

The size groups occurring at Adesar camp are comparable to those recorded in the sea off Cochin by George (1959). Males measuring over 100 mm. from this area as well as from the Kutch coastal waters were found to be mature while females of all [sizes up to the maximum observed size of 146 mm. at Adesar camp were immature. On the other hand, from the inshore catches of the Gulf of Kutch, maturing or mature females were found among the individuals measuring over 135 mm. during September-February. Similarly the presence of large-sized (maximum size 160 mm.) mature females of *M. monoceros* was noticed in the trawl-net catches off Cochin, whereas the back water fishery for the same species was composed of smaller (maximum size 120 mm.) immature individuals (George 1959). *M. monoceros* or a closely related species is known to breed in the shallow brackish waters of Australia (cited by Panikkar & Menon 1956). The present study which afforded an advantage to examine for maturity, the sizes of prawns comparable to those from the sea, confirms that females of *M. monoceros* do not attain maturity except in the sea.

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#### REFERENCES

- GEORGE, M. J. 1959. *Indian J. Fish.* 6 : 268-279.  
PANIKKAR, N. K. AND MENON, M. K. 1956. *Proc. Indo-Pacific Fish. Counc.* Sec. III. Madras, India.

#### ON THE LINE FISHERY FOR *RASTRELLIGER KANAGURTA* (CUVIER), ALONG THE NORTH KANARA COAST

It is well known that line fishing is very important in the fisheries of many scombroids like tuna, seerfish, sail fish etc. However, instances of the Indian mackerel being caught in lines have received little attention. Perhaps, the only mention is of a small quantity landed at Vizhingam during 1960-61.\* The Atlantic mackerel (*Scomber scombrus*) has been known to be caught by lines. Bigelow and Schroeder (1953), report that angling for mackerel had been common along the coast of United States and it was not unusual for 3 or 4 anglers fishing from a party boat to bring in one or two hundred fish. Nedelec (1958), describes angling for mackerel along the North French coast and states that in 12 hours 600 to 800 kg. of the fish were landed.

The present communication relates to observations on the line fishery for the Indian mackerel, *Rastrelliger kanagurta* (Cuvier) at Bhatkal in the North Kanara coast, during the month of February 1959. Bhatkal is situated 121.3 kilometres south of Karwar and is an important fishing centre. Generally the mackerel season

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commences along this coast towards the latter half of September and lasts till March. The hook and line is one of the main gears employed. During the routine collection of data on fish landings at Bhatkal the mackerel catches from hooks and lines were first noticed by the author on 3rd February 1959 and later on succeeding days. The gear was operated 2-3 kilometres from the shore where the depth was 7-11 metres. Enquiries with the fishermen revealed that such fishing by hooks and line is quite common during the mackerel season at Bhatkal and nearby fishing villages.

The catch was mainly composed of fish in the size range 190-230 mm., the dominant size being 210-219 mm. This range and the mode agreed with that of the catch obtained in the gill net (*Patte bale*) which is the principal gear used for catching mackerel at Bhatkal.

The mackerel were generally caught by hooks tipped with small pieces of *Loligo* sp., *Sepia* sp., clam or sardine. Sometimes, even pieces of mackerel were offered. The local anglers state that these baits lure the fish close enough and are greedily bitten.

The *Rastrelliger* is considered mainly as a plankton feeder. The present observation that the fish takes baits indicates the probability of its occasional carnivorous habit of feeding which has already been referred to by Devanesan and Chidambaram (1953), Kuthalingam (1956) and Rao and Rao (1957). George (1964) in a review of the current knowledge on the food and feeding of mackerel states 'The mackerel may also snap at moving or darting fleshy masses like medusae or salpids or cephalopods depending on the area from which it is fished and the nature of operation of the gear and tackle.' As the present account was restricted to field observations for a short period, it was not possible to study in detail the gut contents, gonadial conditions and other aspects. However, it is hoped that the present observation may kindle interest in studying the ecology of feeding of mackerel in greater detail.

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#### REFERENCES

- BIGELOW, H. B. AND SCHROEDER, W. C. 1953. *U.S. Dept. Interior, Fish and Wildlife Service, Fish. Bull.* 53.
- DEVANESAN, D. W. AND CHIDAMBARAM, K. 1953. *The Common Food Fishes of the Madras State.* Govt. Press, Madras.
- GEORGE, P. C. 1964. *Symposium on Scombroid Fishes*, Pt-II, Mar. Biol. Ass. India, Mandapam Camp, (in Press).
- KUTHALINGAM, M. D. K. 1956. *Zool. Soc. India*, 8 : 99-106.
- NEDELEC, C. 1958. *Science et Peche Bull.* No. 63.
- RAO, K. V. N. AND RAO, K. P. 1957. *Nature*, **180** : 711-12.