Pakistan Journal of Aqua Biosciences
Vol. 2 (1), Jul, 2025 pp. 35-49

The importance of data collection system for fish stock evaluation in Pakistan

M. Wasim[1], Saddiq Niazi[1], M. Miftaul-Haq[1], Ghulam Abbas[2]

[1]Marine Fisheries Department, Government of Pakistan, Karachi
[2]Centre of Excellence Marine Biology, Karachi University:
*[E-mail; abbas.cemb@yahoo.com]

Data collection is crucial for fisheries management, as it provides scientific and technical information to understand operations, estimate exploited stocks, evaluate ecosystem impacts, and develop appropriate regulations. This data source enables adaptive future management decisions, even during uncertainty during the design phase. A well-designed data collection and monitoring program is essential for meeting management objectives. Currently, information on the number of fishermen, fishing boats, fish production, and fishing gear is combined with data on the exports of fish and fishery products is provided in the handbook of fisheries statistics. These statistics do not include the abundance indications offered by Catch-Per-Unit-Effort (CPUE) for stock assessment. Consequently, while these statistics provide insights into the trends and behaviours of the fishing industry, they are not appropriate for evaluating the stocks of fisheries resources. The need of having a regular data collection system to monitor the alterations in fish populations brought about by fishing activities was underlined by this study.

[**Keywords:** Data collection system, CPUE, fish stock evaluation]

INTRODUCTION

The fishing industry started to grow in 1959 and gained momentum in the late 1970s and early 1980s when new fishing methods were made accessible in the country. Today, developed countries and international agencies such as the UNDP offer a wide range of technical assistance. These also include assessments of the fish resources in the country. The Indian Ocean Programme (1973–1978) and the Bay of Bengal Programme (1979–1999) are two regional initiatives that are managed by FAO. NORAD, Norway, and the FAO provided funding for these surveys (Abildgaard et al., 1986; Branhorst, 1986). In order to conduct fish resource assessments and fisheries research, the Norwegian R/V Dr. Fridtjof Nansen conducted surveys in tropical waters in South and Southeast Asia, including the Arabian Sea.

The establishment of a fisheries statistics system is now essential for the growth of fisheries in many developing countries. With support from UNDP and other donor organisations, FAO has furthermore helped a number of countries to set up their own national systems for collecting fishery data. As a result, more data are being gathered about fisheries, and scientists are beginning to use this information to learn more about the condition of fisheries resources and the effects of overfishing on fish populations. Scientists can use collected statistical data to calculate an abundance index, which is commonly expressed as catch per unit of fishing effort (CPUE). In addition to CPUE, scientists also use data from research vessels when evaluating fish populations.

The Marine Fisheries Department of the Government of Pakistan has been compiling data on fish landings, catch disposition, number of fishing vessels, population of fishermen, processing and export of fisheries products, etc. since 1972, and this data is published in the "Handbook of Fisheries Statistics of Pakistan" (MFD, 2002). Currently, information on the number of fishermen, fishing boats, fish landings, and exports of fish and fishery products is used to compile statistics on fisheries. Nothing is known about the CPUE of the artisanal fisheries. Because of this, these statistics cannot be used to assess the stocks of fisheries resources, but they do provide some insightful information on the direction of catch fisheries (Garabaldi, 2002; Khan, 2002).

Fish stock estimate and continuous stock monitoring are essential components of studies on fish populations that aim to ascertain the consequences of fishing. It provides vital information for the development of the fishing industry, for planning and extending fishing operations, and for developing a comprehensive management plan for the most efficient use of available resources. Due to the lack of a solid data