

FOOD AND FEEDING HABITS OF *PENAEUS MONODON*  
FABRICIUS FROM KORAPUZHA ESTUARY

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Preliminary studies on the food and feeding habits of *Penaeus monodon* from Korapuzha estuary were undertaken. The food of the species consisted of crustaceans, fishes, molluscs, polychaetes and vegetable matter in order of importance. Mud and sand particles were also found among the food items. There was no appreciable variation in the nature of the food in the different size groups.

Investigations on the various aspects of the biology of *Penaeus monodon* have received much attention in recent years (Delmendo and Rabanal, 1956; Caces-Borja and Rasalan, 1967; Mohamed, 1967). Except for the observations made by Hall (1962) in Singapore and Joubert and Davies (1966) in South African waters, no detailed account on the food and feeding of this species is available, especially from the Indian region. The results of preliminary studies conducted for six months are presented.

Regular samples collected from the stake net catches of Korapuzha estuary were examined from March to August, 1966. The analysis of 149 stomachs was done by the points (volumetric) method and the index of preponderance (Natarajan and Jhingran, 1961) for each item of food was calculated. Specimens with gorged, full and three-fourth full stomachs were considered to have been actively feeding while half-full, quarter-full and empty stomachs denoted reduced feeding activity.

The food of *P. monodon* consisted of crustaceans, molluscs, polychaetes, fishes and vegetable matter in the order of abundance. Crustaceans formed nearly 50% by volume of the stomach contents in all months except July. The indices of this item were high, above 50 (Table 1), except in July when it came next to polychaetes in abundance. This favourite item of food of the

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TABLE 1. Index of preponderance of food items in the stomach contents of *Penaeus monodon* from Korapuzha estuary during 1966

Stomach contents	March	April	May	June	July	August
Crustaceans	56.60	82.90	75.35	55.04	23.30	49.06
Fishes	33.51	4.09	4.12	4.14	0.25	2.25
Molluscs	1.24	10.09	17.81	33.84	21.37	38.74
Polychaetes	7.78	0.31	0.12	5.01	54.48	8.84
Vegetable matter	0.46	0.31	2.42	1.11	0.07	0.14
Mud and sand	0.41	1.50	0.18	0.87	0.53	0.97

species consisted of young penaeid prawns, mysids, isopods, crushed parts of prawns and shrimps which could not be identified and crab legs. Fish remains were encountered in the stomach in the form of small portions of body, scales and bones. Among the molluscan food items, lamellibranchs were the commonest while gastropod shells were seldom found. Polychaetes were found in all the months, being most abundant in July and hence it can be considered as one of the regular items of food of the species. From the structure of the setae they seem to belong to the sedentary polychaetes of the families Sabellaridae, Spionidae and Unicidae. Vegetable matter was very scarce in the stomachs and might have probably been ingested along with other items. The quantity of mud and sand in the stomachs was negligible and appears to be accidental inclusions as a result of the bottom feeding habit of the species.

The analysis of the gut contents in respect of the different size groups did not show any significant change in the food and feeding habits of *P. monodon* at different stages of growth.

Hall (1962) showed that fish was rarely encountered in the gut contents of this species while molluscs were predominant in only one specimen, out of the twenty prawns examined. Crustaceans were most important while polychaetes ranked next in abundance. Vegetable matter was found in all stomachs. Joubert and Davies (1966) observed that *P. monodon* from St. Lucia Lake System also fed on molluscs, crustaceans, vegetable matter and polychaetes in that order of abundance. Gopalakrishnan (1952) did not find any marked difference in the stomach contents of different size groups of *P. indicus* from Madras.

The actively feeding prawns formed about 75% in June and March while the percentages in April and May were about 50. July (20%) and August (30%) registered minimum percentages. The type of differentiation of the

food bolus into an anterior reddish part and a posterior fawn-coloured portion in a few specimens of *P. monodon* by Hall (1962) was not noticed in the present material from Korapuzha.

The major portion of the diet of the prawns examined consisted of animal tissue, although vegetable matter was found in small quantities in some of the stomachs. Kubo (1956) remarked that *Penaeus japonicus* preferred meat of small animals such as fishes, molluscs and crustaceans and is cannibalistic as are many other crustaceans. Gopalakrishnan (1952) found that *P. indicus* fed mainly on vegetable matter and crustacean debris, though occasionally remains of other animals also were found in the stomach contents. According to Hall (1962) 'Penaeidae in general cannot be considered detritus feeders' and this view is shared by many other investigations. The present observations also lend support to this conclusion.

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- CACES-BORJA, P. AND S. B. RASALAN. 1967. A review of the culture of sugpo *Penaeus monodon* Fabricius in the Philippines. *FAO Fish. Rep.*, 54, 2:111-124.
- DELMENDO, M. N. AND H. P. RABANAL. 1956. Cultivation of 'Sugpo' (Jumbo Tiger Shrimp), *Penaeus monodon* Fabricius, in the Philippines. *Proc. Indo-Pacif. Fish. Council.*, 6(3):424-431.
- GOPALAKRISHNAN, V. 1952. Food and feeding habits of *Penaeus indicus*. *J. Madras Univ.*, 22B(1):69-75.
- HALL, D. N. F. 1962. Observations on the taxonomy and biology of some Indo-West Pacific Penaeidae (Crustacea, Decapoda). *Fish. Publ. Colonial Off.*, 17:1-229.
- JOUBERT, L. S. AND D. H. DAVIES. 1966. The penaeid prawns of St. Lucia Lake System. *Invest. Rep. oceanogr. Res. Inst.*, 13:1-40.
- KUBO, I. 1956. A review of the biology and systematics of shrimps and prawns of Japan. *Proc. Indo-Pacif. Fish. Council.*, 6(3):387-398.
- MOHAMED, K. H. 1967. Synopsis of the biological data on the Jumbo Tiger Prawn *Penaeus monodon* Fabricius 1798. *FAO Fish. Rep.*, 54, 4:1251-1266.
- NATARAJAN, A. V. AND V. G. JHINGRAN. 1961. Index of preponderance — A method of grading the food elements in the stomach analysis of fishes. *Indian J. Fish.*, 8(1):54-59.
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