

Can Restored Urban Wetlands Avoid Recontamination? An Overview of Biota/Sediment Monitoring in NYC

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New York City (NYC) is facilitating the restoration of critical coastal resources by establishing the Saw Mill Creek Wetland Mitigation Bank. This publicly operated wetland bank in Staten Island is near industrially developed land. Extensive dumping of trash and historic fill had occurred throughout the Site for decades. Sediment samples indicated that prior to restoration, the Site posed an ecological risk to wildlife due to metals, pesticides, and PCBs. Restoration actions removed over 40,000 cubic yards of contaminated soils and 40 truckloads of tires and debris from the 54-acre site to create tidal creeks and marshes planted with native vegetation.

The restored wetland is meeting success criteria developed in collaboration with state and federal agencies, including permit-required sediment and biota baseline sampling (conducted immediately after construction/planting of the restored wetland) and post-construction annual monitoring. The requirement for post-construction sediment and biota sampling is based on agency concerns that wildlife are attracted to the newly established marsh and could be exposed to contaminants that may accumulate at the site from other sources within the Hudson Raritan estuary – an estuary that includes multiple Superfund sites.

The baseline and post-construction sediment monitoring program was designed using incremental sampling methodology to collect spatially representative sediment samples across the wetland. Baseline and post-construction biota tissue sampling include ribbed mussels, mummichog, fiddler crab, amphipods, wolf spiders, and long-jaw spiders as key receptors in the wetlands.

The four years of post-construction sediment and biota tissue results are comparable to baseline restoration conditions, suggesting that the wetland has not been re-contaminated. The monitoring indicates that contaminants from off-site sources within the urban estuary are not accumulating within the restored wetland. The information from this monitoring program may be transferred for use in habitat restoration in other urban areas by eliminating uncertainty regarding recontamination in restoration implementation.

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