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# Quantitative and Qualitative Analysis of Juvenile Fish Populations of the Romanian Black Sea Coast during 2016 -2017

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**Abstract.** The quantitative and qualitative analysis of juvenile stages of the most important fish species is essential for the study of fish stocks. Between 2016 and 2017, studies were carried out to determine the distribution and abundance of sprat, anchovy, horse mackerel and whiting juveniles, which showed variations between the two years. Fish species stocks in the Romanian waters have been investigated in relation with abiotic environmental conditions and the evolution of the trophic base. During 2016 - 2017, four research surveys at sea were organized with the research vessel "Steaua de Mare 1" in Romanian waters, as following: in May 2016 and May 2017 - 5 working days with pelagic trawl for sprat and whiting juveniles; in September 2016 and September 2017 - 5 working days with pelagic trawl for anchovy and horse mackerel juveniles. Sampling of juvenile fish samples was made using the pelagic trawl for juveniles by surface trawling (0-5 m) at 1.5-2 knots speed, the duration of the trawling being 15 minutes and the horizontal opening of the trawl 14 m. Using observations recorded in 2016 and 2017, it can be said that the state of the fish stock is quite unstable, with major fluctuations from one year to another, caused by environmental modification and fishing pressure on the fish populations. These short lived pelagic species require environmentally friendly reproductive growth and development conditions, as well as commercial fishing measures for ensuring restocking and increase of stocks.

**Keywords**: analysis, juvenile, fish, abundance, biomass, environmental modification

## Introduction

The research of fish juveniles in the Romanian marine area contributes to the knowledge of the changes that occurred in the qualitative and quantitative structure of the ichthyofauna, as well as in the behavior of the different species of fish (Radu et al. 2002, 2004, 2007, 2008a). The biological and ethological characteristics of the species, the ecological links between commercially important species and the auxiliary species are important elements for their conservation and management. A first measure to conserve species and maintain population density is to establish the level of completion. Under these circumstances, the study of the distribution and abundance of juvenile fish species is an important part of determining the status of the populations of the species concerned (Radu et al., 2008b).

The qualitative and quantitative structure of the catches recorded in the Romanian marine area had a variable evolution depending on the state of the fish populations, the fishing effort deployed, the type of gear used and the conditions for the formation and maintenance of the fish agglomerations, especially in the coastal