



# Hudson River PCBs Superfund Site Project Update

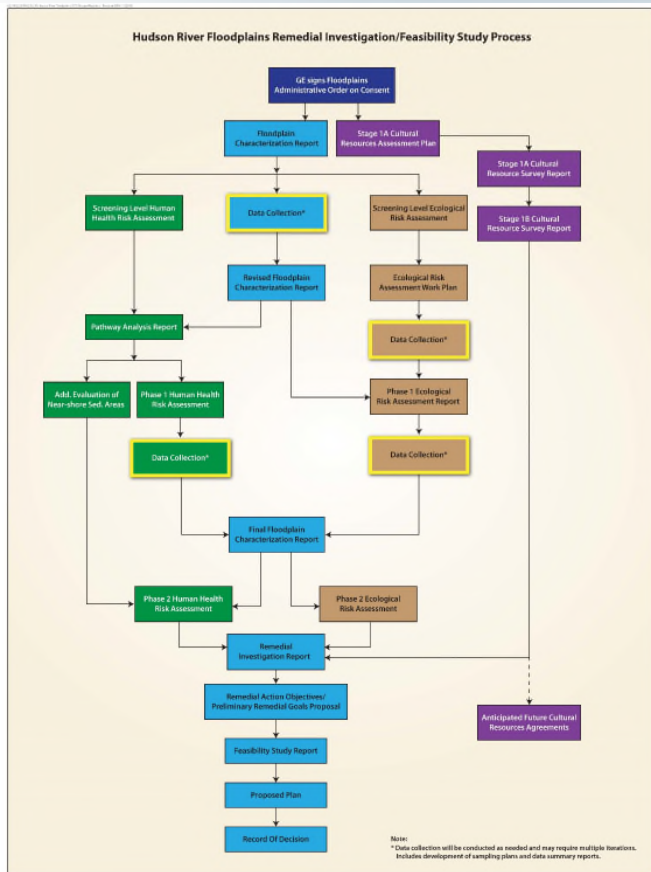
**Community Advisory Group Meeting**  
Wednesday, December 4, 2019  
Schuylerville, NY

# Hudson River Project Update



- Floodplain comprehensive study
  - General update
  - Removal actions
  - Old Champlain Canal
  - Flood mud sampling
- Lower River
  - Data and information collection
  - Supplemental studies
- Upper Hudson River – Long term monitoring
  - Water column monitoring
  - Habitat OM&M
  - Other

# Floodplain Comprehensive Study



- Screening Level Risk Assessments Underway
  - Human Health Screening Level Assessment (SLA)
    - Under Review by EPA and DEC
    - Parcel-by-parcel review completed
    - Next step - pathway analysis report (PAR)
  - Screening Level Ecological Risk Assessment (SLERA)
    - Under review by EPA and DEC
    - Next step - ecological risk assessment work plan to be submitted
- Data collection continues

# Phase 1 - Baseline Human Health Risk Assessment (BHHA) Verification Pilot Study Work Plan



- Work plan submitted by GE on November 27, 2019
  - Under review by EPA and NYSDEC
- Important for confirming the statistical approach for risk assessment
- Pilot study - planned
  - Additional sampling work anticipated
  - Initial focus on two local regions
- Large sampling effort on select properties
- Sampling expected spring 2020
  - Some initial sampling possible to inform sampling protocols this year



# Short-Term Removal Actions (STRAs)

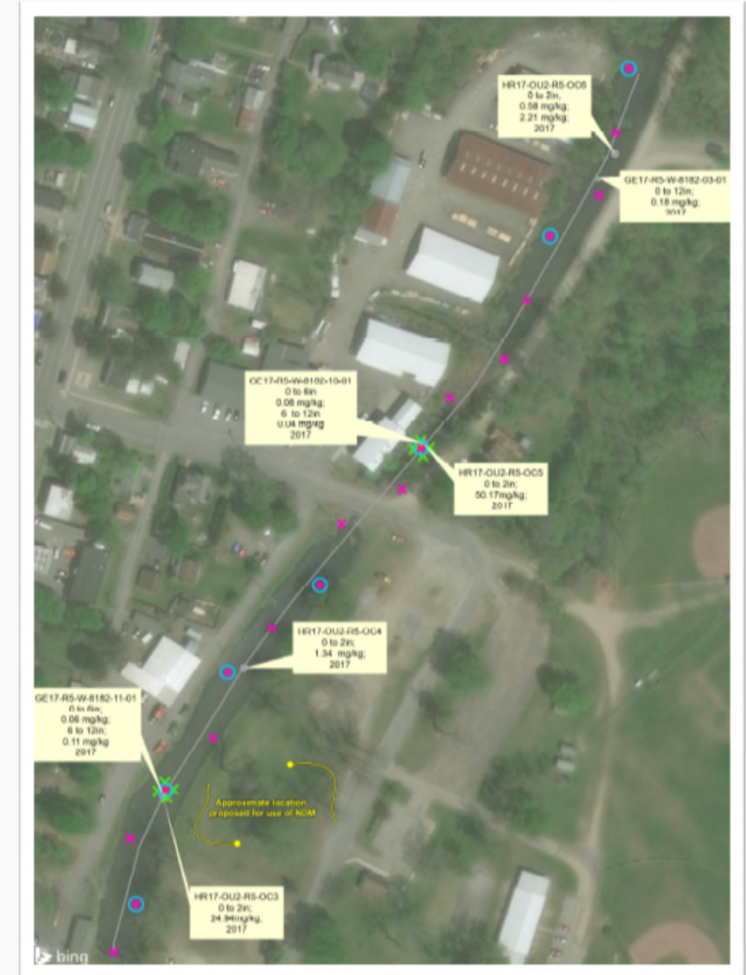


- STRAs – Temporary actions
- STRA Inspections
  - Total of 68 STRAs (43 cover and 25 signage)
  - Annual Inspections conducted in July 2019
  - Minor maintenance required on several properties
- Two new STRAs in 2019
  - Soil cover extended at an existing STRA in Reach 8
  - New soil cover installed at Reach 5 property
  - Construction completed in October 2019
    - Multiple inspections during the first year

# Old Champlain Canal Sampling



- 18 Sampling Locations
- Data collected between October 22nd and 29th
- Deeper sediment characterization (PCBs and Other Parameters)
  - Required for RI/FS (nature and extent of contamination)
  - Required for short-term maintenance
  - GE continues to assist
- Initial analysis will determine what other cores/segments require analysis
  - Continued coordination with NYSDEC and Town/Village
- Sample analyses in progress, data validation to follow
  - Preliminary data anticipated soon
  - Preliminary data to be discussed with DEC/Town/Village



## Depositional Sampling Program – Flood Mud



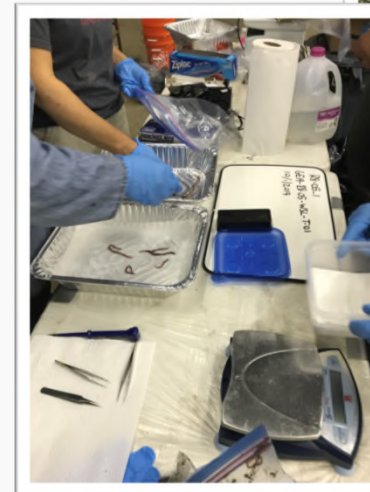
- High flow event in late October initiated a flood mud sampling event this fall
  - Sampling based on flow (typically spring sampling event)
  - 8 scrape samples and 10 sediment trap samples collected
  - Sample results expected early 2020
- Spring 2019 sampling
  - 20 samples collected
  - Results range from 0.13ppm to 2ppm



# Earthworm and Soil Sampling



- Initial sampling effort
  - Additional sampling anticipated next year including other macro invertebrates
- Necessary for ecological risk assessment
  - Provided initial information about site specific bio-accumulation factors
- 20 locations sampled
  - Co-located earth worm and soil samples
  - Targeted a range of concentrations in floodplain
- Analytical test results - early next year





## Next Steps



- Complete review of Phase 1 BHHRA Verification Pilot Study Work Plan
- Conduct verification sampling for Phase 1 BHHRA in Spring 2020
- Complete review of SLA and SLERA documents prepared by GE
- Prepare Pathway Analysis Report (PAR)
- Additional ecological sampling
- Conduct STRA maintenance in spring 2020
- Collect floodplain depositional samples following high flows



## Lower Hudson River



# Lower Hudson River (LHR) – Data collection



- Continue to collect LHR fish and water data (GE OM&M obligations under 2006 Consent Decree)
- Continuing to collect, review and summarize existing data/information/studies
  - Coordinating and exchanging information with Hudson River Foundation, USACE, NYSDEC, etc.
    - Downloading and gathering data and reports (project archives, NYSDEC, HRF, literature research, etc.)
    - Coordinating with USACE regarding navigational dredging-related data and permit information
    - Met with NYSDEC regarding data and near-river upland sites; coordination on state-lead sites will continue
- Developing initial GIS database system of existing/historical chemical and physical data
- Developing preliminary system understanding document

# Lower Hudson River Supplemental Studies



## Developing preliminary scopes for supplemental studies

- Consultation with NYSDEC and Hudson River Foundation
- Consideration of input from other agencies
- Review and assessment of available historical data
- Consulting other knowledgeable parties
- Scoping includes:
  - Sediment
  - Water column
  - Fish species and locations
- EPA internal discussions and planning





# Upper Hudson River Long-Term Monitoring

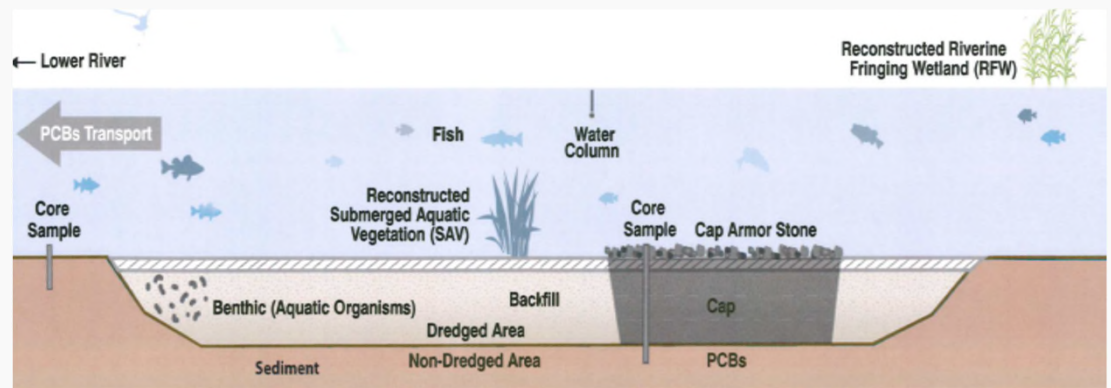


# Long-Term Monitoring Activities

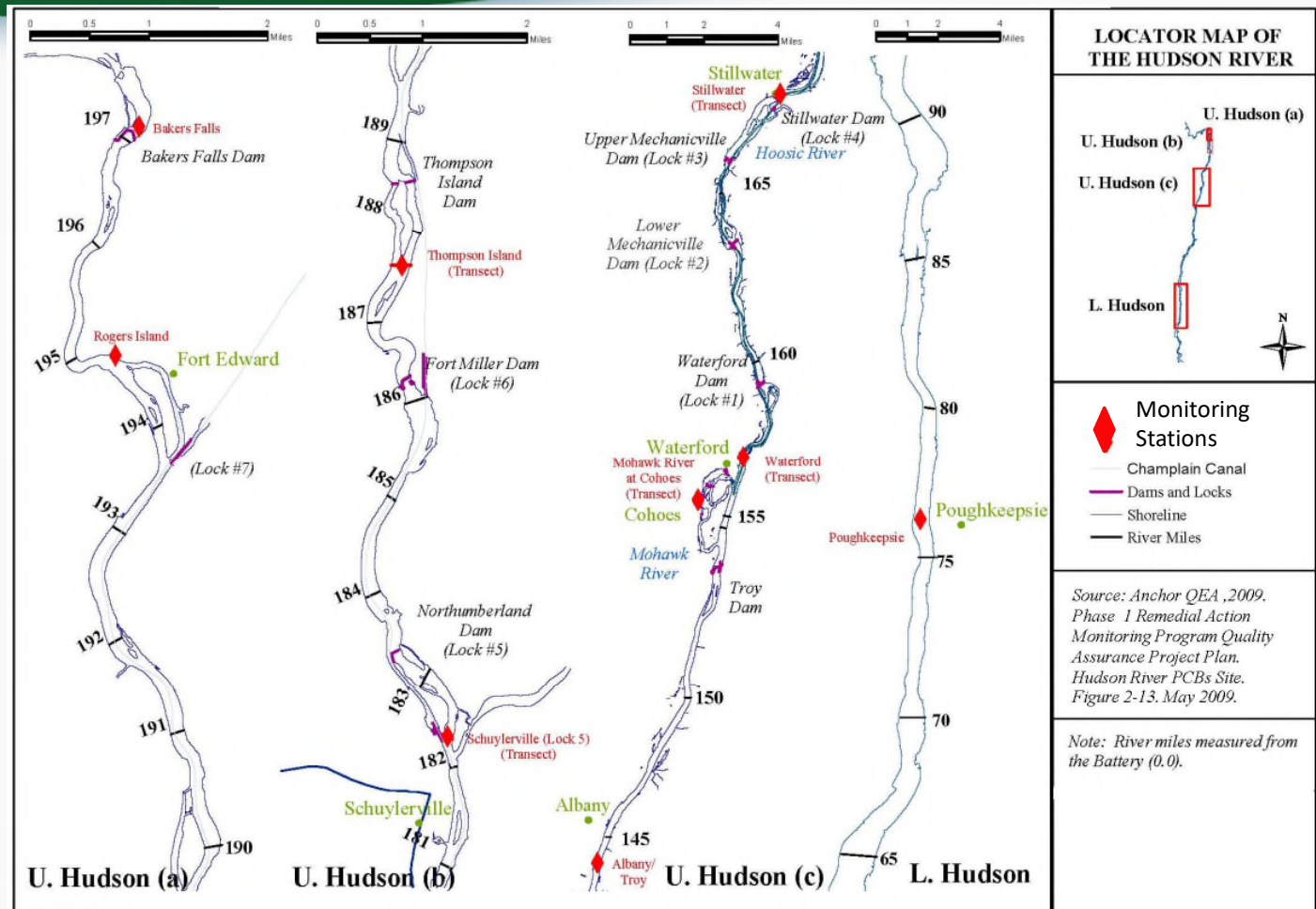


The EPA's 2002 remedy for the Upper Hudson River explicitly relied on two separate elements: first, the very extensive dredging project; second, natural recovery with extensive monitoring

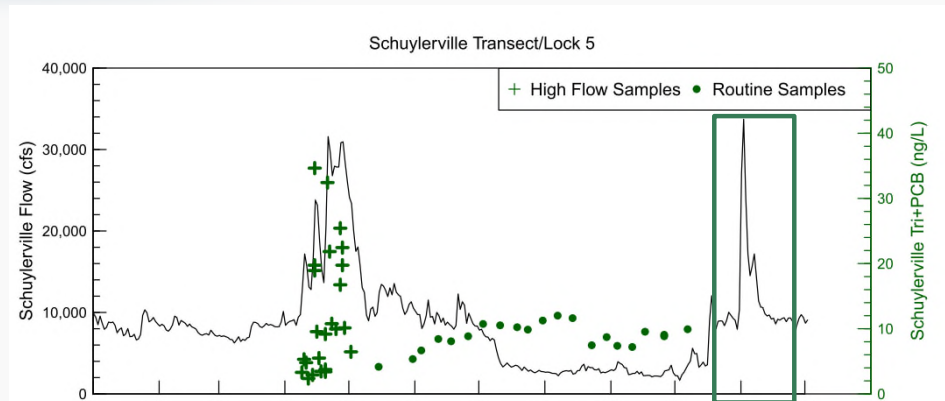
- Monitoring of river using existing documents as basis while long-term scopes are finalized
- Working with NY State regarding scopes of work and work plans for water, sediment and fish monitoring
- Quality assurance project plans (QAPP) to be revised as appropriate
- Caps evaluated at regular intervals (2023 next scheduled event)
- Habitat monitoring and evaluation to continue until success criteria is met



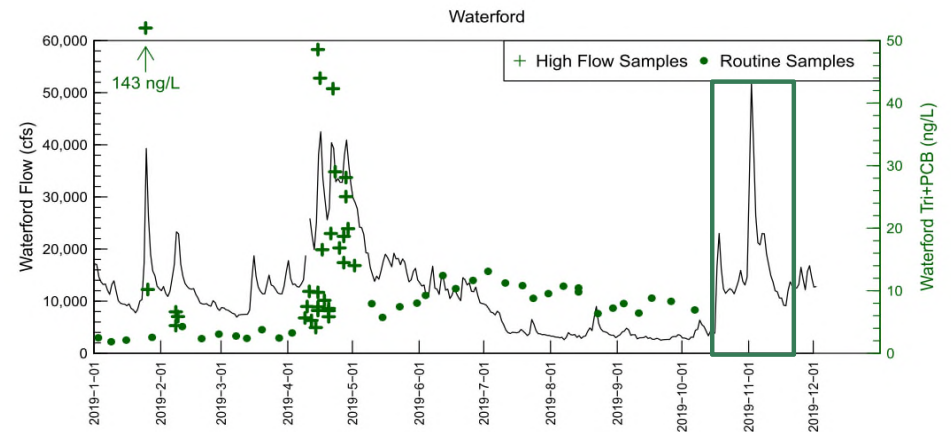
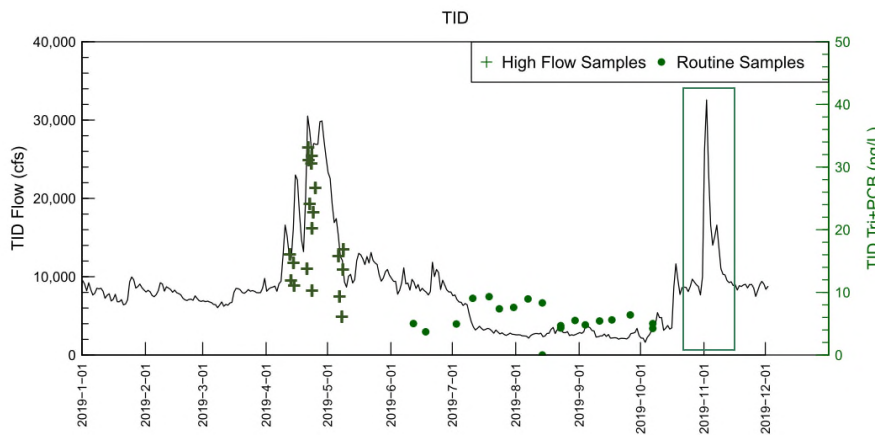
# Water Column Monitoring Stations



# Water Column Concentrations and Flows

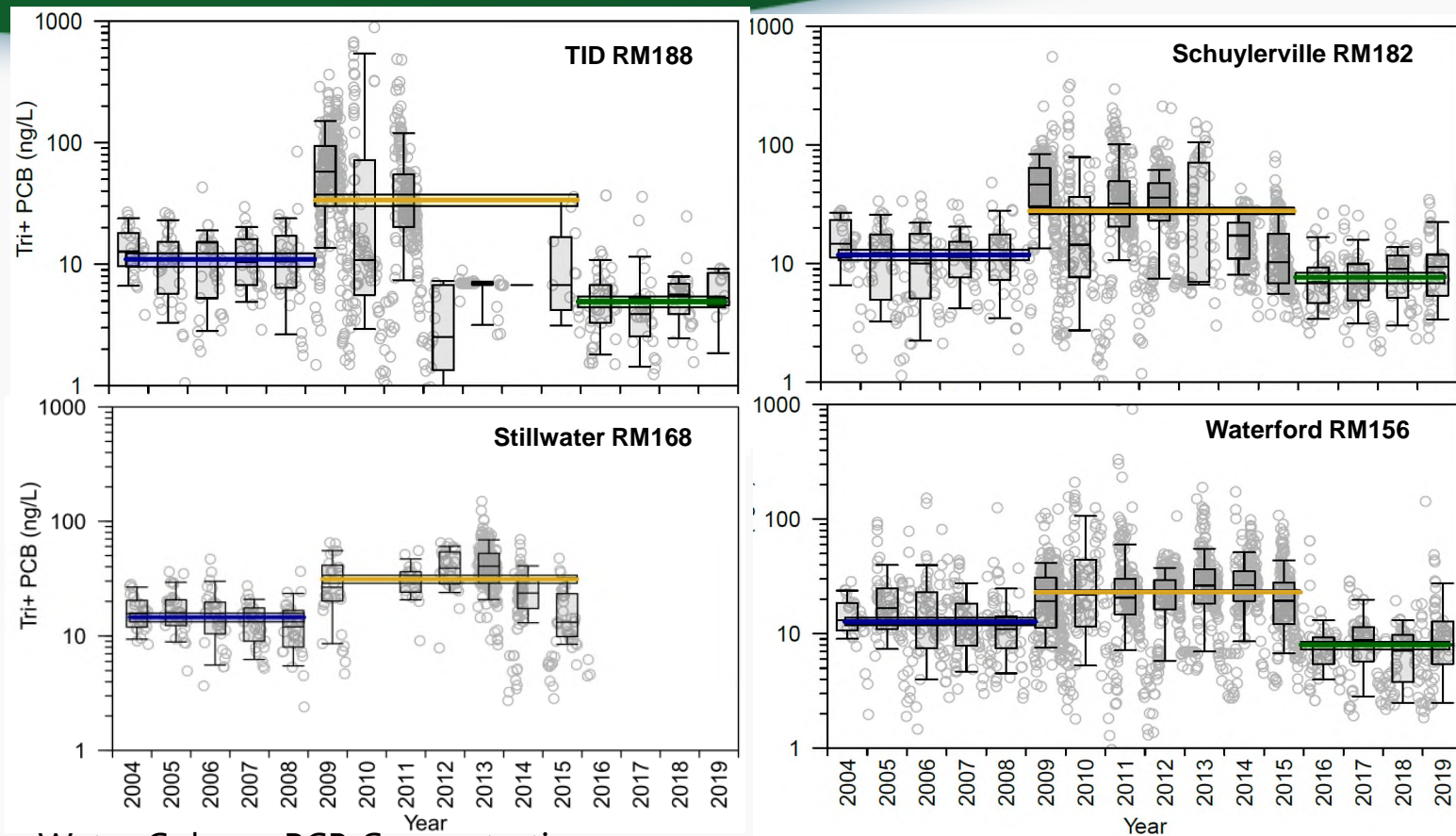


Routine and High flow samples collected, concentration data pending





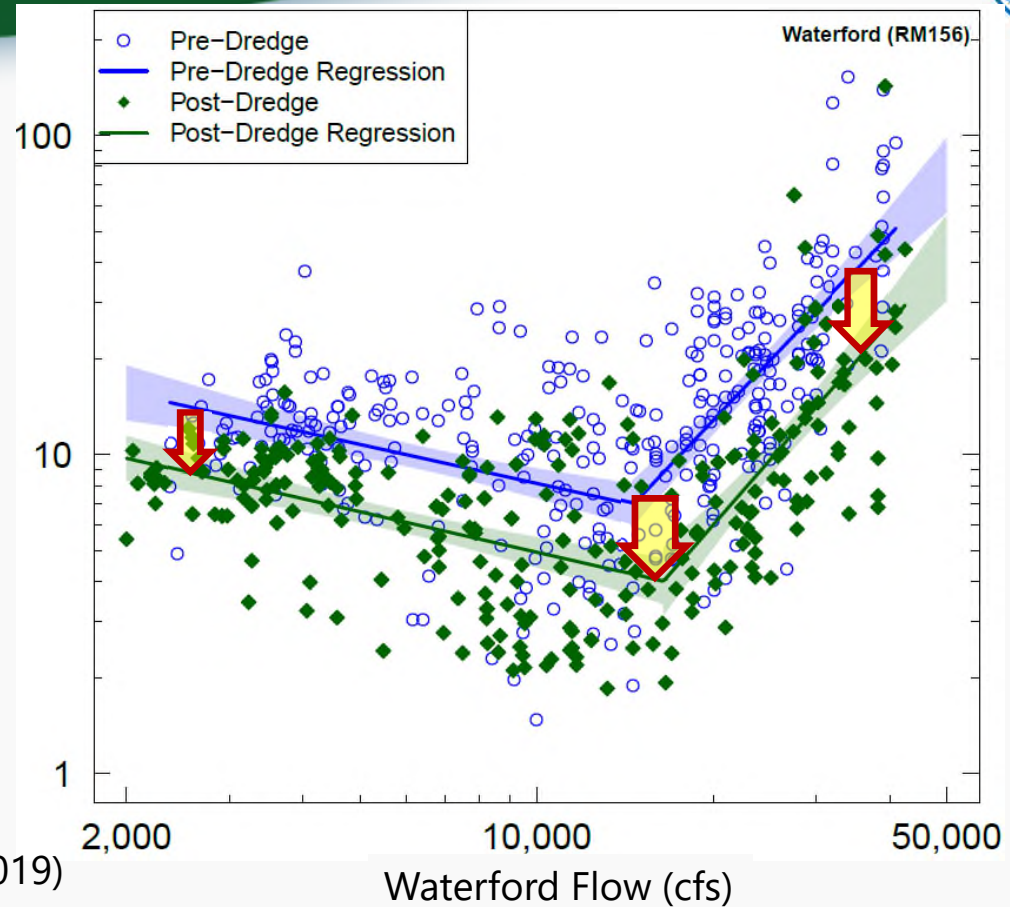
# Water Column Concentration Declines Continue



# Water Column PCB Loads to Lower Hudson Declining



- Post-dredging PCB concentrations at Waterford have declined across all flow conditions.
- Within 4 years of completion of dredging, PCB loads to the Lower Hudson have decreased between 35 and 58% relative to baseline.



Shaded regions represent 95%CI band on regression line.

— Baseline (2004-2008)  
— Post-Dredging Period (2016-Sep 2019)



Post-dredging PCB concentrations at Waterford have declined across all flow conditions

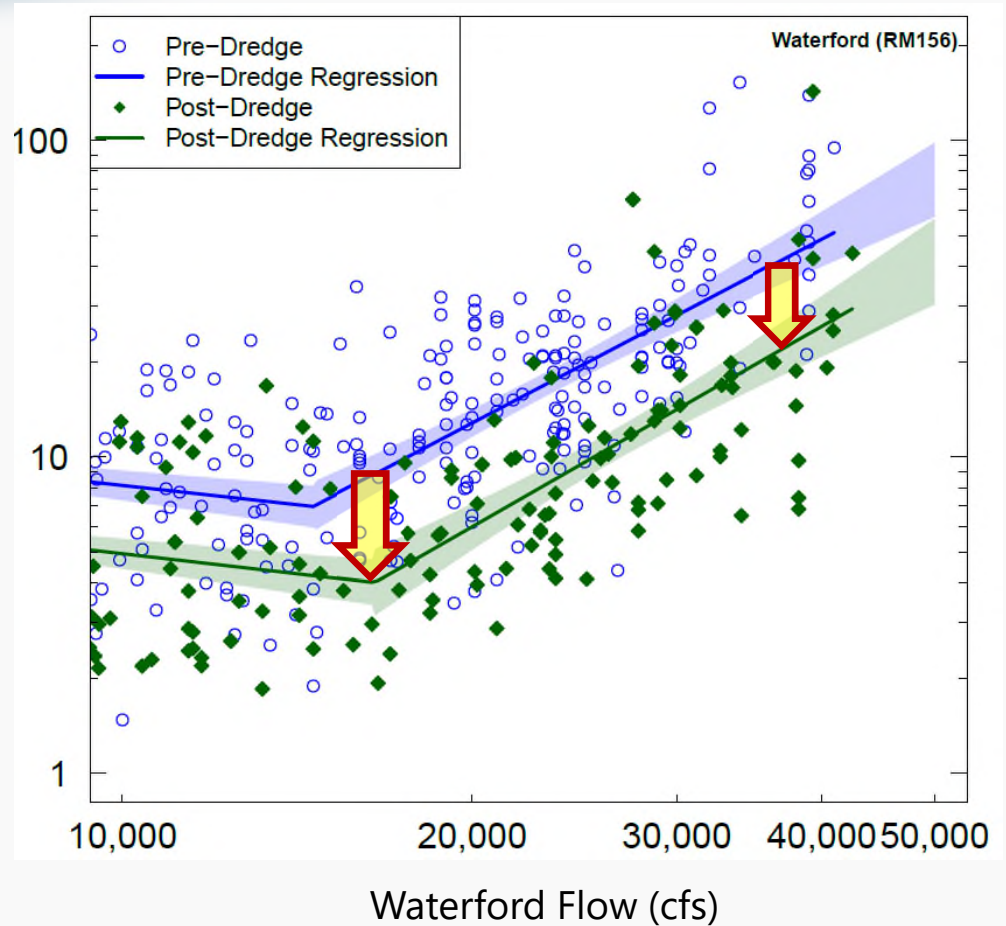
# Water Column Concentration and Loads Decline Even at Highest Flow Rates



Conditions for 10,000 to 45,000 cfs

- Concentrations are down between 47 and 58% across these flow conditions
- This represents similarly reduced loads to Lower Hudson

■ Baseline (2004-2008)  
■ Post-Dredging Period (2016-Sep 2019)



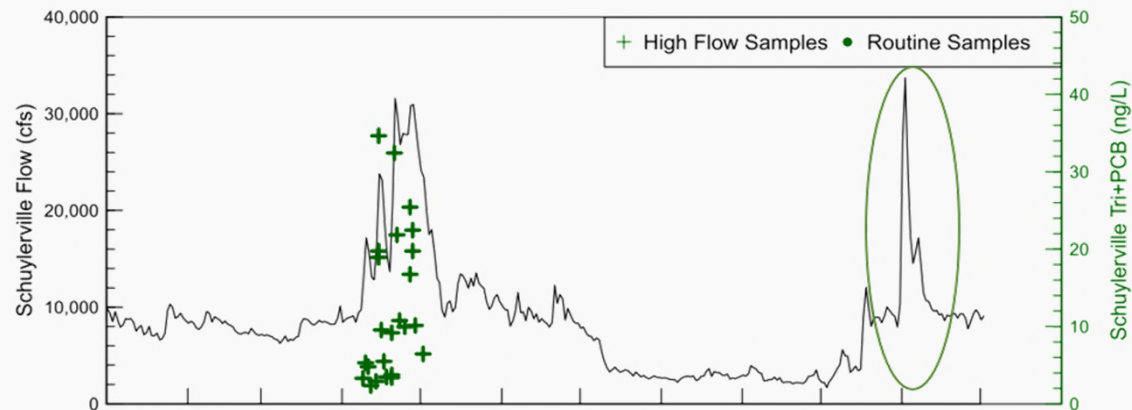
# High Flow Monitoring



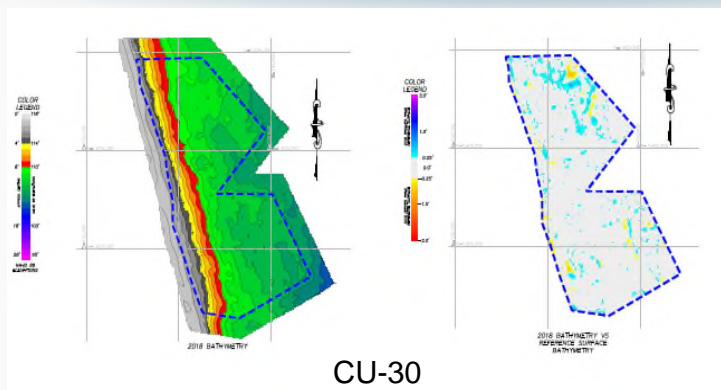
- Samples collected when River has high flows (15,000 cubic feet per second at Fort Edward or 22,500 at Waterford)
- Samples collected at Waterford and Schuylerville
- Samples collected to capture the rising limb to the high flow event and falling limb
- Recent events in October and November
- High flow sampling will be included in OM&M work plan
  - Details to be worked out include additional locations and frequency



Schuylerville Transect/Lock 5



# Caps and Surface Sediment Monitoring



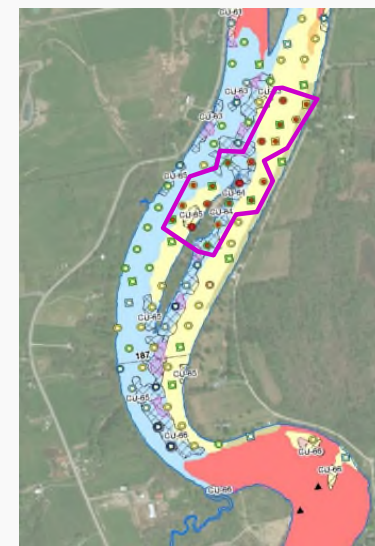
CU-30

## Most recent cap surveys in 2018

- Results of 2018 cap surveys are in review
- Next surveys:
  - Phase 2 areas 2023, and then every 10 years
  - Phase 1 areas 2028 and 2038
  - After significant flood events
- Discussing with GE Select Areas survey schedule

## Sediment samples to be collected every 5 Years – 2016, 2021, 2026, etc

- Program designed to detect 5% annual change in concentration after 10 years
- Scope of work evaluated prior to each sampling event to confirm statistical power
- Next event scheduled for 2021



# Fish Monitoring



## 2019 Fish Collection

- Fish collected from standard RAMP fish monitoring locations
- Samples being analyzed, preliminary data expected in January 2020
- **Additional spring fish from Reaches 1-4**
  - 10 fish each black bass, bullhead and yellow perch from Reaches 4-2
  - 20 fish each black bass, bullhead and yellow perch from Reach 1



## 2017 and 2018 data under review

- Analyses/data were delayed due to change in laboratory and revisions to QAPP/SOPs
- Introduction of National Institute of Standards (NIST) Standard Reference Material (SRM) with 2018 data analyses
- NYSDEC collection of fish from Reaches 1-4 in fall 2018
- Presentation of data through 2018 later today



**Long term OM&M work plan is in development (ongoing discussions with NYSDEC and GE)**

# Habitat Monitoring



## Habitat OM&M began after initial habitat reconstruction

- Surveys, data reviews, and response actions as necessary ongoing
- EPA oversight with NYSDEC/CDM-Smith participation

## Benchmark Evaluation Phase Underway

- 2019 data collection effort:
  - Habitat data collection began September 3<sup>rd</sup> and concluded during week of Sept 23<sup>rd</sup>
  - RFW species composition (342 plots in reconstructed areas and 42 in reference wetlands)
  - SAV transects/larger SAV beds mapping
  - SAV species composition (193 planting areas plots, 226 natural recolonization plots, 419 reference area plots)

# Habitat Monitoring



## Additional data collection and response actions:

- Delineation of RFW areas
- Wild rice seeding in CU's 53-54 and 64
- Re-planting in CU's 51, 53, 54, 64, and 71
- SAV seeding buoys pilot study in Reaches 8 and 6
- Invasive species removal in CU's exceeding the reference areas benchmark

## 2019 data to be reviewed

- Scope of 2020 monitoring and appropriate response actions to be discussed with DEC in detail in early 2020





## Other Activities



- Property transfer (wharf, road, support facility)
  - In progress – anticipate transfer back to NYS
- Waterline
  - Transfer to municipalities in progress
  - Continued coordination with Waterford, Halfmoon and Troy
- EPA must end its interest in all remedial action properties



- Questions

