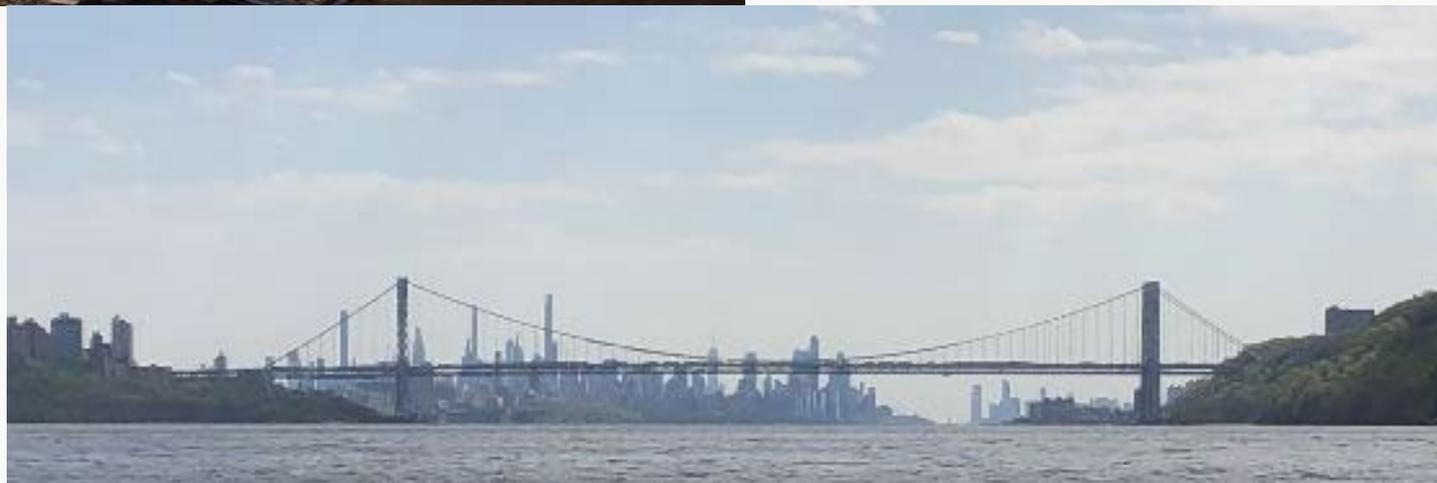




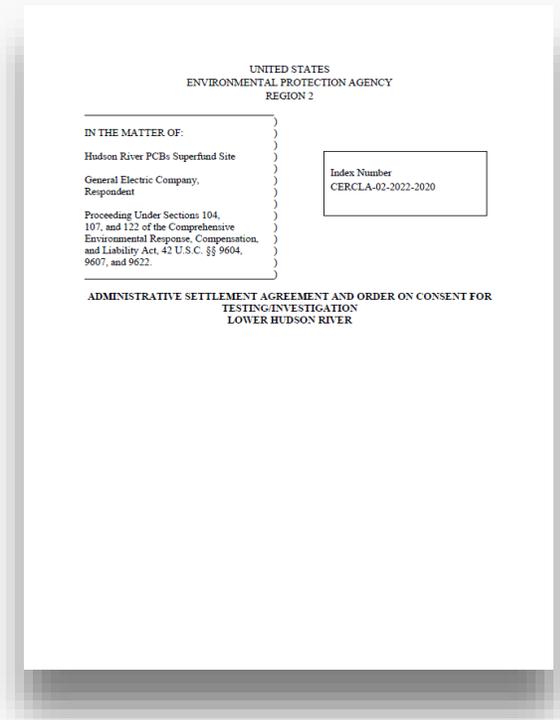
Lower Hudson River (LHR) Update



Lower Hudson River Sampling Agreement



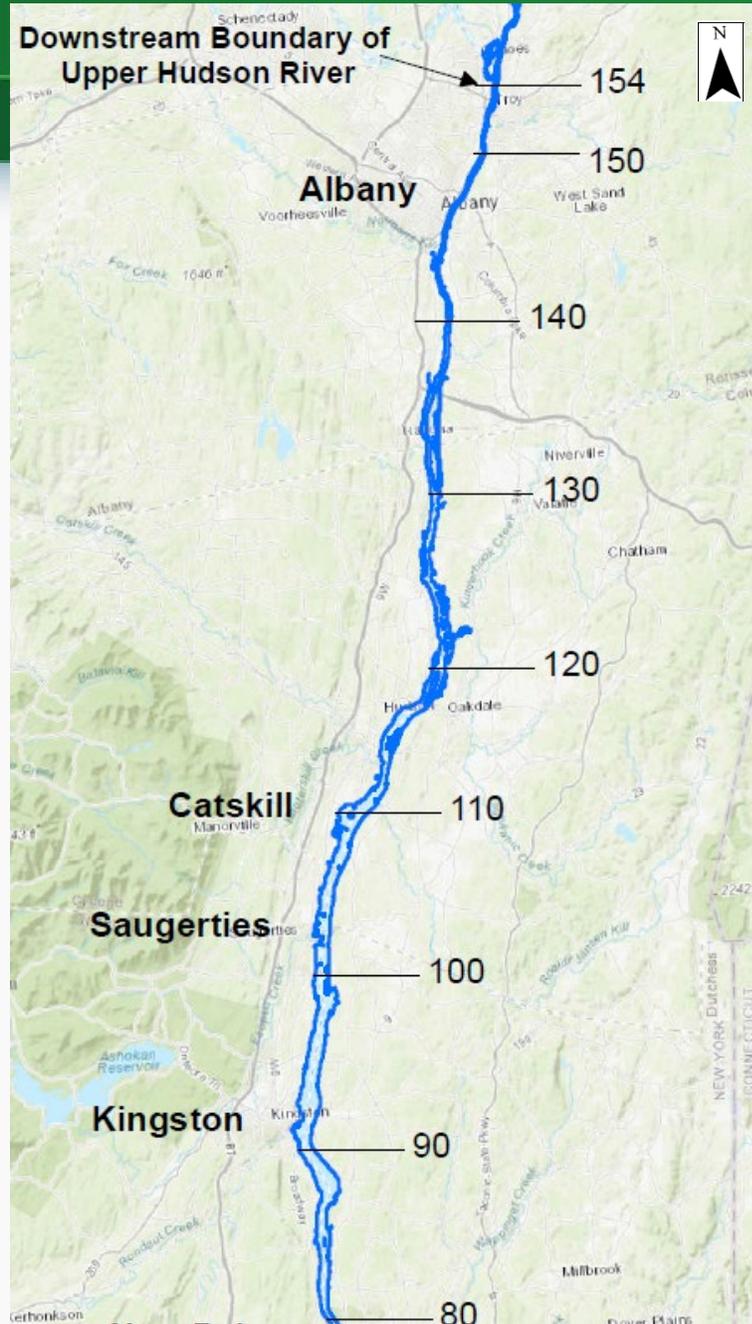
- EPA signed a legal agreement with GE in September 2022 for extensive fish, water and sediment sampling
- EPA approved the workplan in March 2023
- Data will be used to determine next steps and scope of future work
- Field work began this spring
- Designed to be a phased process
 - Results from initial sampling will inform future sampling
- Focus will be on PCBs – other contaminants will also be evaluated



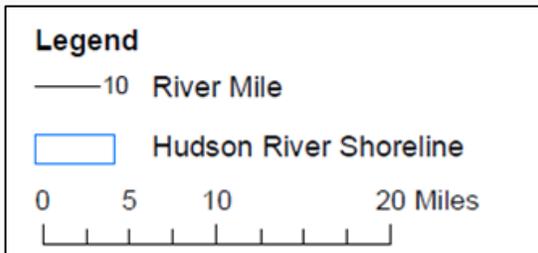
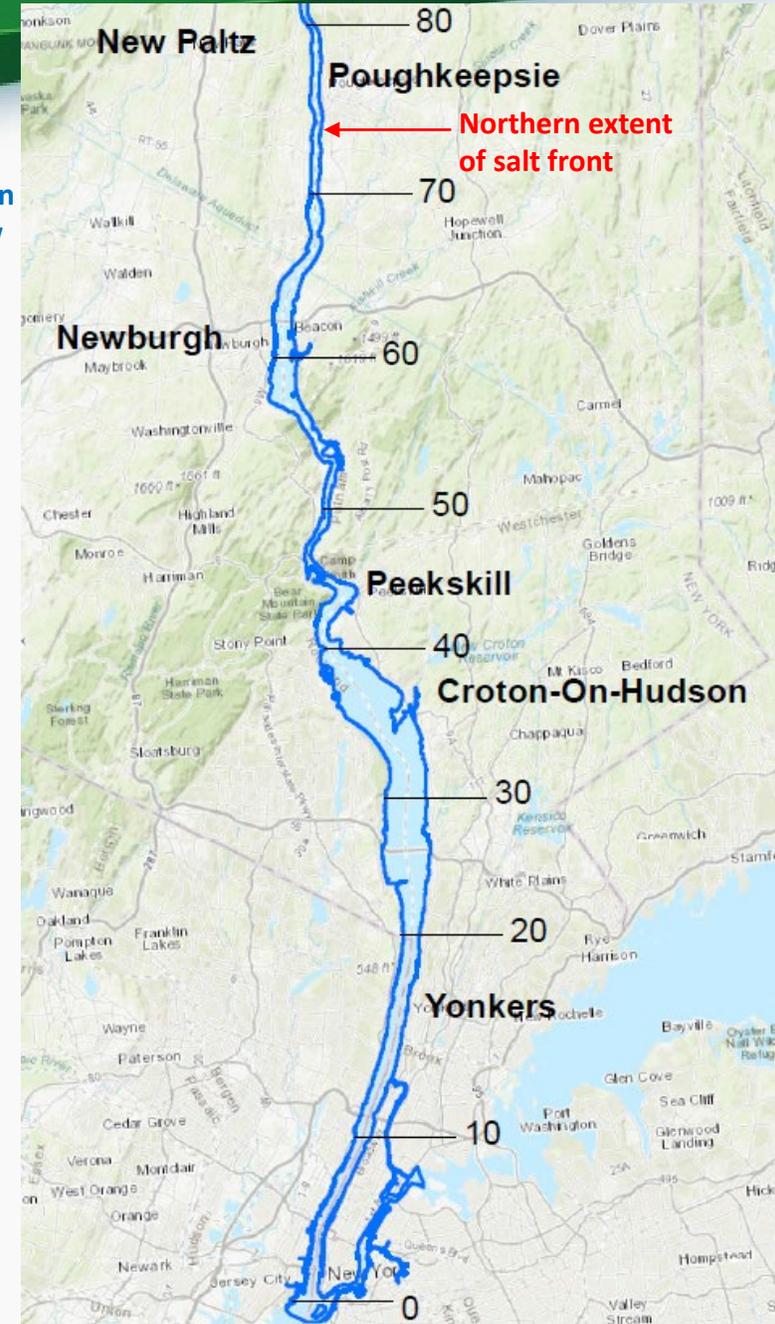
Lower Hudson River



- Lower River extends from Battery at Manhattan (RM 0) to the Federal Dam in Troy (RM 154)
- The lower Hudson River is an estuary where fresh water and salty seawater meet. The estuarine salt front extends upriver to Poughkeepsie (~ RM 73)



Direction of Flow

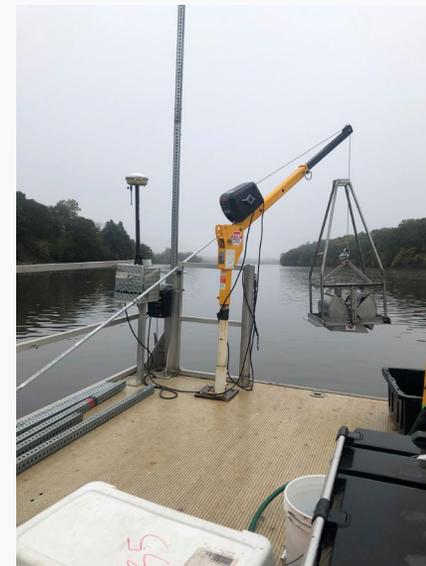


Lower Hudson River Agreement



- Five primary programs:
 - Water column
 - Fish tissue
 - Recently deposited sediment
 - Supplemental sediment coring*
 - High-resolution sediment coring (historical trends)
- This work will not interfere with people's use of the river; some vessels may be visible from shoreline areas

**Core sampling is a process that removes sections of river sediment in hollow tubes for testing*



Sampling and Investigations

Water Column

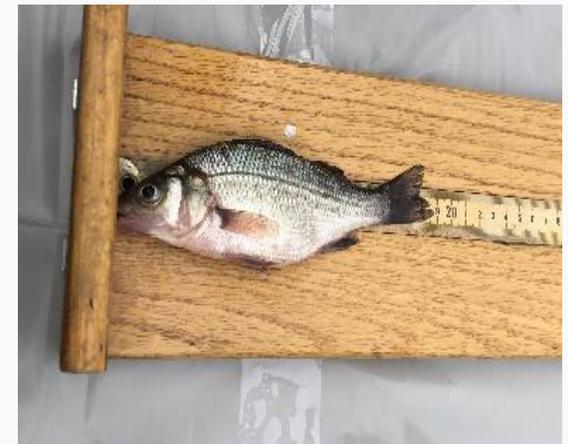


- Purpose:
 - Evaluate overall concentrations of PCBs and other water quality indicators throughout the Lower River
 - Inform EPA's understanding of the relationship between water, fish and sediment
- Scope:
 - Monitor five stations monthly for PCBs (Albany/Troy, Catskill, Poughkeepsie, Newburgh and Tappan Zee)
 - Target three freshwater sampling stations and two brackish water stations (where fresh water is mixed with salt water)
 - Evaluate data after one year and determine the best approach (location and frequency for future sampling)

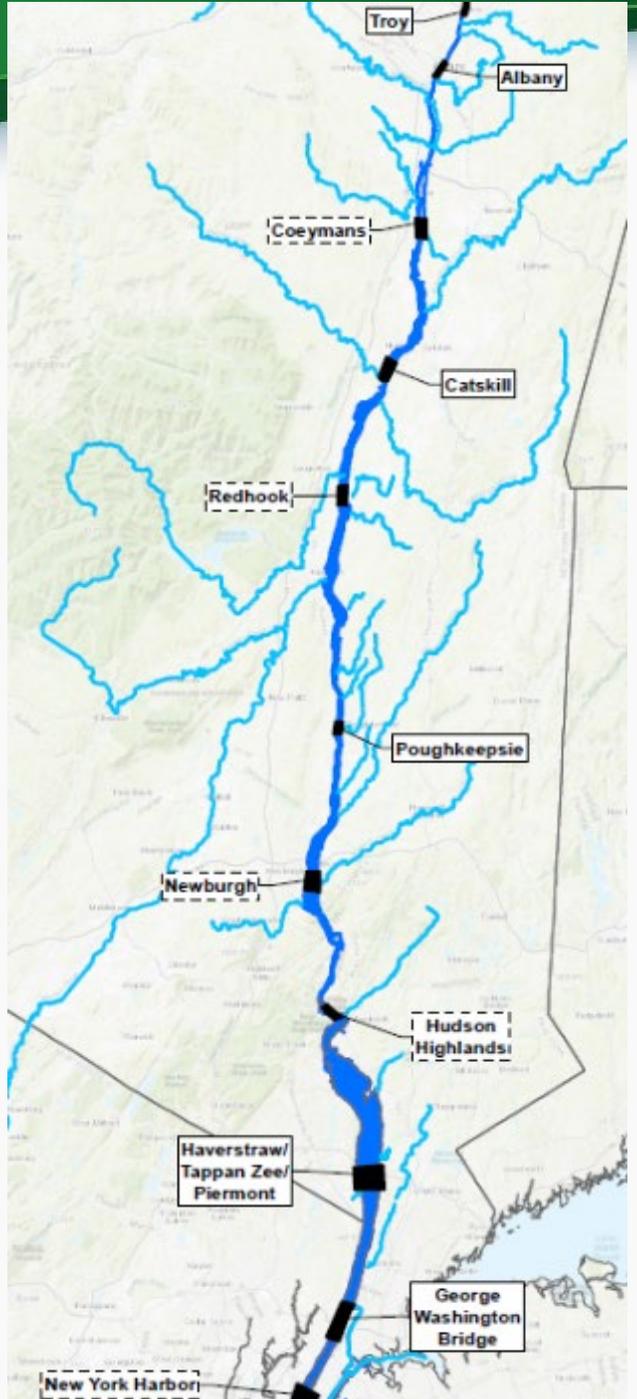
Sampling and Investigations *Fish Monitoring Program*

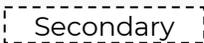


- Scope:
 - Collect fish and crab from five primary monitoring stations throughout the Lower River
 - 14 total fish species (6 - 9 species per station) and crab
 - Primary stations are approximately 30 miles apart
 - Evaluate data after one year and determine if sampling at secondary locations is necessary



Lower Hudson River Fish Monitoring Stations



	GE SAP Fish Collection Stations*
	Primary
	Secondary
	Lower Hudson River
	Tributaries



*Secondary stations were not sampled in 2023

Fish Monitoring Program Summary



Stations

Primary Stations

- Albany/Troy (RM 145/152)
- Catskill (RM 112)
- Tappan Zee (RM 22)
- Poughkeepsie (RM 75)
- George Washington Bridge (RM 13)

Secondary Stations

- Coeymans (RM 131)
- Red Hook (RM 98)
- Newburgh (RM 60)
- Hudson Highlands (RM 45)
- NY Harbor (RM 5)

Collect 20 samples per species for sport fish and pumpkinseed, and 10 composite samples for forage fish

Target Species

- Striped Bass
- Smallmouth Bass
- Ictalurids (Channel Catfish and Bullhead)
- White Perch
- Bluefish
- Hogchoker
- Carp
- American Eel
- Forage Species (spottail shiner, silverside)
- Blue Crab
- Pumpkinseed
- Walleye

Note: Not all fish are targeted for collection at all stations

Sampling Techniques

Freshwater Locations

- Electroshocking
- Netting
- Trapping
- Seining
- Angling

Brackish (salty) water locations

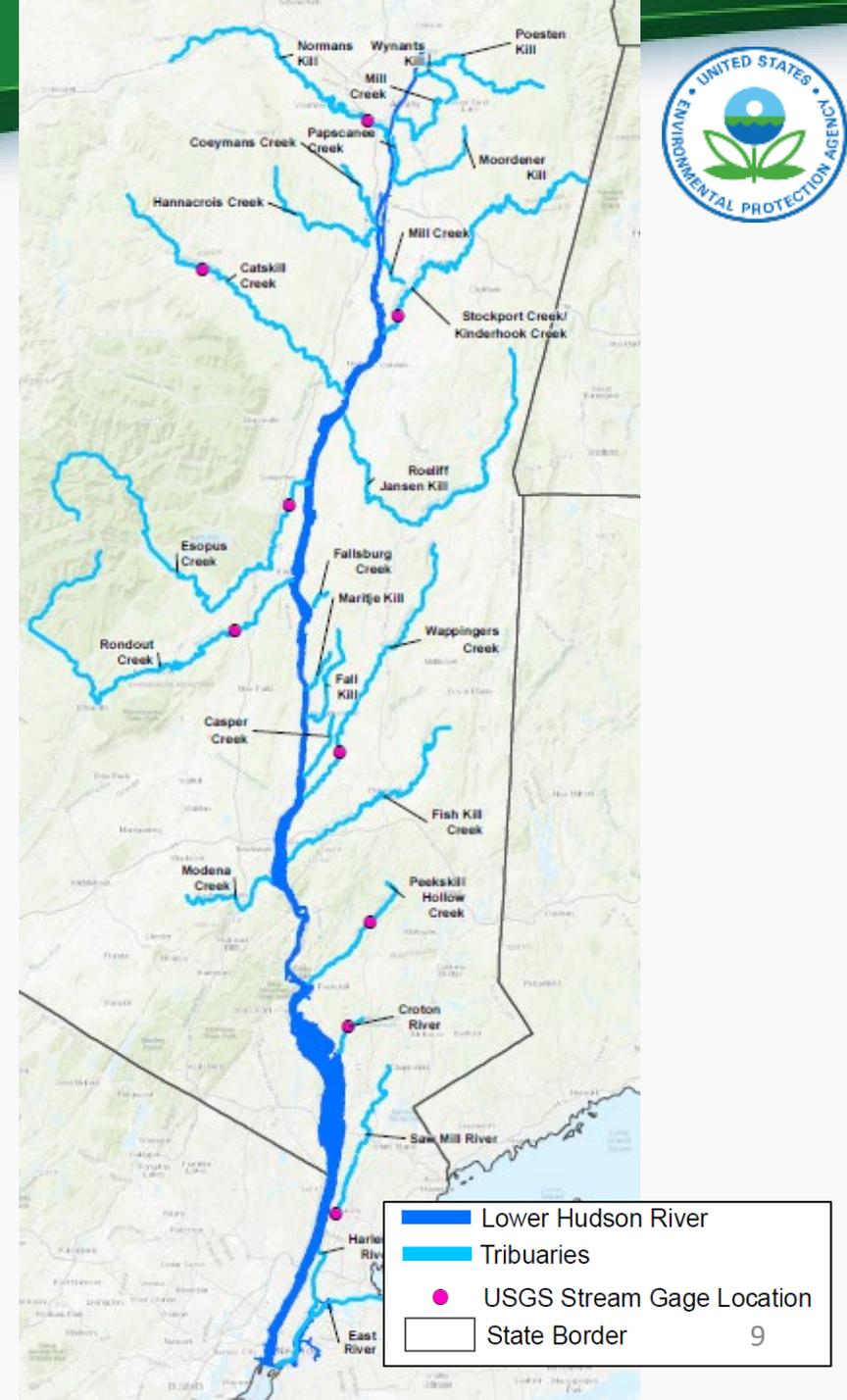
- Angling
- Seines
- Traps or pots
- Gill nets

Eel pots are used to collect American eels at Poughkeepsie and Tappan Zee, and traps are used to collect blue crab

*Sampling techniques are designed to minimize the potential to encounter sturgeon. Close coordination with DEC.

Sampling and Investigations Recently Deposited Sediment

- Scope:
 - Target 150 locations in the main stem for sampling (approximately three to five miles apart)
 - Anticipate 30 to 50 samples of recently deposited sediment for PCB analysis
 - Target 100 locations from 12 major tributaries
 - Anticipate three samples per tributary of recently deposited sediment for PCB analysis
 - Planned for 2023

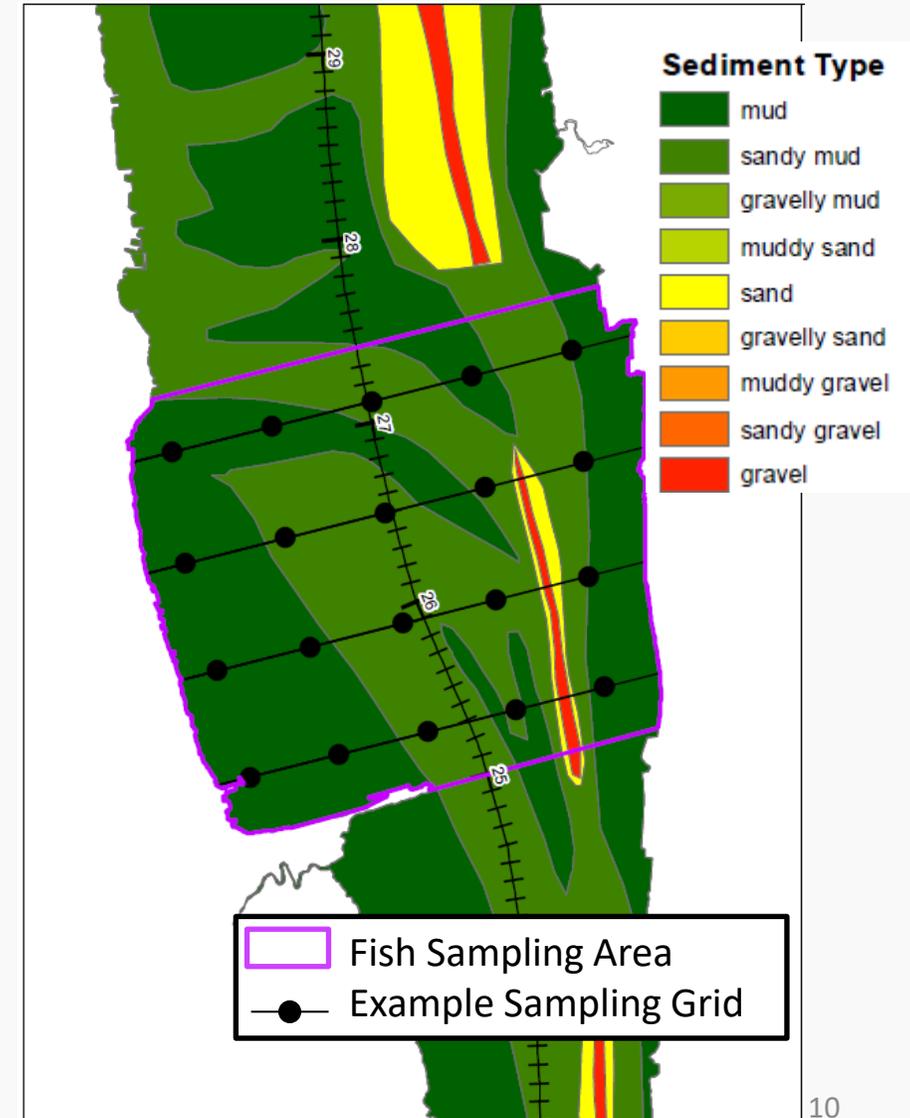


Sampling and Investigations

Supplemental Sediment Monitoring



- Purpose:
 - Examine local and river-wide PCB concentrations and other contaminants in Lower River sediment
 - Provide information about the relationships among fish, water and sediment
- Scope:
 - Target samples from 10 sampling grids of 20 cores for each station at the primary and secondary fish sampling stations (200 samples)
 - Collect to a depth of three feet
 - Top 0-6 in segment analyzed for PCBs
 - 6-12 in and bottom 2 ft segments will be archived for possible future analysis



Sampling and Investigations

High Resolution Sediment Coring

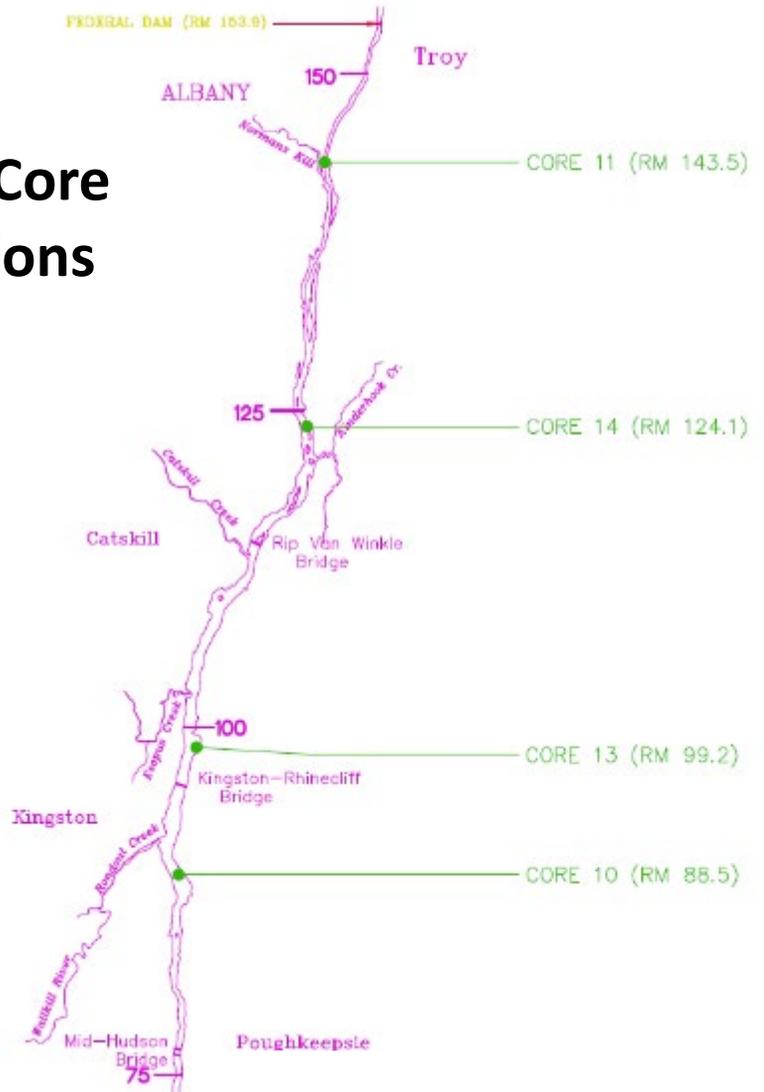


- Purpose:
 - To further evaluate how PCBs and other contaminants have deposited in the Lower River over time
 - Evaluate the rate of recovery in the sediment
- Scope:
 - Target six initial core locations
 - Select locations spread throughout the Lower River
 - Target previous successful locations; four of the six cores will be collected at the same locations where high-resolution cores were collected in 1992
 - Cores will be collected to a depth of 4-8 ft below the river bottom; PCBs will be analyzed along the length of the core
 - Evaluate whether additional cores are needed, based on initial results

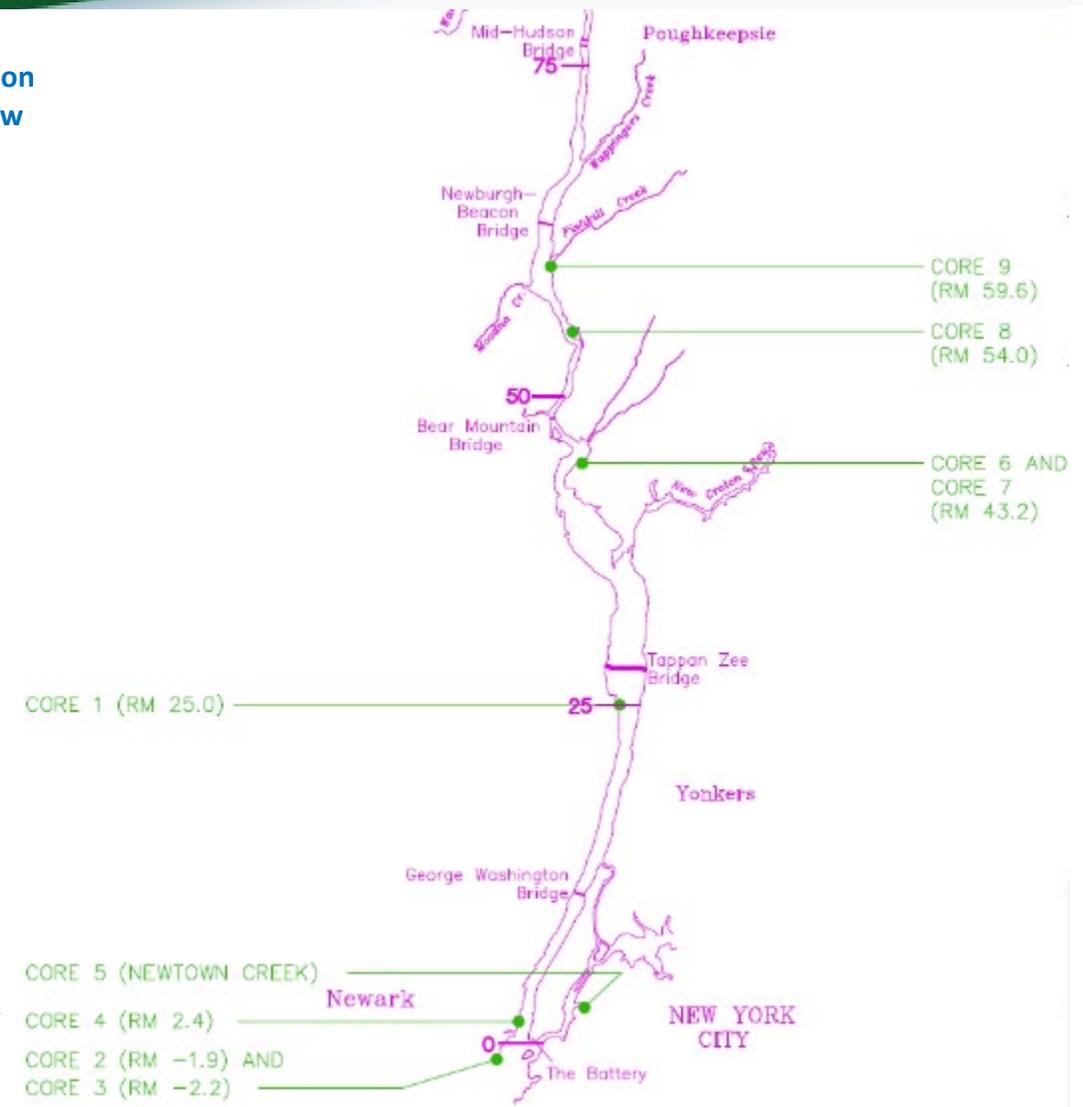
Lower Hudson River High-Resolution Sediment Coring



1992 Core Locations



Direction of Flow



Sampling and Investigations Schedule



2023

- Water sampling
- Fish sampling – based on availability of species
 - Salt and freshwater species
 - Migratory, local and forage fish
 - Blue crab and eel
- Sediment collection – recently deposited
- Data evaluation



2024

- Monthly water sampling continued
- Fish sampling continued
- Sediment collection
 - Supplemental sediment sampling
 - High resolution coring
- Data evaluation



2025

- Collect additional samples as necessary to support the objectives and purpose of the sampling work
- Develop next steps
- Data evaluation