

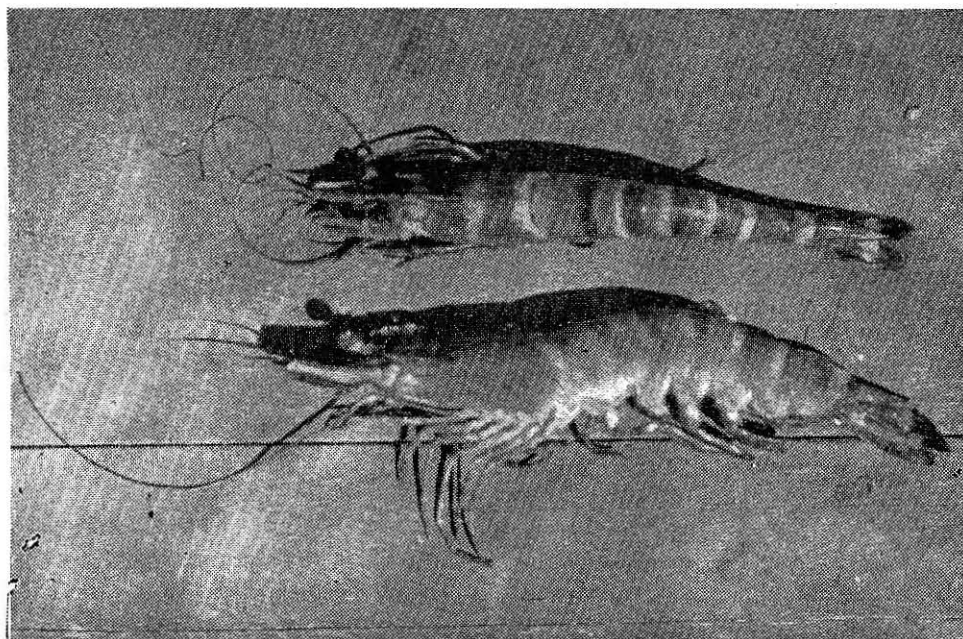
THE GIANT TIGER PLAN

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Penaeus monodon, popularly known as the giant tiger prawn, is one of the most important commercial prawns in India (Fig. 1).

In the coastal States, it is known locally as bagda in West Bengal and Orissa, pappu reyya in Andhra Pradesh, keta era in Tamil Nadu, kara chemmeen



Penaeus Monodon

in Kerala, shetli in Mysore and jinga in Maharashtra. This prawn forms an important component in the prawn landings

from all the estuarine and brackishwater systems on the east coast while on the west coast, it is not found so common

in the inland waters. In the Godavari estuary, which forms the subject matter of the present paper, this prawn is one of the most important species, forming about 11% in the total prawn landings. It is fished mainly in the backwater areas and the mangrove swamps in the lower reaches of the estuary which are characterised by shelter and shade, shallow depth, oscillating water movements, plenty of food material and free access to the sea. The principle gears employed in the capture, are drag seines, push nets and stake nets in the main estuary and adjacent creeks while cast nets are employed in the backwater areas. Advantage is taken of the oscillating water movements for the operation of stake nets as in the other tidal water systems. Prawns occur round the year, but the best season for their availability in abundance is from October to January or February. A wide range of prawns, between 20 and 225 mm, is landed but the sizes ranging between 85 and 150mm form about 70%.

This prawn is also caught in considerable numbers from the inshore waters of Bay of Bengal. Off the Godavari estuary, the best season for its exploitation is between March and June and the sizes caught by the boat seines range between 130 and 280 mm. The size-ranges in the estuary and the sea have significance in view of the importance of this prawn in the frozen prawn trade.

The life-history of the prawn involves a feeding migration of the tiny post-larvae from the sea to the inland brackishwater and estuarine areas and the breeding migration of the grown-ups back to the sea to repeat the cycle. The prawn spends about 3-5 months in the inland waters feeding on organic

detritus, plant matter, small crustaceans and other minute organisms, when it prepares for its sojourn to the sea. The whole life span of the prawn is estimated to be about $1\frac{1}{2}$ - 2 years.

The prawn migrates from the estuary to the sea at an average size of about 148 mm. No sexual differences are discernible in their migratory pattern. Once they reach the inshore area, the females tend to move to offshore waters, leaving the males behind in overwhelming numbers, only to accompany the former for courtship and spawning in the offshore waters.

The prawn exhibits nocturnal activity and remains buried in the substratum during the day. This nocturnal activity is again more pronounced during the new moon quarter than the full moon quarter, particularly in case of the larger prawns. In the exploitation of this prawn from the estuary, advantage is taken of its nocturnal behaviour and the catches are landed early in the morning after a night's hunt on the fishing grounds with the indigenous gear.

The prawn attains an average maximum size of about 132 mm. in the estuary. The larger prawns are of inestimable value in the prawn export trade and these prawns form about 65% (over 100 mm.) in the sizes landed from the estuarine fishing grounds. The counts worked out for the estuarine prawns ranged between 252 and 6 whole prawns per pound (between 504 and 10 tails per pound) (Table 1).

TABLE 1

Penaeus monodon: count per pound -
Estuarine prawns

Mid-point (5 mm length interval) (mm)	Count per pound (males)		Count per pound (females)	
	Whole Prawns	Tails	Whole Prawns	Tails
63	252.0	504.1	—	—
68	238.7	504.1	181.4	283.5
73	168.0	266.9	174.5	252.0
78	146.3	238.7	—	—
83	110.6	174.5	122.6	206.2
88	94.5	162.0	103.0	162.0
93	84.0	141.8	—	—
98	70.9	119.3	67.7	126.0
103	63.0	100.8	61.3	98.6
108	50.9	82.5	53.4	79.6
113	48.8	65.8	43.6	60.9
118	39.8	62.2	40.2	60.5
123	34.1	54.0	35.0	55.3
128	31.7	50.9	31.1	49.3
133	28.2	43.2	28.7	44.9
138	25.2	38.1	24.7	38.1
143	22.1	33.4	21.7	32.6
148	20.3	31.1	19.9	30.7
153	17.6	26.4	17.9	28.2
158	16.0	24.1	16.3	24.8
163	14.8	22.6	14.1	21.8
168	13.5	20.5	13.0	19.7
173	11.8	17.2	11.8	18.9
178	10.9	16.4	10.6	15.6
183	9.8	14.9	9.8	14.6
188	—	—	9.6	14.2
193	—	—	8.5	12.4
298	—	—	7.7	11.5
203	6.7	10.3	6.7	9.9
208	—	—	7.0	—
213	—	—	6.0	9.7
218	—	—	—	—
223	—	—	6.0	—

TABLE 2

Penaeus monodon: Count per pond (whole
prawns) - Marine prawns

Mid-point (5 mm length interval) (mm)	Count per pound	
	Males	Females
133	28.4	—
138	24.8	—
143	—	20.6
148	21.3	20.2
153	16.6	17.5
158	16.1	15.1
163	15.0	14.0
168	12.9	11.4
173	11.5	—
178	10.6	10.2
183	9.7	—
188	8.7	8.7
193	8.1	8.0
198	7.5	6.7
203	7.0	6.5
208	6.4	6.1
213	6.0	5.8
218	5.7	5.2
223	5.1	4.8
228	4.9	4.5
233	4.6	4.4
238	3.9	4.0
243	—	3.8
248	—	3.7
253	—	3.1
258	—	2.9
263	—	2.9
268	—	3.0
273	—	2.9

The marine prawns of the same species, collected off the estuary, ranged between 131 and 275 mm. (between 28 and 3 whole prawns per pound) (Table 2). From the above tables it is obvious that lowest counts per pound are available from the estuary which fetch a much higher price in the frozen prawn industry.

There is no need to emphasize the importance of the development of this prawn by proper conservation measures in their natural habitat. No regulations, such as closed areas and seasons (to protect the fast growing young prawns), mesh regulations (to provide escape-ment of the small and uneconomic prawns), control over indiscriminate exploitation (to maintain maximum benefit accrued to the fishermen by fishing) and many others, are in vogue at present in any one of the inland water

systems. Practically no accurate information is available on the quantitative aspects of the population growth, mortality rates and emigration which would provide an estimate of the population size for deriving maximum sustained yield. In addition to deriving maximum benefits by proper management practices in their natural surroundings, additional gain could be gathered by artificial propagation, cultivation and husbandry practices in barren marshy coastal areas skirting our coasts. The prawn is highly euryhaline, tolerating wide ranges of salinity and can be acclimatized to freshwater conditions, enabling its culture in all types of waters along our coasts.

(NOTE: A general account of the fishery and biology of *Penaeus monodon*, from a thesis submitted for the degree of Doctor of Philosophy, Andhra University, Waltair, 1964).