Newtown Creek Superfund Site
Community Advisory Group Meeting
November 21, 2013

Project Status

- Phase 1 Investigation - Completed
- Three Data Summary Reports – Submitted
- Data collected during Phase 1 Investigation – Being evaluated for Phase 2 Work Plan
- Phase 2 Field Program – Starts Spring 2014

Phase 1 Field Investigation

- Field investigation components
  - Survey
    - Shoreline characterization
    - Bathymetric
    - Habitat and wildlife
    - Fish community
    - Benthic community
    - Geophysical/Aerial
  - Sampling
    - Air
    - Surface water
    - Surface and subsurface sediment
  - Current Meter Deployment
  - Tidal Investigation

Phase 1 - Data Summary Report

Component	DSR 1	DSR 2	DSR 3
Survey			
• Shoreline characterization	X		
• Bathymetry	X		X
• Habitat and wildlife	X		
• Fish community	X		
• Benthic community	X	X	
• Geophysical/Aerial	X		
Sampling			
• Air	X		
• Surface Water	X	X	X
• Sediment – surface	X	X	
• Sediment - Subsurface		X	
• Reference/Background Areas		X	
Current Meter Deployment	X		
Tidal Investigation	X		

Information Presented in the Data Summary Report

- Collection Method
- Data Validation and Quality
- Quality Assurance Project Plan Deviations
- Results

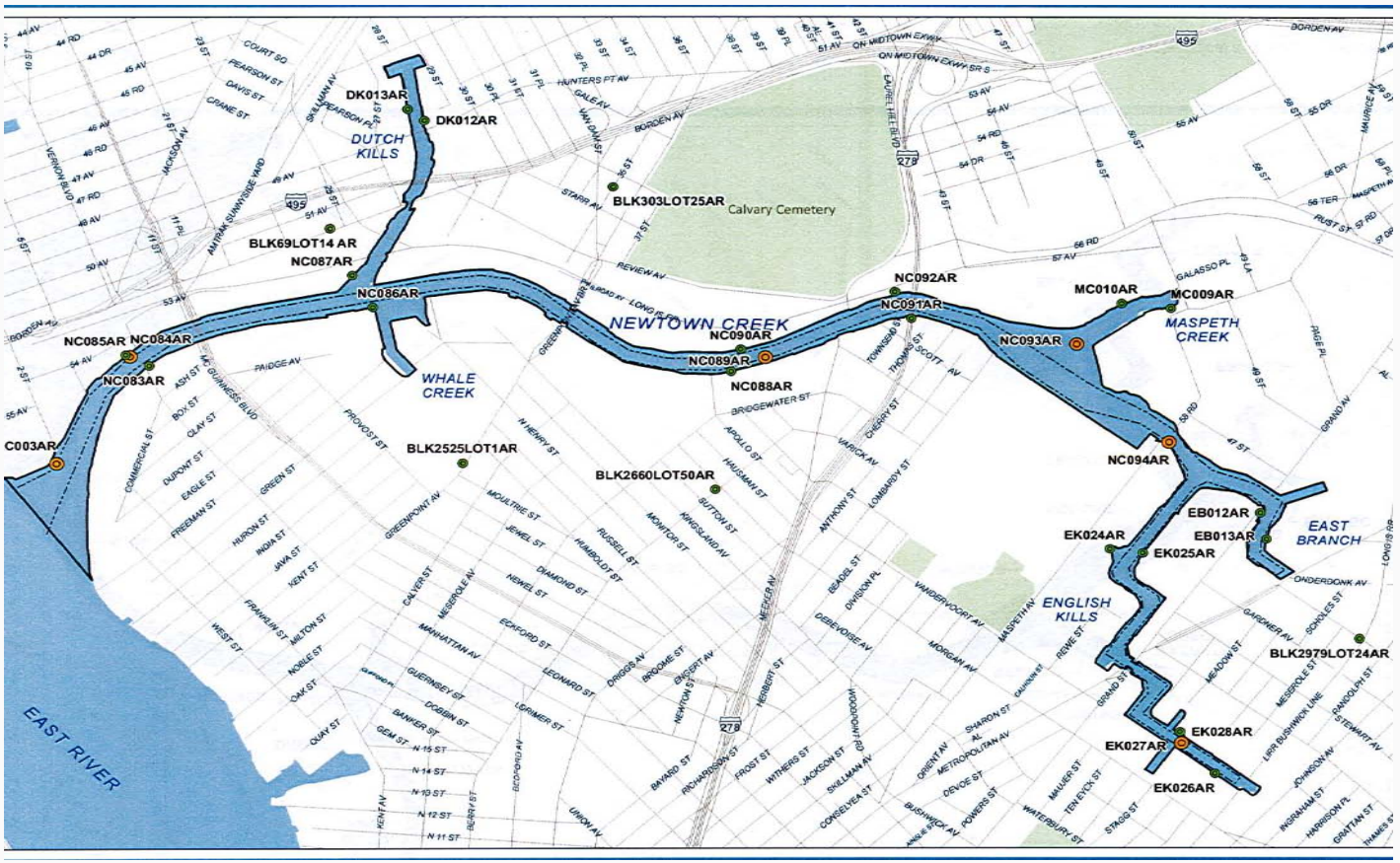
Environmental Sampling

- Media – air, sediment, surface water
  - Objectives
  - Samples Collected
  - Data
- Reference/Background Areas

Air Sampling

- Objectives
  - To evaluate baseline concentrations of specific airborne chemicals
  - To measure ambient air concentrations in the breathing zone in and along the Study Area
  - To estimate the portion of the measured concentrations potentially attributing to the Study Area
- Samples collected
  - 18 samples (9 pairs) on-shore locations along and on opposite sides of the creek/tributaries
  - 6 on-water stations and 5 background locations
- Data Collected
  - >1,600 chemical measurements

Air Sampling Locations



Air Data Summary Example - Benzene

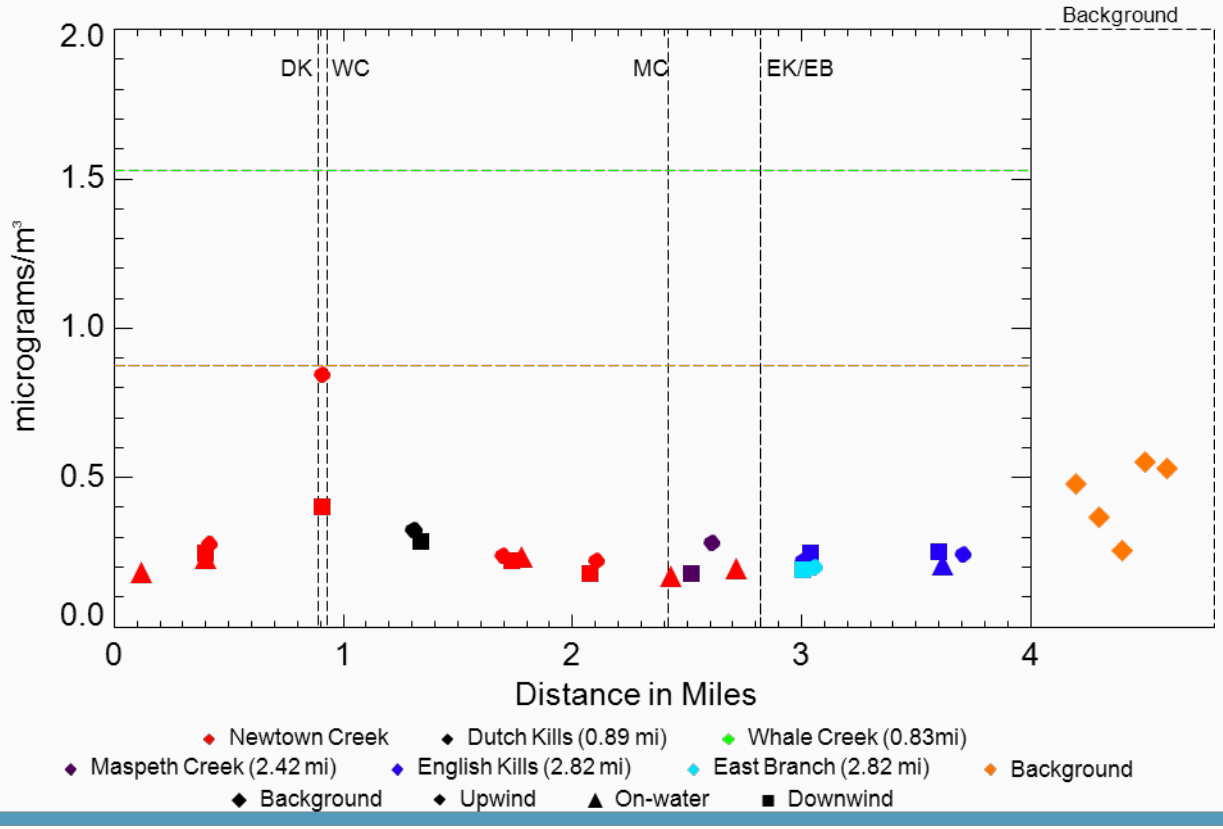


Figure A5-18
Air Quality Spatial Profiles - June 2012
Phase 1 RI Data Summary Report - Submittal No. 1
Newtown Creek RI/FS

Non-detects plotted with open symbols at RL for PCBs and MDL for VOCs.
Mile point 0 = confluence of Newtown Creek and East River.
Vertical dashed lines represent mile points of the mouths of the indicated tributaries.
NYSDEC data source: http://www.dec.ny.gov/chemical/8538.html during May, June, July of 2006-2011

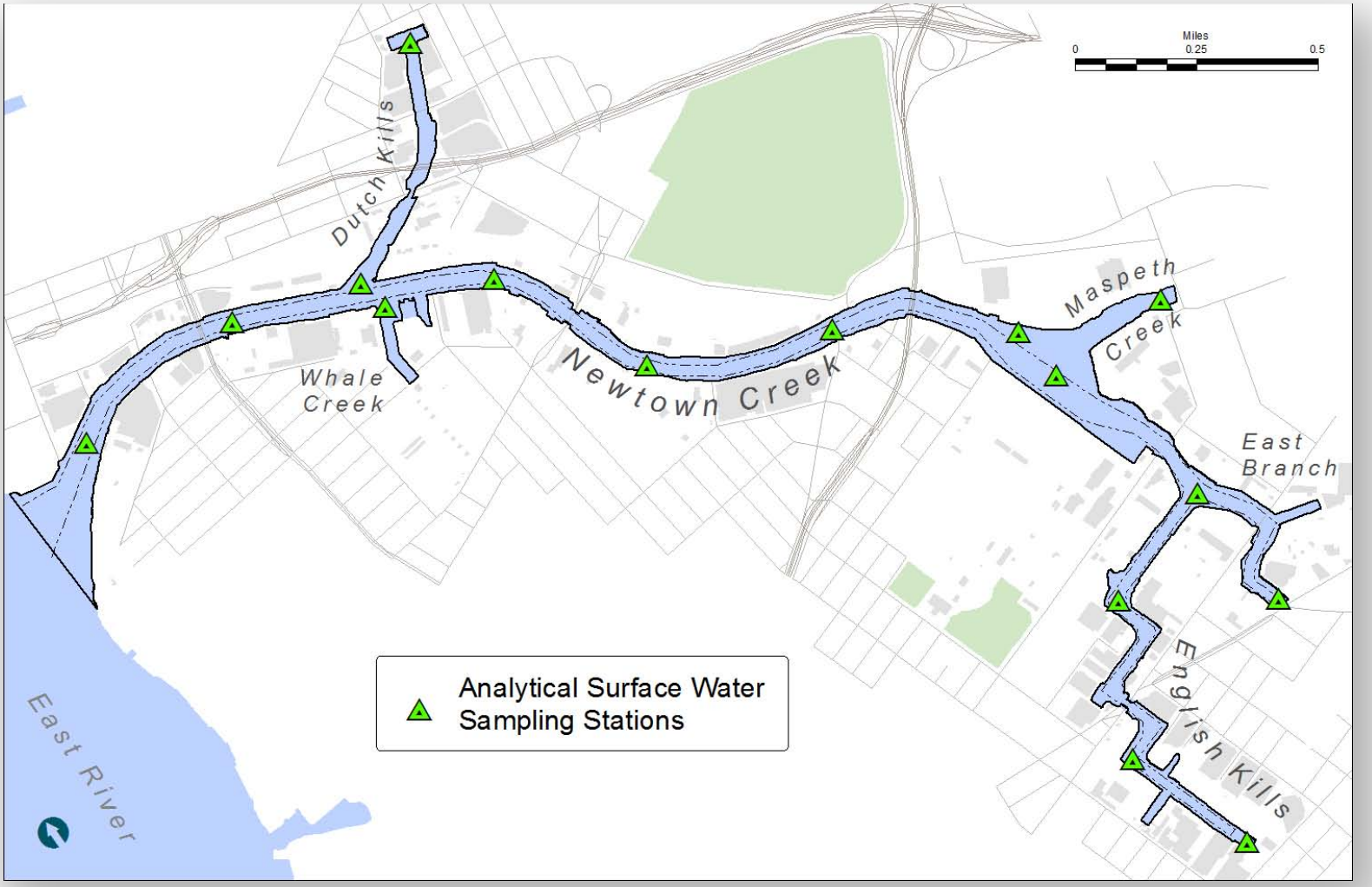
Air Quality Data Table Example

	Analytical Method	Task Tributary River Mile Location ID Sample ID Location Description Sample Date Sample Type Matrix NYSDEC Ambient Air Mean Concentration[1]	Air Sampling 2012 Newtown Creek 0.02 NC087AR-20120618 NC087AR-20120618 Downwind 6/19/2012 N AIR
Volatile Organics ($\mu g/m^3$)			
1,1,1-Trichloroethane	TO-15	0.10	**0.055 J**
1,1,2,2-Tetrachloroethane	TO-15	0.13[a]	0.137 U
1,1,2-Trichloroethane	TO-15	0.028[a]	0.109 U
1,1,2-Trichlorotrifluoroethane (Freon 113)	TO-15	0.60	**0.429**

Surface Water Sampling

- Objectives
  - To characterize physical and chemical conditions of surface water and understand seasonal and tidal variations in water quality
  - To support evaluation of potential remedial alternatives on water quality
- Samples collected
  - Monthly from 16 locations, two samples from each location
    - One approximately 1 meter below the water surface
    - one approximately 1 meter above sediment surface
- Data Collected
  - ~20,000 water quality measurements
  - >140,000 chemical measurements

Surface Water Sampling Locations



Example of Surface Water Profiling Data Summary

Table 3-9
September 2012 to January 2013

Tributary	Water Quality Measurement	Minimum	Maximum	Average	Count
Dutch Kills	Conductivity (µS/cm)	20,978	38,123	29,733	168
	Dissolved Oxygen (mg/L)	0.21	10	5	168
	pH (SU)	6.58	7.64	7	168
	Salinity (ppth)	20.86	26.36	24	168
	Temperature (deg C)	4.81	24.47	14	168
	Turbidity (NTU)	0.6	47.7	5	168
East Branch	Conductivity (µS/cm)	11,085	35,373	25,979	25
	Dissolved Oxygen (mg/L)	0.03	11.65	4	25
	pH (SU)	6.66	7.68	7	25
	Salinity (ppth)	6.95	24.43	21	25
	Temperature (deg C)	3.8	24.57	14	25
	Turbidity (NTU)	0.6	24.6	10	25

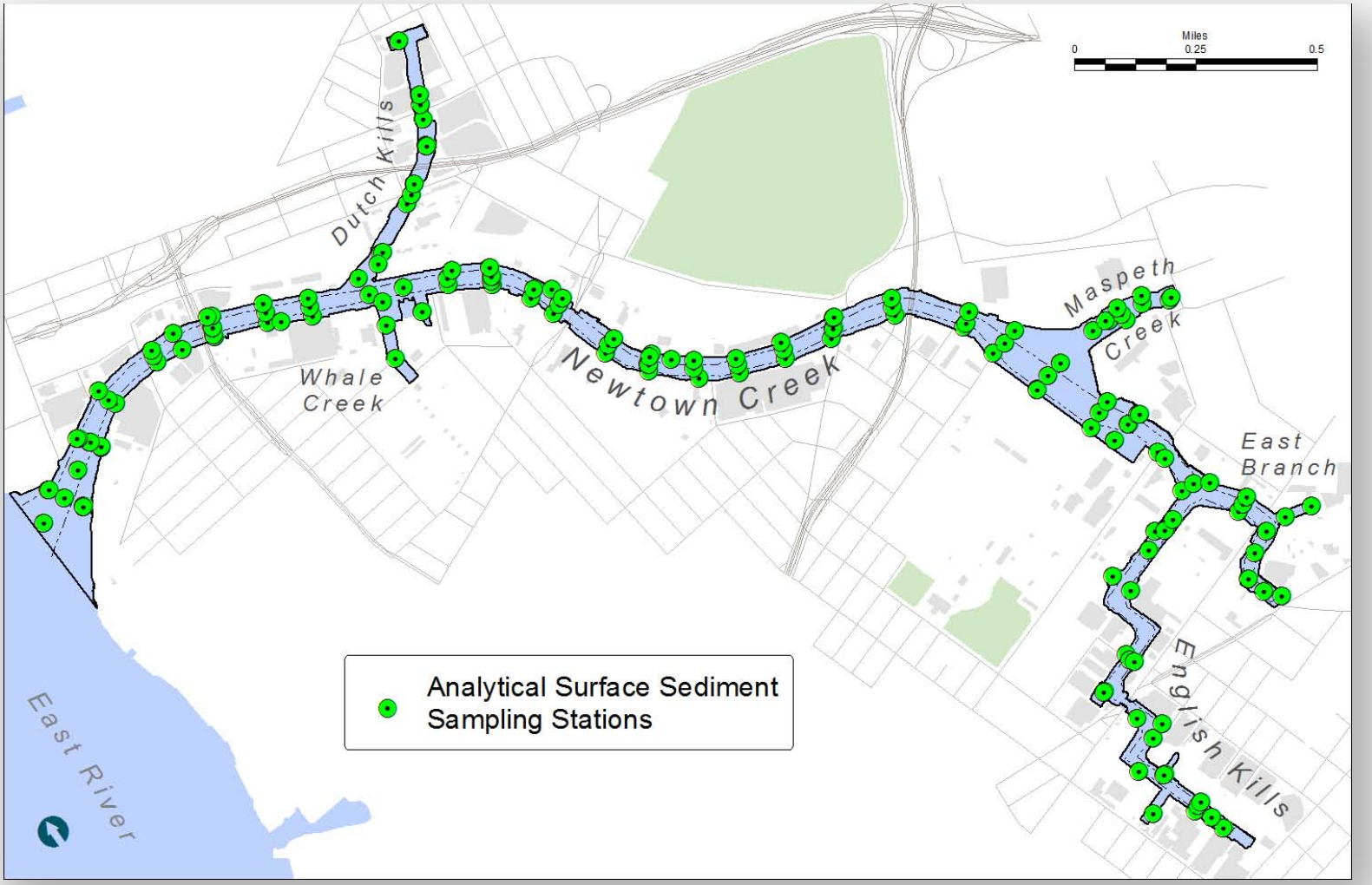
Example Surface Water Data Table

Tributary	Dutch Kills	Dutch Kills
River Mile	0.898	0.898
Location ID	DK001SW_20120604	DK001SW_20120604
Sample ID	DK001SW-A-20120604	DK001SW-C-20120604
Sample Date	6/4/2012	6/4/2012
Sample Depth	1.5 ft	15 ft
Water Column Depth	19 ft	19 ft
Sample Type	N	N
Magnesium	656000	812000
Manganese	61.2	63
Mercury	0.00047	0.00026
Nickel	1.6	1.1

Sediment Sampling

- Objective
  - To characterize physical properties and chemical nature of creek sediments and establish list of contaminants based on their potential contribution to risk
  - To support evaluation of potential remedial alternatives
- Samples collection
  - 133 locations for surface sediment and 98 for subsurface
  - Surface (top 6 inches) and subsurface (from 6 in to as deep as 20 feet below the sediment surface) samples collected from each location
- Data Collected
  - >225,000 physical and chemical measurements

Sediment Sampling Locations



Example Subsurface Sediment Data Summary

	Count Results	Count Detects	Percent Detected	Minimum Detected Result	Maximum Detected Result	Average Detected Result
Metals (mg/kg)						
Aluminum	517	517	100	928	29600	10197
Antimony	509	456	89.59	0.006	82.8	7.51
Arsenic	517	515	99.61	0.585	1350	85.1
Barium	517	517	100	4.52	736	200
Beryllium	517	516	99.81	0.087	7.58	0.76
Cadmium	517	510	98.65	0.01	598	58.8
Calcium	517	517	100	686	146000	13847
Chromium	517	517	100	4.01	9320	543.4
Cobalt	517	517	100	1.77	290	21.27
Copper	517	517	100	3.63	27900	2482
Iron	517	517	100	5310	229000	30763
Lead	517	517	100	1.48	3170	761

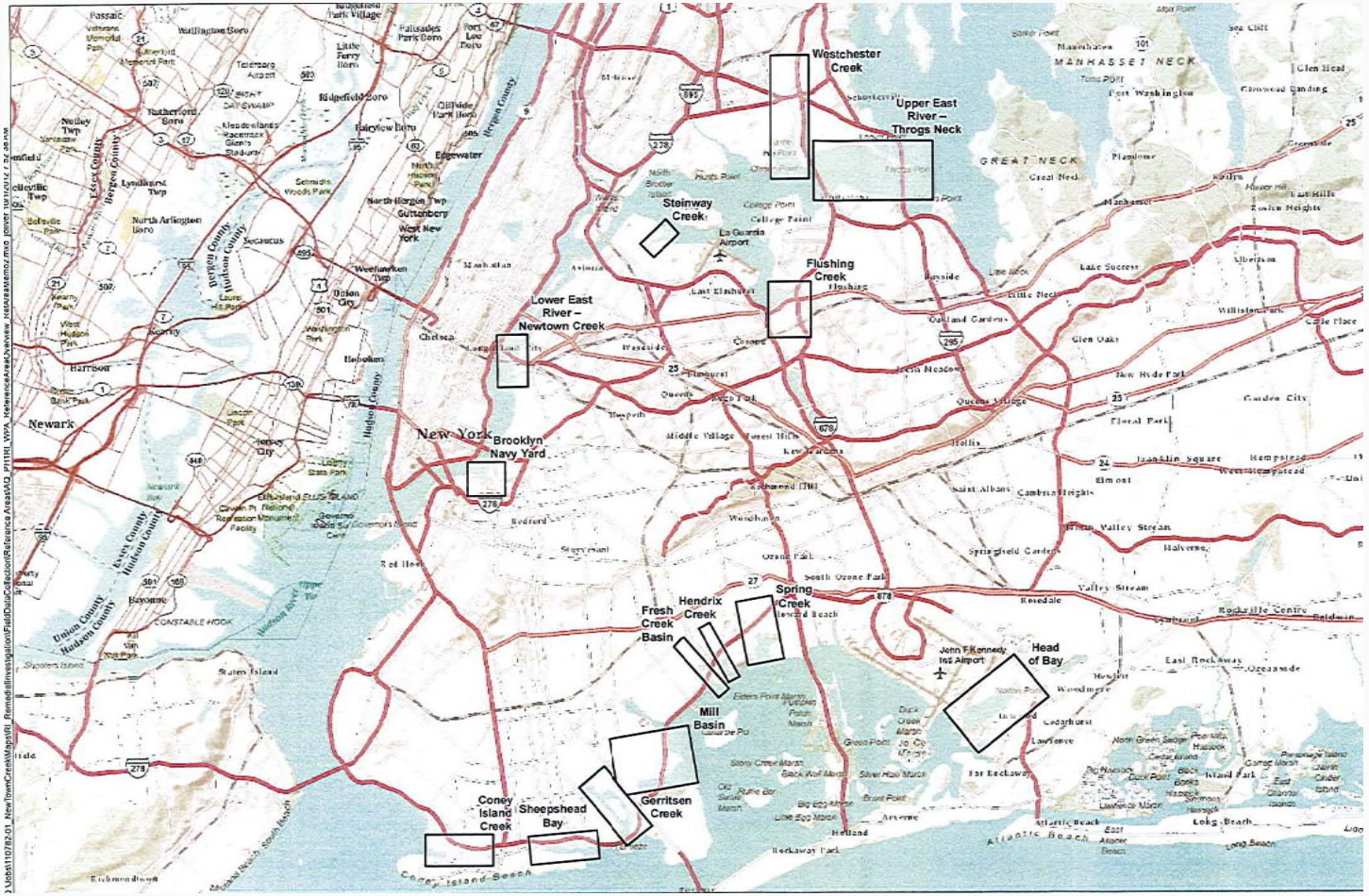
Subsurface Sediment Data Table Example

	Task	Subsurface Sediments 2012	Subsurface Sediments 2012
	Tributary	Newtown Creek	Newtown Creek
	River Mile	0.02	0.02
	Location ID	NC001BSC_20120618	NC001BSC_20120618
	Sample ID	NC001BSC-015060-20120620	NC001BSC-060100-20120620
	Sample Date	6/20/2012	6/20/2012
	Sample Depth	15 - 60 cm	60 - 100 cm
	Water Column Depth	18	18
	Sample Type	N	N
	Matrix	SE	SE
Metals (mg/kg)			
Aluminum	SW6020A	12800	13100
Antimony	SW6020A	0.39 J	0.376 J
Arsenic	SW6020A	14	14.8
Barium	SW6020A	69.7	73.4
Beryllium	SW6020A	0.831	0.931
Cadmium	SW6020A	1.09	1.48

Reference/Background Areas - an important component of ecological and human health risk assessments

- To evaluate background conditions for comparison to conditions within the Study Area
- 14 candidate locations in four categories were identified
  - Industrial with CSO
  - Industrial without CSO
  - Non-industrial with CSO
  - Non-industrial without CSO
- Biological and chemical data were collected
- Based on biological and chemical data, a manageable number of reference/background areas to be selected for Phase 2 investigation

Reference/Background Areas

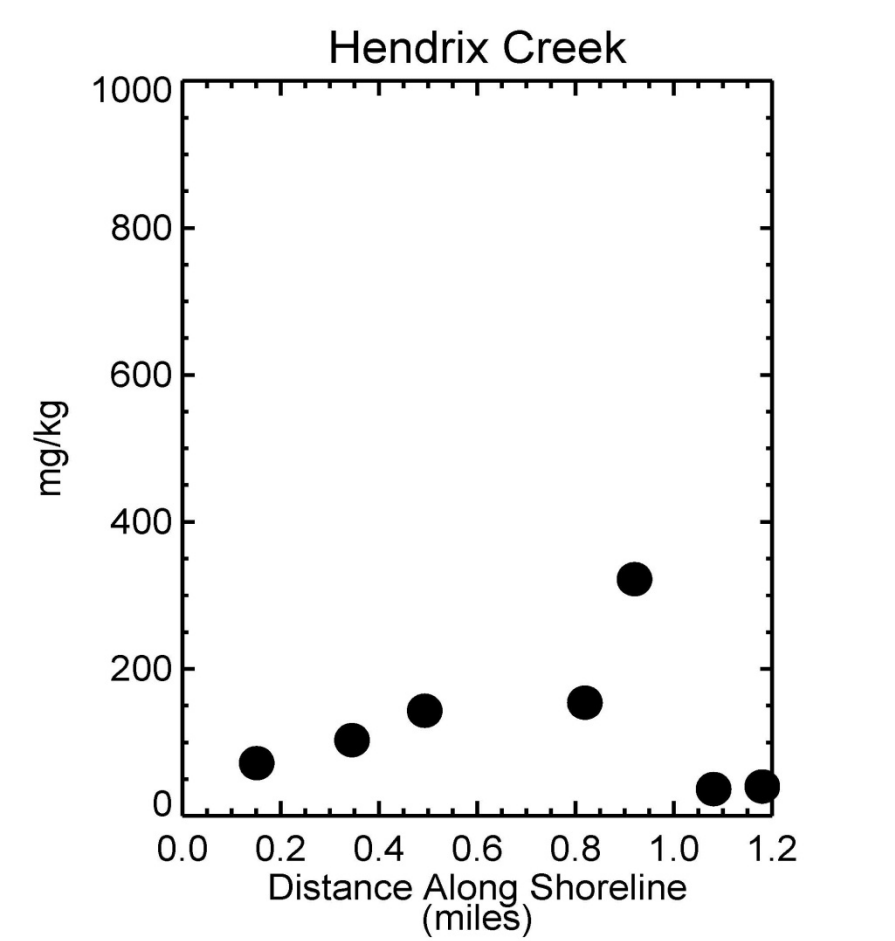


Example Reference Area Sampling Data

Table 3-14

Candidate Area	Station ID	Actual Coordinates (NAD83 NYLI)		Recovery Depth (cm)	Water Depth (ft)	Mudline Elevation (NAVD88)	Sampling Method	Sample Interval (cm)	Surface Sediment Sample ID
		Easting (X)	Northing (Y)						
BROOKLYN NAVY YARD	BN001SG	990499.48	196194.09	20	9.8	-11.6	Pneumatic Van Veen	0 to 15	BN001SG-000015-20121015
	BN002SG	990954.24	196783.11	14	51.0	-54.0	Pneumatic Van Veen	0 to 14	BN002SG-000014-20121015
	BN003SG	991154.05	196260.78	23	22.3	-25.6	Pneumatic Van Veen	0 to 15	BN003SG-000015-20121015
	BN004SG	991473.70	195764.00	27	22.5	-25.6	Pneumatic Van Veen	0 to 15	BN004SG-000015-20121015
	BN005SG	991423.90	195265.70	22	23.9	-26.4	Pneumatic Van Veen	0 to 15	BN005SG-000015-20121016
	BN006SG	991909.80	197038.90	19	39.2	-35.9	Pneumatic Van Veen	0 to 15	BN006SG-000015-20121017

Example Reference Area Data for Lead - for Hendrix Creek



Next Steps

- Continue to evaluate Phase 1 data
- Refine a conceptual site model
- Identify data gaps for Phase 2 Investigation
- Phase 2 Investigation – Spring 2014

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- **EPA Website for Newtown Creek:**
  www.epa.gov/region02/superfund/npl/newtowncreek