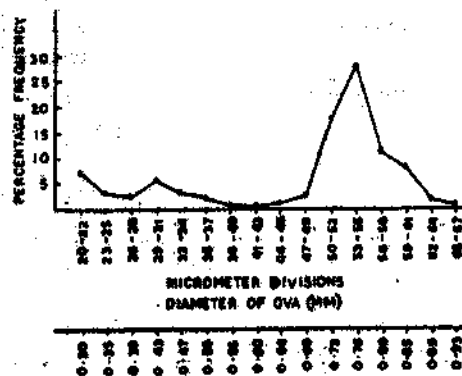


FIG. 1. Ova-diameter-frequency polygon of *Drepane punctata*.

mm and the separation of this mode from the immature ones in the general egg stock without any secondary modes is clear. Hickling and Rutenburg (1936) have stated that if the spawning period is short and definite, the batch of immature eggs destined to mature and be spawned will be withdrawn from the general egg stock in a single group, sharply distinguishable at least in the latter stages of maturation from the stock of small eggs. From the present study it is evident that the single mode between 0.68 mm and 0.89 mm well separated from the immature ones in the general egg stock suggests a restricted and short spawning period in this species.

Observations on maturity stages of *D. punctata* revealed that majority of mature fish were met with during June-July period and some stray ones during the latter half of August 1972. As the occurrence of ripe ovaries was observed during the latter half of August, it is most likely that the fish may spawn in the following months, probably during the north-east monsoon period. Panikkar and Aiyer (1939) have observed intensive breeding in brackishwater fishes of Madras in December-January period immediately succeeding the north-east monsoon. The occurrence of juveniles of *D. punctata* measuring 45-55 mm in total length in the landings at Porto Novo during December-January period further strengthens the view. Basheeruddin and Nayar (1961) have recorded two juveniles of *D. punctata* ranging in size from 4 to 6 mm in total length from the coastal waters off Madras in April 1954.

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