

Sampling Techniques

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Sample

A section of population or otherwise called as sample is examined for the attributes concerted with the assumption that the selected sample is representative of the whole population. A sample is any number of units or objects selected to represent a population according to some rule or plan. Sampling is a method of selecting a fraction of the population in such a way that it represents the whole population. Good sampling requires large and long term investments in terms of manpower and general expenses.

Sampling fish

Length distributions of landed fish can be obtained from samples taken in the auction halls, ports, quays side sampling or at sea on commercial vessels. Generally, the length sampling is carried out by area, gear and time to ensure that the estimated size distribution is accurate. Age and weight-at-length can be obtained from these samples. Sampling throughout the year allows scientists to monitor differences in growth and age over the year. An unbiased sample should have fishes of a wide range of lengths and weights.

The sampled length frequency information for either landings or catch can be converted to ages using age-length keys derived from the relationship between

age and length. Ages are estimated using otoliths. Counting the rings on these otoliths gives an estimate of the age of the fish. The numbers of fish at different ages for various gears, areas, quarters and nations are combined to produce annual catch numbers-at-age for each assessed stock.

Types of sampling

1) Sampling onboard the fishing vessels

Sampling for length composition of commercial catch should best be done on board of the fishing vessel during fishing operation. Because all fish caught are not always landed, smaller specimens are discarded at sea; it is of no market value. There are several practical difficulties with sampling programmes for collecting length data on onboard fishing vessels. It is difficult and costly to send scientists onboard in all selected vessels, even if the number of selected vessels is small.

2) Sampling at landing sites

Most convenient place for sampling fish for most fisheries is the site where fish are landed after capture, since a number of boats land at a landing site within a short period of time. It is possible for a single scientist to examine and measure sample from selected vessels.

The compositions of catch may sometimes vary between centres if vessels from these centres fish in different areas containing possibly of different stocks. The most practicable solution in this case would be to continue sampling at the convenient centres, but sampling may be done separately or combined after giving due weightage, according to landings from each area of fishing. When the fish are lying in a large heap on the beach, a small number has to be selected as sample. The usual tendency in the absence of a proper sampling system is to take the desired number of fish from the top of a heap and since it is a larger fish.

Most important raw materials required for the stock assessment studies are catch data, effort data and length frequency distribution of the catch. All these data should be properly collected and tabulated for analysis.