# Detect2Protect

**Deliverable 2.1.**

**Pressure/impact map for sampling site selection**

Author(s)

Ivan Kuprijanov (WP2 lead),
Tallinn University of Technology

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1.           Background

The legacy contaminant Cd in biota (mainly fish and mussels) was selected as an indicator of pollution across the study area to illustrate environmental pollution in the regions sampled during the Detect2Protect (D2P) project *"New approaches in determining the impacts of chemical pollution to protect the biodiversity of the Baltic Sea."* Field study regions in the coastal areas of Finland, Estonia, Latvia, Lithuania, Poland, and Sweden were chosen based on expert assessments. Subsequently, sampling sites were defined as polluted and reference sites, characterized by similar habitats but contrasting pollution status. The D2P consortium consisted of the following partners: Finnish Environment Institute (Syke), Finland (coordination); Stockholm University (SU), Sweden; University of Gothenburg (UGOT), Sweden; Latvian Institute of Aquatic Ecology, Agency of Daugavpils University (LIAE), Latvia; Tallinn University of Technology (TalTech); Institute of Oceanology, Polish Academy of Sciences (IOPAN), Poland; Nature Research Centre (NRC), Lithuania; Marche Polytechnic University (UNIVPM), Italy (subcontractor).

*WP2: Data mining*

WP2 is led by TalTech and consists of background data collection and quality check. Open-source databases in the Baltic Sea region have been used to compile data from sampling sites on (i) chemical contaminants and environmental parameters in various matrices (sediment, water, and biota), (ii) biological effect parameters in wildlife, and (iii) species abundance of benthic communities in selected areas. This information has subsequently been aggregated into a structured dataset. Potential pressure and impact areas were identified and visualized in the form of a "pressure map" illustrating contamination by the ubiquitous toxic metal cadmium (Fig.1). From long-term Swedish cadmium data in biota (collected between 2000 and 2022), five stations showed decreasing trends, two stations showed increasing trends, and twelve stations showed no significant trend. Synthesis of the data on contaminant levels was partly used in the selection of the D2P project study sites (Fig. 2).
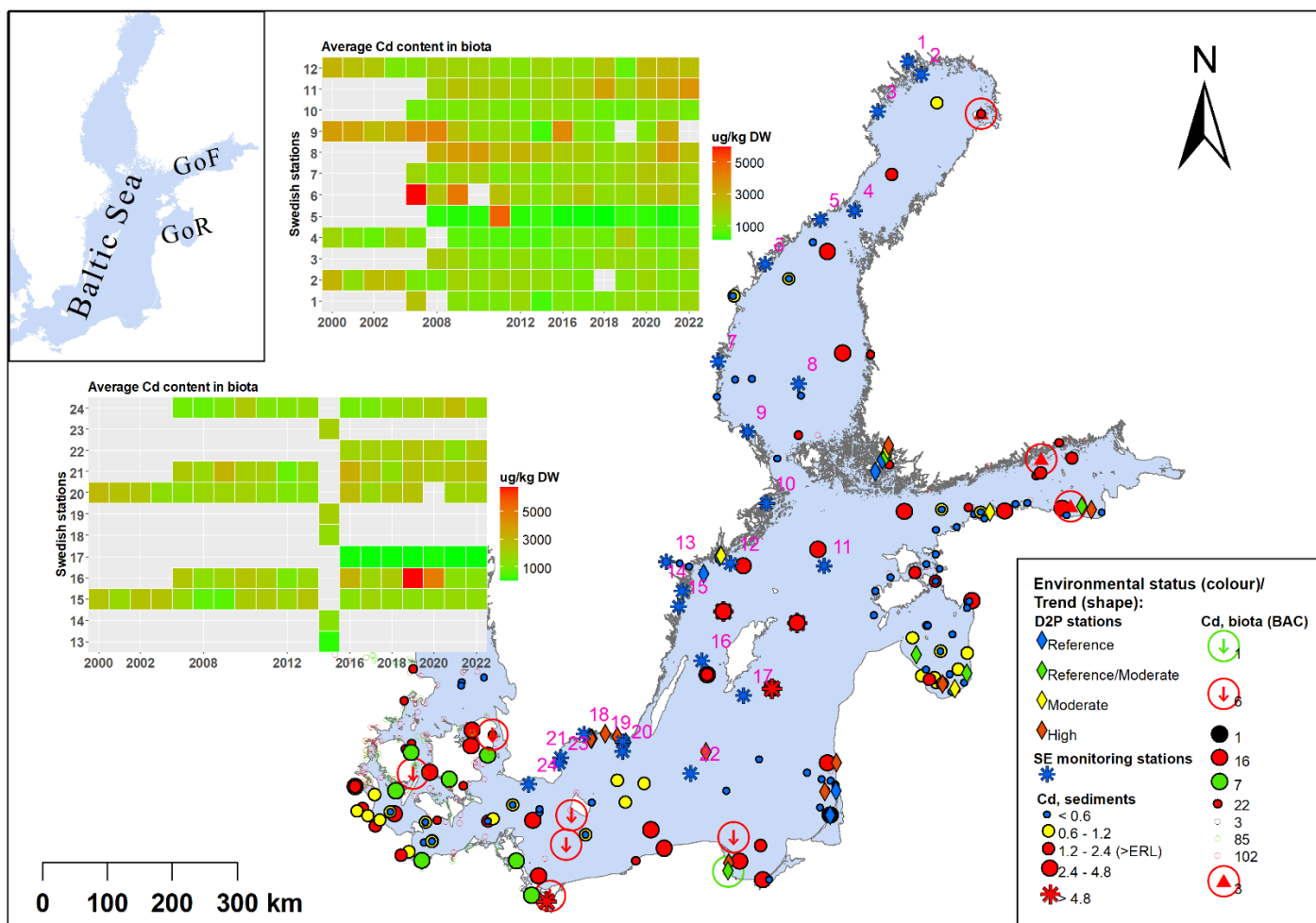
**Fig. 2.** Data on cadmium (Cd) concentrations in biota, along with calculated trends, have been compiled for the Baltic Sea region. Environmental status is indicated by colour (green – below the BAC of 160 µg/kg ww; red – above the BAC), while trends are represented by symbols (downward arrow – decreasing trend; triangle in a circle – increasing trend; hollow dots – informal status assessment). Concentrations in sediments are also included. In addition, a heat map of Swedish cadmium data in biota (µg/kg DW) from monitoring stations, based on HELCOM data (2000–2022), is presented. The map also marks the sampling sites of the D2P project.
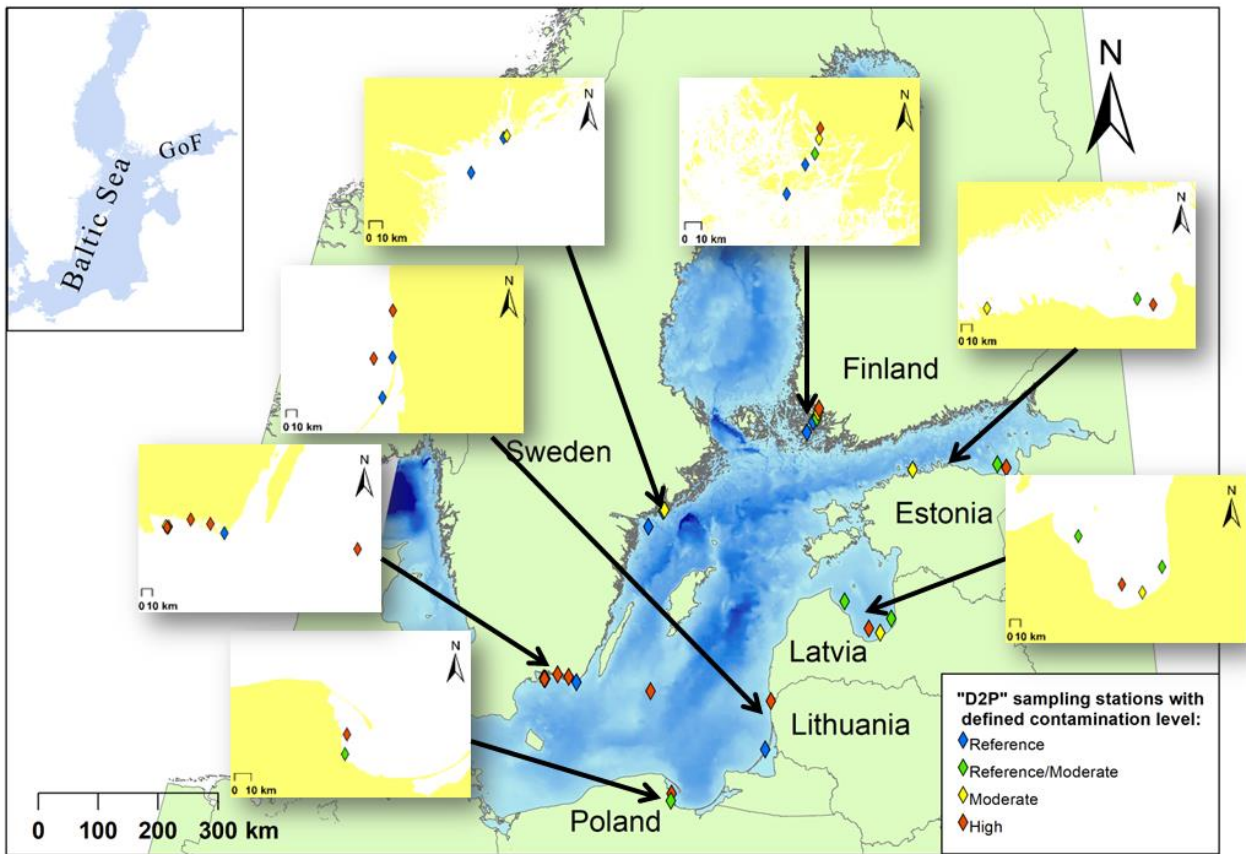
**Fig. 3.** Final D2P project sampling sites and contamination levels defined considering expert assessments.