

Region 2 serving the people of New Jersey,
New York, Puerto Rico and the U.S. Virgin Islands



Newtown Creek Superfund Site CAG Meeting June 16, 2015





Presentation Outline

- Phase 1 RI Overview
 - Surface Water, Sediment & Air Sampling Results
- Phase 2 RI Overview
 - Point Sources
 - Groundwater
 - NAPL
 - Risk Assessment Support
 - Sediment
 - Modeling



Phase 1 RI Overview

- Conducted from October 2011 to March 2013
- Objectives:
 - To characterize physical properties
 - To characterize chemical nature of surface water, air and sediment
- Phase 1 Field Activities:

Surveys

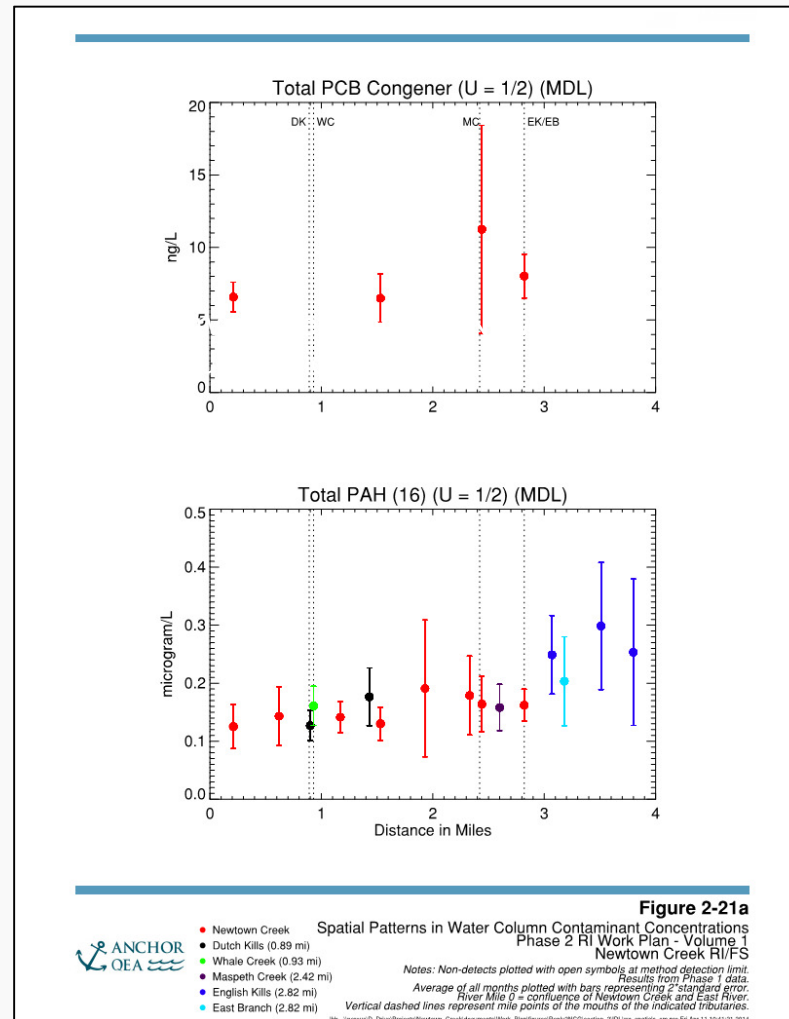
- Shoreline characterization
- Bathymetric
- Geophysical/aerial
- Habitat and wildlife
- Fish/benthic community
- Cultural resource

Sampling

- Surface Water
- Surface and subsurface sediment
- Air

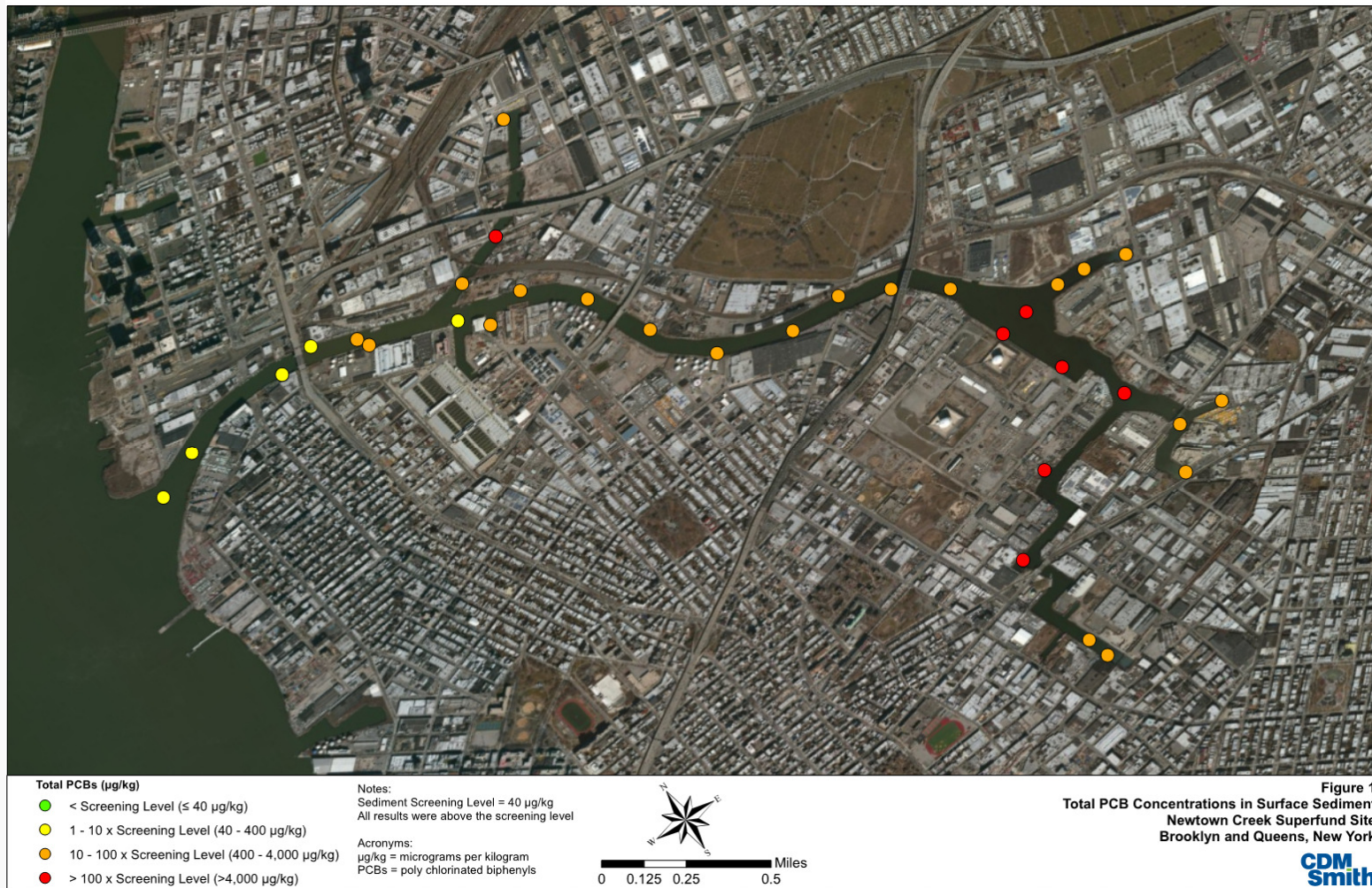


Surface Water: Spatial Patterns



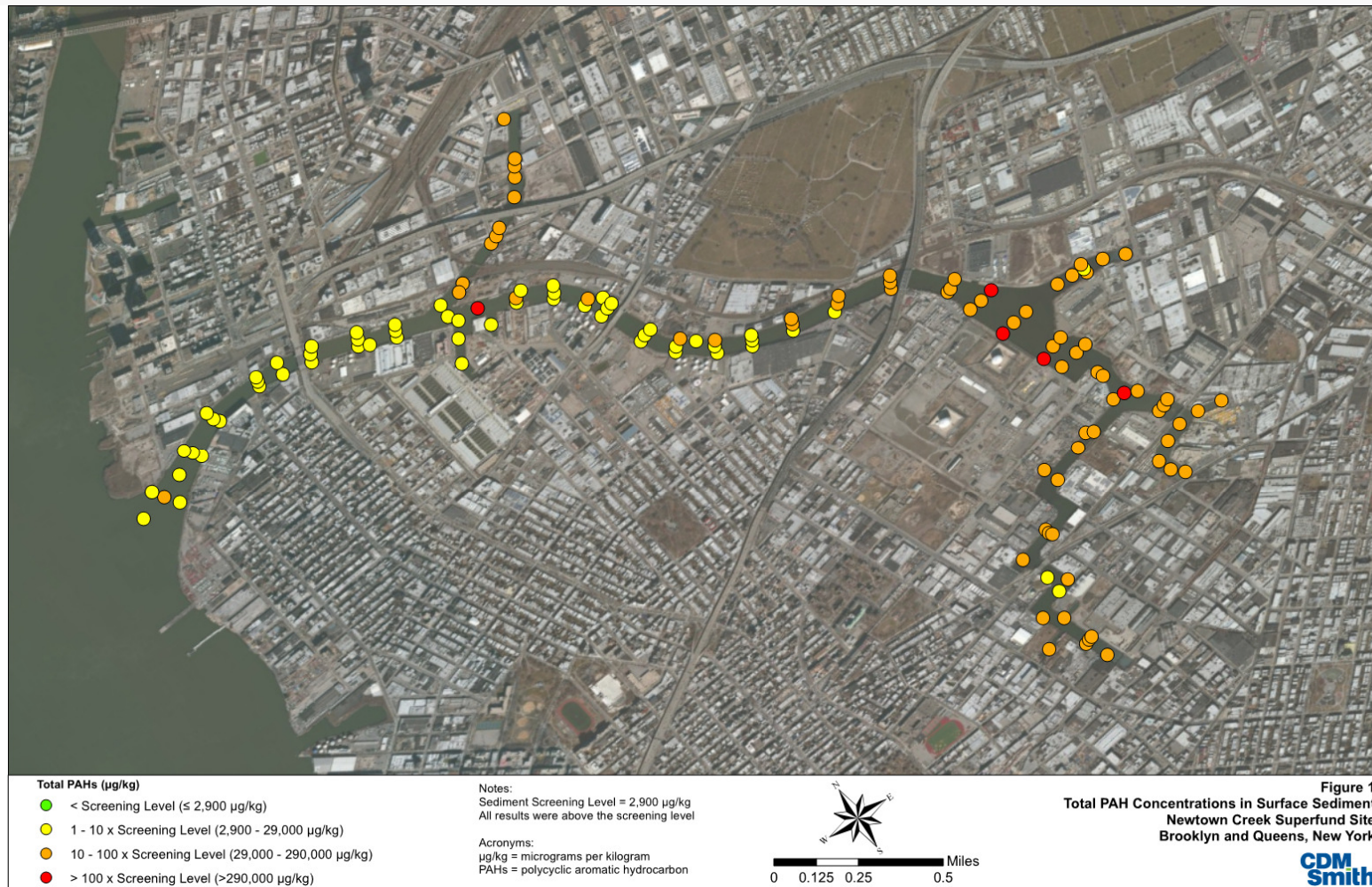


Surface Sediment: PCB Congeners





Surface Sediment: PAHs





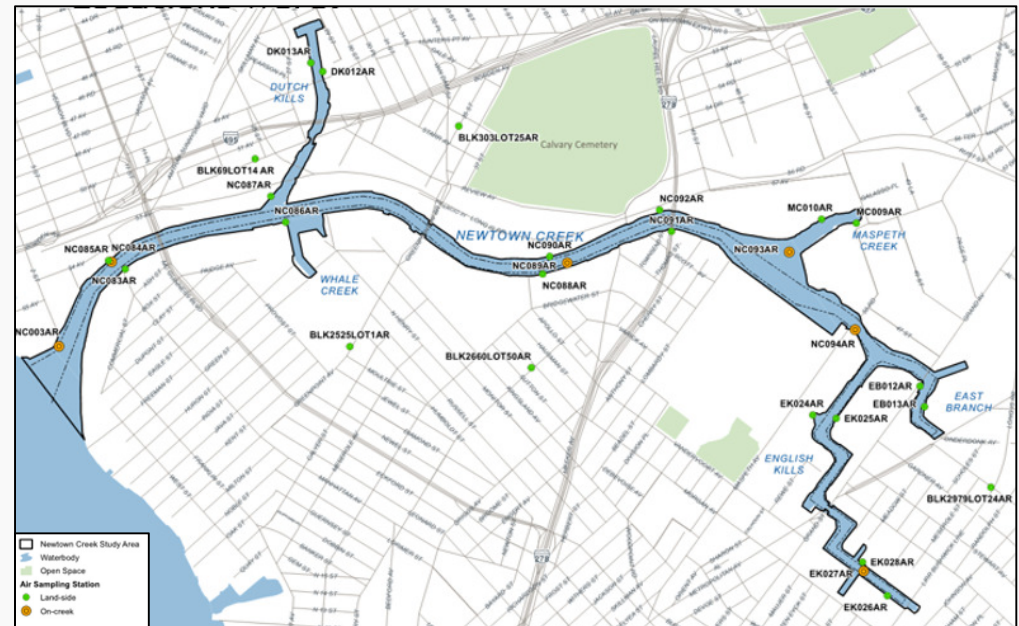
Subsurface Sediment: PCBs





Air Sampling Results

- Air sampling was conducted during a 24-hour sampling event in June 2012
- Locations:
 - 9 pairs on-shore locations along the length and on opposite sides of the creek and tributaries
 - 6 on-water locations
 - 5 background locations
- Analysis for VOCs and PCBs
- Results from the Study Area samples are similar to that from background samples
- No additional air sampling is warranted for Phase 2 RI





Phase 2 Remedial Investigation: Overview

- Began in May 2014 and is ongoing through September 2015
- Objectives:
 - Fill Phase 1 Data Gaps
 - Estimate current chemical loading to the Creek
- Phase 2 Field Activities:
 - Point Source Sampling
 - Groundwater Investigation
 - NAPL Investigation
 - Risk Assessment Support
 - Sediment Data Gap Investigation
 - Modeling

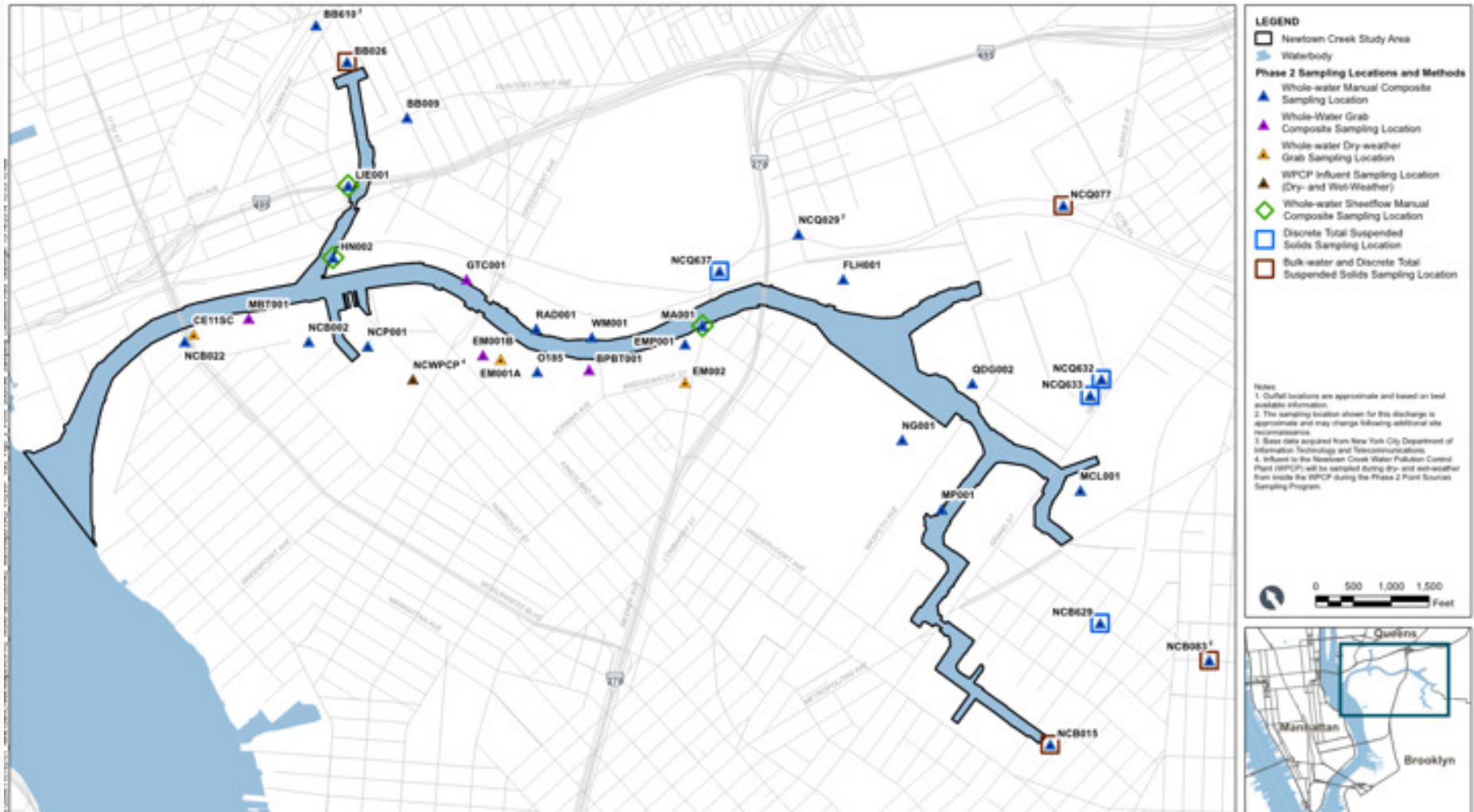


Point Source Sampling: Objectives

- Estimate point source contaminant loading
- Understand variation in contaminant loading during different storm types
- Provide contaminant load estimates for input into sediment and chemical fate/transport models



Point Source Sampling: Sample Locations





Point Source Sampling: Status

- Anticipated that 15 sampling events needed to achieve point source program goals
- Five storm events captured from Nov 2014 to April 2015
- Point source program extended to Sept 2015
- Potential to delay the RI/FS schedule

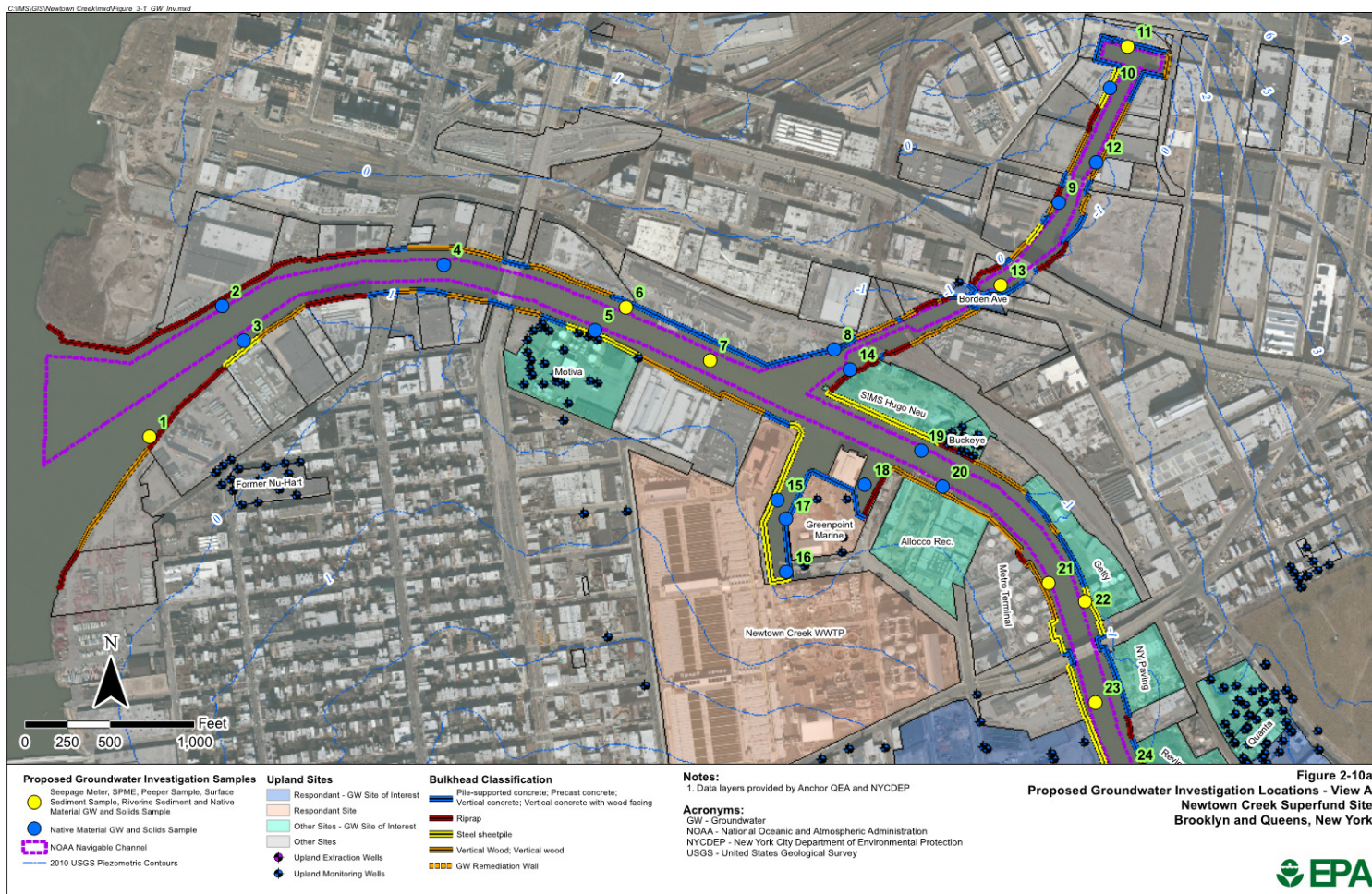


Groundwater Investigation: Objectives

- Collect samples to assess native materials, riverine sediments, surface sediments, porewater and groundwater
- Collect data to estimate current COPC loading to sediments and surface water via groundwater
- Provide model inputs to project future COPC loadings

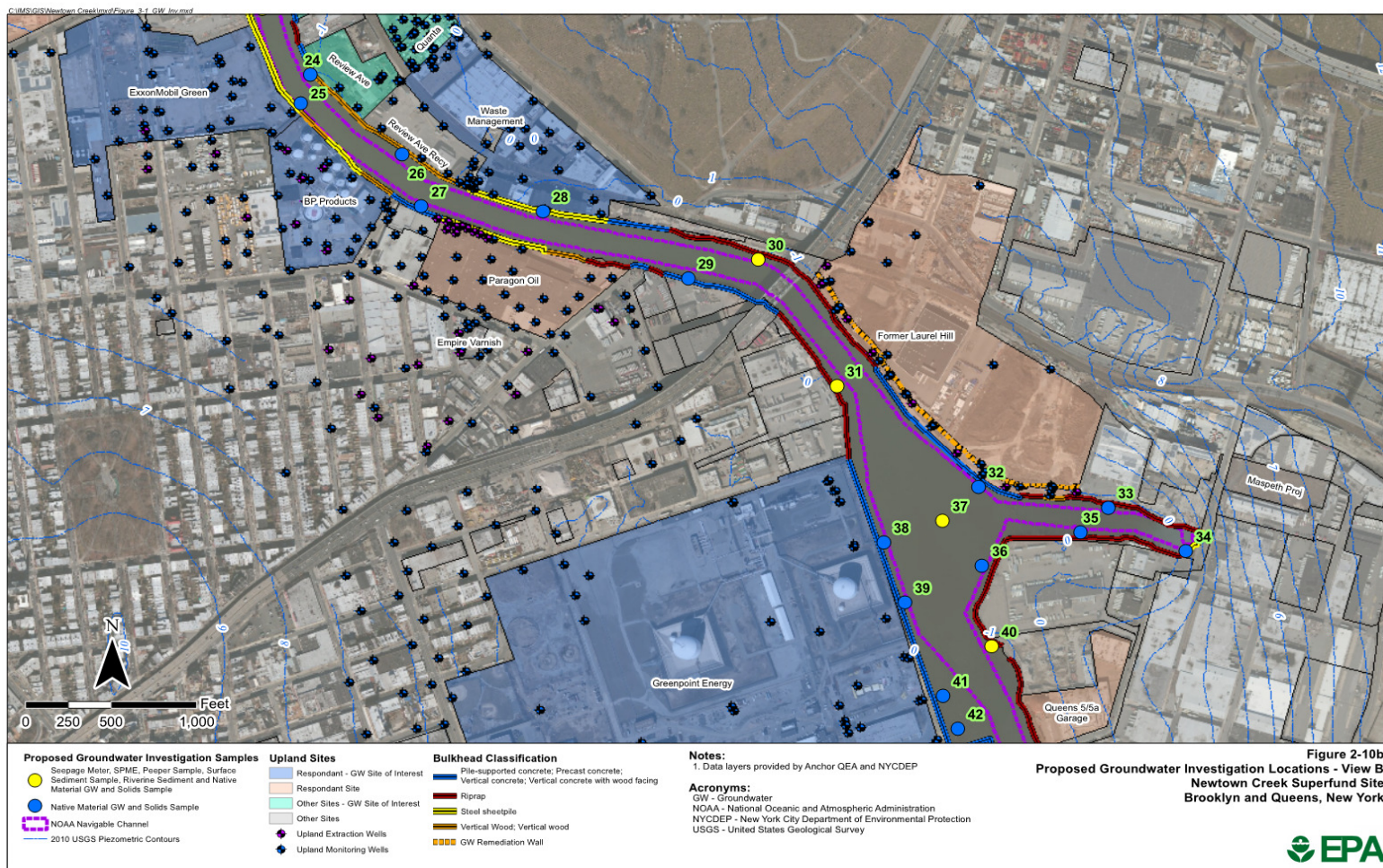


Groundwater Investigation Locations: View A



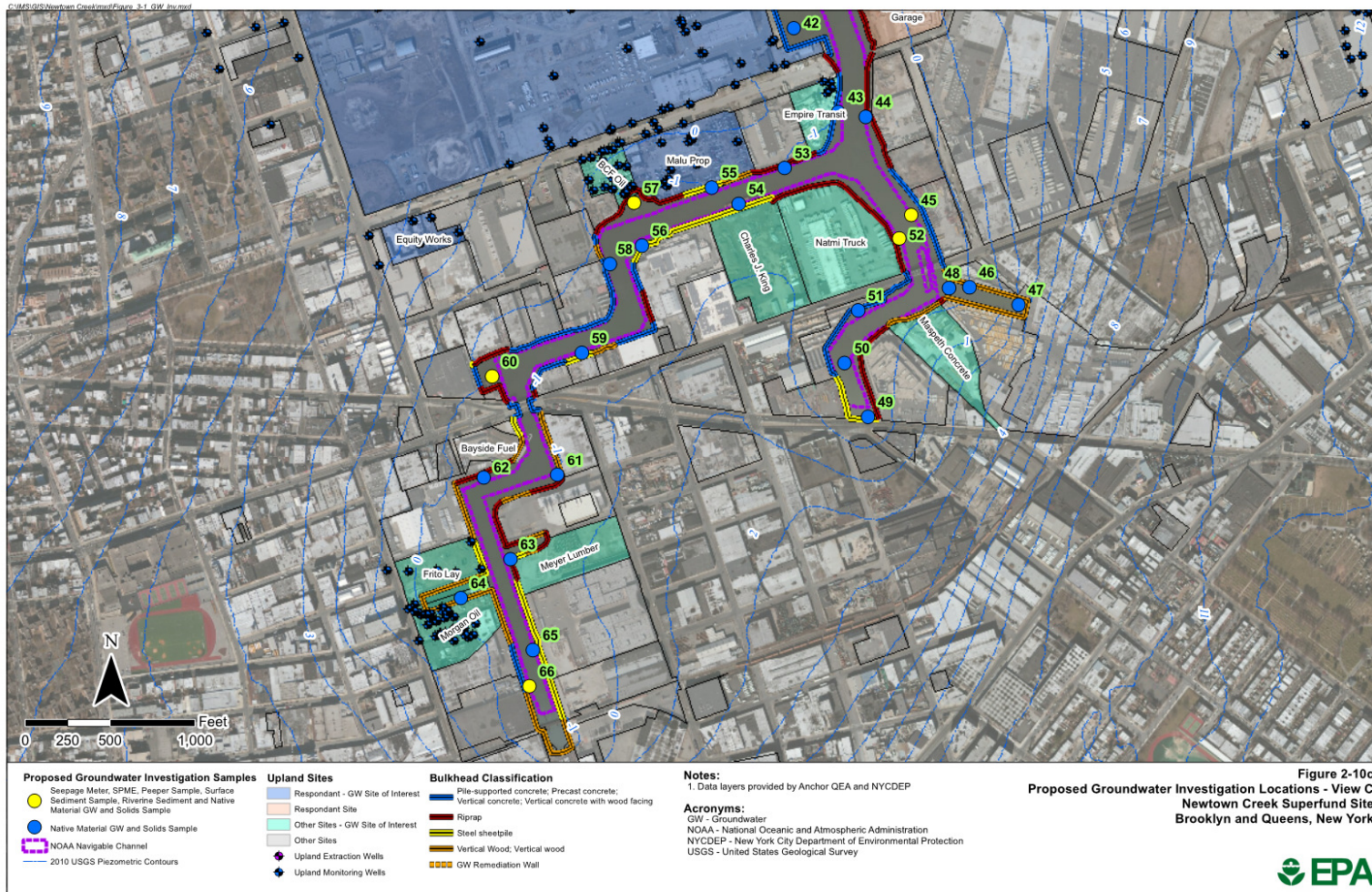


Groundwater Investigation Locations: View B





Groundwater Investigation Locations: View C





Groundwater Investigation: Status

- All field work is complete except for electronic seepage meter and seasonal long-term water level monitoring
- Long-term water level monitoring to be done in conjunction with seepage meter deployment - May and June 2015
- Ongoing data evaluation to determine if data is adequate to support groundwater modeling

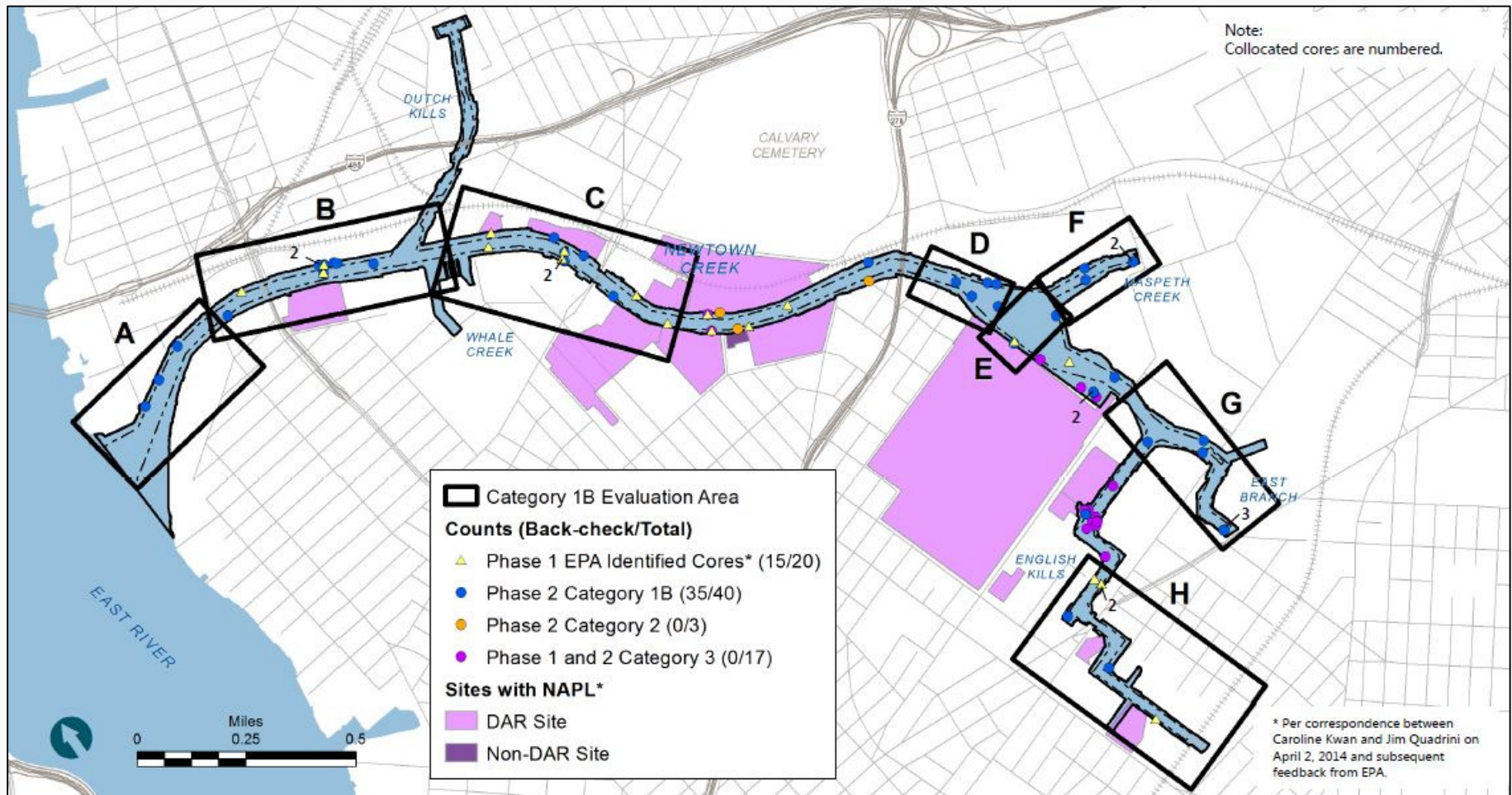


NAPL Investigation: Overview

- Phase 1 subsurface core descriptions identified potential NAPL locations (saturated, coated, oil stained)
- EPA identified additional potential NAPL locations for investigation:
 - Phase I core descriptions indicative of potential NAPL
 - High contaminant concentrations (BTEX, TPH, etc.)
 - Location near known NAPL sites
- Expanded NAPL delineation in Phase 2



NAPL Investigation: Shake Tests Evaluation





NAPL Investigation: Status

- All Phase 2 NAPL field data collected
- NAPL data evaluation is on-going



Risk Assessment Support

- Ecological Risk Assessment
 - Baseline Ecological Risk Assessment Problem Formulation was prepared and approved
 - The following studies were conducted:
 - fish, avian and benthic macroinvertebrate surveys
 - acute and chronic toxicity testing with *Leptocheirus*
 - bioaccumulation tests in the creek and in the lab
- Human Health Risk Assessment
 - An interim Pathway Analysis Report was prepared and approved
 - Potential receptors and exposure pathways have been identified
 - A site visit was conducted in March 2014 to refine potential sediment exposure pathways and locations



Sediment Data Gap Program: Objectives

- Data collection to fill data gaps identified in Phase 1
- Major elements include:
 - Vertical extent of contamination – define depth to native material in specific areas
 - Refinement of vertical contaminant distribution – at and below the sediment/native interface
 - Confirmation of contaminant distribution in unique areas (Turning Basin and English Kills)

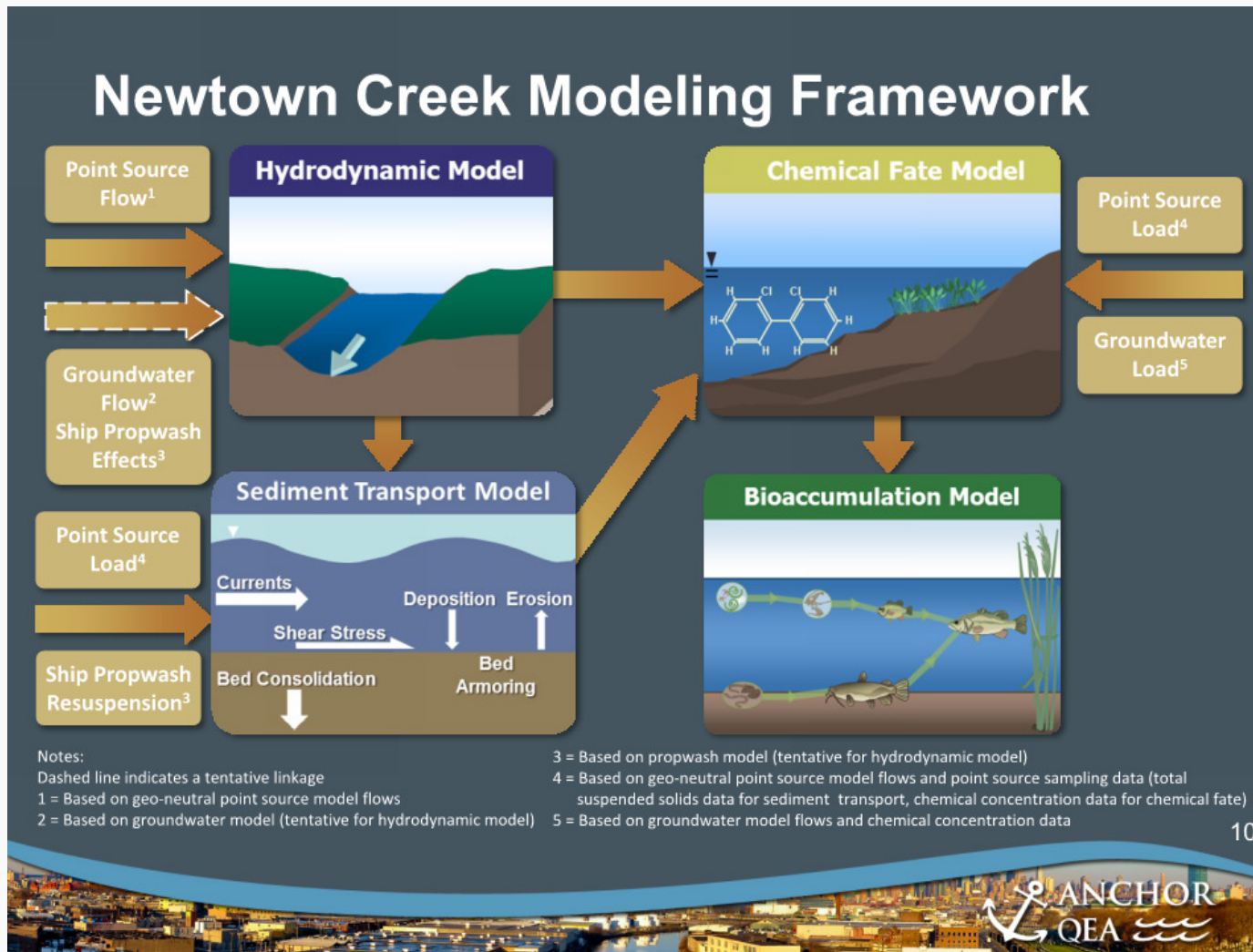


Sediment Data Gap Program – Status

- Field work has been completed
- Unable to reach native material at a few locations because low water levels prevented vessel access
- Overall, data gaps have been filled



Modeling – Framework





Modeling: Status

- Modeling Approach Memo 1 (March 2012)
- Preliminary Modeling Results Memo (June 2014)
- Modeling Approach Memo 2 (September 2014)
- On-going data collection under Phase 2 to support modeling
 - Point source program
 - Groundwater seepage and seasonal long-term water level monitoring
- Bioaccumulation model