



# Newtown Creek Superfund Site Background Data Summary CAG Meeting – December 16, 2015





## Objectives

- Summarize the Phase 1 and Phase 2 data collected to characterize background conditions.
- Present examples comparing background data with Newtown Creek data for key chemicals of concern.



## Definition of Background

- EPA Guidance defines background as substances or locations that are not influenced by the releases from a site, and are usually described as naturally occurring or anthropogenic.
  - Naturally Occurring - Substances present in the environment in forms that have not been influenced by human activity.
  - Anthropogenic - Natural and human-made substances present in the environment as result of human activities not specifically related to the CERCLA site in question.
- EPA risk assessment guidance also provides guidance applying background concentration data.
- Risk assessment refers to these background areas as “reference areas”



## Definition of Background (cont'd)

- Background Reference Area - A background reference area is where samples are collected for comparison with samples from the site.
- Ideally has the same physical, chemical, geological, and biological characteristics as the site being investigated
- Has not been affected by activities at the site

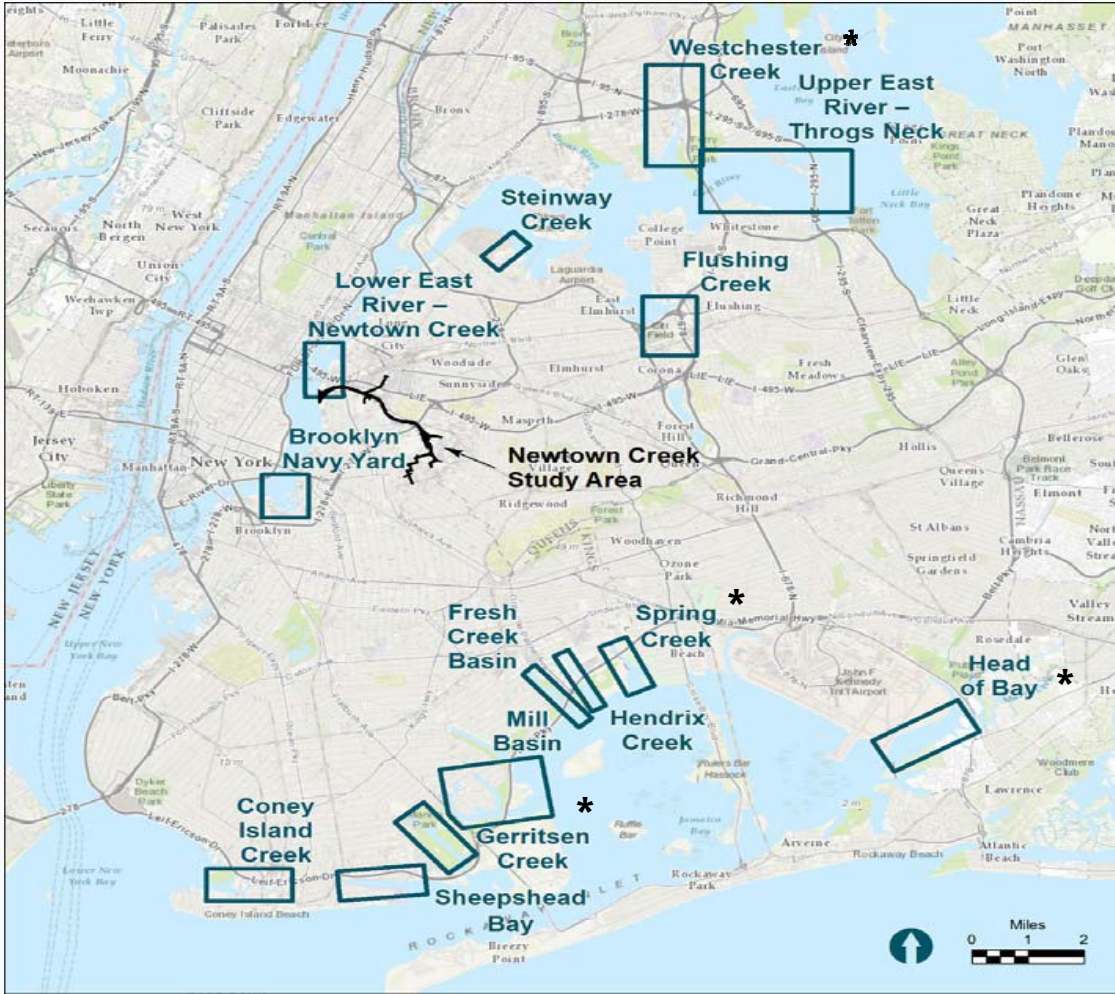


## Background Data Collection During the RI

- Phase 1 and Phase 2 background data
  - Surface Sediment
  - Surface water
  - Tissue
- Other Project data that can inform characterization of regional conditions
  - East River surface water data
  - Existing studies of background sediment (East River)



# Background Reference Areas



*\*Denotes background areas where Phase 2 sampling was performed*



## Number of Background Samples

Medium	Number of Samples
Surface sediments	143
Surface water (reference areas)	31
Surface water (East River)	87
Striped bass fillet	20
Striped bass whole body	20
Blue crab muscle/hepatopancreas	20/20
Blue crab whole body	20
Mummichog whole body	20
Atlantic menhaden whole body	20
White perch fillet	5

Note:  
Number of values for individual analytes may vary.



## Number of Background Samples Collected

### ■ Surface Sediment

- Phase 1 – 103 samples collected from 14 locations
- Phase 2 – 40 samples from 4 locations (in blue)

- Gerritsen Creek
- Head of Bay
- Spring Creek
- Westchester Creek
- Steinway Creek
- Sheepshead Bay
- Mill Basin
- Hendrix Creek
- Fresh Creek Basin
- Coney Island Creek
- Flushing Creek
- Brooklyn Navy Yard
- Lower East River
- Throgs Neck





## Number of Background Samples Collected

- Surface Water
  - 31 samples (Includes all depths. Does not include East River)
  - 87 samples (East River)
- Surface water counts includes all depths sampled

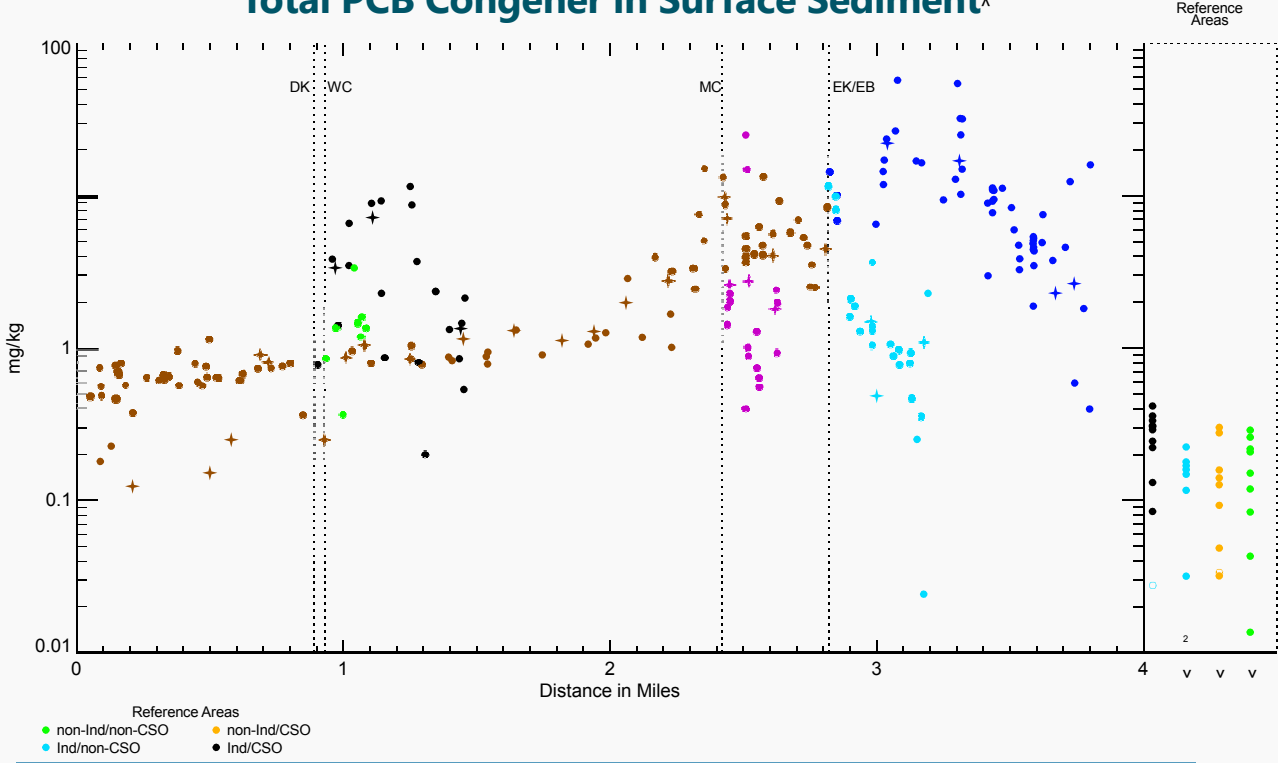


## Key Elements Shown in Data Plots

- Range of variability in background data
- Number of detected values in background areas
- Comparison of background data with Study Area data



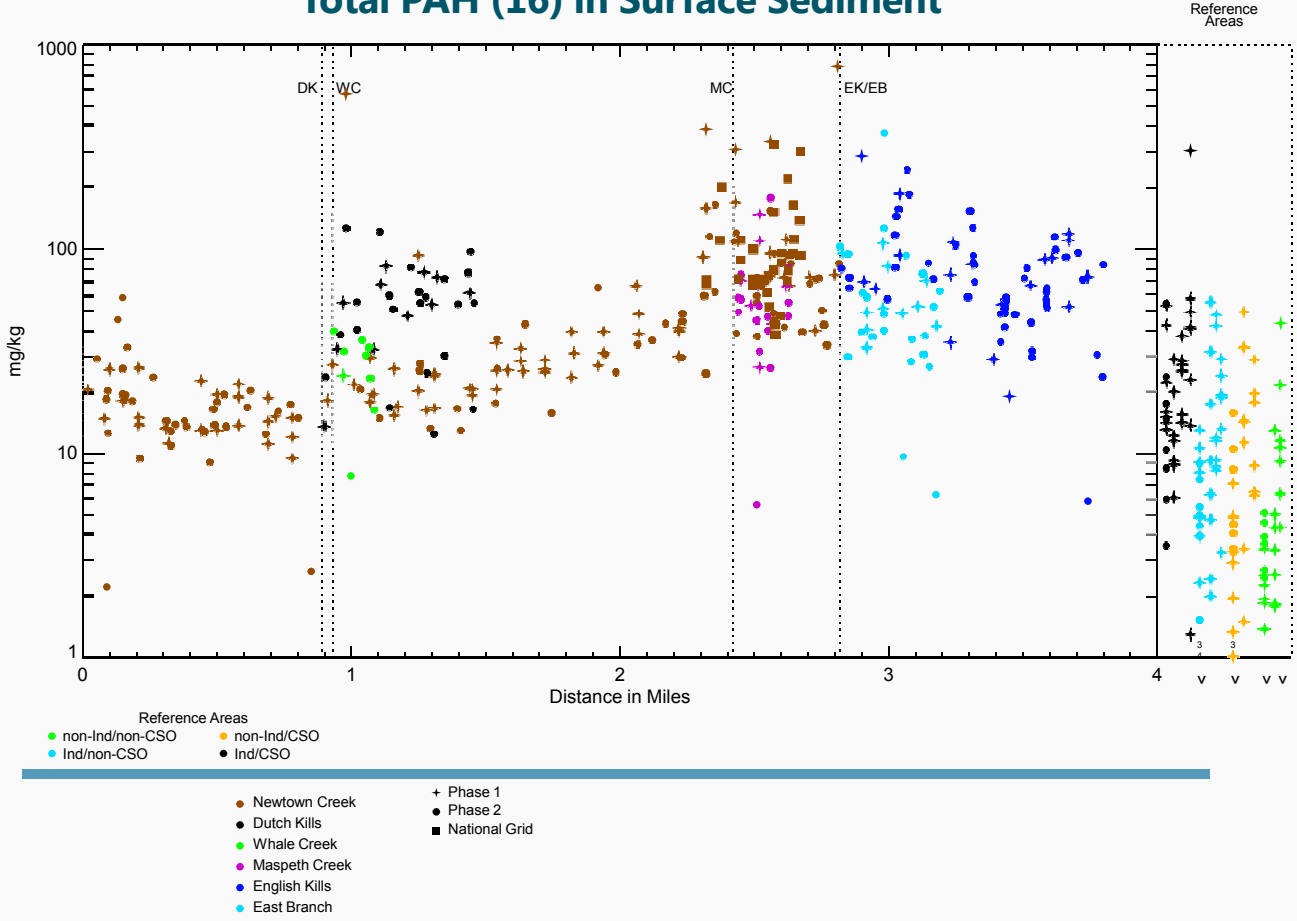
### Total PCB Congener in Surface Sediment<sup>A</sup>



- Reference Areas
- non-Ind/non-CSO
  - Ind/non-CSO
  - non-Ind/CSO
  - Ind/CSO
- 
- Newtown Creek
  - Dutch Kills
  - Whale Creek
  - Maspeth Creek
  - English Kills
  - East Branch
- 
- + Phase 1
  - Phase 2
  - National Grid

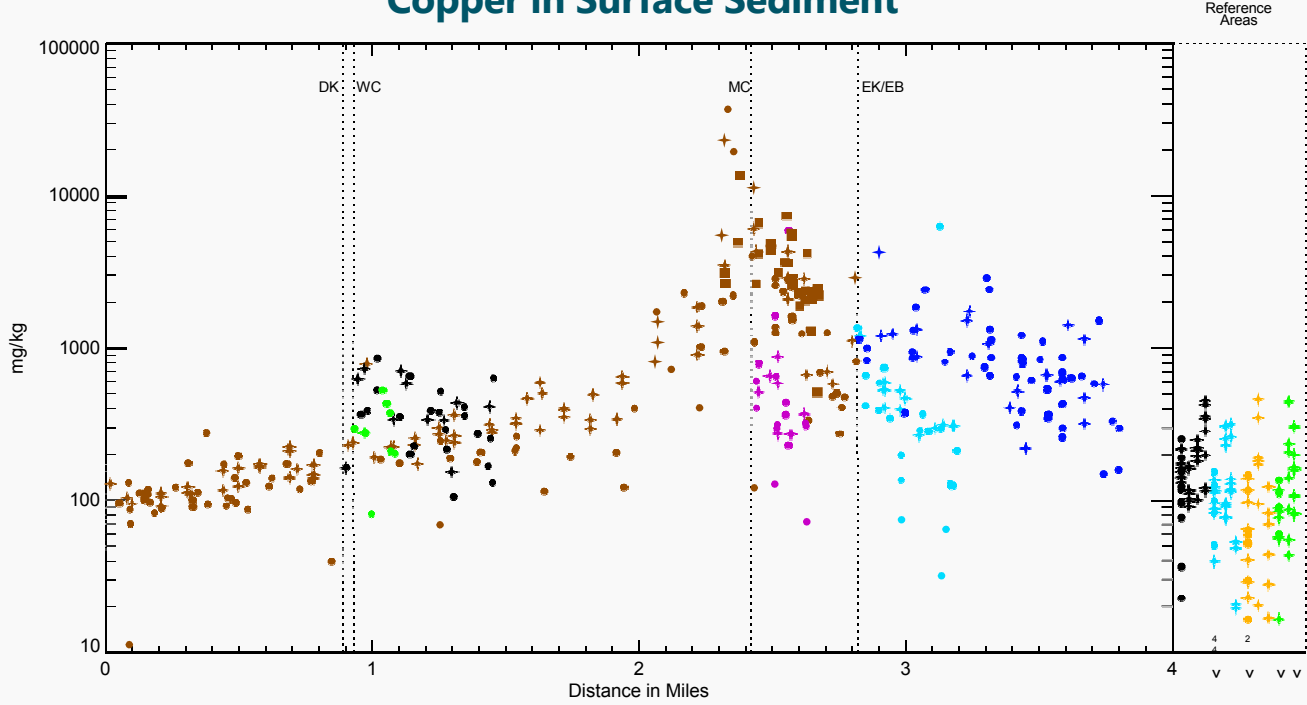


### Total PAH (16) in Surface Sediment





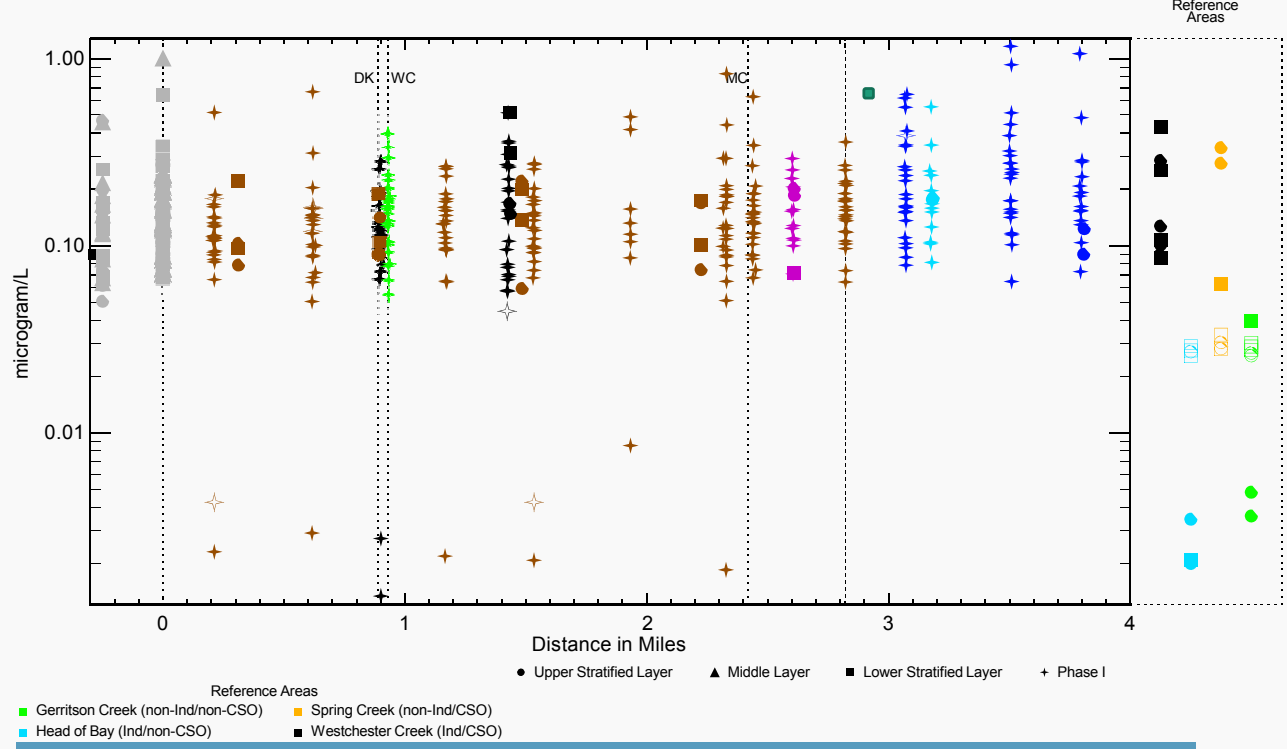
### Copper in Surface Sediment



- |                   |                 |   |
|-------------------|-----------------|---|
| Reference Areas   |                 |   |
| ● non-Ind/non-CSO | ● non-Ind/CSO   |   |
| ● Ind/non-CSO     | ● Ind/CSO       |   |
| ● Newtown Creek   | ● Phase 1       | + |
| ● Dutch Kills     | ● Phase 2       | ● |
| ● Whale Creek     | ■ National Grid | ■ |
| ● Maspeth Creek   |                 |   |
| ● English Kills   |                 |   |
| ● East Branch     |                 |   |

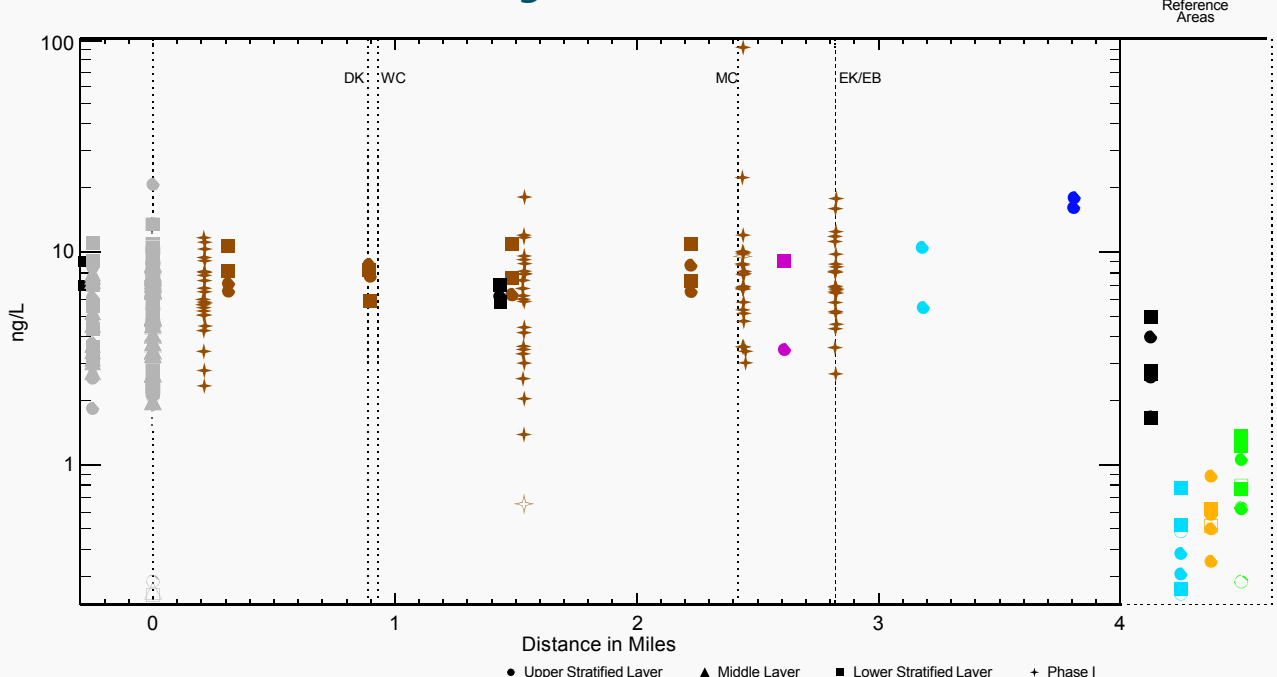


### Total PAH (16) in Surface Water





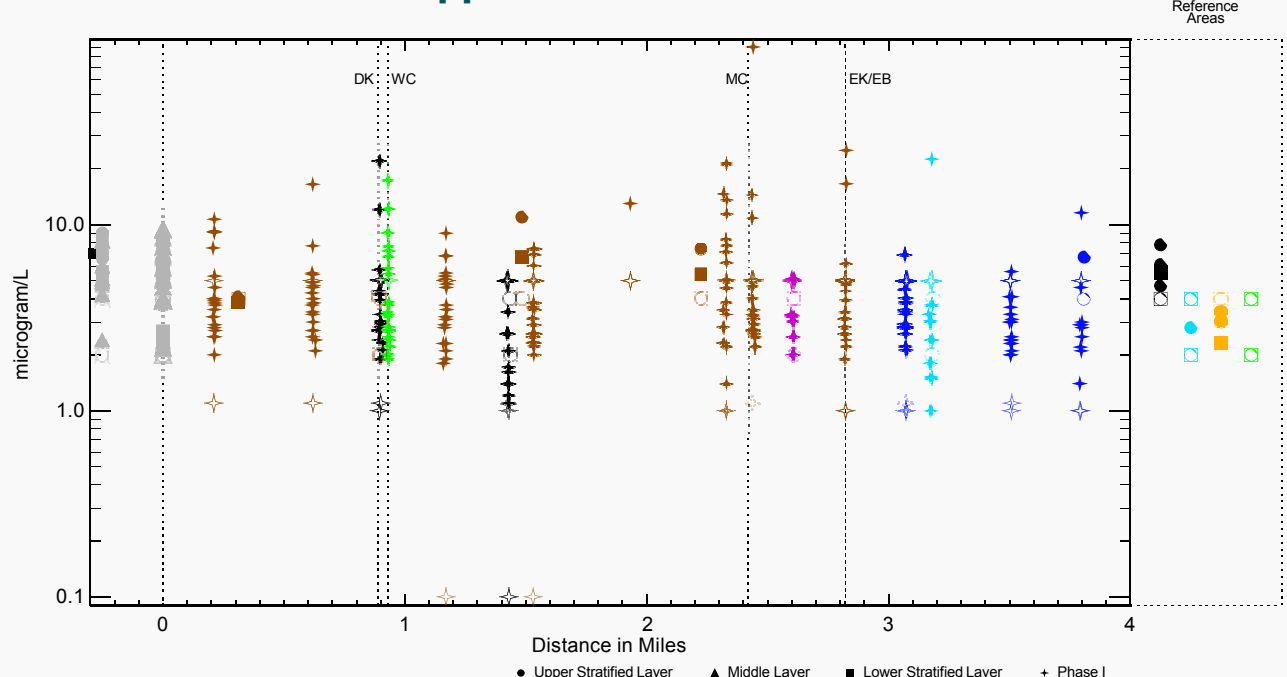
### Total PCB Congener in Surface Water



- Reference Areas
- Gerritson Creek (non-Ind/non-CSO)
  - ▲ Spring Creek (non-Ind/CSO)
  - Head of Bay (Ind/non-CSO)
  - Westchester Creek (Ind/CSO)
  - East River Surface Water Sampling
  - Newtown Creek
  - Dutch Kills
  - Whale Creek
  - Maspeth Creek
  - English Kills
  - East Branch



### Copper in Surface Water



- Reference Areas
- Gerritson Creek (non-Ind/non-CSO)
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## Summary

- Phase 1 and Phase 2 background data were collected in accordance with the RI/FS work plan
- EPA currently evaluating the background data to determine if the data are sufficient for the RI and risk assessments