

# A new methodology for prioritisation and initial investigation of contaminated sediment in Sweden

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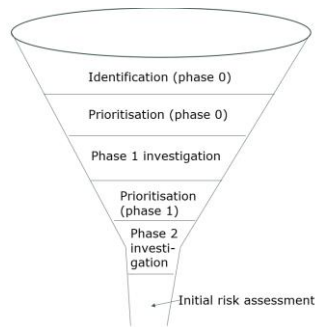
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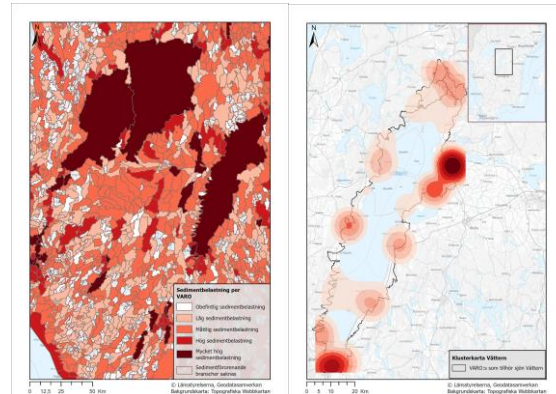
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**Introduction:** There are approximately 86,000 potentially contaminated areas on land in Sweden. The number of contaminated sediment areas is still unknown, but there are likely tens of thousands of sediment areas with varying degrees of contamination level. A new methodology has been developed by Swedish authorities with the objectives to identify potential contaminated sediment areas, to prioritise among the potentially most serious areas, and how to initially investigate the areas (Figure 1).



**Fig. 1:** The different steps in the methodology.

**Methods:** The starting point for the identification phase is to assign a *sediment class* to all objects in EBH-Stödet (the Swedish national database of contaminated areas), based on the industry's potential to contaminate sediment. To identify the most potentially contaminated areas affected by several industrial activities (sources), the total emission load to the aquatic environment is calculated for each water area in the country (Figure 2). By categorising all the sources for each area, the contaminants that can be expected to be found in the sediment are principally identified. The investigation is divided in two phases. The initial investigation phase is to verify the sources potential load on the water body based on historical data and physical parameters. The second investigation phase consist of a field survey with the aim to verify if the sediment is negatively affected.



**Fig. 2:** The left figure shows the total emission load of industrial activities for all water areas. The right figure shows areas in Lake Vättern where the industrial emission load is high.

**Results:** Maps of the emission load at larger lakes clearly show where areas contaminated sediments can be expected (Figure 2). The emission load maps are very helpful in prioritizing where to focus the sediment contamination identification.

**Discussion:** The primary aims of the methodology are 1) to facilitate and coordinate the prioritisation and initial investigations of contaminated sediments in Sweden, and 2) to initiate a systematic work to identify and inventory the most serious potential sources (ongoing and/or historical industrial activity) and subsequently the most affected the water catchment areas.

With the methodology we now have a tool that can take us a big step closer to a cleaner and healthier sediment in Sweden.

The development of the methodology is part of a larger government mission to increase knowledge about contaminated sediments.