

THE COVER-METHOD - A NEW REMEDICATION METHOD TO CAP CONTAMINATED SEDIMENTS

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ABSTRACT

In Sweden as well as in the rest of the world there are many polluted sediments contaminated by heavy metals or organic pollutants. These pollutants are passing through the ecosystem and causing environmental nuisance.

There are two major ways these pollutants are transported from the sediment to biota first via resuspension of particulate matter second through bioturbation. Traditionally dredging the sediments depositing the pollutants in landfills has solved these problems.

The Cover-method was invented and developed by Sten-Åke Carlsson and Lars Eriksson Vattenresurs. This method is based on production of several centimetre thick artificial sediment that cap the contaminated surface and thus hinders effects of resuspension and bioturbation. Chemical precipitation in addition of structuring and ballasting materials makes the artificial sediment in a mixing process near the bottom sediment. A new bottom is built layer-by-layer creating a physical barrier between contaminated sediment and the bottom-water. The bottom fauna will find a new life in this artificial sediment. As time goes by new sediment will cover the bottom and secure future water quality.

The method is much cheaper than alternatives like dredging.

The method has been developed starting with laboratory tests in 1993 continuing by testing erosion durability in large scale laboratory tests. Later field test was carried out in Lake Turingen ordered by the Lake Turingen Remediation Project. Field test 1998 showed that the method could be used in full scale. Year 2000-2003 the remediation of Lake Turingen (100 ha) is done at a cost of 26 mln. SEK.