

## **The Use of Sediment Trend Analysis (STA<sup>®</sup>) in Contaminant Management Issues**

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Sediment Trend Analysis (STA) is a technique that enables patterns of net sediment transport to be determined by relative changes in grain-size distributions of all naturally occurring sediments. In addition, STA can determine the dynamic behavior of bottom sediments with respect to erosion, accretion or dynamic equilibrium. The latter provides a very effective correlation with contaminant behavior contained in the sediments. Invented by GeoSea Consulting, STA has been used in harbor management concerns in over 80 projects worldwide. The data requirements are sediment grab samples collected at a regular spacing that is typically 500 m. The samples are analyzed for their complete grain-size distribution using a laser technique. Transport pathways are then determined by searching for sample sequences whose distributions change according to the “rules of transport”. STA has been particularly useful in a large variety of environmental management issues, particularly in tracing the pathways of contaminated sediments, locating CAD sites, and determining rational environmental monitoring strategies. This talk will describe several projects encompassing Vancouver and Seattle Harbors, and the Anacostia River, where STA is used to assess remediation alternatives, together with a brief theory of STA.