The work focuses on one of the youngest topics in marine biology, the analysis of the relationship between biological traits of species and gradients of environmental parameters. Potentially, works in this direction will answer the question of how environmental factors filter certain compositions of coexisting species on the basis of their functional traits.

The methodological basis for studying this relationship is the Joint species distribution models, which evaluate the relationship of several data sources (Ovaskainen & Abreg, 2020): (1) the matrix of species abundance in communities, (2) the matrix of functional traits of species, (3) the environmental data matrix (these three types of matrices were considered in the work under review), and (4) the matrix describing the phylogenetic relationships between species (frequently it is important since functional traits could be a product of phylogenetic relation between species), (5) the data collection design matrix, and (6) the matrix of geographic coordinates. The latter two matrices cause the model to be a mixed model by its nature. Thus the model should include not only fixed effects (i.e. environmental gradients) as a drivers of community composition, but also random effects (spatial and temporal correlations, dependencies of the data determined by the collection design).