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Subaqueous landscapes – discovering the invisible using a multibeam echosounder (examples from the Southern Baltic)

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The basis for studying the surficial processes and landscape evolution on the land is the digital terrain model (DTM) from measurements using the lidar system. The equivalent basis for studies of the subaqueous landscape is the DTM produced from recordings acquired by using the Multibeam Echo Sounder (MBES) systems.

MBES recovers information from the seabed that has surprisingly detailed relief. The data allow detailed geomorphological, geological, sedimentological studies and maps to be produced. The data constitute important evidence of the processes that affect the subaqueous landscape, as well as enabling evaluation of the condition of the seabed and its uses. Any exploration and exploitation of natural resources require an analysis of the relief, as is the case when selecting locations of infrastructure (for example, wind power plants, pipelines, conduits, etc.). Subsequent inspection and monitoring of the structures should take into account the character of the landscape and the impact of changes in the seafloor environment.

We present the possibilities of MBES registration through several examples of subaqueous landscapes on the seafloor of the southern Baltic (*e.g.* fig.1) and the floors of selected rivers, achieved by studies conducted at the Maritime Institute in Gdańsk, Poland.

The examples relate to sea floor landscapes (subaqueous slope of the sand barrier, relicts of the early post-glacial topography, aggradation plains with sand waves, wrecks and other signs of human activity), as well as river-bottom landscapes with bars, pools, sand waves and megaripplemarks.

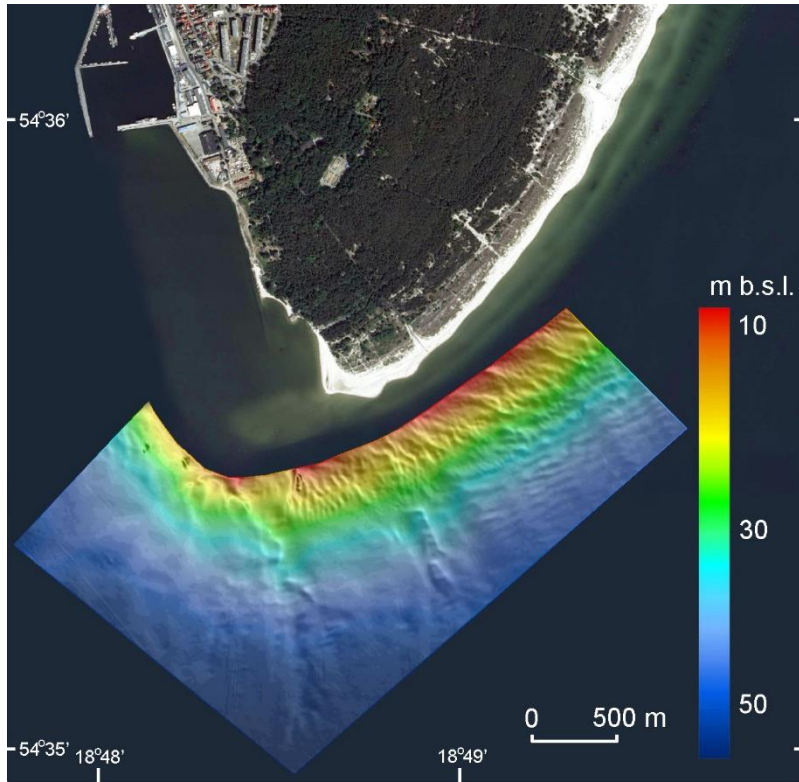


Figure 1: The relief image of the Hel Peninsula sandy tip. The subaqueous landscape (MBES) and aerial photography (CODGiK on 10 July 2010).

