

# Newtown Creek Bulkhead Habitat Project

## Urban Waterways: bulkhead



**Urban** shoreline is mostly bulkhead, a vertical wall between water and land. The bulkhead blocks formation of intertidal wetland, the salt marsh of the estuary. It opposes wave, tidal and biological forces with mass and rigidity and is therefore damaged over time. Wave impacts, scouring and shearing forces undermine the wall; its great mass renders access, repair and replacement difficult. Materials that compose the bulkhead are manufactured, increasing its cost; storm surges that exceed its height wash over the wall with unmitigated force upon any structure behind it.

## Urban Waterways: wetlands



**Salt** marsh once formed the shore of Newtown Creek, an urban waterway and Superfund site. Wetland restoration is a strategy for remediation of this waterway: Grasses slow inflowing currents, which then drop suspended particles; the grasses and associated microbes can remove, sequester and detoxify many industrial toxins. Ribbed mussels, the most common bivalve of the Creek, filter the water of algal and bacterial cells. The grasses and sediments slow and absorb a storm surge before remaining water reaches structures landward of the marsh.

*Courtesy of Mitch Waxman*

*As shown in the above photo, a salt marsh community developed where an old bulkhead collapsed along Newtown Creek. Salt marsh is a native shoreline habitat of the greater New York - New Jersey Harbor estuary system.*

The **Newtown Creek Bulkhead Habitat Project** is an Environmental Benefits Project, awarded \$0.5M in April 2011 by the New York State Department of Environmental Conservation and Attorney General's Office and administered by the City Parks Foundation. This wetlands rehabilitation project offers modular, meter-long habitat frames for suspension from bulkheads, each with a sediment basin and an underlying tray for ribbed mussel, the most common bivalve of the Creek. The project aim is two-fold: 1) to provide the environmental services of a salt marsh and 2) enable the communities of Newtown Creek to experience the native salt marsh ecosystem with respect to education and aesthetics.



**Bulkhead Habitat Frame: a pocket wetland**



TOP PHOTO: Long Island City Community Boathouse kayakers (pre-Superfund designation) approach the intertidal steps of the Newtown Creek Nature Walk, administered by the NYC Department of Environmental Protection (NYCDEP).

BOTTOM PHOTO: The photo is modified to illustrate the appearance of the opposite shore were it to be outfitted with habitat frames that support mature *Spartina alterniflora* plants. The height of these grasses exceeds 6 feet at maturity.



The NYCDEP has offered the water treatment plant bulkhead of upper Whale Creek as the site to pilot bulkhead habitat frames. The west bulkhead here supports bumper units of approximately one meter in length, as shown in the photograph at left.

The NYCDEP Bureau of Communication and Intergovernmental Affairs has proposed incorporating the pocket wetland project into Phase 2 and 3 of the Nature Walk: extension of the Walk to the head of Whale Creek. The bulkhead bumpers along the west wall will be redundant once the planned dolphin block is constructed at the bend of this waterway (shown at left, bottom). Replacement of the bumpers with the wetland frames will enable visitors to walk along salt marsh vegetation as they traverse the proposed over-water walkway of the Nature Walk.

*For more information please contact:*

**Sarah E. Durand, PhD | Natural Sciences  
City University of New York – LaGuardia  
sdurand@lagcc.cuny.edu**

**Carter Craft | Outside New York, LLC  
Consultant to City Parks Foundation  
carter@outsidewyork.net**