

Autumn 2015 Plankton Bloom in İzmit Bay (Marmara Sea)Halim Aytekin ERGÜL¹, Serdar AKSAN¹, Merve İPŞİROĞLU¹¹Department of Biology / Faculty of Arts and Science, Kocaeli University, Turkey
serdaraa@gmail.com

Aim of the study: Spring plankton blooms in İzmit Bay is a regularly occurring phenomenon. Autumn plankton blooms in İzmit Bay on the other hand are unforeseeable and usually related to an unexpected cause. This study aims to determine cause of autumn 2015 plankton bloom in İzmit Bay and its causative species.

Material and Methods: İzmit Bay is a semi-enclosed coastal ecosystem located in the most industrialized area of the Marmara region (Turkey). The 49-km long bay with an area of 300 km² has three basins connected by shallow and narrow passages.

Surveys were carried out to take surface marine water for quantitative analysis of Nitrite-N (NO₂⁻-N), Nitrate-N (NO₃⁻-N), Ammonia-N (NH₃-N), Silica (SiO₂) and Orthophosphate (o-PO₄³⁻) and phytoplankton identification in 5 different stations throughout İzmit Bay. Temperature, salinity, dissolved oxygen (DO), turbidity, pH and Chlorophyll-a (Chl-a) levels were measured in the water at the same stations for each samplings. tubular plankton chamber was used for pre-identification under an inverted microscope while plankters were alive. Then phytoplankters was quantified via Nageotte counting chamber under a light microscope.

Results: Total of 10 different phytoplankton species were identified in autumn 2015 plankton bloom in İzmit Bay with *Prorocentrum micans* identified as dominant species (Over 1 million individuals/L). Red tide sightings and excessive plankton biomass measurements were limited to northern part of the middle basin of İzmit Bay.

Relatively long lasting and strong north-easterly winds blew for 5 days just before the plankton bloom in the study area. Because of the geographical conditions of İzmit Bay, strong north-easterly winds could cause an upwelling by re-suspending aggregated nutrients stored in surface sediment. These winds determined as the triggering cause of the autumn 2015 plankton bloom in İzmit Bay.

Keywords: Plankton Bloom, Upwelling, İzmit Bay, *Prorocentrum micans*.