

**Consensus-based Weight-of-Evidence Approach as a Tool to Develop a Risk-based Remedial Footprint: Case Study - Hunters Point Shipyard.** Jennifer Holder, Ph.D., ENTRIX, Inc, and Michael Pound, Southwest Division Naval Facilities Engineering Command

The primary objective of the Navy's Sediment Work Group (SWG) in San Francisco Bay is to develop and apply a consistent approach to investigating sediment sites and to identify remedial alternatives for these sites in San Francisco Bay. One approach developed by the SWG is a weight-of-evidence (WOE) approach. The objective of the WOE is to integrate results from various lines of evidence collected in the ecological risk assessment to identify areas requiring further evaluation in the Feasibility Study (FS). The characteristics of the approach include: consensus-based process, flexibility, use of highest quality data, semi-quantitative nature and visual appeal. The approach was first successfully applied at Naval Fuel Depot, Point Molate. A case study using a more complex site, Hunters Point Shipyard, will be discussed here. Four endpoints (sediment chemistry, toxicity bioassays, and bioaccumulation studies) were used to validate a preliminary remedial footprint developed for the offshore sediments at this site. The WOE approach comprised the following five steps: (1) *Determine the weight of the endpoint.* For this study it was agreed to weigh all endpoints equally. (2) *Determine the nature (i.e., whether the finding is positive or negative) and magnitude of the result.* Numeric scores were assigned for various WOE categories based on consensus criteria developed with regulatory agencies. (3) *Integrate the weight, finding and magnitude for a given endpoint result.* The weight, finding and magnitude for each endpoint result was integrated to determine (a) whether or not the result for that endpoint validates inclusion in the FS footprint, and (b) the level of certainty associated with that conclusion. (4) *Integrate all endpoint results for a given sample location.* All endpoint results for a given station were integrated to determine if the location (a) should remain in the FS footprint, (b) should be excluded from the FS footprint, or c) required the consideration of additional inputs to make a determination (i.e., the WOE results were equivocal, resulting in a "gray" area). (5) *Map WOE results from Step 4.* The WOE results for all stations were mapped to provide an initial illustration of the FS footprint.