

O92. SELF-CLEANING CAPACITY OF SEACOASTS IN CASE OF OIL POLLUTION

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The sea coasts are especially exposed to the oil pollution harmful influence as they frequently suffer from oil spills relating to the tanker accidents, port and off-shore activities. The objective of the present research is to examine the rates of spilled fuel oil natural destruction on geographically different seacoasts and to evaluate their relationship with principal environmental factors such as climatic and hydrological conditions, coast exposure and geomorphology, sediment types, intensity of biogeochemical cycles. For this purpose, a number of contaminated sectors of the Atlantic coasts of France and Spain (areas of “Erika” and “Prestige” tanker accidents), the Strait of Kerch (“Volgoneft-139” tanker accident) and the Black Sea coast in Russia (area of Novorossiysk sea port) were studied. Long-term (from 6 to 15 years) field observations were carried out there. The oiled samples were analyzed with the use of thin layer and column chromatography, optical and gravimetric methods. The results show that in the course of time, the oil slicks demonstrate an exponential diminution in their size, number and in the ratio of labile hydrocarbons content to conservative asphaltic components content. The half-period of this diminution varies from less than 1 to 12 years, subject to the forms of fuel oil traces and geographical conditions. On the Strait of Kerch coast washed by shallow, slightly salted and highly bio-productive waters of the Sea of Azov the spilled fuel oil tends to disappear twice as rapidly as on French and Spanish coasts of the Atlantic Ocean. The joint examination of the observed rates of oil pollution natural destruction and the geographical conditions of studied sites shows that temperature and seawater salinity are the crucial environmental factors of self-cleaning process.