CHAPTER X

The Food and Feeding Habits of *Esopus americanus* (Ham.)
INTRODUCTION:

Rasgus danricus (Ham.) is one of the fresh water forage fishes, widely distributed in small streams, canals, ponds and reservoirs in the plains of North India. The fish is also tolerant to foul waters as it appears in large shoals in derelict waters specially in the rainy season in North India.

Earlier studies on the feeding habits of the fish species have been undertaken by Das (1971) and Natarajan et al. (1973). The fish, however, may play an important role in the food chain of the ecosystem. Therefore, an attempt has been made to study the food of the fish and its feeding inter-relationship with other fish inhabiting the derelict water.

MATERIAL AND METHODS:

243 E. danricus (30 - 55 mm) were captured during Oct. 1977 to Oct. 1978 using seine of mosquito net cloth in the derelict water ecosystem of Aligarh. The fishing operation was carried out twice in each month. The number of the fishes which were examined were given in the brackets against each month.

Oct. 1977 (20); Nov. (15); Dec. (18); Jan. 1978 (30);
Feb. (20); March (25); April (15); May (Nil); June (Nil);
July (Nil); Aug. (40); Sept. (40); Oct. (30).
E. danicus do not possess a well distinguished stomach. Therefore, the entire gut of the fish was examined. The gut contents were taken out through making a smear in the wall of the intestine and collected in a petridish containing a little amount of the water. One ml of the gut content was taken on the plankton counting cell and carefully examined under a microscope. Points of each food item were awarded according to its frequency of occurrence. Microscopic examination of the gut contents was repeated ten times for each fish. The points of each food item were summed up and scaled down to percentages in order to determine the monthly food composition of the fish.

**FOOD COMPOSITION:**

E. danicus was found to feed mainly on green algae, diatoms, macrovegetation, phytoflagellates, microcrustaceans and insect larvae. Other food items included blue green algae, desmids, protomans, rotifers and debris. Fig. 13 based on table XXXVII shows that the phytoplankton constitute the bulk of total food (89%) intake of the fish.

Green algae were represented by 10 genera which were consumed by the fish throughout the spring and autumn seasons. The most popular genera in the diet of the fish were Spirogyra, Ulothrix and Ankistrodesmus.

Diatoms were frequently consumed by the fish specially in the autumn and winter months. The diatoms were represented
Fig. 18  Seasonal variation in the food composition of *E. danricus.*
FIG. 18
By and large, the composition of different food items reveals that the fish is herbivorous in nature showing preference towards phytoplankton. These findings are in agreement with the findings of Bas (1971). Natarajan et al. (1975) described *E. danicola* as a bottom browser, feeding mainly on detritus and bottom organisms. It is relevant to cite that despite the abundant population of insect larvae in the bottom of the environment, the fish did not prefer this food.
by 9 genera. The common diatoms in the diet of *E. danricus* were *Syneira, Fragilaria, Nitzschia, Navicula* and *Diatoma*.

Macrovegetation consisted of the broken parts of *Spirodea* and *Ceratophyllum* in the diet of the fish. The fish seems to feed on these weeds particularly in the winter (Nov. - Jan.). The relative abundance of plankton population of the water reveals that there was plankton bloom (Fig. 1) during the spring and post monsoon months. The onset of the winter and summer brings about depletion in the population of plankton. Thus, the preference for the weed in the winter months may be because of depletion in the plankton population in these months. *Euclena* and *Phacus* were the common phytoflagellates, which were consumed by the fish throughout the year. But their frequency of occurrence was low when compared with that of green algae and diatoms.

The microcrustaceans were represented by *Cyclops* and *Daphnia* in the diet of the fish. These were occasionally consumed by the fish.

Chironomid larvae were also consumed by the fish occasionally. At times the fish also feed on blue-green algae (*Anabaena* and *Oscillatoria*); desmids (*Claostrum*); protozoans (*Paramecium, Monas*); and rotifers (*Brachionus* and *Fillinia*). Small quantity of decayed organic matter was also found in the diet of the fish.