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Chapter 3

Comparative Study of Age and Growth in Some Common Edible Freshwater Fishes

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Abstract

The age of Indian major carp *Catla catla*, minor carp *Cirrihinus reba* and snakehead *Ophiocephalus striatus* was determined by scale analysis method. Different length parameters were measured and length-weight comparison was also done. Scale analysis method was found to be the most suitable method for estimating age. Growth rate of *Catla catla* was found to be faster than that of *Cirrihinus reba*. The age group was divided as 0+ and 1+ for below 1yr of age and more than 1yr of age respectively. No significant variation was seen, rather the samples were found similar with each other. No adverse environmental impact was found on any species. The intra-specific and inter-specific correlation and ANOVA results indicate a +ve relationship among the species.

Keywords: Age determination, scale, *Catla catla*, *Cirrihinus reba*, *Ophiocephalus striatus*.

Introduction

Age determination of fish provides vital information on sexual maturity, spawning time, catchable size, growth rate and lifespan (Ujjania, 2012). These parameters are very essential in fishery. There are four main methods of determining age and growth in fishes: i. Peterson's method of length-frequency analysis, ii. Analysis of scale and other hard parts, iii. Rearing of fish in captivity and observing their growth rate along with analysis of scale, otolith etc., iv. Tagging live fishes in their natural condition after noting essential data and re-examine those fishes after particular interval to observe the changes (Seshappa, 1999). However the last method is not that much easy as only few tagged fishes get recovered. Scale analysis is mostly preferred because it is affordable and quick (Das, 2012). Scales can be used without sacrificing the fish. Therefore, this study is highly significant for fishery management and conservation (Bhatt, 2018). In case of trees, age can be estimated by counting the annual rings in the cross section of trunk. Similarly counting the number of annuli of fish scale provides its age. These annuli or lines of