

The YOKATTA project seeks to advance understanding of ocean acidification in the Baltic Sea by examining the role of dissolved organic matter (DOM) in affecting the water's alkalinity (i.e., ability to neutralize acids) and its impact on the marine CO₂ system. As CO₂ levels in the atmosphere rise due to human impact, the ocean absorbs more CO₂, causing seawater pH levels to drop, worsening ocean acidification. This is a particular concern for coastal areas like the Baltic Sea. Most studies have focused on inorganic contributions to seawater alkalinity, the influence of organic materials (called Organic Alkalinity, or OrgAlk) has not been fully explored. DOM, especially from rivers, has been shown to play a key role in OrgAlk, but how it changes seasonally, and how its composition affects seawater, is still not well understood. YOKATTA will use a mix of field studies, long-term data collection, and laboratory experiments to examine how the type and origin of DOM influence the water's ability to neutralize acids. Additionally, YOKATTA will explore the link between DOM's optical properties and its alkalinity, with the goal of developing a remote sensing model to map OrgAlk across the Baltic Sea. This project will improve our understanding of how DOM helps to stabilize seawater pH, leading to better predictions of how ocean acidification will unfold in the region and providing tools to assess the impacts of climate change on coastal ecosystems. Through this research, YOKATTA will provide important information about the role of DOM in the Baltic Sea's carbon cycling and overall marine health.