



Coastal Communications

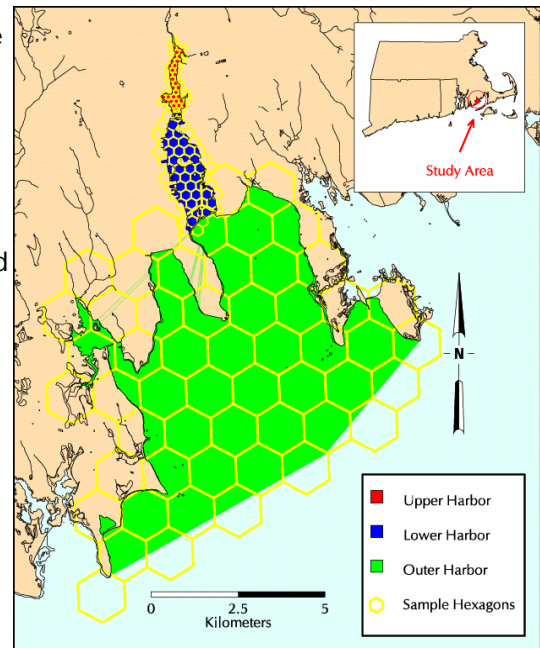


New Bedford Harbor - Long-Term Monitoring Program (NBH-LTM)



Background

New Bedford Harbor (NBH), located in southeastern Massachusetts (see Figure), was designated as a Superfund site due to sediment contamination by polychlorinated biphenyls (PCBs). Based on human health and environmental concerns, the decision was made to dredge PCB-contaminated sediments from the harbor. This type of remediation can be very expensive, so it is important to document the environmental benefit gained for the money spent. Therefore, EPA Region I (Boston, MA) and the U.S. Army Corps of Engineers (New England Division) required a state-of-the-art monitoring program to assess the effectiveness of remedial activities at this marine Superfund site. Based on experience in marine monitoring programs and ecological assessments, as well as numerous research efforts in NBH, the Atlantic Ecology Division (AED), of ORD's National Health and Environmental Effects Research Laboratory (NHEERL) was requested to design this long-term monitoring program.



Approach

The goal of the New Bedford Harbor Long-Term Monitoring Program (NBH-LTM) is to measure spatial and temporal chemical and biological changes in sediment, water and animals. A systematic, probabilistic sampling design was used to select sampling stations. This unbiased design will allow the three areas of the harbor (upper, lower, and outer; see Figure) to be compared spatially and temporally to quantify changes resulting from the cleanup. Sediment is collected at each station and chemical (e.g., PCBs, metals), physical (e.g., grain size), and biological (e.g., bioaccumulation, benthic community) measurements conducted on all samples. To date, samples have been collected three times: 1) 1993 - baseline collection, 2) 1995 - following the "Hot Spot" removal from the upper harbor, and 3) 1999 - before dredging the remaining contaminated sediment in the upper harbor. Also, PCB accumulation in deployed mussels is measured twice each year.

Results

A report describing the history of the site and the baseline data has been produced in an easy to understand GIS format (NBH-LTM Assessment Report: Baseline Sampling; EPA 600/R-96/097). Currently, these large, high quality data sets are being used by AED scientists to investigate associations between pollution and biological effects, such as benthic species composition and sediment toxicity. After completing quality assurance checks, the 1999 data will be compared to both the 1995 and 1993 data to examine changes. The stations will be sampled again when the upper harbor dredging is complete, then at 5-years intervals.

Further Information

It is the intent of the NBH-LTM Program to make this information easily accessible and eventually all of the data will reside on the U.S. EPA's Web Site (e.g., www.epa.gov). For further information, or journal article reprints, contact Skip Nelson (email: nelson.william@epa.gov tel: 401-782-3053) or Barbara Bergen (email: bergen.barbara@epa.gov tel: 401-782-3059).