



ASSESSMENT OF TEMPORAL ECOSYSTEM RESPONSES TO PHYTOPLANKTONS VIA PHOTOSYNTHETIC PIGMENTS UNDER A POTENTIAL OIL SPILL EVENT IN İSKENDERUN BAY

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Oil spills in marine ecosystem are inevitable. Ecosystem risk assessments after oil spills are required on at least one biological component's response to have some degree of understanding of risks associated with the spill. In this study, crude oil spill impacts were studied under a spill scenario in Iskenderun Bay, where is very prone to oil tanker accidents due to the high traffic of tankers. Phytoplankton communities' response was assessed in 4 different seasons. Photopigments data, by HPLC, was used to evaluate community shifts of phytoplankton under different doses of the crude oil. According to this study, time of the year is critical for the consequences because a highly significant response difference, which is more than an order of magnitude between winter and fall seasons, was observed. Due to physical conditions of seawater and initial phytoplankton compositions, the ecosystem was more tolerant to the crude oil in winter than other seasons. EC₅₀ values varied between 11.5 and 122.3 µg/L total petroleum hydrocarbon (TPH) concentrations for all seasons. It is shown that the time of the year and known TPH concentrations of the seawater possibly can tell us about the potential impact of an oil spill in this region.

Keywords: Oil spill; Iskenderun Bay; Phytoplankton; Ecotoxicology; Pigment