Chapter V

SUMMARY
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Chakpi stream is a high gradient stream originating from the hills of Chandel district of Manipur. It joins the Manipur River at Sherou, which is about 75 kms. south of Imphal. This river follows a southward course for about 30 kms and then flows out of the Indian boundary to Myanmar to be known as River Myitta in Myanmar, which finally flows into the Chindwin.

The Chakpi-Manipur River Complex is very rich in fish fauna because of its connections with various hill streams and the Chindwin Irrawady system. The complex has also a rich fishery potential. The area has not been properly investigated for its piscine fauna and has also not been exploited from fisheries point of view.

Thus the present work has the following objectives:
1. to study the fish fauna of the Chakpi stream and the Manipur river stretch upto the Yankoillok, the region bordering Myanmar.
2. to study the biology of Barilius ngawa' sp. nov. in respect of food and feeding habit, length weight relationship, fecundity.
3. to study the seasonal variation in the proximate composition of the new species.

FISH FAUNA

Regular samplings of the fishes were carried out. Fishes were caught with the help of gill nets of different mesh sizes, rods and line with different baits according to the food of choice. Dug out canoes were used for long fishing trips. Expert fishermen were employed in such trips. Fishes were preserved using standard procedures and identified based on Jayaran
(1981), Talwar & Jhingran (1991), and with original and subsequent literatures describing each of the species. For comparative examinations, specimens of Zoological Survey of India, Calcutta and Madras were examined. Type specimens of new species are deposited in National Museum, India and in National Museum of Science, Tokyo (NMST).

As many as 47 fish species were collected which belong to 11 families and 4 orders. Out of the 47, 16 were distributed in the Chindwin basin and the rest, in both the Chindwin and the Barak-Brahmaputra basins. Two fishes, viz., *Psilorhynchus microphthalmus* and *Barilius ngawa* have been described here as new species. An important food fish *Chagunius nicholshi* (Myres) has been recorded for the first time in India. The fauna comprises of a variety of forms including highly adaptive hillstream forms, like *Psilorhynchus*, *Balitora*, *Garra*, migratory forms like *Anguilla* and important capture food fishes like *Barilius*, *Neolissochilus*, *Chagunius* etc.

**BIOLOGY OF *BARILIUS NGAWA* SP. NOV.**

*Barilius ngawa* sp. nov. is a good food fish locally called 'Nga-wa' (means Nga=fish; wa= speedy movement in shoals). The fish moves in shoals and is caught throughout the year. Monthly samplings of the fish was carried out for a period of one year, with at least 30 fishes in a month. A total of 574 fishes were used for the study. The fishes were preserved in 10% formaline and brought to the laboratory for subsequent analysis.

**Food and Feeding Habit.** The fish is omnivorous in habit feeding predominantly on animal matter. The gut content analysis showed presence of phytoplankton, zooplanktons, insects and worms, the later two in greater proportions.
Length and Weight Relationship. All the samples collected were used for the study. A linear relationship between log W and log L was obtained. K value was highest in December (1.32) and lowest in September (0.6). Regression analysis between L and W shows a linear graph of a slope $Y = -1.5874825 + 0.1672121 X$, $r=0.0001$.

Fecundity. The fish is a prolific breeder, the first maturity being obtained in the fish of total length 95-100 mm. Gravid females in the peak breeding period (September to October) and fecundity was determined. Absolute fecundity in fishes weighing 15.0-22.8 g were 1500-2900. The relative fecundity was between 15,00,000 to 28,000,000 per kg of fish. The diameter of eggs were between 0.3-1.4 mm.

PROXIMATE COMPOSITION OF FISH

The composition was analysed as per AOAC (1960). Moisture content was between 61.9-78.7%. The composition has slight inverse relationship with lipid content. Lipid content was lowest in July (2%) but highest in the month of February (8.46%). The content seems to be related with the water temperature. Protein content was fairly high. In the months of February and May, the contents were 23.3% and 23.8% respectively. In January and April, protein content was as low as 15.5%. Total ash content varied from 1.0-3.97% Ash was high in certain months of the year, viz., September to December, the lowest values, in February and August.