BATTELLE 2023 SEDIMENTS CONFERENCE

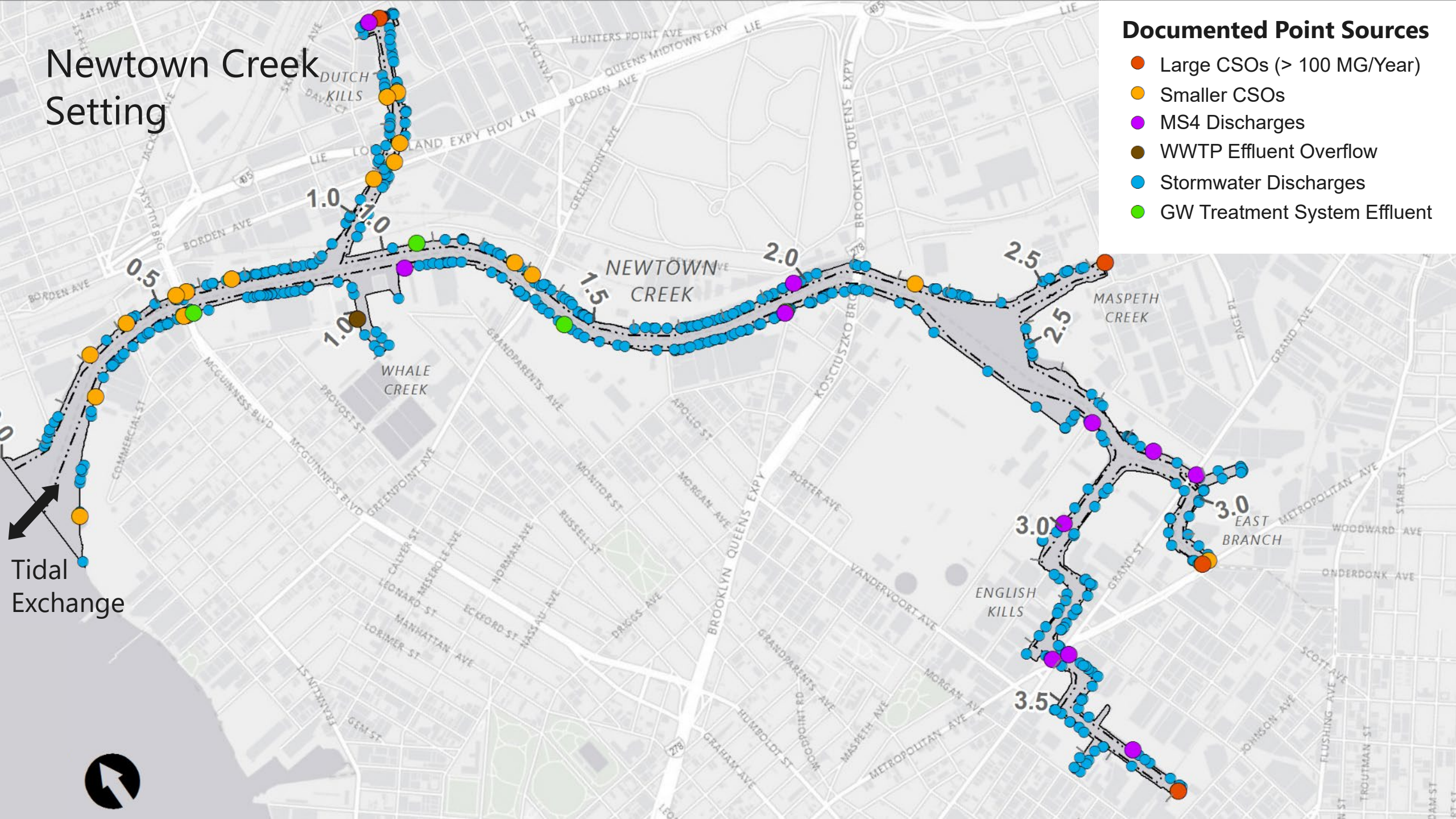
Evaluating Site-Specific Background Including Ongoing Sources to Develop Realistic Cleanup Goals for the Newtown Creek Superfund Site

Presented by: Amanda Shellenberger, PE, Anchor QEA
Collaborators: David Haury; Kevin Russell; Laura Bateman; Ramzy Makhlouf; and Paul LaRosa, PE; Anchor QEA

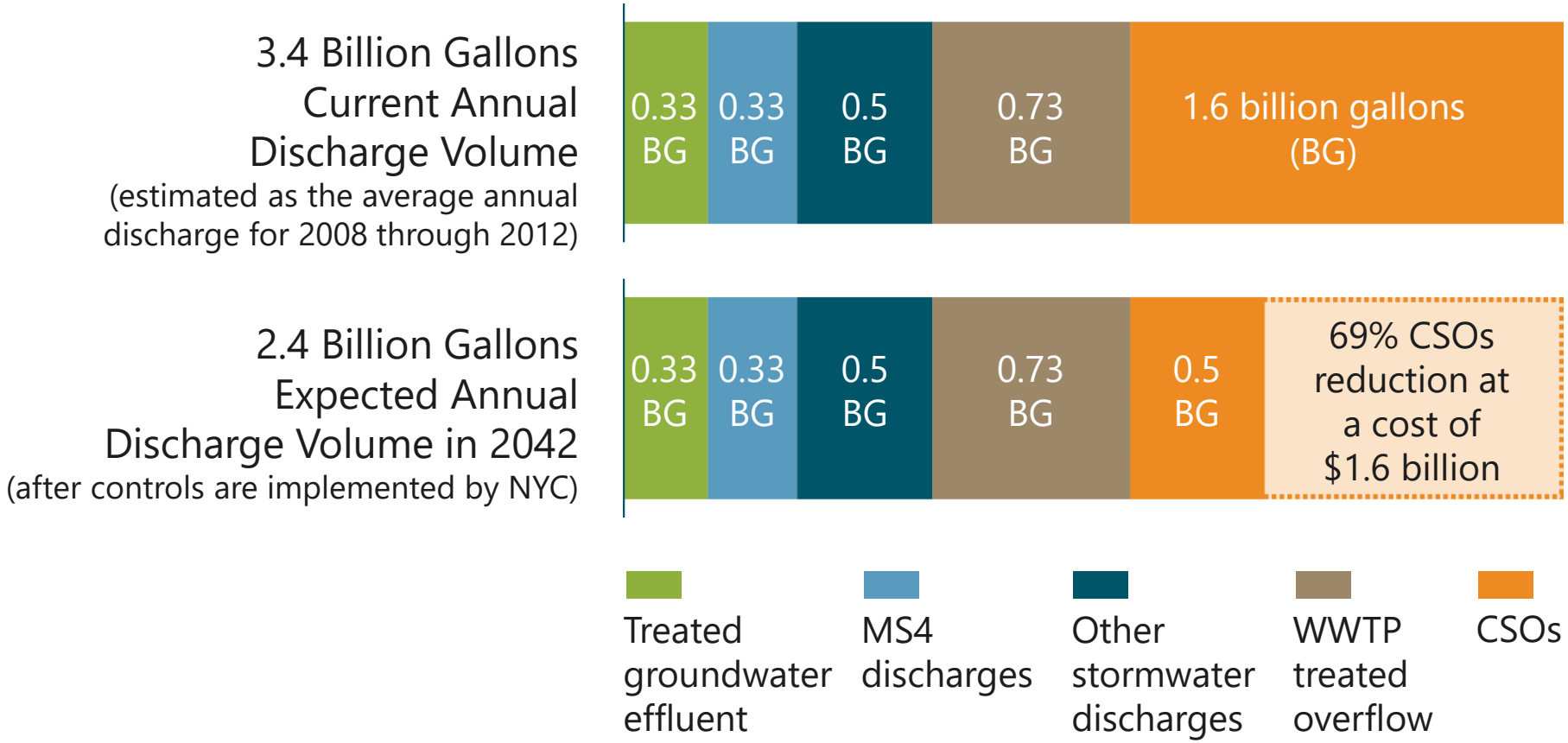
ANCHOR QEA


Photo by Bill Rhodes


Queens
Manhattan
Hudson River
East River
Newtown Creek
Study Area
Brooklyn


Newtown Creek Setting
Documented Point Sources
Large CSOs (> 100 MG/Year)
Smaller CSOs
MS4 Discharges
WWTP Effluent Overflow
Stormwater Discharges
GW Treatment System Effluent
Tidal Exchange
DUTCH KILLS
NEWTOWN CREEK
WHALE CREEK
MASPETH CREEK
EAST BRANCH
ENGLISH KILLS
0.5
1.0
1.0
1.0
1.5
2.0
2.5
2.5
3.0
3.0
3.5
BORDEN AVE
LIE
BROOKLYN QUEENS EXPY
GREENPOINT AVE
METROPOLITAN AVE
GRAND ST
MORGAN AVE
VANDERVOORT AVE

Point Source Discharges Contributing to Site-Specific Urban Background

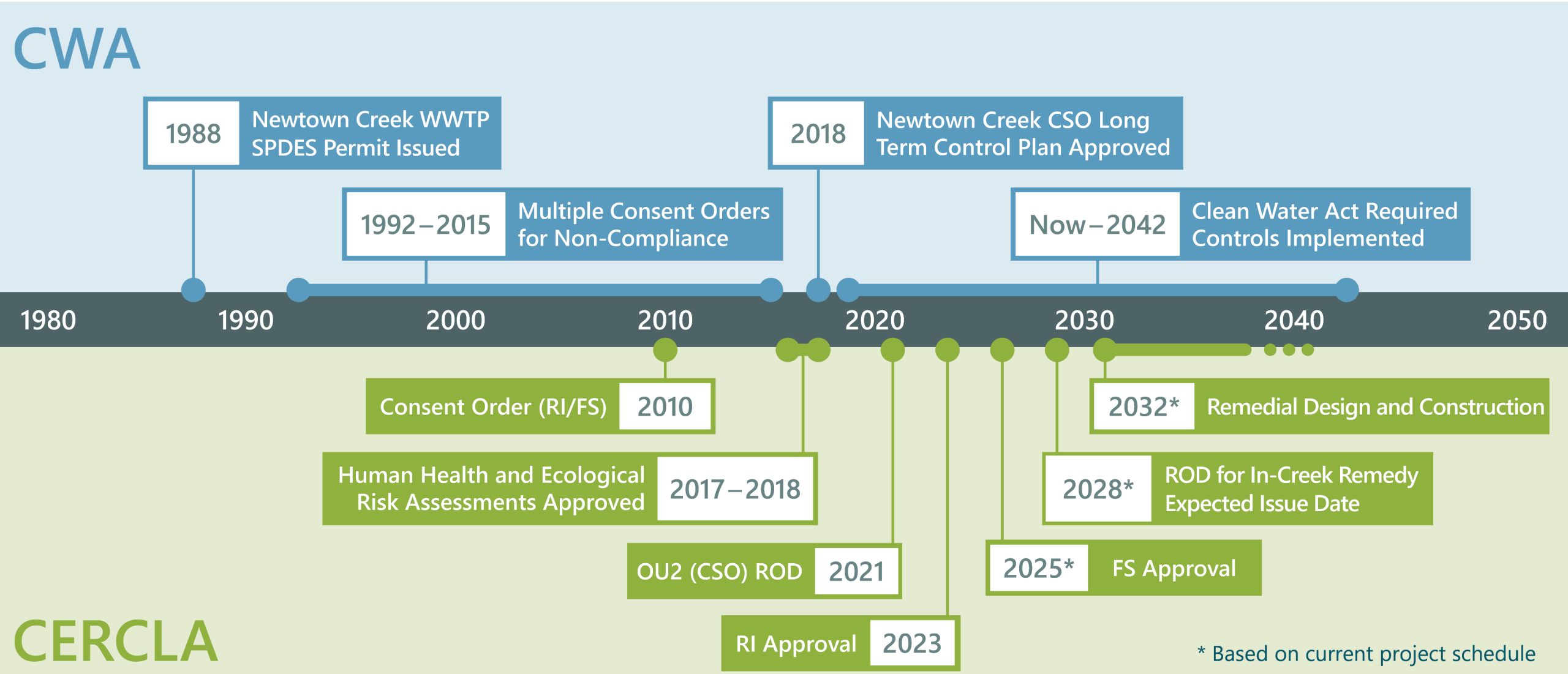


Sources: Anchor QEA 2021 and NYCDEP 2017

CHALLENGE

Setting attainable cleanup goals for an in-creek Superfund remedy that acknowledges and allows for the effects of ongoing external sources that are allowed as part of the Clean Water Act

Regulatory Timeline

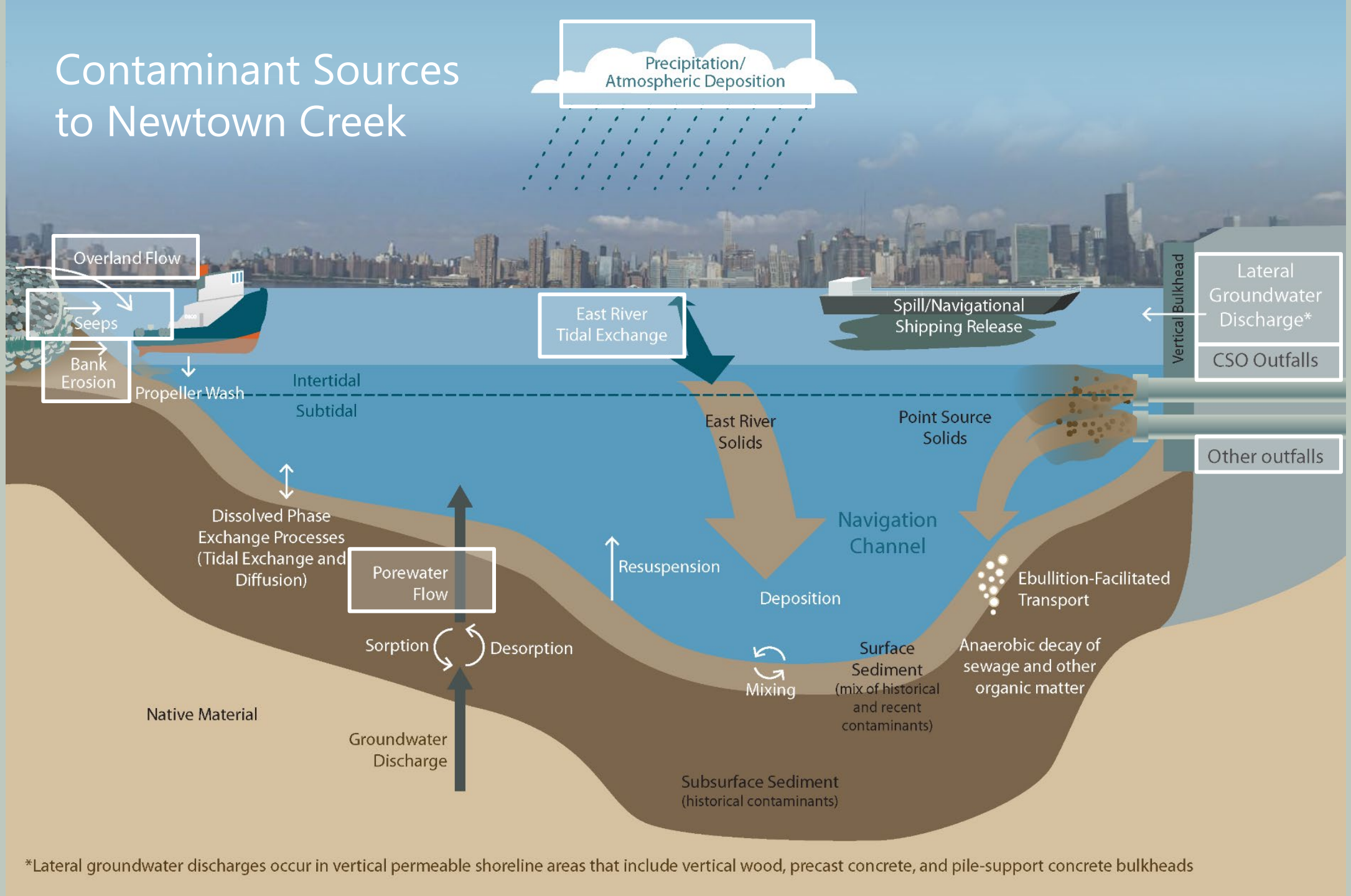


APPROACH + METHODS

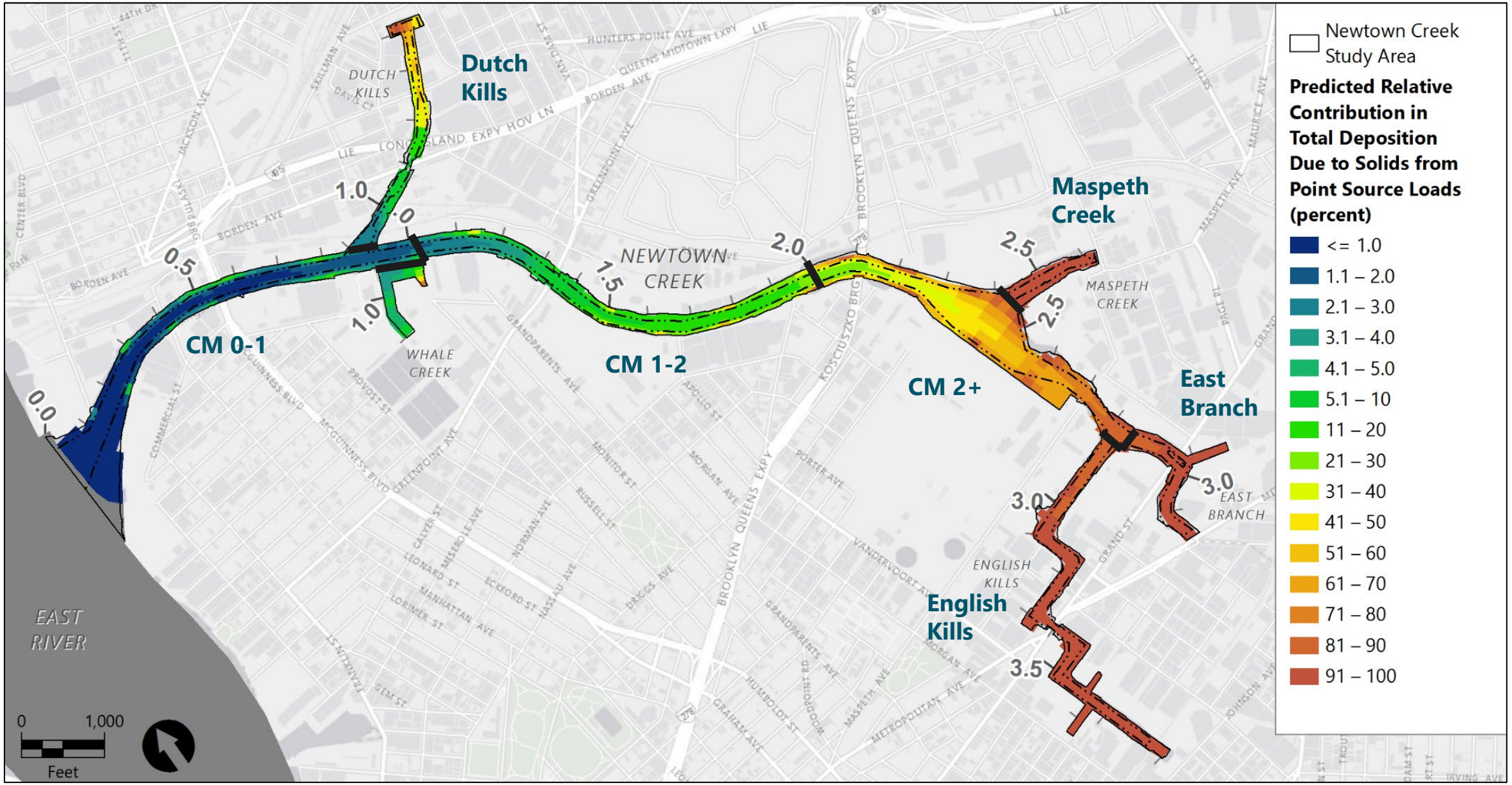
Site-Specific Background Conditions

- Ongoing external inputs at the Study Area identified by USEPA have been categorized as part of the Remedial Investigation
- Developed an approach for evaluating site-specific background that accounts for ongoing external contaminant inputs
- Utilized a spreadsheet-based mass balance approach to estimate post-remedy, long-term equilibrium (LTE) surface sediment concentrations based on the ongoing sources to the system

Contaminant Sources to Newtown Creek

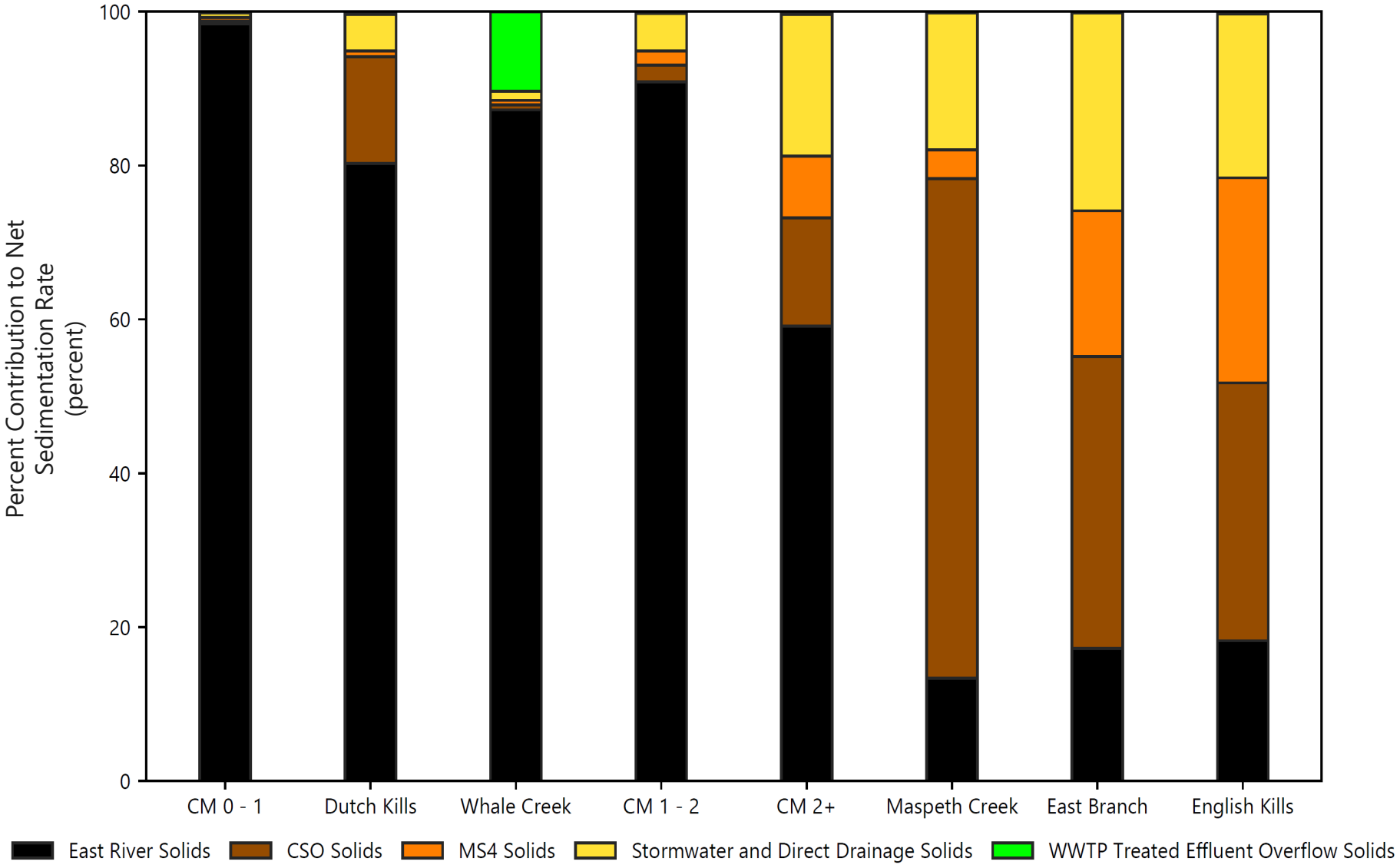


*Lateral groundwater discharges occur in vertical permeable shoreline areas that include vertical wood, precast concrete, and pile-support concrete bulkheads



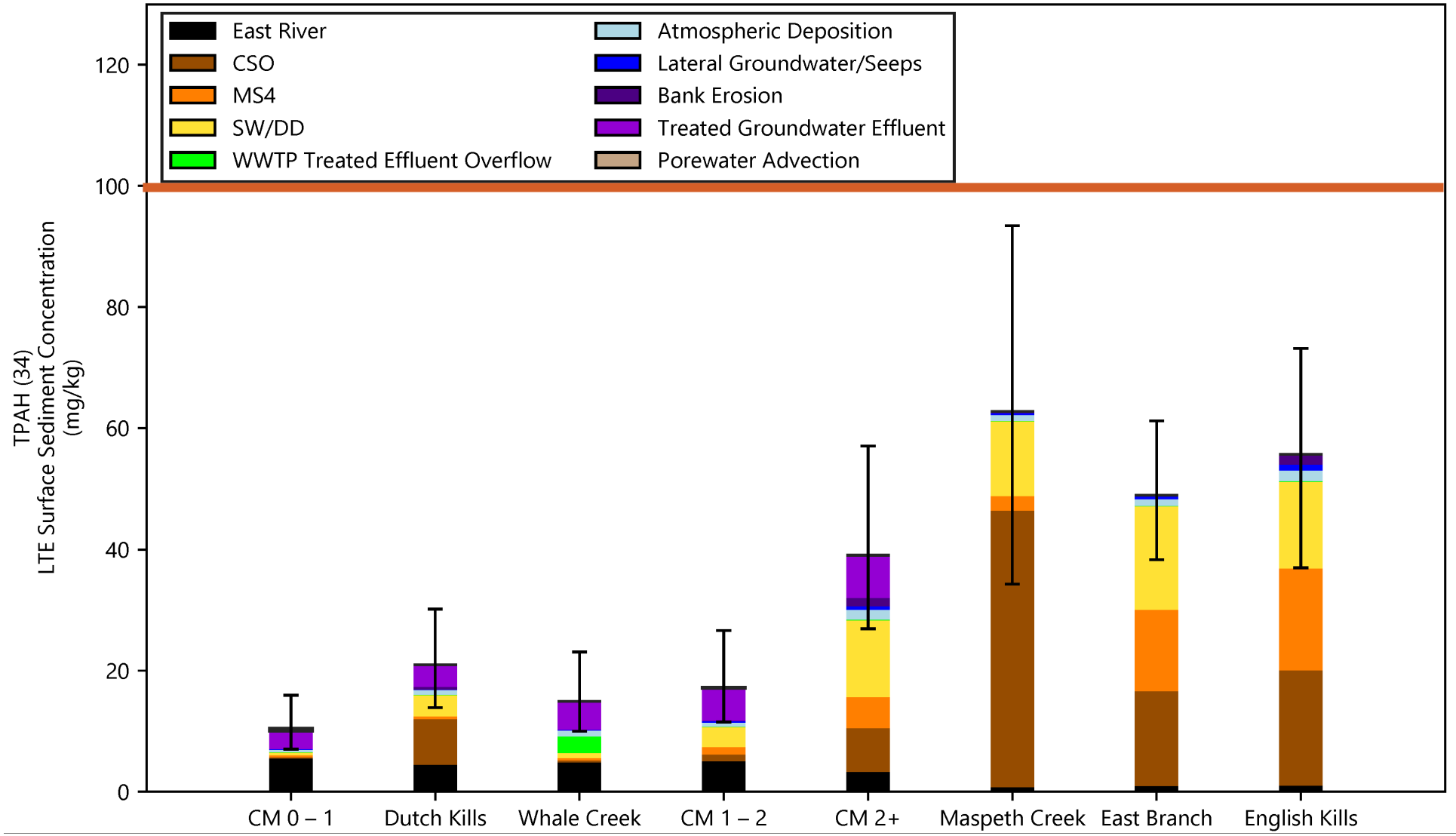
Predicted Contribution of Point Source Solids to Total Solids Deposited on Sediment Bed

Contribution of Solids-Based Sources to Net Sedimentation



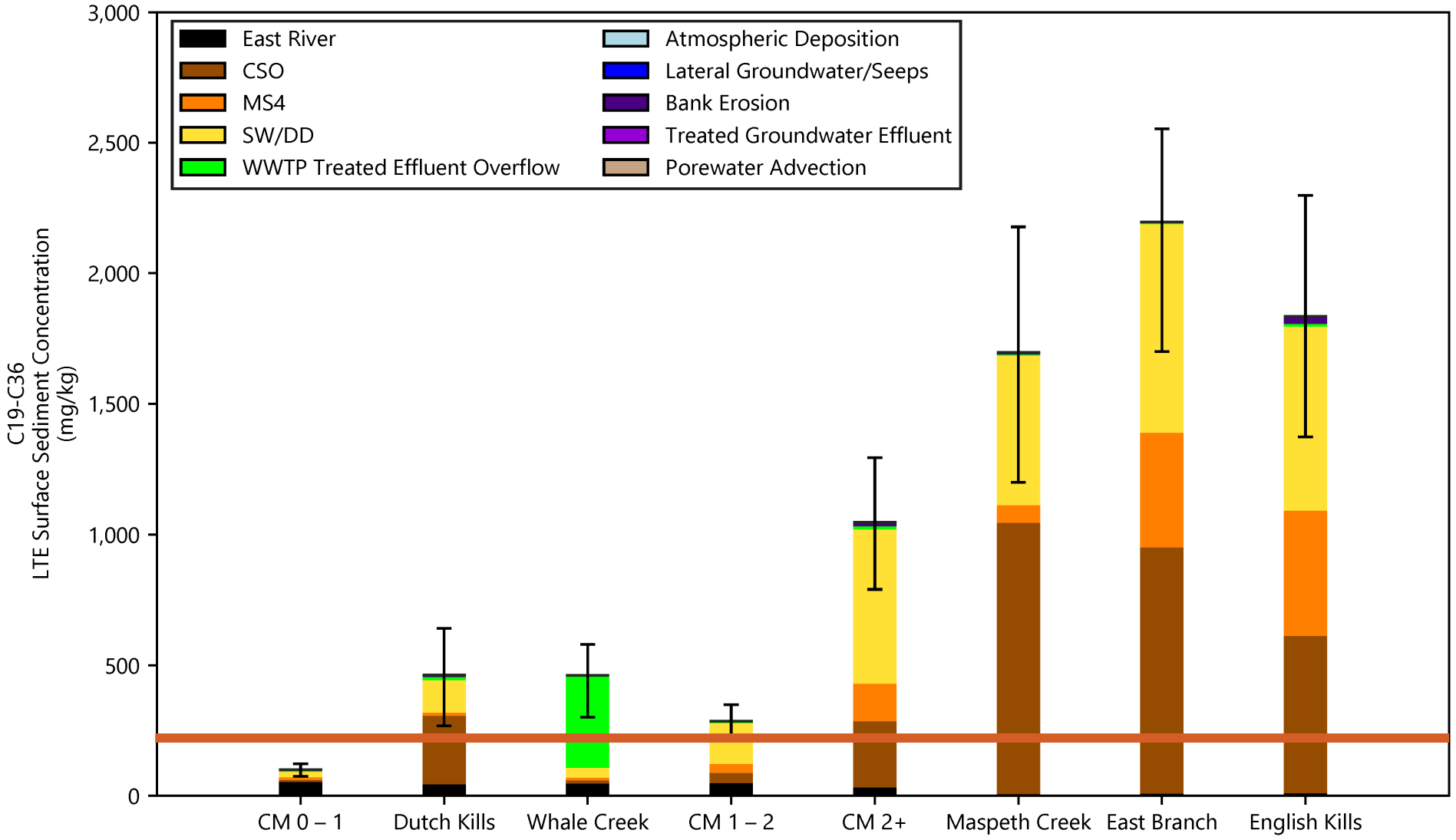
CM: Creek Mile

Estimated LTE Concentrations: Total PAH (34)



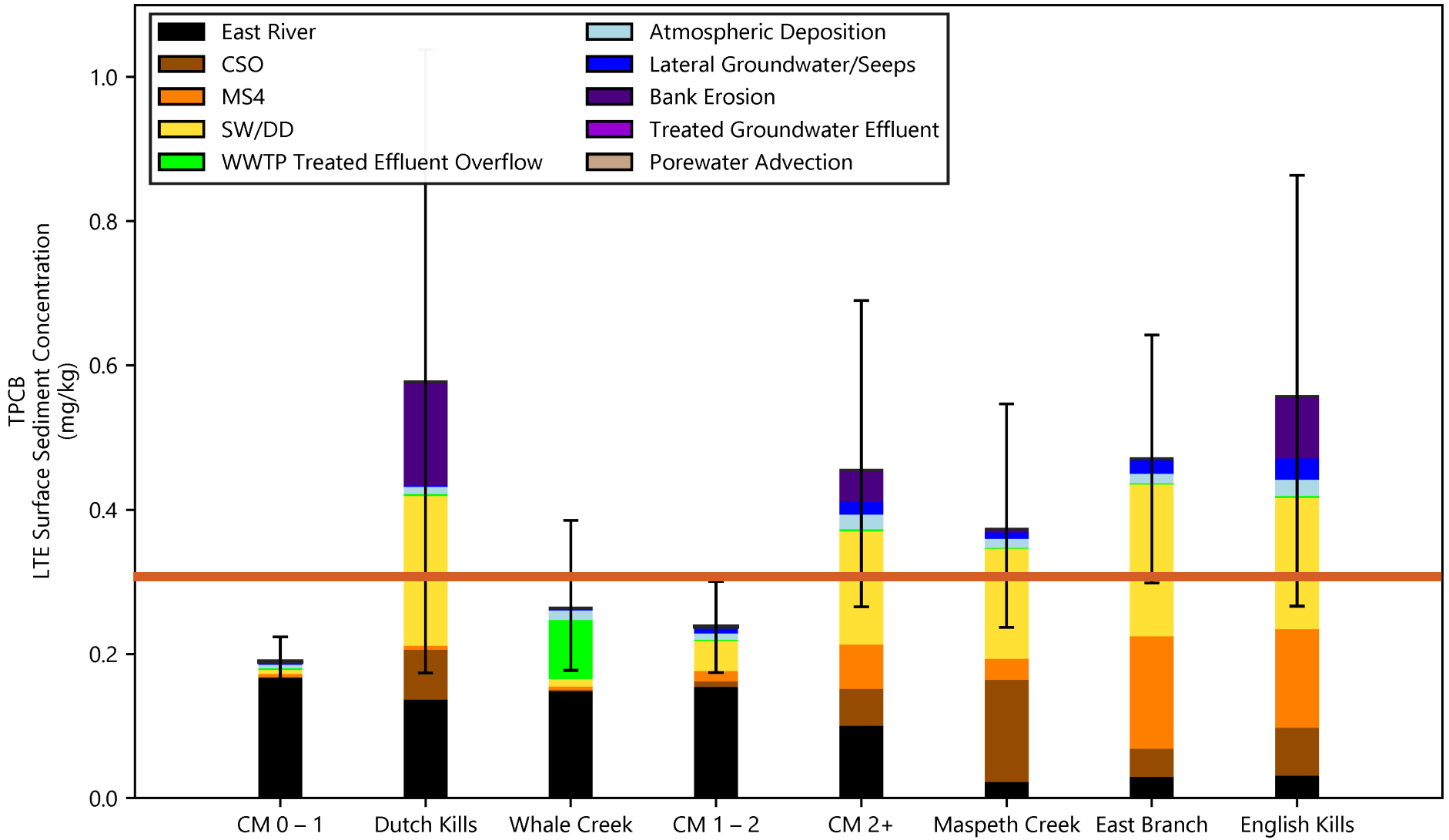
Preliminary Risk-Based Remediation Goal (PRG): 100 mg/kg point-by-point

Estimated LTE Concentrations: C19-C36



Risk-Based PRG: 200 mg/kg point-by-point

Estimated LTE Concentrations: Total PCBs



Risk-Based PRG: 0.3 mg/kg SWAC

SOLUTION / LESSONS

Summary

- When setting attainable cleanup goals for in-creek remedy, the Superfund process needs to consider the effects of ongoing external inputs that are allowed as part of CWA
- Preliminary estimates of LTE concentrations (including ongoing sources) indicate some risk-based PRGs may not be sustainable, regardless of the in-creek remedy selected

THANK YOU

Amanda Shellenberger, PE

Principal Environmental Engineer
Anchor QEA
ashellenberger@anchorqea.com

ANCHOR QEA

REFERENCES

Anchor QEA (Anchor QEA, LLC), 2021. *Remedial Investigation Report*. Draft. Remedial Investigation/Feasibility Study, Newtown Creek. October 2021.

NYCDEP (New York City Department of Environmental Protection), 2017. *Newtown Creek Combined Sewer Long Term Control Plan for Newtown Creek*. Bureau of Engineering Design and Construction. June 2017.

USEPA (U.S. Environmental Protection Agency), 2002. Transmittal of Policy Statement to: Superfund National Policy Managers, Regions 1 – 10. From: Michael B. Cook, Director of Office of Emergency and Remedial Response. Regarding: "Role of Background in the CERCLA Cleanup Program." OSWER 9285.6-07P. April 26, 2002.

USEPA, 2005. *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites*. Office of Solid Waste and Emergency Response. EPA 540-R-05-102. OSWER 9355.0-85. December 2005.

USEPA, 2013. *A Primer for Remedial Project Managers on Water Quality Standards and the Regulation of Combined Sewage Overflows under the Clean Water Act*. OSWER Directive 9200.1-116-FS. December 2013.