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**Integrated analysis of several biological/hydrological components and cod stomach data in the Gdansk Basin of the Baltic Sea**

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This paper is a study of occurring in recent years (1999-2013) changes in cod physiological parameters of different size groups, which are related to food and maturation rates, and, to a certain extent, to an attempt to identify possible causes, factors and interactions that have formed the current environmental uncertainties and risks when assessing abundance, biomass of Eastern Baltic cod and prospects of this fishery type. The results of our research in the ICES SD 26 confirm trends in growth and early maturation of the Eastern cod stock. Taking into account the decrease of liver energy resources of all cod size groups in recent years, increasing of the fed state degree by sprat and reducing of the feeding rate by crustaceans, it can be assumed that abundance of *Saduria entomon* and *Mysis mixta*, especially during the fish fattening, is the main biotic driver that influence the physiological state of all cod size groups. Based on the data presented, taking into account the results of the work of others authors showed that a size decrease of different species in aquatic systems is a universal or very general ecological response to warming, it can be concluded that the current increase in water temperature in the Baltic Sea, along with the expansion of waters with oxygen deficiency (in particular, through the influence of the latter factor in the narrowing of cod prey items spectrum) are the main abiotic drivers determining the structural changes in the population of Eastern Baltic cod in recent years.

**Keywords:** the Baltic Sea, cod, integrated ecosystem analysis, physiological parameters, abiotic and biotic drivers.

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