SUMMARY
The present study exposes the food bionomics and feeding status of *Labeo rohita* (Ham.), *Cirrhina mrigala* (Ham.) and *Catla catla* (Ham.) through meristic, morphometric, morphological, anatomical, histological, histochemical and other relevant parameters which hitherto remained unattended from the Brahmaputra drainages of Assam. Although a total of 45 important fish landing sites had been identified along the entire river system, for comprehensive brevity of the studies manoeuvred in the present treatise, only three principal survey zones had been selected representing the upper, middle and lower reaches of the river. These are Dibrugarh survey station (SS), Guwahati SS and Dhubri SS down the drainages. Three defined seasons of the year - monsoon from June to September, winter from October through January and summer from February to May and three distinct body sizes - up to 10.0 cm TL, from 10.0
to 30.0 cm TL and above 30.0 cm TL were accounted in the study. Although the present work had been initiated for over a good many years, the comprehensive results for 24 consecutive months of intensive studies from June 1988 to May 1990 are presented now through various elucidated chapters whose descriptions have been well supplemented with photographic plates including photomicrographs, drawings, tables and figures.

The Brahmaputra in Assam traverses along the entire length of the state and the river with its myriads of perennial tributaries and connecting wet—lands afford lucrative fisheries for various finfishes which form an important field of study on these rheophilic forms.

The Assam region, in general, forms an integral part of the S.E. Asiatic monsoon lands, but its peculiar orography plays a dominant role in moulding the local weather which is characterised by moderate temperatures with extended rainy season often accompanied by gales and very high humidity. The meteorological variables especially, the rainfall, atmospheric temperature and relative humidity were noted every month during the entire period of investigation. The physical and chemical parameters of the water had also been recorded per mensum at the triage zones to assess the seasonal variations of water.
temperature, transparency, hydrogen ion concentration, dissolved oxygen and free carbon dioxide.

The plankton organisms in aquatic eco-system are essentially the basic links in the food chain of lower vertebrates including the fishes. The dynamics of the potamoplankton biomass in the river system had been extensively studied to correlate the food of the fishes with its ecological parameters. Collection of samples was done at all the survey stations throughout the period of observation to depict the seasonal fluctuations and species combination. The spatial and temporal distribution of both the phytoplankton and zooplankton were subjected to ANOVA using combination of years and types. The community co-efficient and percentage similarity co-efficient were also deduced. Besides, the intra-and inter-relationships with major physico-chemical characteristics of water had also been elucidated in the present work.

The gastro-intestinal tract and auxiliary structures of the three ichthyospecies investigated have been probed in the different growth stages. The various parts of the mouth and bucco-pharyngeal region of the three test fishes had been analysed comparatively to know their specific differences. The morphology, morphometry, anatomy, histology and histochemistry of the gastro-intestinal tract had also been scanned. The precise pattern of the gills and gill-rakers, the
Pharyngeal pads, dentition, etc had been shown comparatively in all the three IMC fishes under study. The size and structure of the various gut parts had been deduced for fingerlings, juveniles and adults of the species. The specific design of the intrinsic mucosal folds in the different portions of the food pipe had been elucidated to analyse their specific utility amongst the different fishes. The histological configurations including the enzyme histochemistry of the individual gut-parts had been explicated.

In the current treatise, the sizewise, seasonwise and stationwise exposition of the individual food elements had been meticulously portrayed for all the test fishes. The vicinal spectra and trend of ingestion were gauged through synthesis of qualitative and quantitative procedures of food study. Detailed observations were carried out on the broad groups of food component at the triage zones during the three seasons for fingerlings, juveniles and adults of each species.

The lineaments of feeding had been demonstrated through the feeding intensity and condition while the behaviour and modus operandi of food intake by the aquaria studies. The feeding parameters had been extrapolated by evaluation of the gastro-somatic-index, the relative length of gut, the relative condition factor and the condition of feed. The response of the
test fishes towards food application had been analysed in vitro to deduce precisely the manoeuvres involved in food ingestion.

All the relevant characteristics on the food and feeding habits of the three fishes in the different habitats had been discussed with related works in the line and supplemented with results obtained through study of relative growth trend, inter-relationships of the gut parts, the length-weight relations and the condition co-efficient. The communication also includes an up-to-date list of references contained in the investigations.

It is an established fact that a thorough knowledge of the food and feeding relationships of any cultivable species is *sine qua non* to formulate tangible approaches for its optimal production. It is, therefore, humbly felt that the present findings will give a coherent picture of the food bionomics and feeding status of the three IMC fishes. Since the three ichthyospecies under report constitute the principal denizens in the pisciculture programme of N.E. India, the scientific exposure on the diet preference of the fishes in its natural habitat will be of paramount importance to help evolve empirical approaches for the enhanced production of these cultivable IMC species in the water bodies of India in general and Assam in particular.