

TOWARDS INCREASING GELATINOUS PLANKTON BLOOMS IN THE MEDITERRANEAN. COMPARISON WITH THE BLACK SEA SIMILAR EVENT SCENARIO

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Abstract

During last years native gelatinous species considerably increased population size and distribution areas in the coastal areas of the Mediterranean Sea. Some of them expanded into the Sea of Marmara and even to the Black Sea. In addition non-native gelatinous species are recorded more and more often in the Mediterranean. We try to assume possible reasons based on nutrients concentration and climate shifts using the Black Sea scenario.

Keywords: Coastal Waters, Ctenophora, Medusae

In the Mediterranean Sea gelatinous species such as coelenterates and ctenophores increased their populations and areas of distributions during last years. Among them scyphomedusae *Pelagia noctiluca*, *Cotylorhiza tuberculata*, *Rhisostoma pulmo*. *Scyphomedusa Chrysaora hysoscella*, and ctenophore *Bolinopsis vitrea* not only increased their areas of distribution but also expanded into the Sea of Marmara and even to the Black Sea [5]. Lessepsian migrant scyphomedusa *Cassiopea andromeda* established, spread over the eastern Mediterranean and penetrated into the Sea of Marmara [6]. The Black Sea invader *Mnemiopsis leidyi*, which was mainly observed in the Aegean Sea and did not create semi-reproductive population, in 2009 was recorded during all summer in new locations along the eastern and western Mediterranean Sea [1, 2, 3,7]. *Spreading mucilage* also increase in new areas. Although blooms of gelatinous plankton species have often been observed in the Mediterranean, particularly pronounced in the early 1980's, there is still almost no information about their effective causes, or of correlations which would enable prediction of their occurrence. Scenario of gelatinous plankton blooms in the Mediterranean has been compared with the Black Sea one. The Black Sea ecosystem resulted in nutrient pollution altered into a critically eutrophic in 1970s with catastrophic consequences and disturbed functioning. These conditions were favorable for the development of gelatinous plankton. First native gelatinous species began to increase their populations. Rising temperature in addition to disturbance are favored the naturalization of the gelatinous predatory warm-water ctenophore *M. leidyi* and its penetration into other seas of Mediterranean basin. It reached high abundances and affected all levels of the most ecosystems. Later on appearance in the Black Sea its predator warm water ctenophore *Beroe ovata* has facilitated ecosystem recovering. Since 1980s similar nutrient content alterations has been recorded in the coastal areas of Mediterranean linked to change their input from the rivers [4]. We assume that this factor together with temperature rise could be drivers of ecosystem change towards gelatinous blooms both native and non-native.

Therefore the Black Sea example must be taken into consideration for understanding reasons of gelatinous plankton blooms in the Mediterranean Sea and focusing new research.

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