

ANALYSIS OF THE INTRA-ANNUAL DYNAMICS OF THE BEACH CAST IN THE SOUTH-EAST BALTIC BY PHOTO MONITORING

Dmitry Domnin¹
Boris Chubarenko¹

¹⁾ Shirshov Institute of Oceanology of Russian Academy of Sciences, Russia

Abstract

Algae washed ashore can be not only a source of pollution of the beach and waterfront, but also a potential resource for economic. However, it is necessary to understand what the volume of emissions, their frequency and lifetime.

Based on remote-sensed data, information on the beach dynamics and beach-cast emission was collected from November 11, 2019, to October 31, 2020, at the pilot site on the South-Eastern Baltic shore. This site was located at the shore segment facing the North, to left and right from the groin. Beach-cast emissions were associated with the presence of the beach, and the beach-cast appeared only in cases of the presence of a beach. In most cases, the beach-cast appeared several days after the formation of the beach.

The beach-cast consisted primarily of algae. Fresh beach-cast occupied a smaller area, and its layer was thicker than that of long-discarded and trampled beach-cast. The specific amount of material (per m²) in a fresh beach-cast was about 3.7 times higher in volume and 2.6 times higher in weight.

To the west of the groin, the number of days when the beach-cast was present was 160; to the east of the groin, the number of days when the beach-cast was present was 147. The beach cast residence time (the most frequent duration of beach-cast presence was one day) ranged from 1 to 21 (4.1 on average) days and from 1 to 19 (4.3 on average) days to the west and east of the groin, respectively.

Preliminary analysis showed that algae releases are not always associated with external weather conditions or changes in sea level. These external factors rather affect the washout of the beach cast. And the release depends on a longer chain of relationships: growth on the substrate – detachment from the substrate – dynamics within the water masses – release to the shore.

Keywords: beach cast, beach wrack, remote data