BEACH WRACK AS A POTENTIAL NATURAL RESOURCE IN THE SOUTH-EASTERN BALTIC

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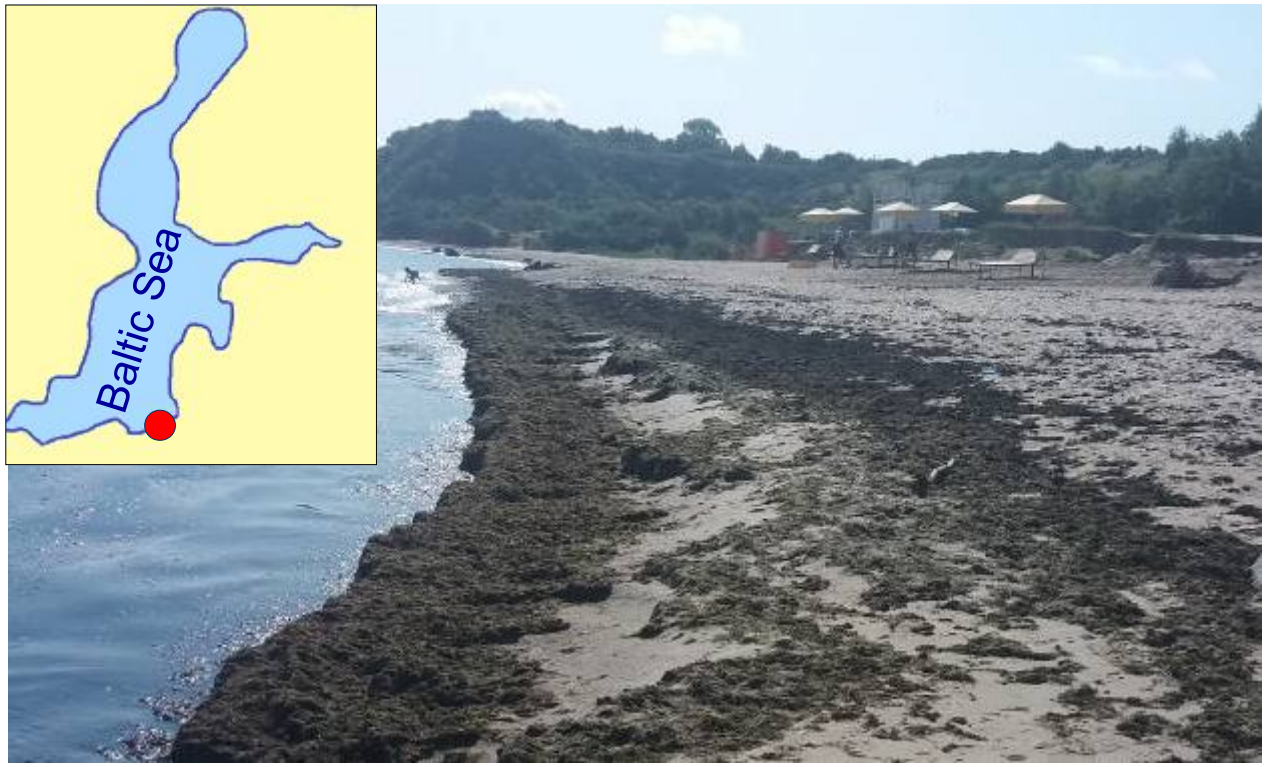
The study on Beach Wrack spatial and quantitative distribution and its potential use in the South-Eastern Baltic is carry out within the Project #R090 CONTRA of the Interreg Baltic Sea Region Programme and accompanied by researches of algae species composition basing on partly support of the State assignment of IO RAS (Theme No. 0149-2019-0013)

Glossology: *Beach Wrack – algae, sea grasses and other biological marine materials, which are thrown from the sea to the beaches, becoming a polluter and cause of inconvenience.*

Problem of *beach wrack* is sufficiently vital for the *Baltic Sea beaches of the Kaliningrad Oblast (Russia).* From time to time the *algae in large amount* appear in some places of a beach and make these areas unsuitable for *recreational use*.



The Beach Wrack on the Baltic Sea beach of Kaliningrad Oblast, Russia (19.07.2019)

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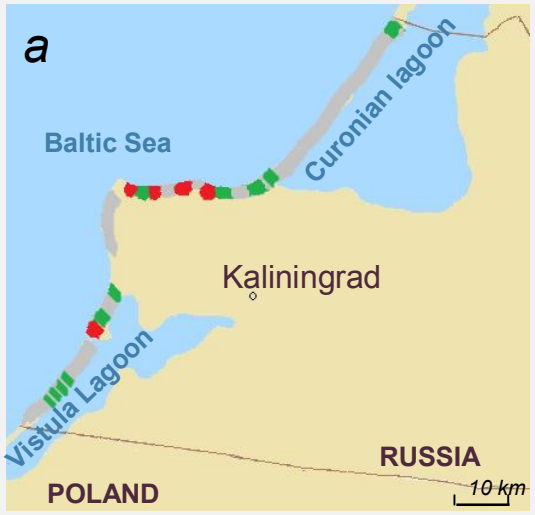
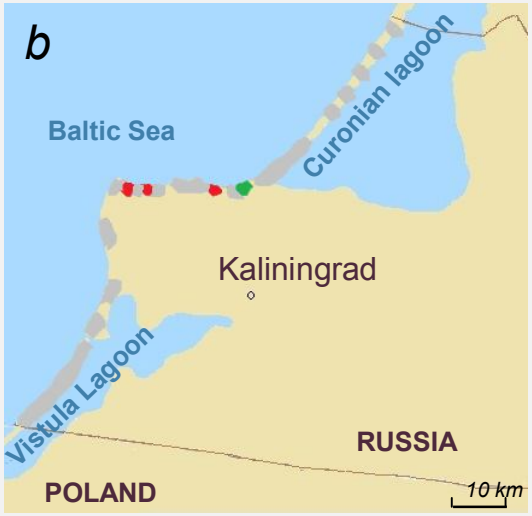
Spatial Distribution of *Beach Wrack* was characterized by significant *spatial* and *temporal variability*. In general, large amounts of Beach Wrack emissions were observed on the northern coast of the Sambian Peninsula, in contrast to the western coast and Curonian and Vistula spits.

The largest accumulations of *Beach Wrack* were local and mainly near the *coastline protrusions* as capes (natural) and breakwaters, slipways, buns (man-made).

Beach Wrack stock estimations as of July 2019 (a) and March 2020 (b)





BW layer thickness more than 15 cm

BW layer thickness less than 15 cm

BW is absent or in a small amount (coating of BW is not solid)

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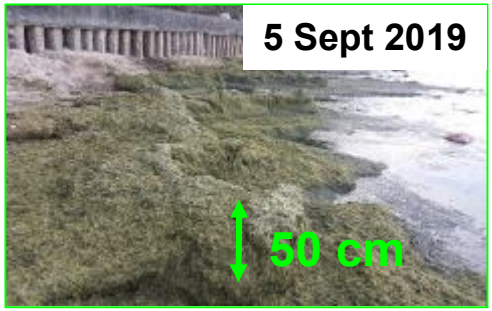
The time of residence of Beach Wrack storage vary greatly and often limited to a few days and it can be significantly longer in summer months. The further transformation of Beach Wrack could be carried out in several ways:

- **Flushing back to the sea**

  (the most common)



- **Covering under the thickness of sand or small pebbles**

- **The wind-wave dispersal along the beach**

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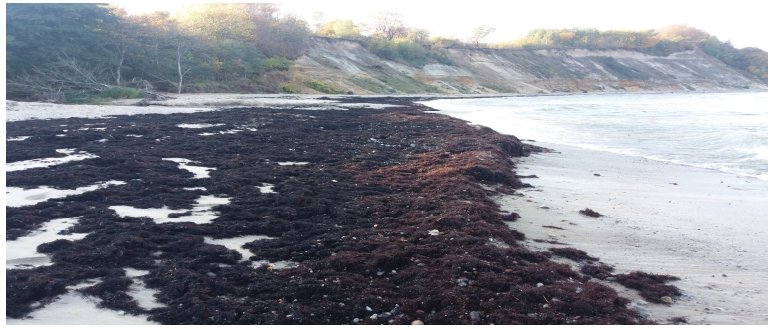
Beach Wrack as a potential resource

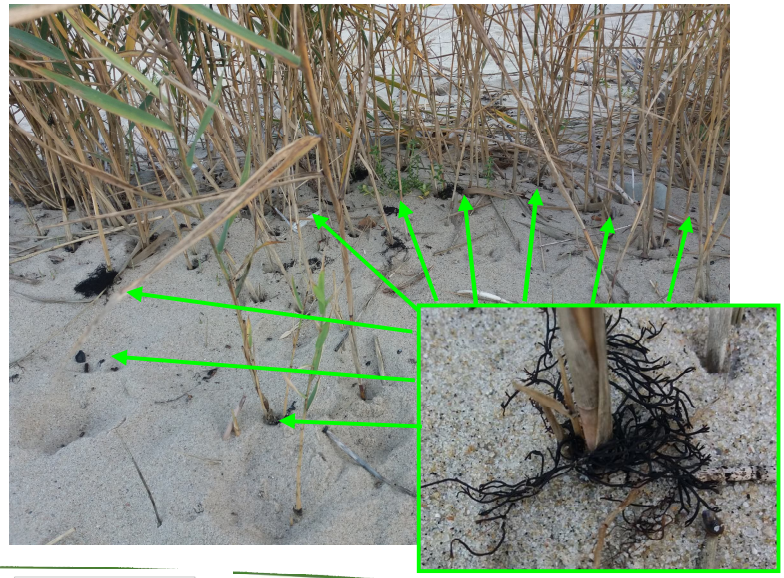
The preliminary estimations show that the industrial use of Beach Wrack is limited by the spatial and temporal irregularity of their emissions in the Kaliningrad Oblast.

However, the problem of Beach Wrack collection and utilization exists.

A possible solution could be use of Beach Wrack for coastal protection greenery as nutrients that is similar to a natural process. In this way Beach Wrack could be involved in soft engineering techniques to manage the coastline.
These experiments are currently being conducted in the Curonian Spit National Park.



The thickets of vegetation of the back of the beach accumulate some amount of Beach Wrack



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