Description for the general public

Shallow coastal areas of southern Baltic Sea are very productive and important for Polish economy, tourism and local communities. At the same time, those areas are under strong anthropogenic pressure and related pollution. Coastal sea bottom (benthic) fauna is very diverse and productive. It also plays pivotal role in many important biogeochemical processes such as carbon and nutrient cycling. Increasing burning of fossil fuels leads to increase of carbon dioxide which is in large locked in the seas in processes of organic matter production and break down. Sea bottom organisms have large share in those processes through their activities including feeding, respiration and movement within sediment. Due to benthic activities both organic matter, phosphorus and nitrogen compounds can be buried in the sediment or released back to the water column. Those modifications are crucial for the ecosystem functioning balance. However, we do not know how benthic activities influence biogeochemical processes. We neither know how those influences and fauna itself are modified by environmental conditions like temperature, salinity, available food and/or pollution, nor how they change depending on area and season. Within this project we will study how and how much bottom fauna, its structure and activities, change and shape biogeochemical processes in shallow coastal areas of the southern Baltic Sea. We will also study how those relationships vary across seasons and years. Our results will allow us to assess the ecosystem response to human induced environmental changes.