



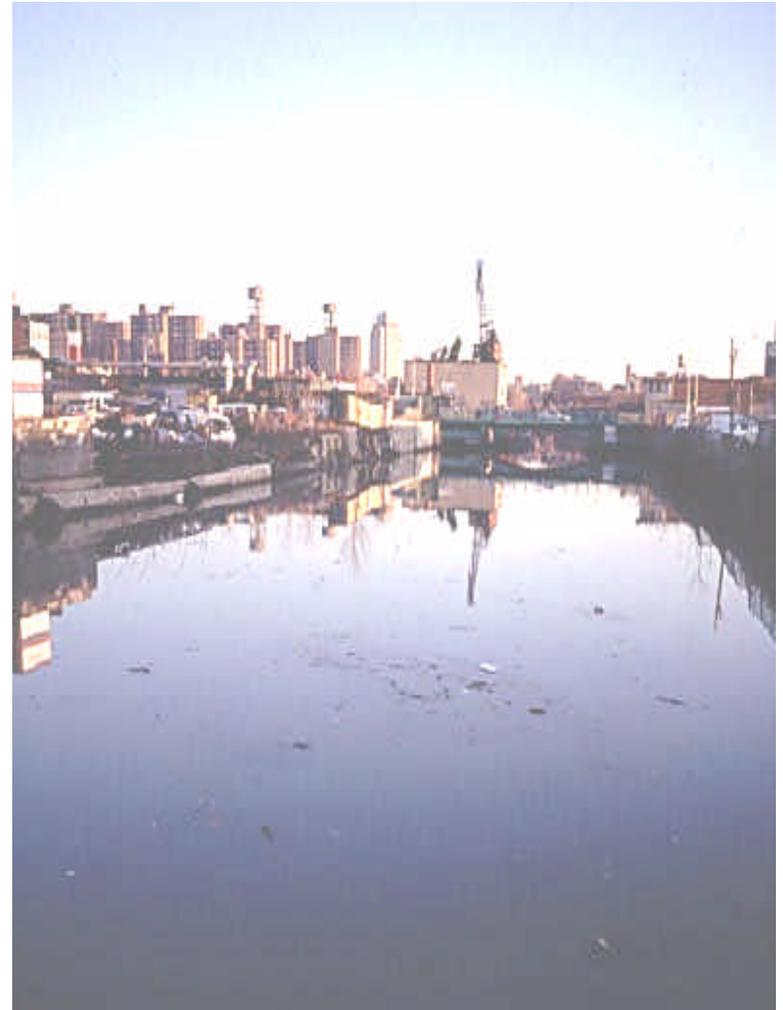
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# Gowanus Canal and Bay Ecosystem Restoration Project Stakeholder Meeting

27 July 2004





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# Overview



- 
- Team and stakeholder introductions
  - Study history and background
  - Status of sediment testing and results
  - Where do we go from here?



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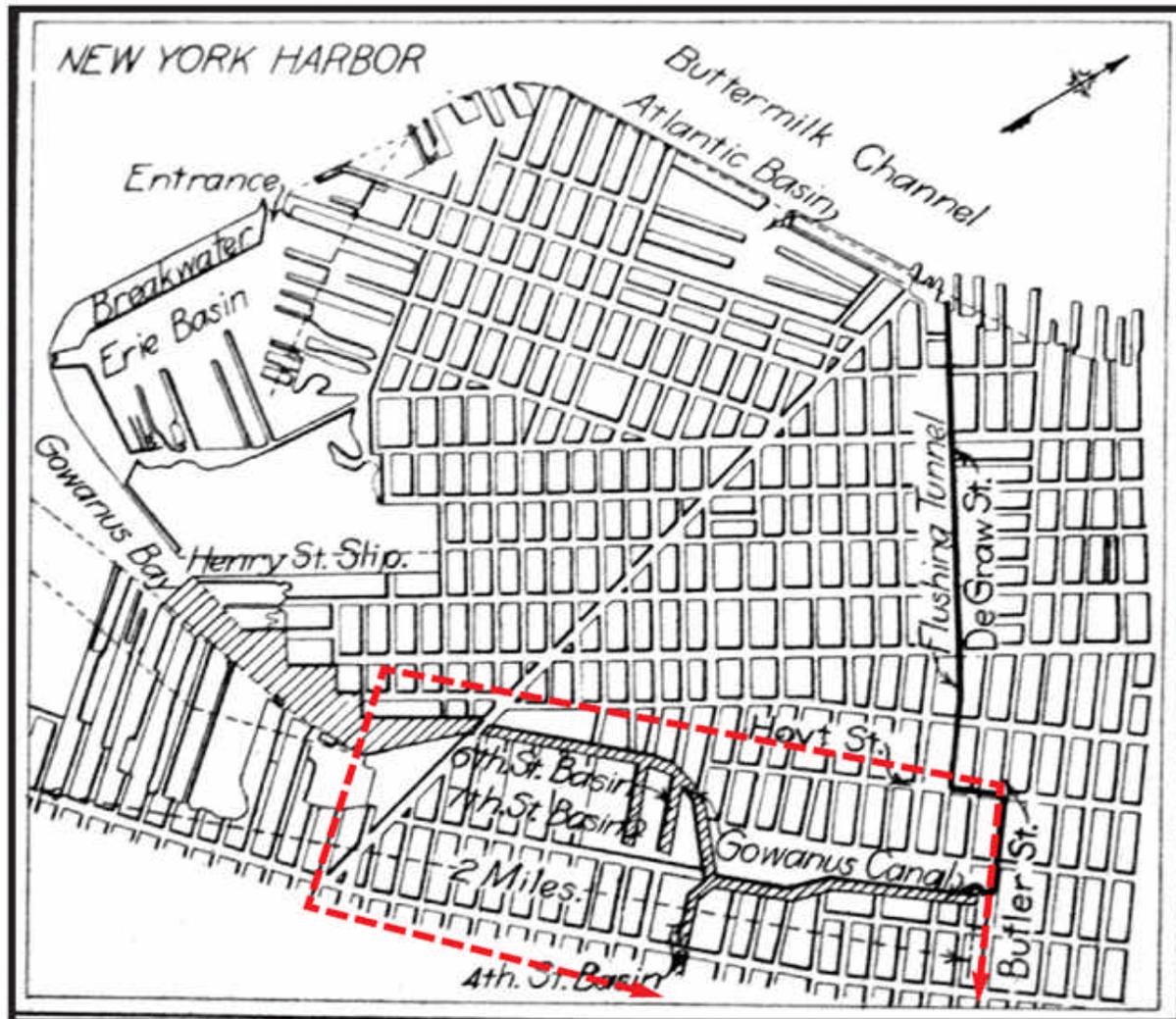
# Gowanus Bay and Canal Ecosystem Restoration Study





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# Study Area



- **GOWANUS CANAL**  
Hamilton Ave to  
Butler Street in  
Brooklyn, (two miles)

- **GOWANUS CANAL  
WATERSHED**  
Six square miles  
(1,759 acres)

- **GOWANUS BAY**  
Bay Ridge Channel to  
the beginning of the  
Gowanus Canal.



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# Authority



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*That, the Secretary of the Army is requested to review the reports of the Chief of Engineers ... **with a view to determining the feasibility of environmental restoration** and protection relating to water resources and sediment quality within the New York Port District, including but not limited to **creation, enhancement, and restoration of aquatic, wetland, and adjacent upland habitats.***

*Committee on Transportation and Infrastructure,  
U.S. House of Representatives  
April 15, 1999*



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# Background



- 
- Started as part of the overall Hudson-Raritan Estuary Study
  - Was changed to a stand-alone study when the NYCDEP joined as a partner (sharing the study costs 50/50)
  - The NYCDEP has been working to improve water quality in the canal, so they joined with the Corps to examine ways to improve the habitat and environmental qualities of the canal

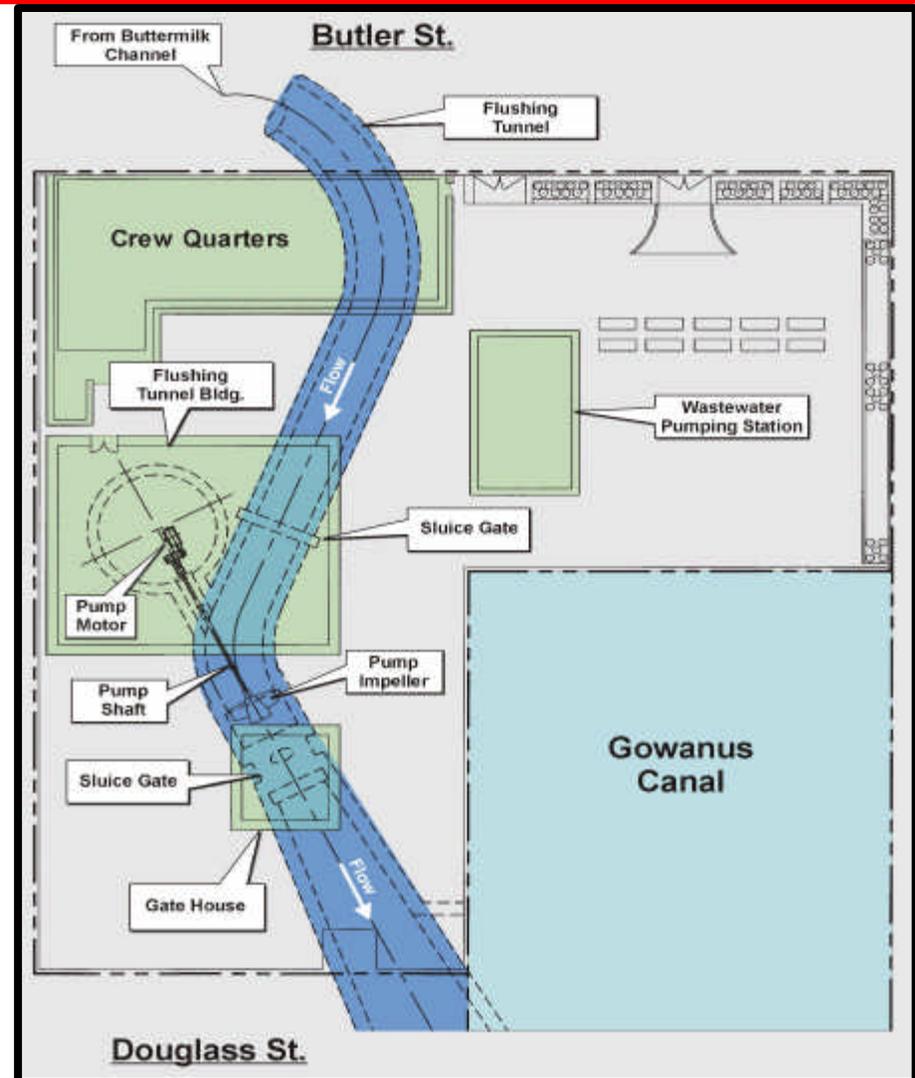


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# DEP Facility Plan



- Modernization of Gowanus Canal Flushing Tunnel Pumping System
- Reconstruction of Wastewater Pumping Station
- Construction of new Wastewater Force Main within Flushing Tunnel
- CSO Screening System
- Expansion of Crew Quarters





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# Ecosystem Restoration



- 
- Restore degraded ecosystem to a more natural condition
  - Should result in a self-regulating, and sustainable system
  - Must be significant to justify Federal funding
  - Significance consists of institutional, technical & public recognition
  - Relies on a non-monetary screening method to determine if benefits support the costs of construction



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# Study Process



- 
1. Specify Problems and Opportunities
  2. Inventory and Forecast Conditions
  3. Formulate Alternative Plans
  4. Evaluate Effects of Alternative Plans
  5. Compare Alternative Plans
  6. Select Recommended Plan



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# Problems



- Loss of the Gowanus Estuary
- Impaired Water Quality
- Absence of Riparian Vegetation
- Loss of Wetlands
- Impaired Fish Habitat
- Impaired Benthic Habitat
- Impaired Sediment Quality





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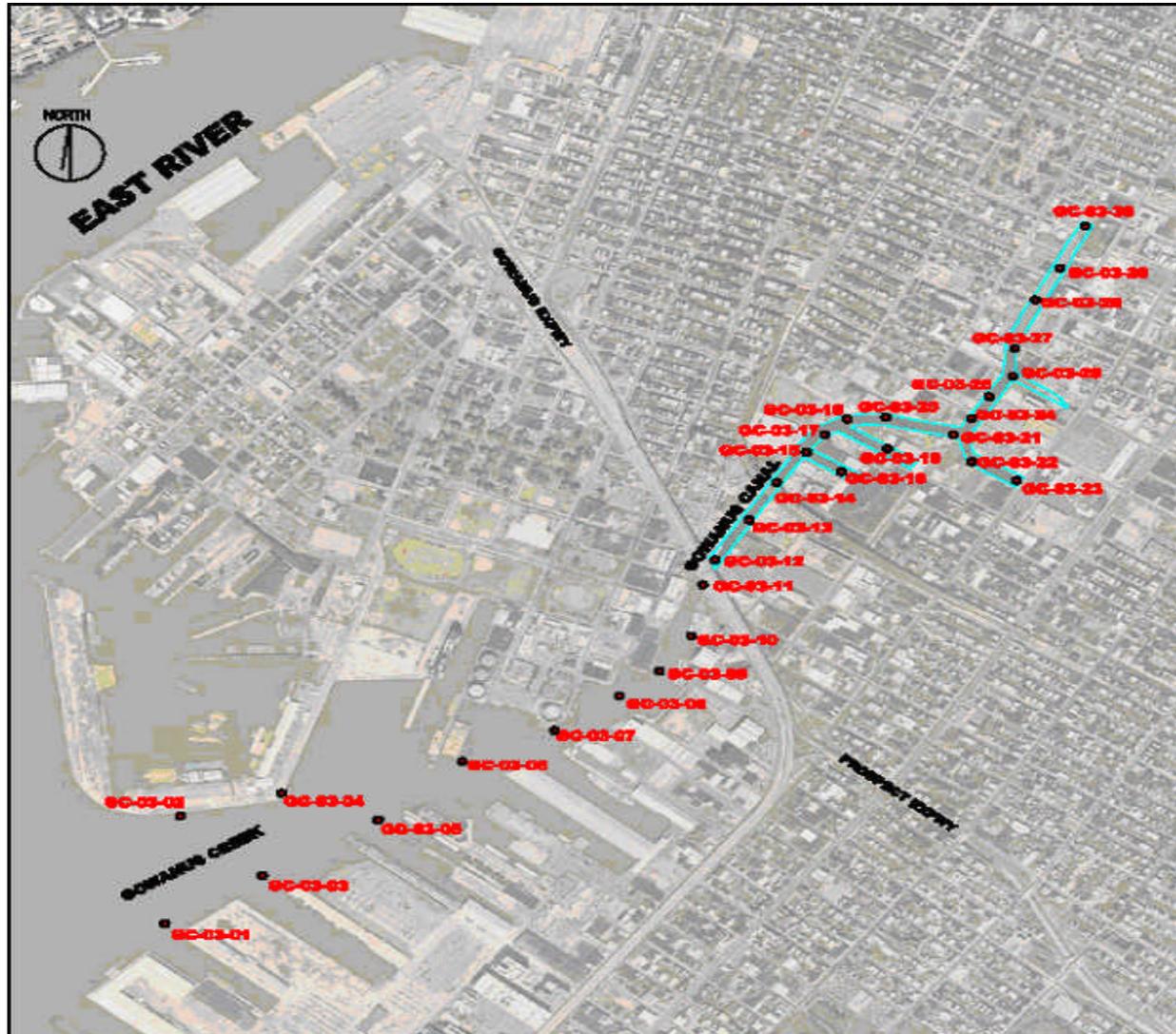
# Sediment Sampling and Testing





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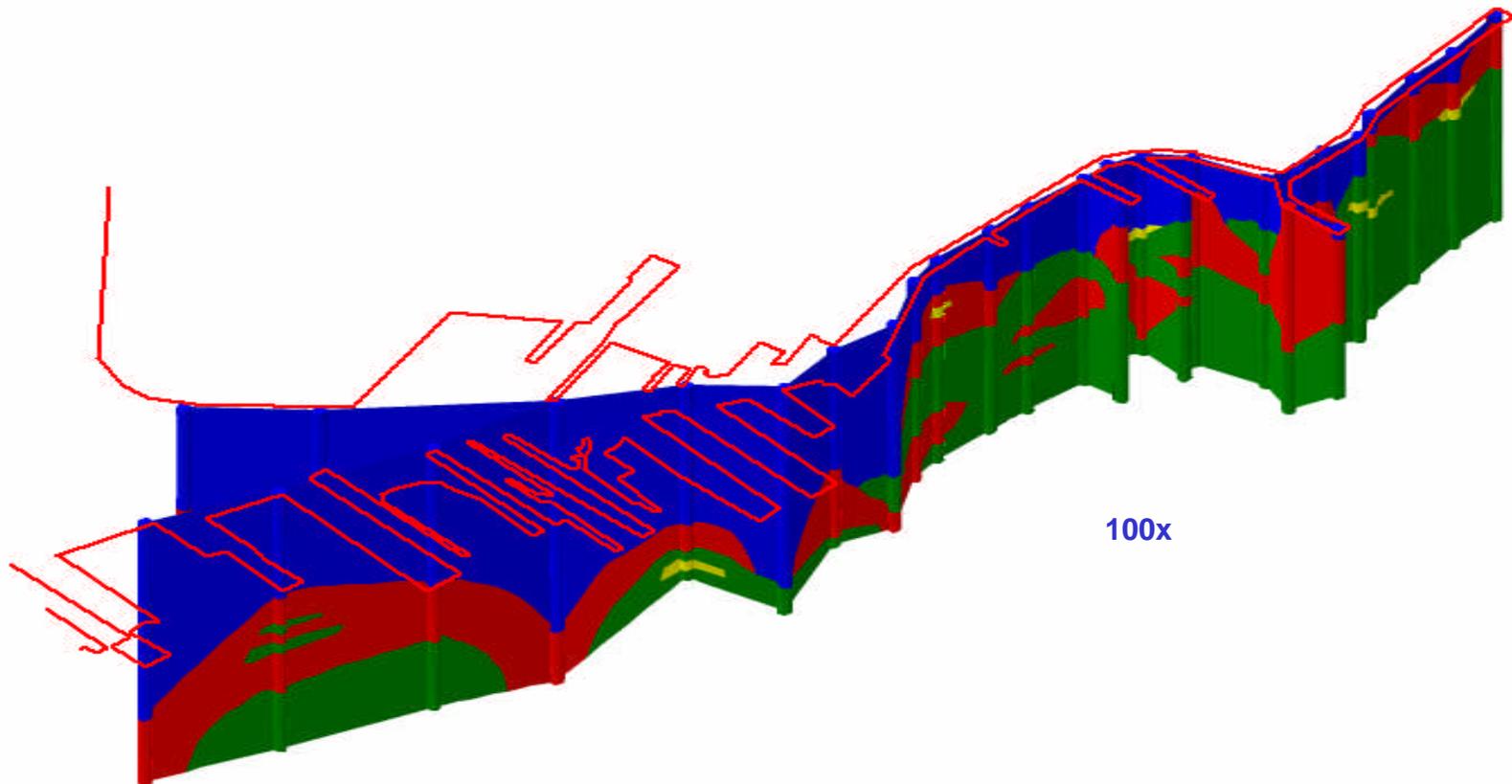
# Drill Hole Location Plan





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# Conceptual Site Geology



100x

Materials

	WATER
	SILT/CLAY
	SAND
	GRAVEL





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## Analytical Chemical Results



- 
- New York State Department of Environmental Conservation (NYSDEC) Technical and Administrative Guidance Memorandum (TAGM) #4046: Determination of Soil Cleanup Objectives and Cleanup Levels
  - NYSDEC Technical Guidance for Screening Contaminated Sediments (1999)



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## Data Summary

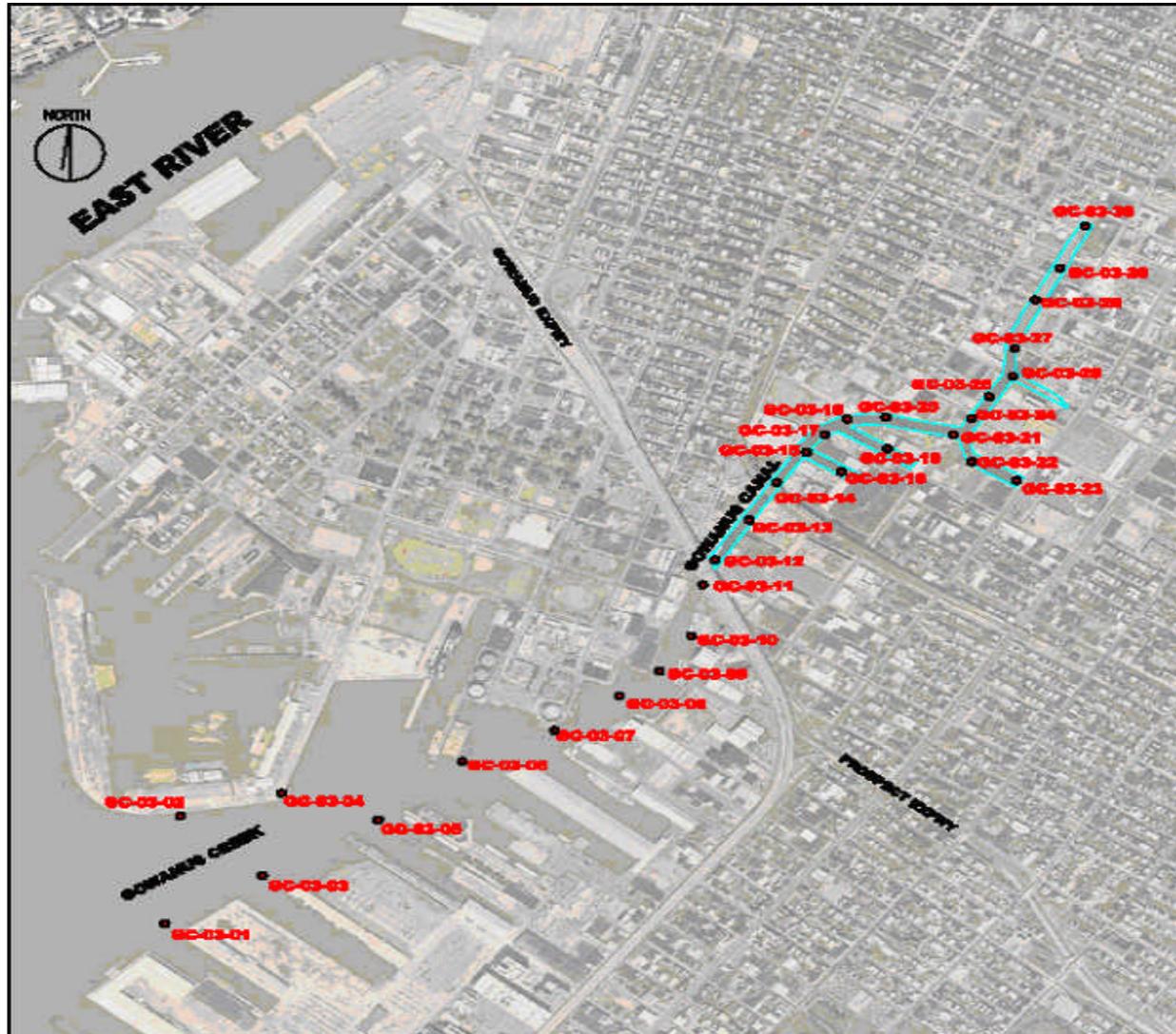


- 
- Community not at risk from sediment pollutants, and would not be affected if walking near the canal
  - PCBs found at very low levels
  - Highest levels of constituents found from mid-point of canal to upstream
  - Wide variety of organic and inorganic constituents found, which are typical in an urban setting
  - Contaminants found are typical to old manufacturing processes
  - Similar levels of constituents found throughout NY/NJ Harbor



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# Drill Hole Location Plan





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## Volatile Organic Contaminants (VOCs)



The following fifteen volatile organics were detected:

**acetone**

**carbon disulfide**

**methylene chloride**

**cis-1,2-Dichloroethene**

**toluene**

**m+p-Xylenes**

**styrene**

**1,2-Dichlorobenzene**

**2-Hexanone**

**chlorobenzene**

**2-butanone**

**benzene**

**ethylbenzene**

**o-Xylene**

**1,4-Dichlorobenzene**

**BLUE** NO TAGM\* screening values available for these contaminants

**GREEN** TAGM\* screening values were NOT EXCEEDED for these contaminants

**RED** TAGM\* screening values were EXCEEDED for these contaminants



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## Semi-Volatile Organic Contaminants (SVOCs)



The following twenty-four SVOCs were detected:

**phenol**

**2-methylnaphthalene**

**acenaphthene**

**diethylphthalate**

**n-Nitrosodiphenylamine**

**acthracene**

**fluoranthene**

**naphthalene,**

**acenaphthylene**

**dibenzofuran**

**fluorene**

**phenanthrene**

**di-n-butylphthalate**

**pyrene**

**BLUE** NO TAGM\* screening values available for these contaminants

**GREEN** TAGM\* screening values were NOT EXCEEDED for these contaminants

**RED** TAGM\* screening values were EXCEEDED for these contaminants



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## Semi-Volatile Organic Contaminants (SVOCs)



*- continued*

**benzo[a]anthracene,**

**bis(2-ethylhexyl)phthalate**

**benzo[b]fluoranthene**

**benzo[a]pyrene**

**dibenz[a,h]anthracene**

**chrysene**

**di-n-octylphthalate**

**benzo[k]fluoranthene**

**indeno[1,2,3-cd]pyrene**

**benzo[g,h,l]perylene**

**BLUE**    NO TAGM\* screening values available for these contaminants

**GREEN**    TAGM\* screening values were NOT EXCEEDED for these contaminants

**RED**    TAGM\* screening values were EXCEEDED for these contaminants



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## Organic Pesticides/Herbicides



The following five pesticides were detected:

**beta-BHC**      **4,4'-DDE**

**dieldrin**      **4,4'-DDD**

**4,4'-DDT**

**BLUE**      NO TAGM\* screening values available for these contaminants

**GREEN**      TAGM\* screening values were NOT EXCEEDED for these contaminants

**RED**      TAGM\* screening values were EXCEEDED for these contaminants



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## Priority Pollutant Metals



The following thirteen priority pollutant metals were detected:

antimony	arsenic
beryllium,	cadmium
chromium	copper
lead	mercury
nickel	selenium
silver	thallium
zinc	

**BLUE** NO TAGM\* screening values available for these contaminants

**GREEN** TAGM\* screening values were NOT EXCEEDED for these contaminants

**RED** TAGM\* screening values were EXCEEDED for these contaminants



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## Polychlorinated Biphenols (PCBs):



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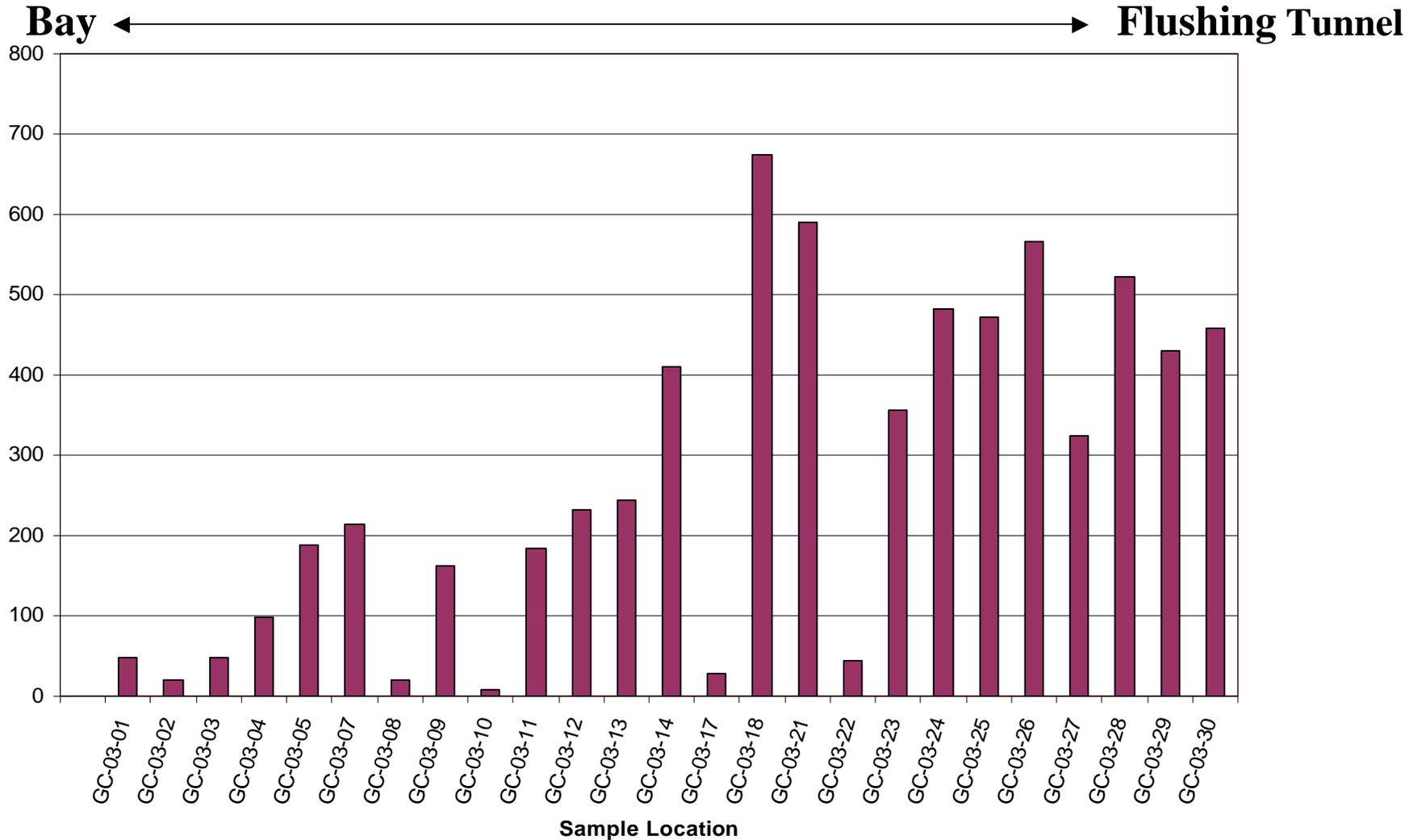
One PCB (Aroclor 1260) was detected

Aroclor 1260 exceeded its TAGM in three borings



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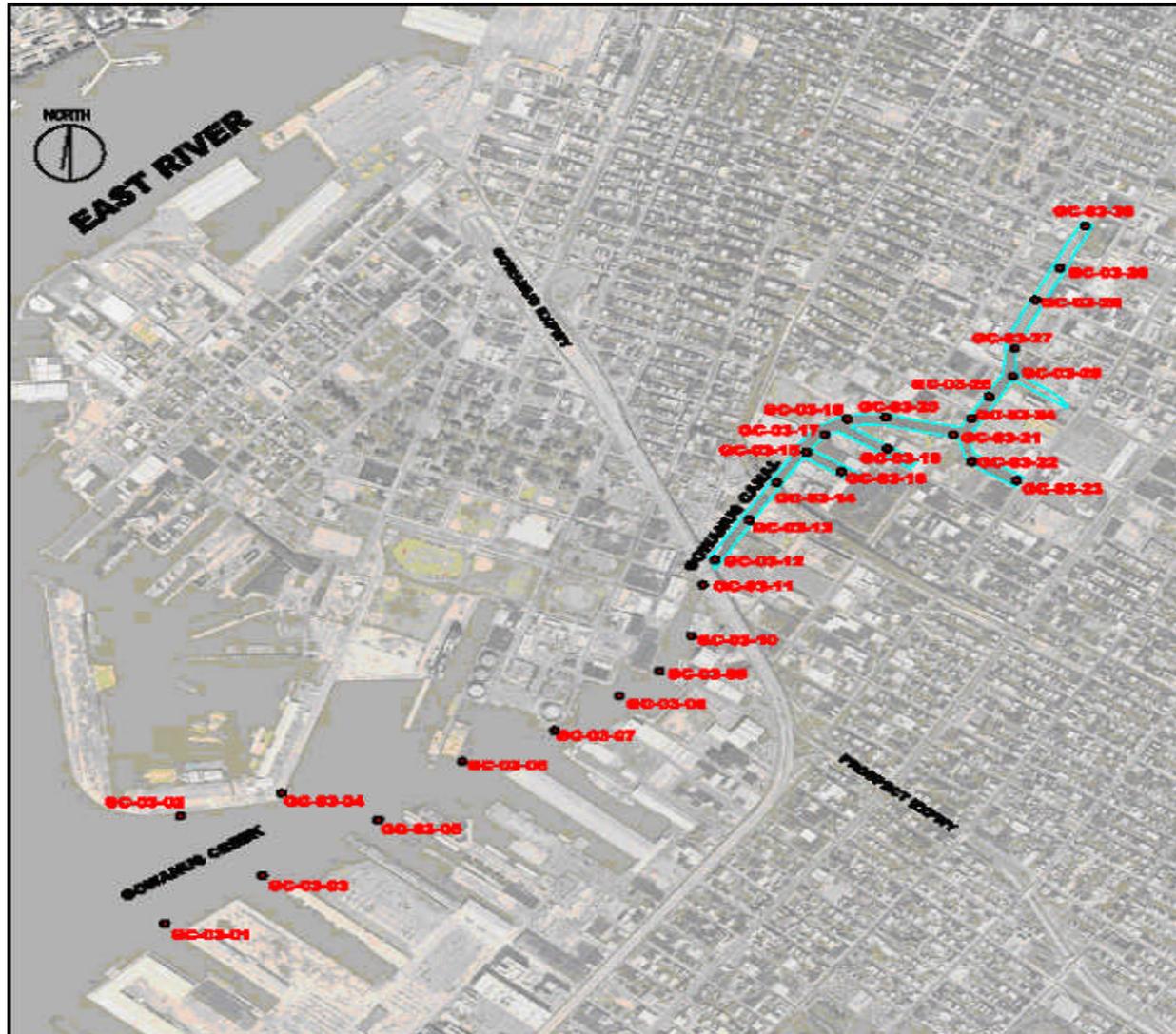
# Benthic Hazard Index





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# Drill Hole Location Plan





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# Potential Measures

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- Tidal Wetland Restoration
- Riparian Zone Restoration
- Dredging Gowanus Bay and Canal
- Capping Sediments in Gowanus Bay and Canal
- Your ideas!



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# The Ongoing Study



- 
- With full Federal and DEP funding, the Feasibility Report and Environmental Impact Statement (EIS) will be complete in 2006
  - This report will recommend a plan of action
  - Congress must approve the recommendations, and appropriate the necessary funding to complete a project



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# Future Meetings/Events



- 
- Our Website: [www.nan.usace.army.mil/harbor](http://www.nan.usace.army.mil/harbor)
  - Contaminated Sediment Report – Early Fall
  - NEPA Scoping Document and Meeting – Late Fall
  - Initial Plan Formulation (Screening) – Early Fall



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# Points of Contacts



- 
- Project Manager: Tom Shea, (212) 264-5570
  - Project Archeologist: Lynn Rakos, (212) 264-0229
  - Project Biologist: Pam Lynch, (212) 264-0195
  - Project Engineer: Marty Goff, (212) 264-9074
  - Project Planner: Dan Falt, (212) 264-5291
  - NYCDEP: Chris Villari, (718) 595-5565