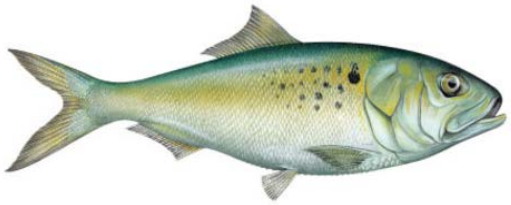
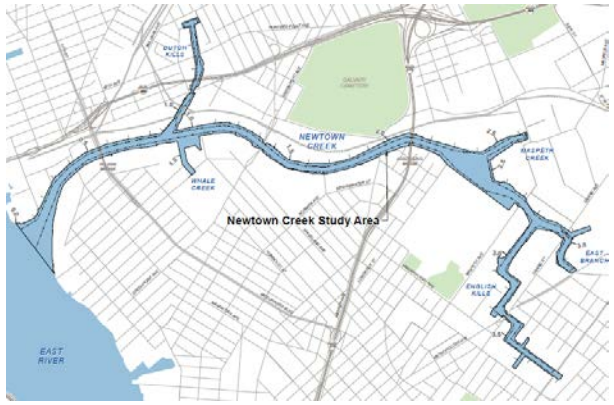


Atlantic Menhaden
Brevoortia tyrannus



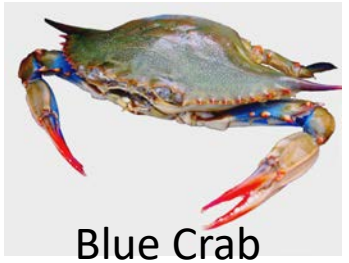
Striped Bass
Morone saxatilis

Newtown Creek Biota Sampling

Chuck Nace
Environmental Toxicologist
USEPA Region 2

Mummichog
Fundulus heteroclitus

Ribbed Mussel
Geukensia demissa



Blue Crab
Callinectes sapidus

CSTAG Recommendation

CSTAG Recommendation 11/15 – Collection and use of fish contaminant data and baseline sampling

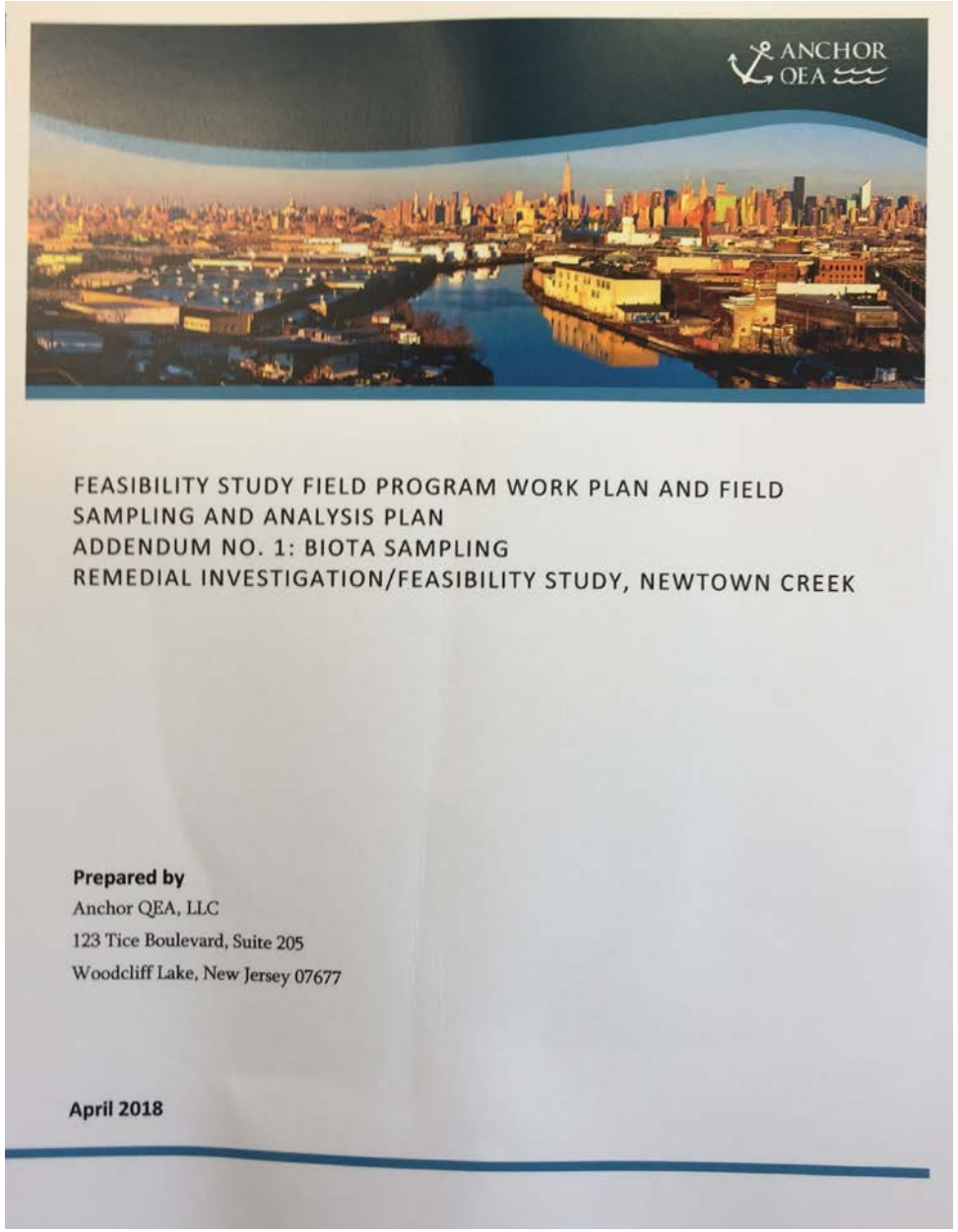
- Round 1 biota sampling completed in Spring/Summer 2014
- Round 2 biota sampling is in progress - Spring/Summer 2018
- All rounds include collection fish, blue crab, and bivalve tissue samples

Biota Work Plan

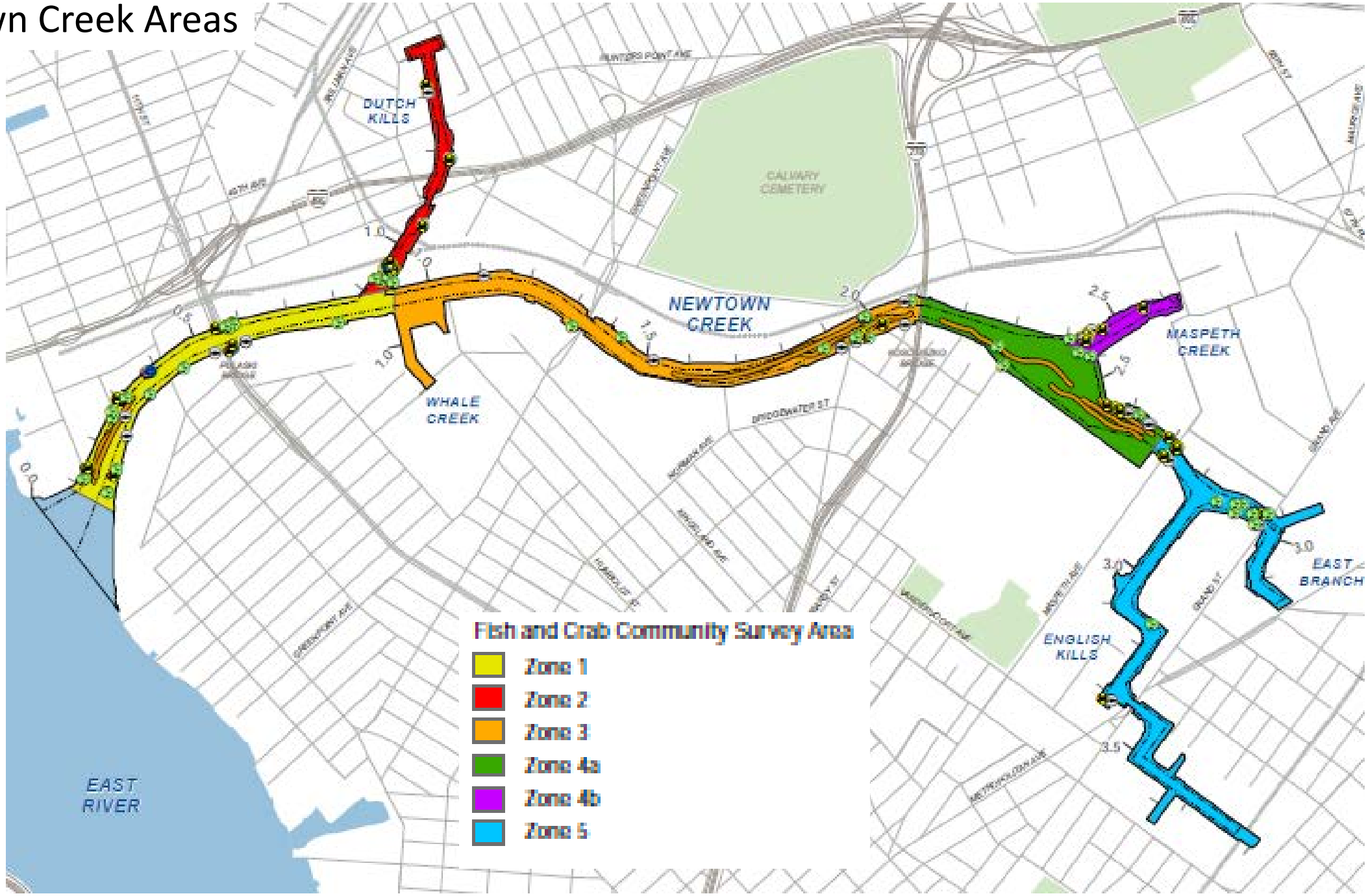
- Work plan submitted, reviewed and approved by USEPA

Goals

- Comparison with the 2014 Phase 2 RI tissue chemistry datasets to assess variability in tissue concentrations in the Study Area and reference areas
- Establishment of baseline conditions at a time that is temporally closer to any remedy implementation, for subsequent comparison with future post-remedy monitoring data



Newtown Creek Areas

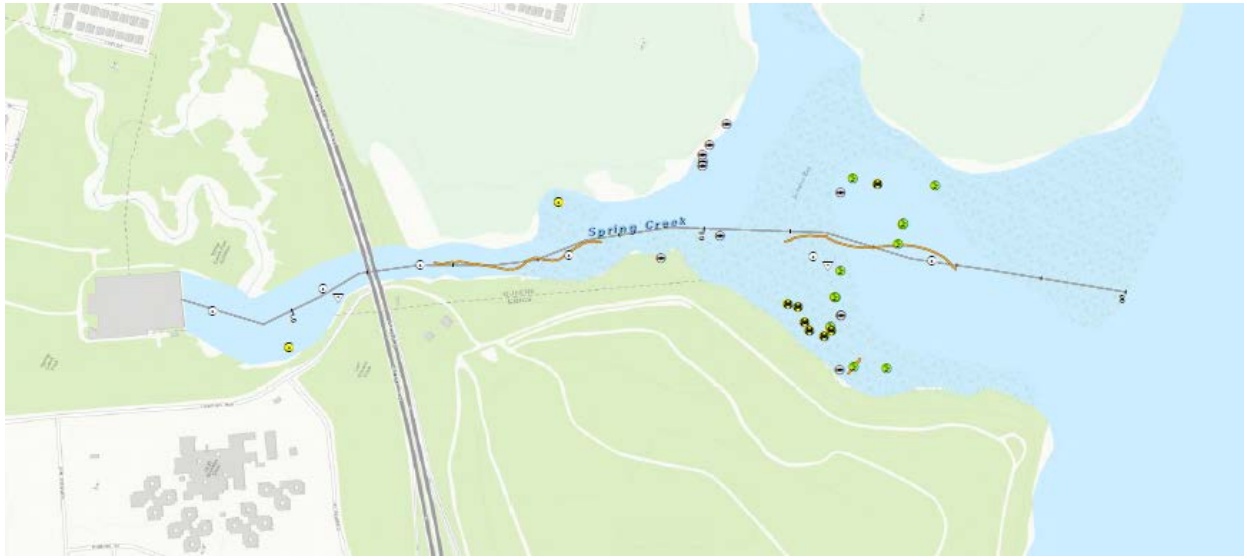


Reference Areas

Westchester Creek – Industrial/CSO

Head of Bay – Industrial/Limited CSO

Spring Creek – Non-Industrial/CSO



Gerritsen Creek – Non-Industrial/Limited CSO

June Sampling

Locations: Newtown Creek and Reference Areas

Equipment: Gillnets

Species: Striped bass and Atlantic menhaden

Analysis: PAHs, organochlorine pesticides, arsenic speciation, metals, mercury, methyl mercury, percent lipids, percent moisture, PCB congeners, dioxins/furans, archive samples

Fish Collection Process




Deploy gill net, net “soaks” for several hours or longer, gill net is retrieved, fish are removed and fish placed in holding bins




Fish are transferred to coolers with ice, transported to field station, measured, weighed, labeled and wrapped

Not pictured: Fish are placed in freezer, then transferred to the laboratory for processing

August Sampling

Locations: Newtown Creek and Reference Areas

Equipment: Crab pots and minnow traps

Species: Blue Crab and mummichog

Analysis: PAHs, organochlorine pesticides, arsenic speciation, metals, mercury, methyl mercury, percent lipids, percent moisture, PCB congeners, dioxins/furans, archive samples

September Deployment

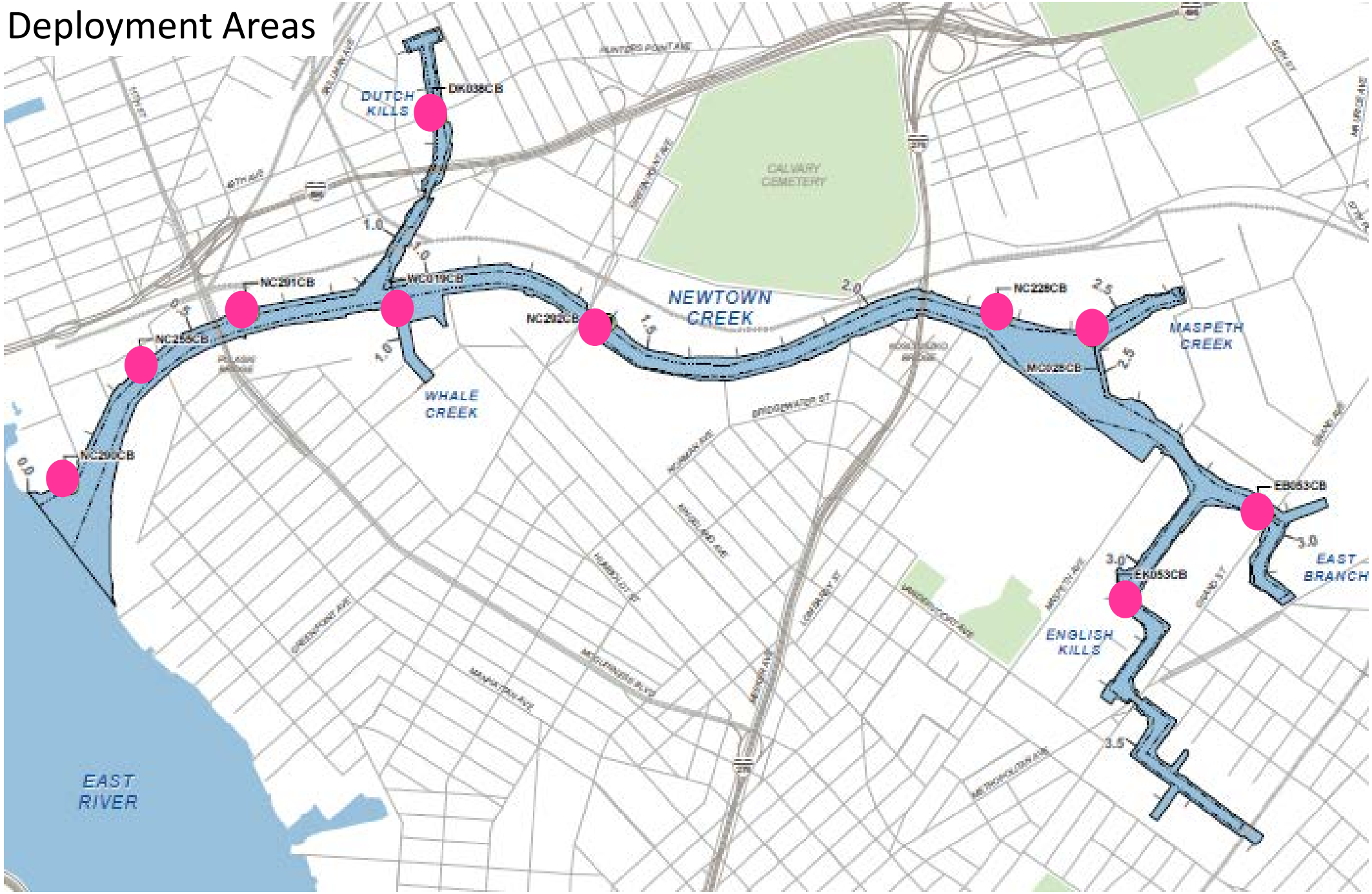
Locations: Newtown Creek

Equipment: Cages

Species: Ribbed mussel

Analysis: PAHs, organochlorine pesticides, arsenic speciation, metals, mercury, methyl mercury, percent lipids, percent moisture, PCB congeners, dioxins/furans, archive samples

Bivalve Deployment Areas



Sample Collection Results to Date

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Atlantic Menhaden	Whole Body	Small, <15	Study Area Zone 1	4	4
			Study Area Zone 2	4	4
			Study Area Zone 3	4	4
			Study Area Zone 4a	4	4
			Study Area Zone 4b	4	4
			Study Area Zone 5	4	4
			Westchester Creek	5	5
			Head of Bay	5	5
			Spring Creek	5	5
			Gerritsen Creek	5	5

Sample Collection Results to Date

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Striped Bass	Fillet plus remaining carcass	Large, >15	Study Area Zone 1	3	3
			Study Area Zone 2	1	1
			Study Area Zone 3	3	3
			Study Area Zone 4a	1	1
			Study Area Zone 4b	1	1
			Study Area Zone 5	1	1
			Westchester Creek	5	5
			Head of Bay	5	5
			Spring Creek	5	5
			Gerritsen Creek	5	5

Sample Collection Results to Date

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Striped Bass	Whole body, on top of fillet plus carcass	Large, >15	Study Area Zone 1	1	1
			Study Area Zone 2	3	3
			Study Area Zone 3	1	1
			Study Area Zone 4a	3	3
			Study Area Zone 4b	3	3
			Study Area Zone 5	3	3
			Westchester Creek	na	na
			Head of Bay	na	na
			Spring Creek	na	na
			Gerritsen Creek	na	na

Sample Collection Results to Date

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Mummichog	Whole Body	Small, <15	Study Area Zone 1	4	
			Study Area Zone 2	4	
			Study Area Zone 3	4	
			Study Area Zone 4a	4	
			Study Area Zone 4b	4	
			Study Area Zone 5	4	
			Westchester Creek	5	
			Head of Bay	5	
			Spring Creek	5	
			Gerritsen Creek	5	

Sample Collection Results to Date

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Blue Crab	Whole Body	Small, <10	Study Area Zone 1	4	
			Study Area Zone 2	4	
			Study Area Zone 3	4	
			Study Area Zone 4a	4	
			Study Area Zone 4b	4	
			Study Area Zone 5	4	
			Westchester Creek	5	
			Head of Bay	5	
			Spring Creek	5	
			Gerritsen Creek	5	

Species	Tissue Type	Approximate Size Class (cm)	Fish Sampling Zone	Total Number of Composites	Number of Composites Collected to Date
Blue Crab	Muscle	Large, >10	Study Area Zone 1	3	
	Hepatopancreas				
	Muscle		Study Area Zone 2	1	
	Hepatopancreas				
	Muscle		Study Area Zone 3	3	
	Hepatopancreas				
	Muscle		Study Area Zone 4a	1	
	Hepatopancreas				
	Muscle		Study Area Zone 4b	1	
	Hepatopancreas				
	Muscle		Study Area Zone 5	1	
	Hepatopancreas				
	Muscle		Westchester Creek	5	
	Hepatopancreas				
	Muscle		Head of Bay	5	
	Hepatopancreas				
	Muscle		Spring Creek	5	
	Hepatopancreas				
	Muscle		Gerritsen Creek	5	
	Hepatopancreas				