HUDSON RIVER PCBS SUPERFUND SITE

Community Advisory Group Meeting

Thursday, December 5, 2024

EPA

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Today's Agenda

- Floodplain Investigation Update
- Upper River Habitat Restoration and Sampling Work Update
- Project Updates
  - Five-Year Review Update
  - Powerhouse & Allen Mill Deconstruction
  - Lower River Investigations
  - Community Engagement and Outreach

Floodplain Update

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2024 Floodplain Ongoing Work

- Comprehensive study of the floodplain (RI/FS) is ongoing and being performed by GE and overseen by EPA
- 2024 field work includes:
  - Soil sampling in use areas
  - New Short-Term Removal Actions (STRAs)
  - STRA inspections
  - Flood mud sampling
  - Wetland data gap sampling
- Evaluation of new and existing data to support the comprehensive study and next steps
- Well over 10,000 samples collected to date

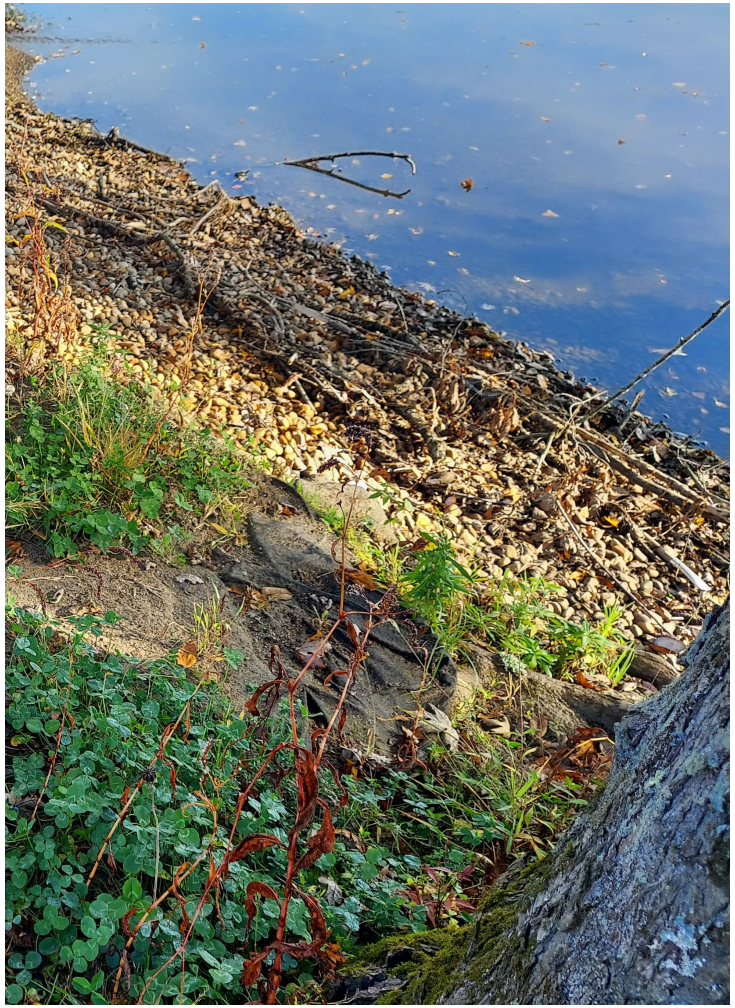
Floodplain Short-Term Removal Actions (STRAs)

- Floodplain areas regularly used by people are sampled for PCBs. Areas with elevated PCBs receive Short-Term Removal Actions (STRA)
  - Soil covers or signage depending on use and location
  - All work is on a property-by-property, area-by-area basis in close coordination with property owners
  - Floodplain continually monitored for changes in use and ownership (new use areas) and sampled as appropriate

Soil cover at Saratoga Boat Launch

Floodplain Short-Term Removal Actions (STRAs)

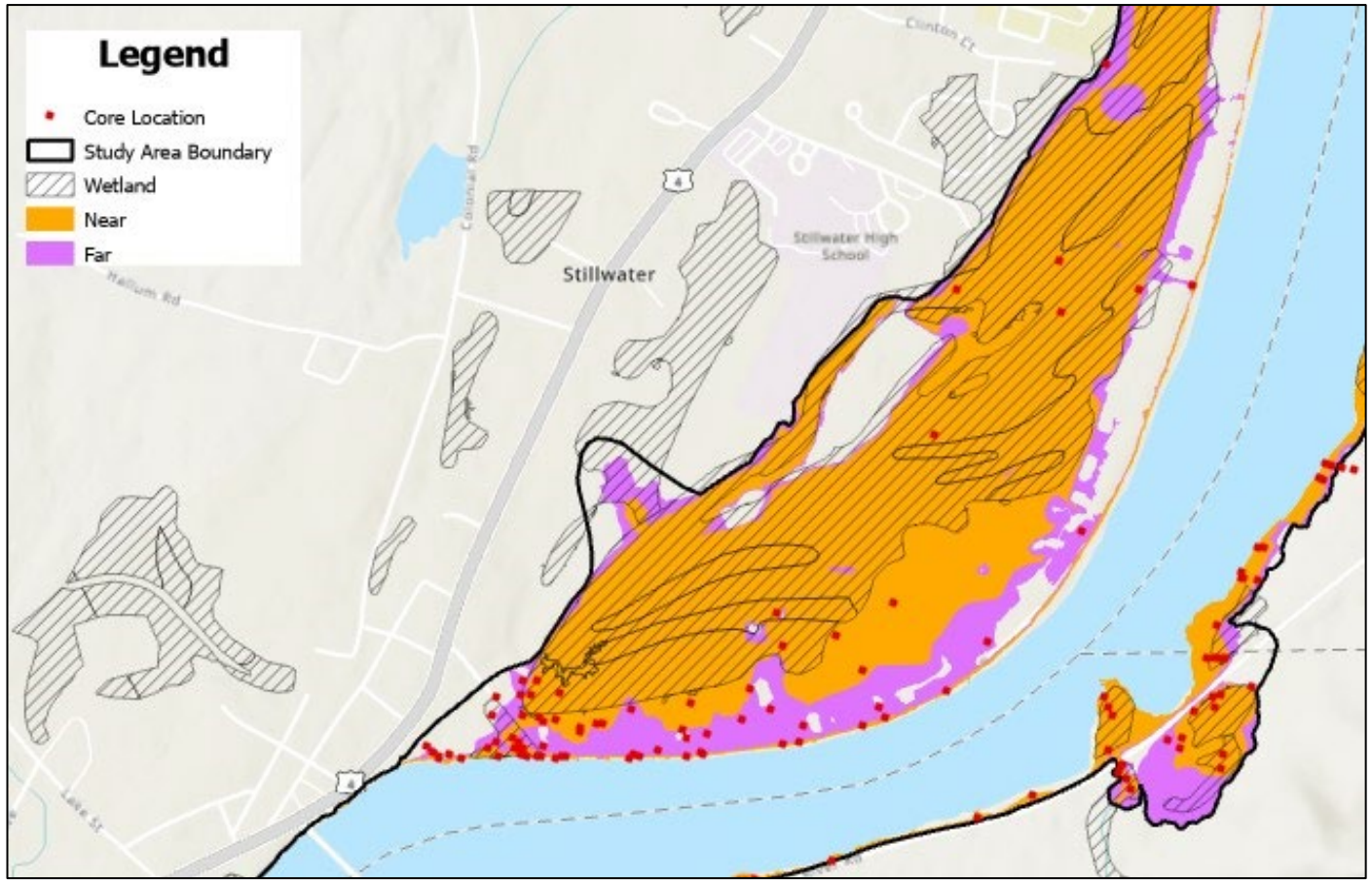
- Short-Term Removal Actions to date
  - 75 areas (52 grass or gravel covers, 4 natural covers, 19 warning signs)
  - 3 new STRAs completed in 2024.
- Annual inspection of STRAs to confirm covers are in place
  - 2024 inspections completed
  - Repairs conducted annually based on inspection results



Exposed geotextile fabric prior to maintenance

2024 Wetland Data Collection

- The objective of the 2024 sampling program is to support next steps in the ecological risk assessment process
  - Focused sampling program in three local regions (R8-02, R5-11, R2-01)
  - Will supplement existing wetland data
- EPA has reviewed and approved the Wetland Data Collection Work Plan
- PCB soil data collection is planned for December 2024
- 166 total soil/sediment samples to be collected from 83 locations

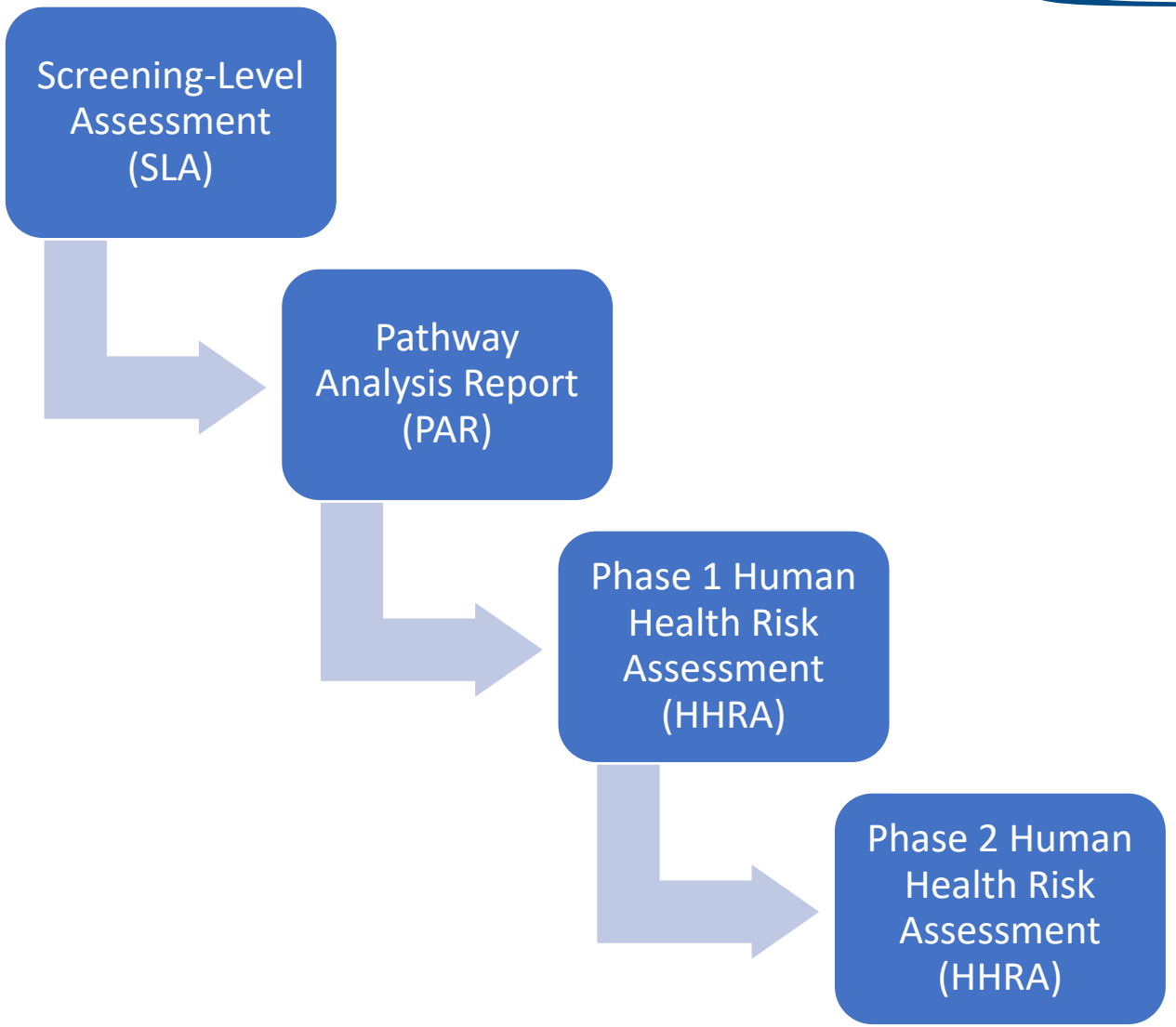


Flood Mud Program

- The goal is to assess PCB concentrations in sediment deposited during high-flow/flooding events.
  - Overall, the sampling results are generally low
  - Results will be further evaluated in the RI/FS
- EPA program began in 2010
  - DEC has also collected data since 2008
- Total of 26 locations targeted for sampling during each event (scrapes and device)
  - Flows >15,000 cubic feet per second at Fort Edward
- 2024 high-flow event (16 samples collected): 12/2023 through 1/2024
  - Next sampling event anticipated during high-flow of spring 2025

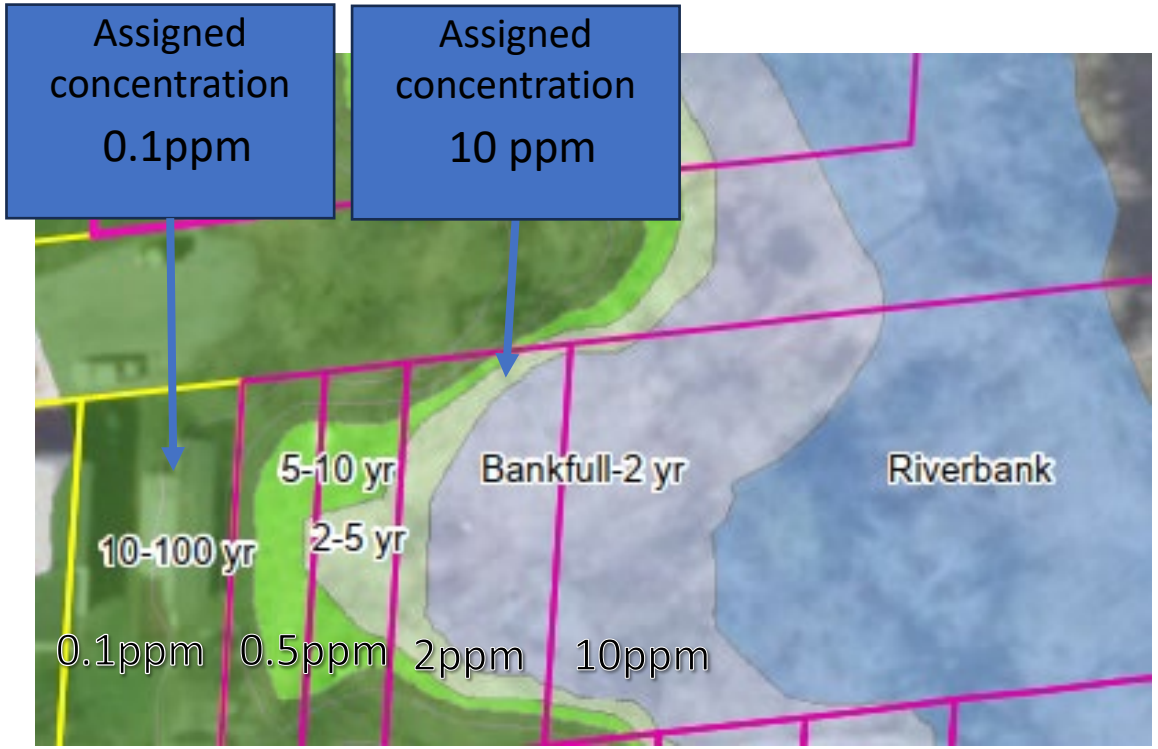
Human Health Risk Assessment

- The HHRA is a multi step process
- Each phase provides better understanding of potential exposure and requires a combination of more data and analysis
- GE finalizing Screening-Level Assessment based on EPA comments



Screening Level Assessment (SLA)

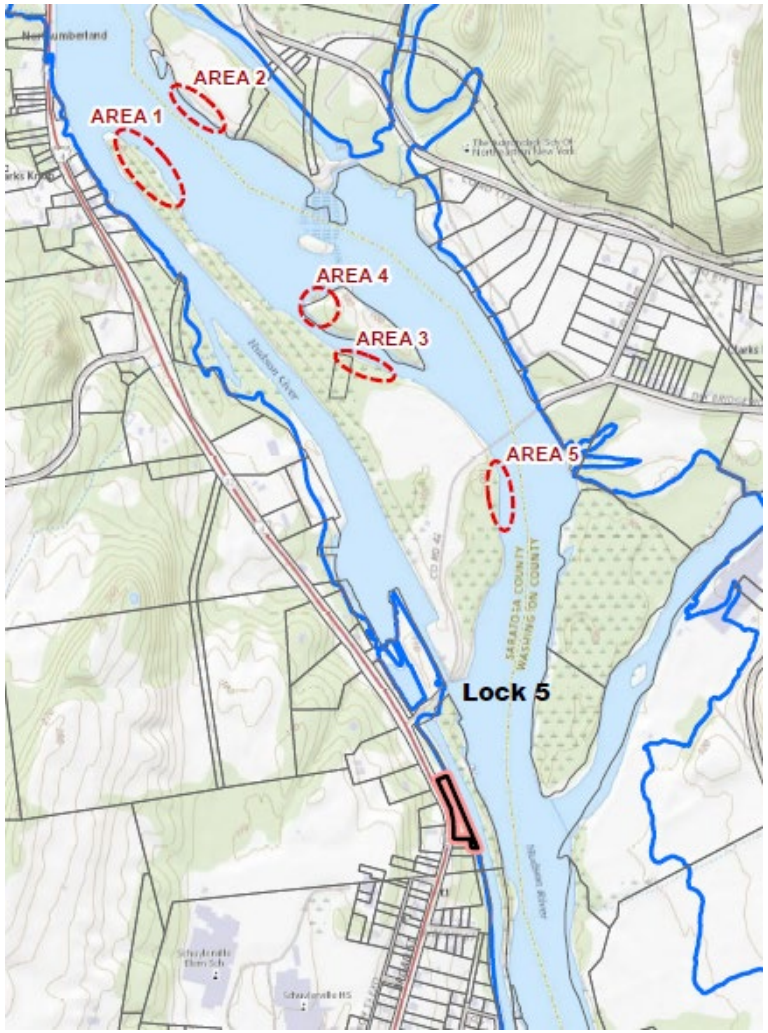
- 1,959 properties in the floodplain have been evaluated
- Each Flood Frequency Unit (FFU) is assigned the maximum concentration sampled from that FFU
- This value is compared to EPAs screening level of 0.24ppm
- If any parcel contains a portion of a FFU exceeding EPAs screening level of 0.24 ppm the parcel was retained for further evaluation
- Properties with concentrations below EPAs screening level concentration of 0.24ppm will not be carried forward to next step. Additional considerations may apply
- Highest concentrations are generally found in FFUs closer to the river, therefore parcels screened out are generally further from the river
- A parcel-by-parcel review was conducted by EPA and DEC/DOH



Note:
The concentrations assigned in this figure are for presentation purposes only.

Summary of Use Areas Identified in Schuylerville Area

- Several areas used by people identified
  - Potential: Swimming/fishing/campfire/lanterns observed at night
- EPA visited each of these areas several times
  - EPA reviewed each of the areas with NYSDEC/ NYSDOH and GE
- Six primary areas were identified
  - Other areas were also discussed that did not need further evaluation (i.e., previously sampled or rocky)
  - Some of these areas are public property - others private

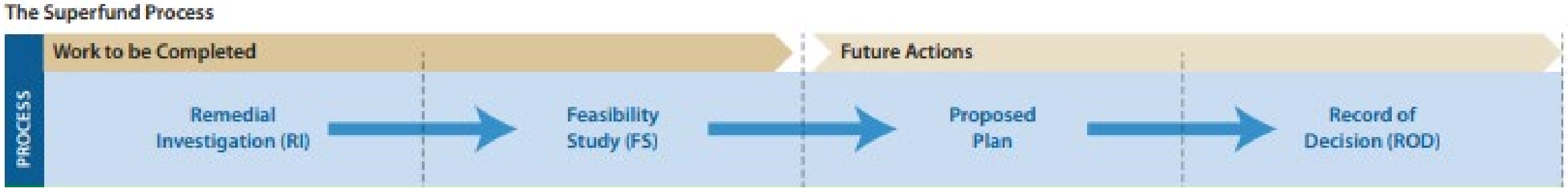


Summary of Use Areas in Schuylerville Area

- The need for further sampling was identified and completed on five of the six areas
- EPA following up as appropriate
  - Signage placed as needed while follow up is underway
  - Close coordination with park staff, DEC and DOH
  - GE is advancing with plans for work in these areas

Floodplain – Next Steps

- Continued coordination with municipalities and NYSDEC/NYSDOH
- Continued field reconnaissance to identify new use areas/changes in use
- Continued soil, sediment, & flood mud sampling and data evaluation to support the Remedial Investigation (RI)
- Installation of new Short-Term Response Actions (STRAs) and continued inspection and maintenance of existing STRAs
- Finalize Screening Level Risk Assessment (SLA) and begin work on the Pathway Analysis Report (PAR) to support the Baseline Human Health Risk Assessment (BHHRA)



Upper Hudson River Update

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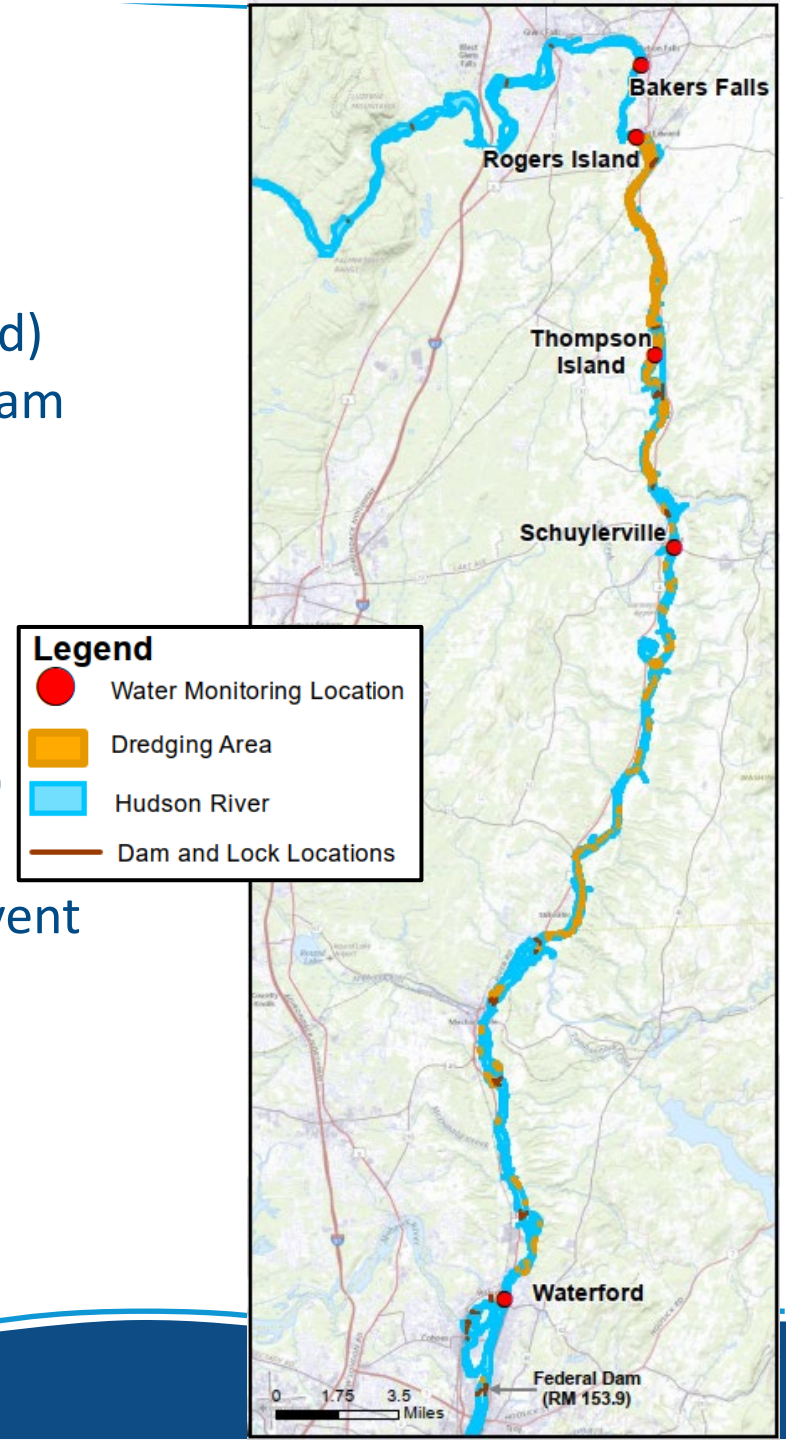
2024 Upper Hudson River (UHR) Ongoing Work – Monitoring Recovery

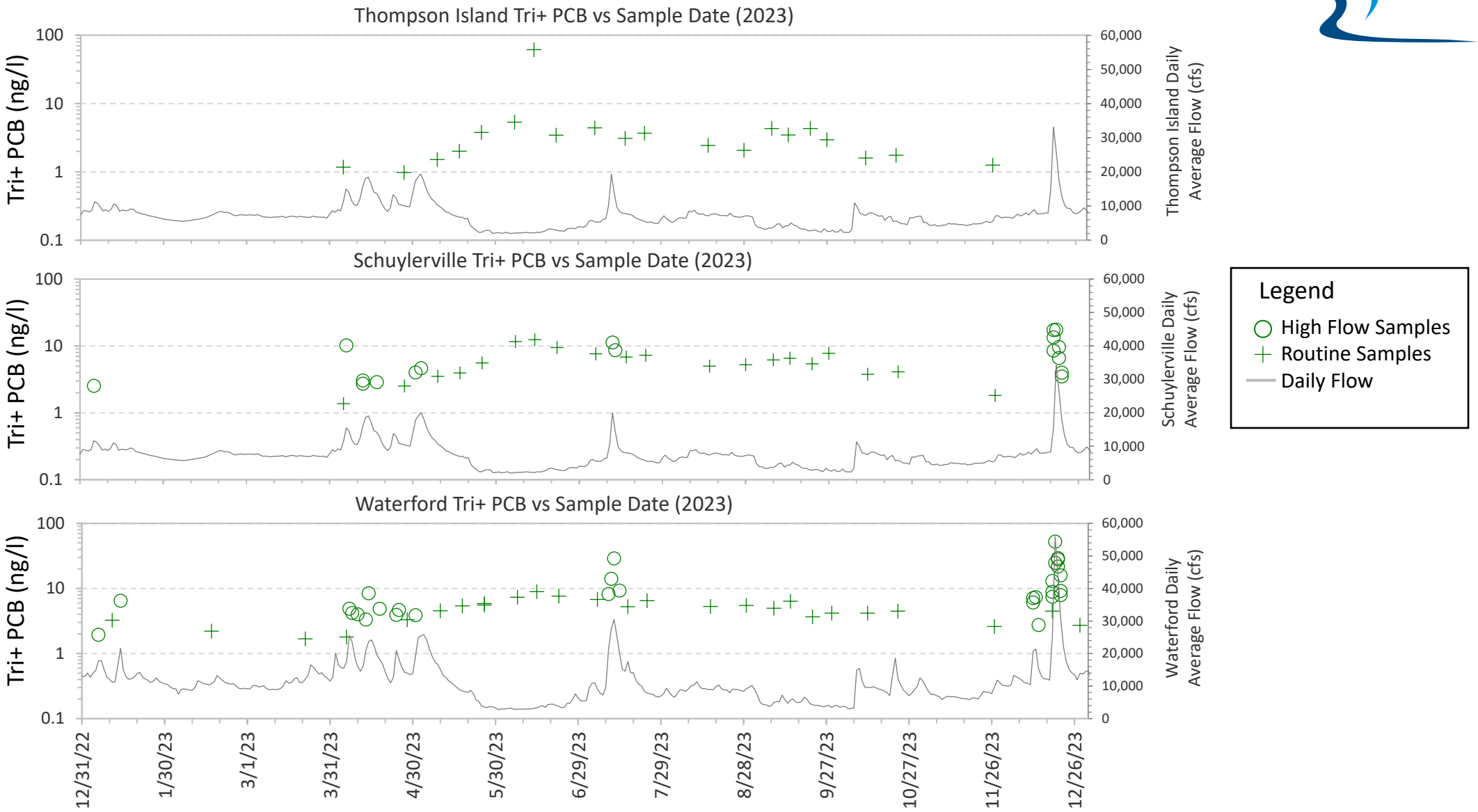
- Development and release of Third Five-Year Review (FYR)
- Habitat (annual monitoring and response actions)
- Water column sampling (routine and high-flow)
- Fish sampling (fall and spring collection)
- Ongoing evaluation of 2023/2024 special studies
  - Beryllium-7 sediments, passive samplers, particulate organic content, Mohawk concentrations
- Development of special studies
  - Including fish aging, whole-body bass, and assessment of potential localized impacts

UHR Water Column Update

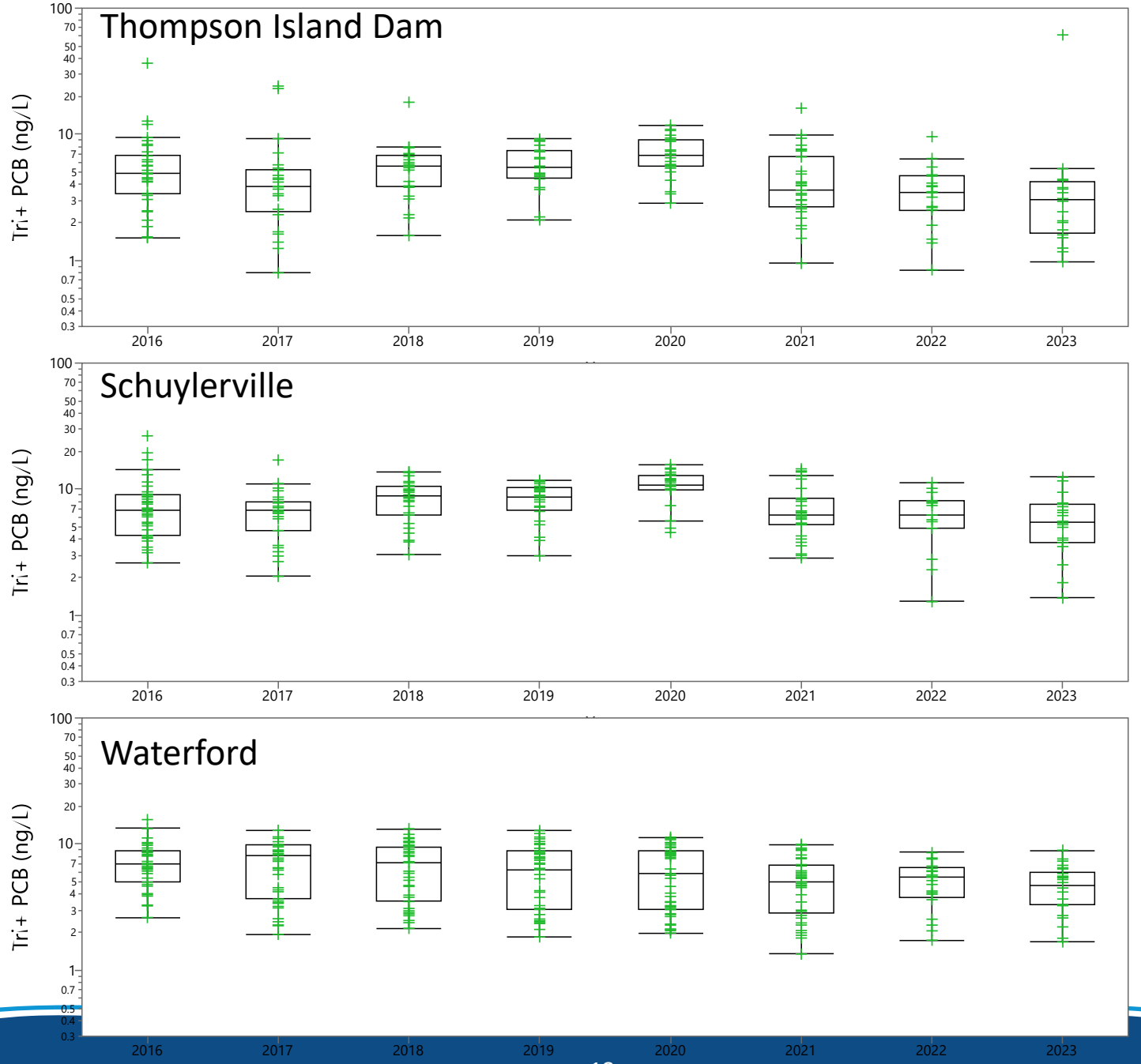
- Five monitoring locations are sampled regularly
  - Two locations upstream of dredging (Bakers Falls and Rogers Island)
  - Three locations amongst dredging areas (RS1: Thompson Island Dam [TID], RS2: Schuylerville, RS3: Waterford)
- Data is collected to assess different flow conditions
  - Routine sampling (all stations)
    - Bakers Falls and Rogers Island: monthly
    - TID, Schuylerville, and Waterford: weekly (weather permitting)
  - High-flow sampling (only Schuylerville and Waterford)
    - Samples collected to capture rising and falling limb of storm event
- 2024 samples collected to date: 77
  - Data expected spring 2025
- 2023 samples collected: 130



Water Column 2023 Routine and High-Flow Samples



Water Column 2016-2023 Routine Samples



Log-Scale

Legend

Routine Sample

Interquartile Range (IQR)

Maximum value or Q3+1.5*IQR

75th Quantile

Median

25th Quantile

Minimum value or Q3-1.5*IQR

Upper River Habitat Restoration Approach

Benchmark Monitoring

- Non-destructive, quantitative and qualitative monitoring of habitat reconstruction areas
- Anticipated to be at least five years
- Monitoring metrics become more rigorous over time
- Response actions implemented when appropriate

EPA Review

Success Criteria

- To be evaluated following completion of benchmark monitoring (as determined by EPA)
- Additional 2-5 years of quantitative and statistically-based evaluations
- Monitoring may include harvesting or remote sensing
- Must meet criteria two years in a row or three of five years
- Criteria is applied at the Reach level and further considered on a River wide scale

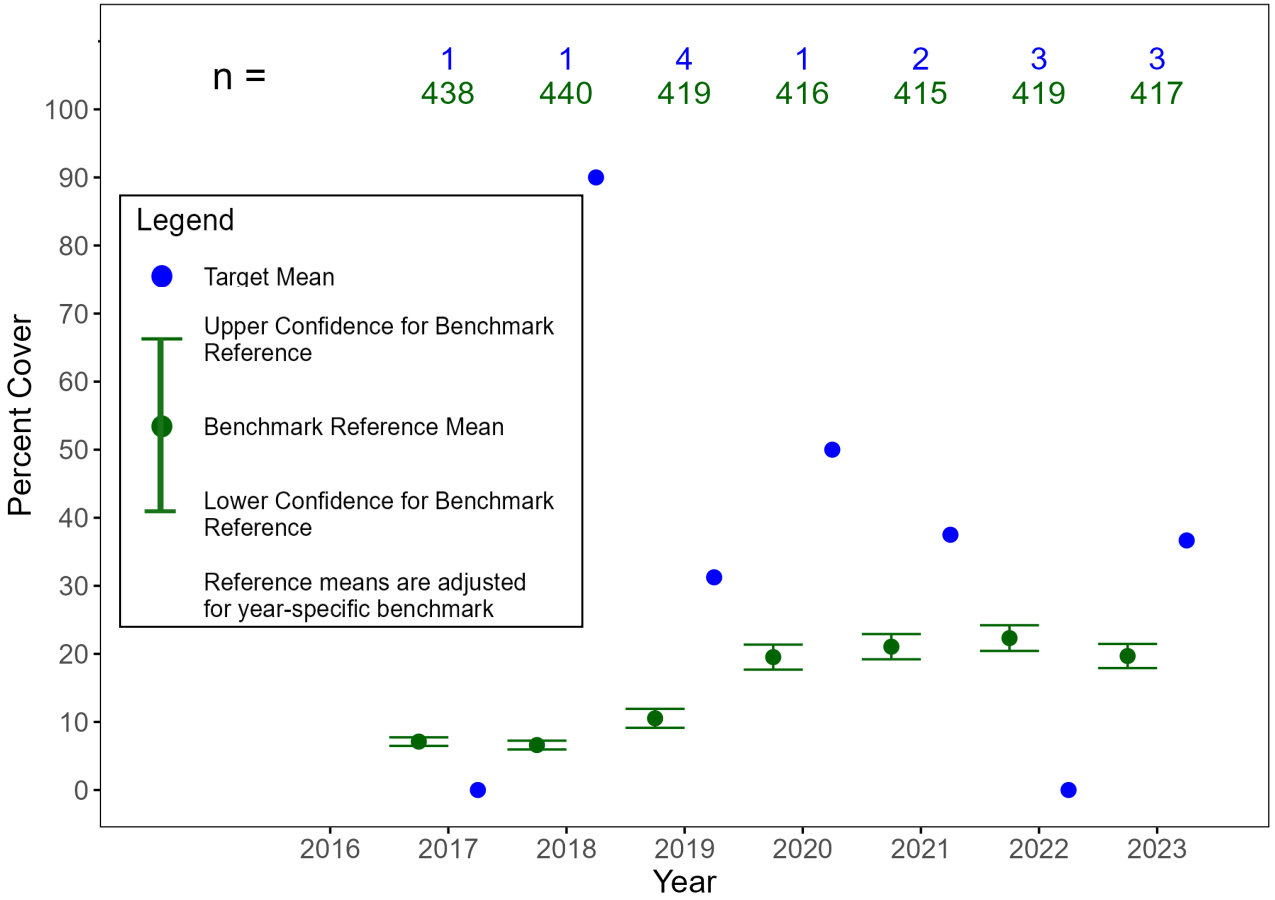
Habitat 2024 Update

Annual habitat monitoring:

- Riverine Fringing Wetlands (RFW)
  - 492 total quadrats placed in RFW areas
  - Whole RFW observations
- Submerged Aquatic Vegetation (SAV)
  - 836 total quadrats placed in SAV areas
  - BioSonics and video imaging conducted in and outside of planting areas
  - NYSDEC observed GE's SAV quadrat-level data collection in September 2024

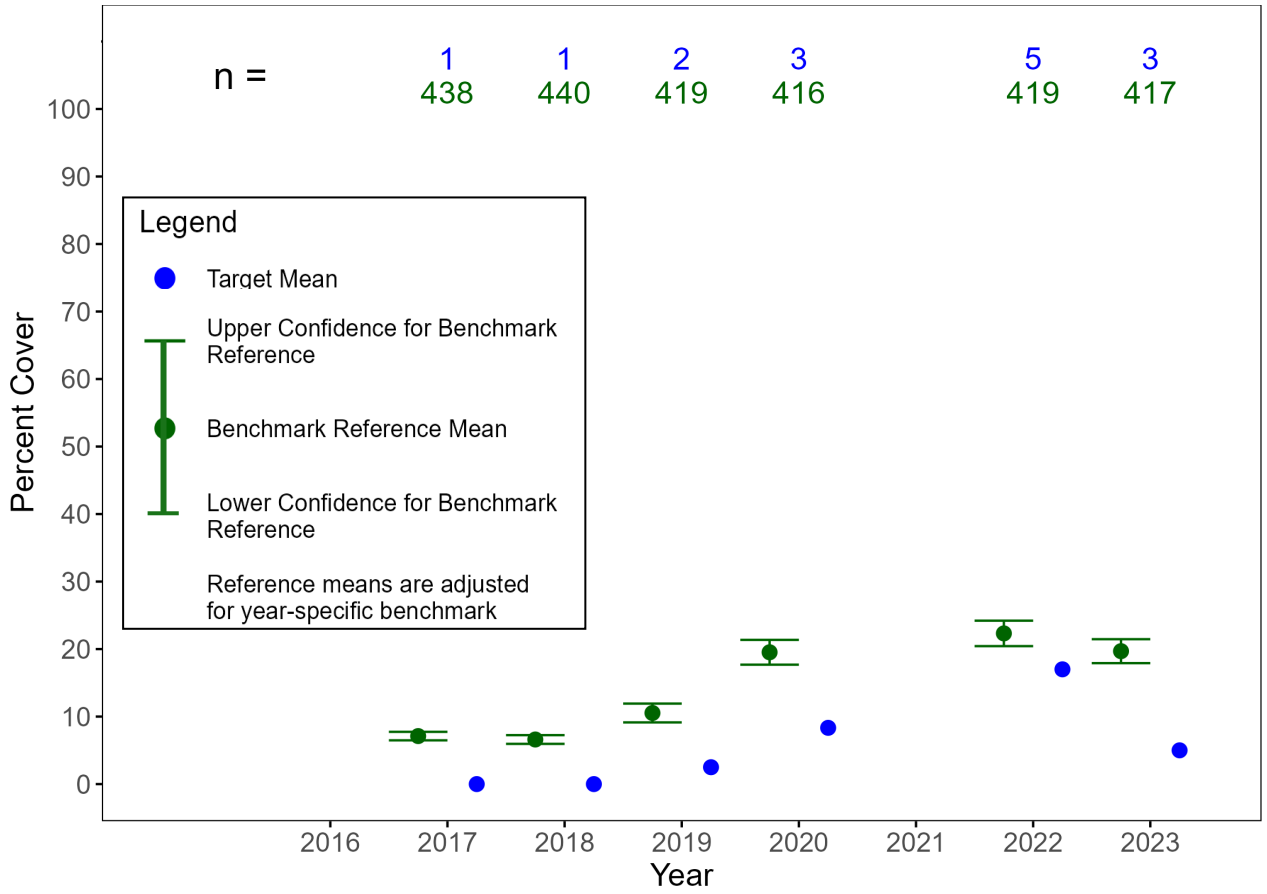
SAV Benchmarks

Percent Cover Benchmarks for CU 35 Natural Recolonization Areas



SAV Benchmarks

Percent Cover Benchmarks for CU 68 Natural Recolonization Areas



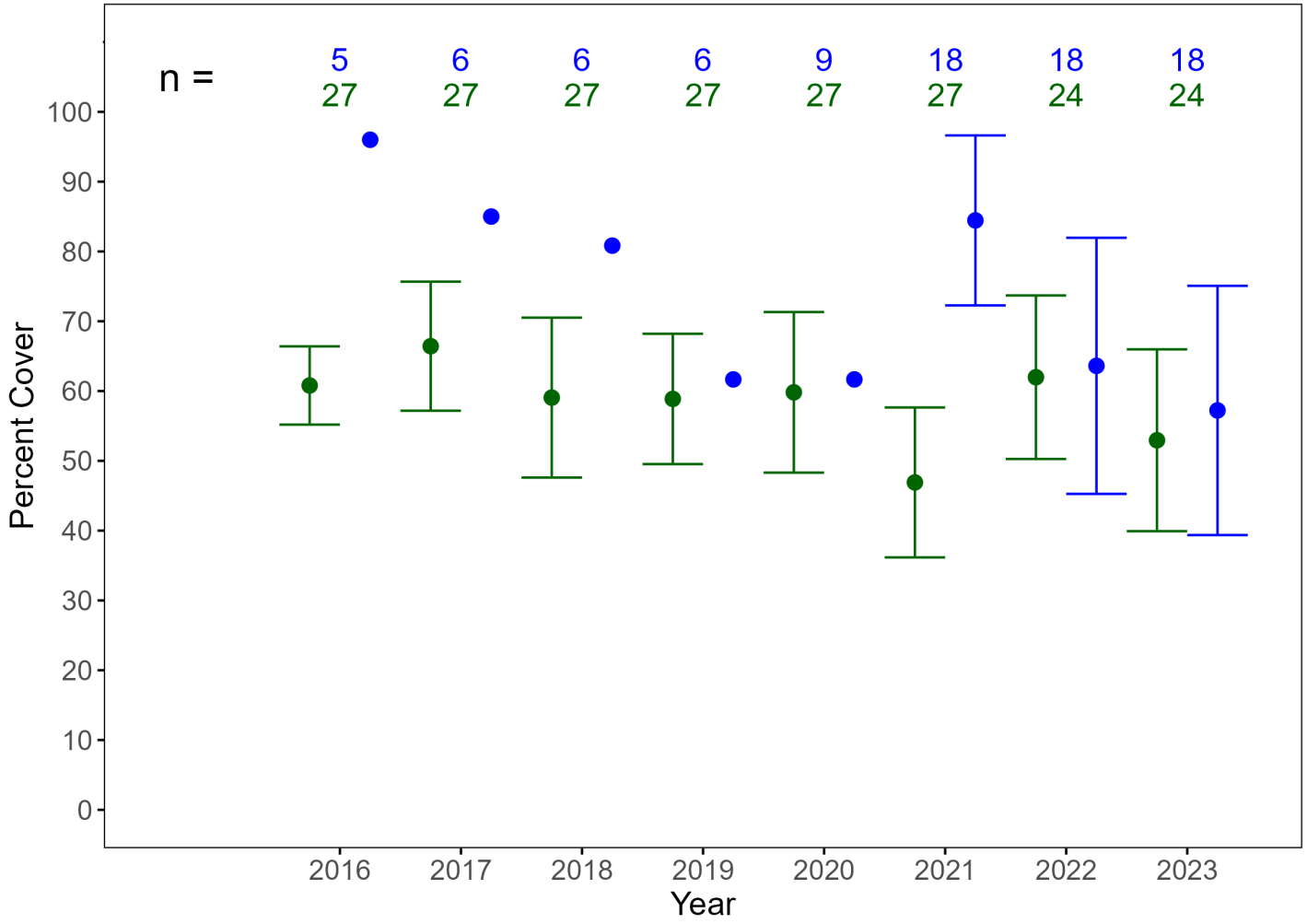
SAV Response Actions

2024 Response Actions:

- Invasive species observed in CUs 71, 76, 83, 84, and 99 were removed during monitoring
- SAV seeds harvested from NYS Canal Corps Feeder Canal, were placed into mesh bags, and attached to buoy, then deployed in locations (CUs 2, 8, 9, 64 – 75, and 92). Each of the 16 CU's had 5 buoys deployed for a total of 60 seed bags

RFW Benchmarks

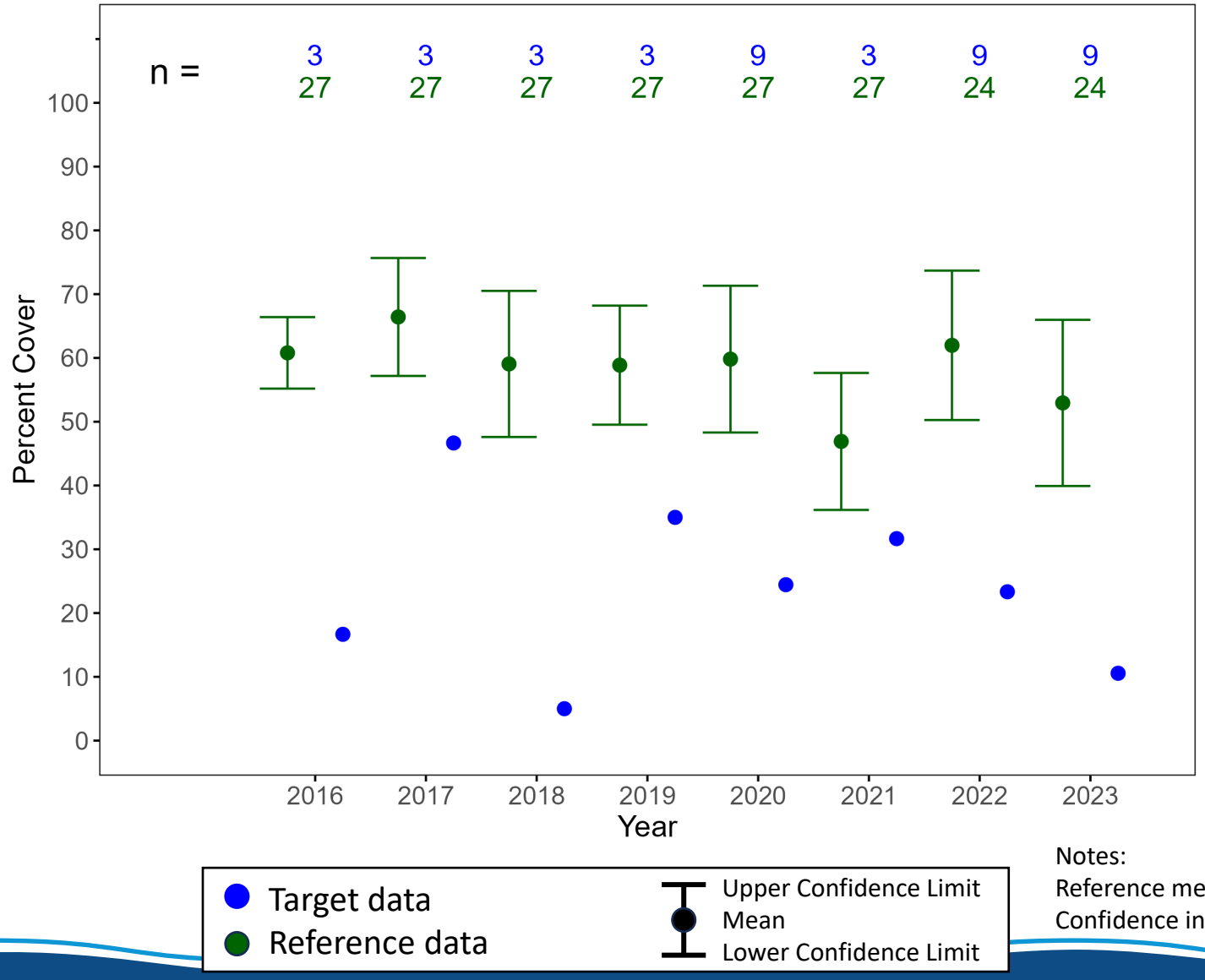
Percent Cover Benchmarks for CU 35



Notes:
Reference means are adjusted to the year-specific benchmark.
Confidence intervals are calculated using a t-score for n>=10.

RFW Benchmarks

Percent Cover Benchmarks for CU 68



Notes:
Reference means are adjusted to the year-specific benchmark.
Confidence intervals are calculated using a t-score for n>=10.

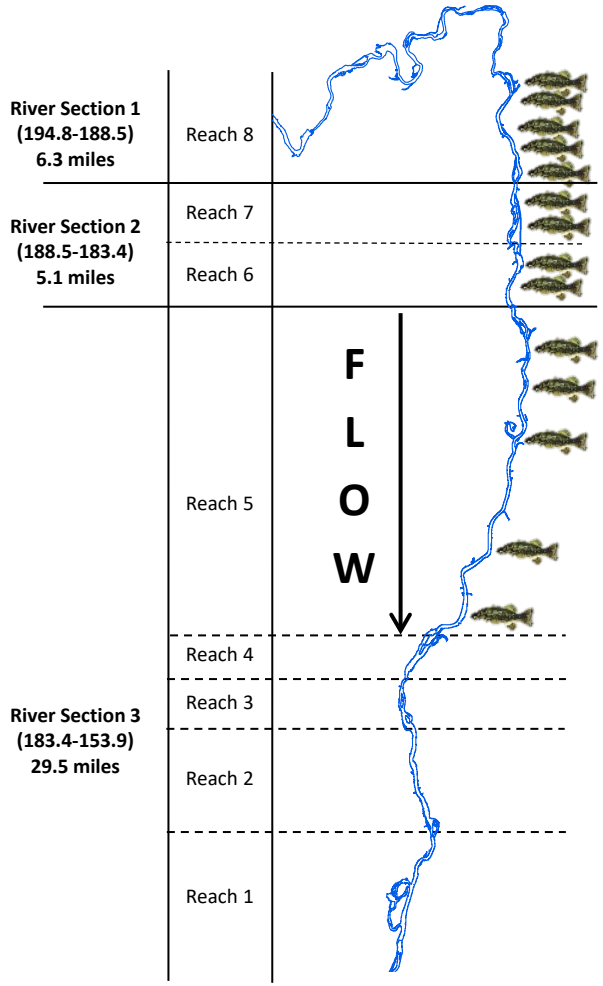
RFW Response Actions

2024 Response Actions:

- 4,250 individual RFW plantings
  - Large portion of plantings focused on CU 69
  - Other CUs receiving planting included 35, 57, and 64
- 220 feet of wave break installations
  - Large portion of coir logs focused in CU 69 to protect new plantings
- Targeted invasive species removal

Upper Hudson River Fish Update

- Fish collected annually in the fall and spring
  - Fish are collected from 14 stations in the upper river
  - Spring fish include fish used in species weighted average (bass, bullhead, perch)
  - Fall fish include pumpkinseed (rapid integrator) and forage fish
  - 2024 collection completed in September
  - Fish collected in the UHR: 254
    - Fish are currently being processed and analyzed
    - Complete data is expected in spring 2025



Upper Hudson River Fish Update

EPA has completed its review of the 2023 fish data.

- Primary data evaluation as described in the Record of Decision
  - Reduction of risk to human health based on species-weighted average and compared to:
    - Target - 0.4 mg/kg – target- one half-pound fish meal every two months (included in ROD to guide potential adjustment to advisories)
    - Target - 0.2 mg/kg – target - one half-pound meal every month (included in ROD to guide potential adjustment to advisories)
    - Project Remedial Action Objective
      - Post dredging - continued gradual recovery over decades
        - Goal - 0.05 mg/kg - one half-pound fish meal every week
  - Reduction of risk to ecological receptors based on comparison to:
    - Whole-body black bass target range 0.3 mg/kg to 0.03 mg/kg (LOAEL and NOAEL for river otter)
    - Forage fish (spottail shiner) range 0.7 mg/kg to 0.07 mg/kg (LOAEL and NOAEL for mink)

* *LOAEL — Lowest dose at which there was an observed toxic or adverse effect.*
NOAEL — Highest dose at which there was not an observed toxic or adverse effect.

<u>Spring Collection:</u>

Sport fish Fillet Samples

Largemouth Bass
(*Micropterus salmoides*)

Smallmouth Bass
(*Micropterus dolomieu*)

Yellow Perch
(*Perca flavescens*)

Brown Bullhead
(*Ameiurus nebulosus)*

Yellow Bullhead
(*Ameiurus natalis)*

<u>Fall Collection:</u>

Whole body pumpkinseed samples
Whole body composite forage samples

Pumpkinseed
(Lepomis gibbosus)

Spottail Shiner
(Notropis hudsonius)

Upper Hudson River Fish Update

- EPA data review and analysis includes:
  - Consistent data treatment – results comparable over time
  - Robust QA/QC program (standard reference materials, congener analysis, duplicates, MS/MSDs, surrogate review etc.)
  - Detailed review by species, location, river section etc.
- Ongoing considerations
  - Impacts of lipids age and diet
  - Variation by species and location
- Continued coordination with NYSDEC/NYSDOH regarding data needs for potential adjustments to fishing advisories and restrictions

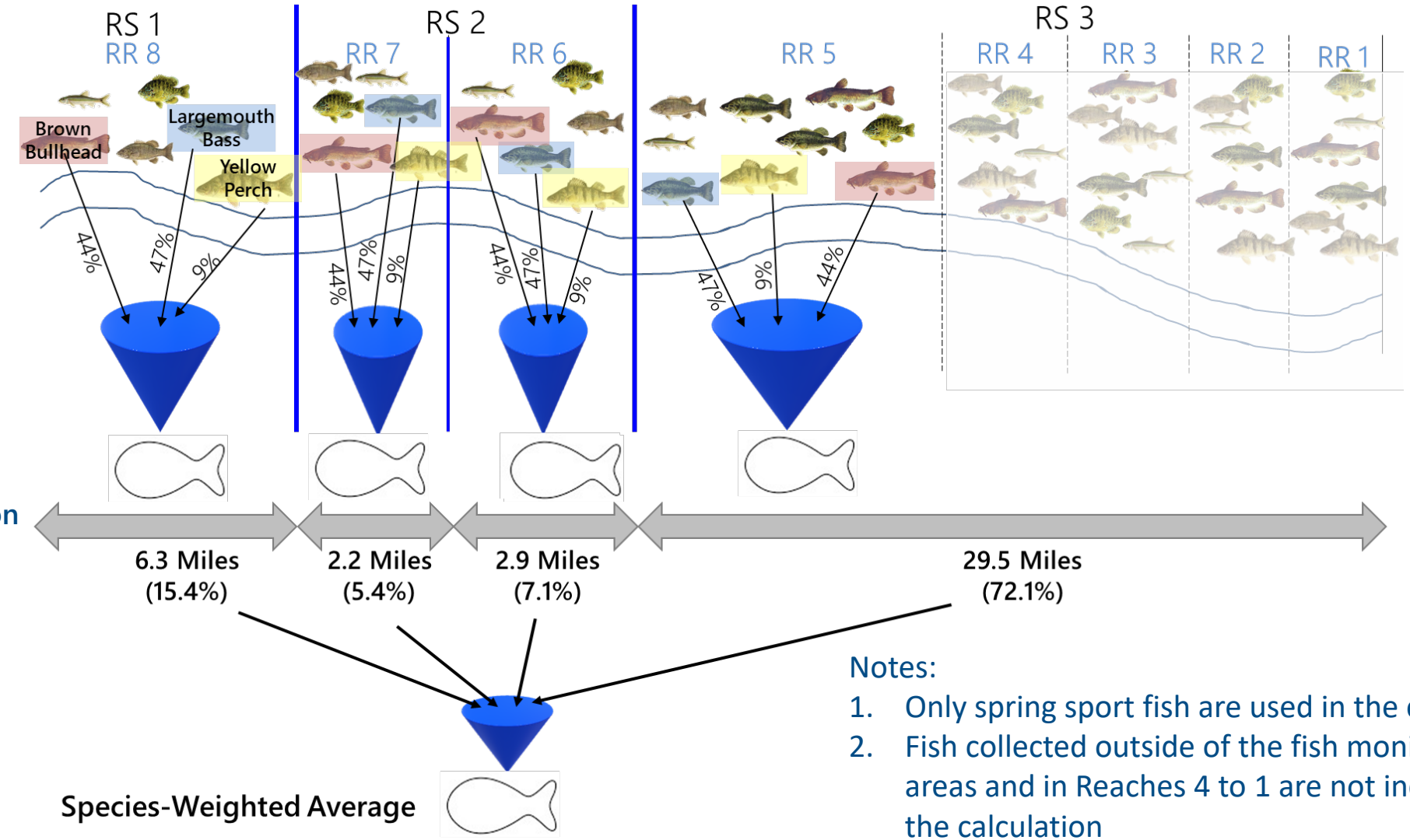
Upper Hudson Species-Weighted Average Calculation

Average PCB concentration by species

Species weighting based on typical angler catch

Species-Weighted Average by River Section or River Reach

River Section or River Reach weighting proportional to length



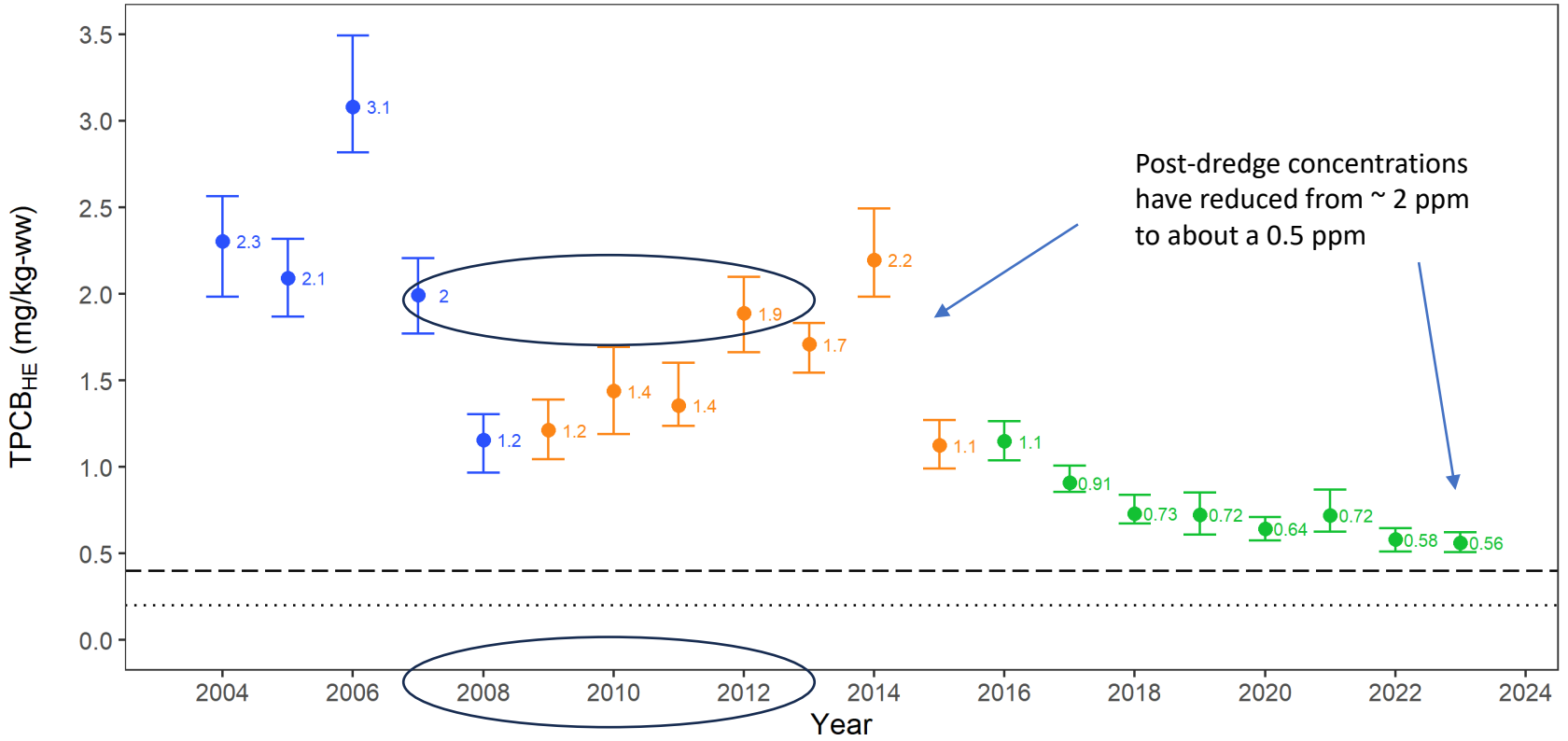
Notes:

1. Only spring sport fish are used in the calculation
2. Fish collected outside of the fish monitoring areas and in Reaches 4 to 1 are not included in the calculation

Species-Weighted Average Wet-Weight $TPCB_{HE}$

Draft - Subject to Change

Upper Hudson River (RS 1 to RS 3)



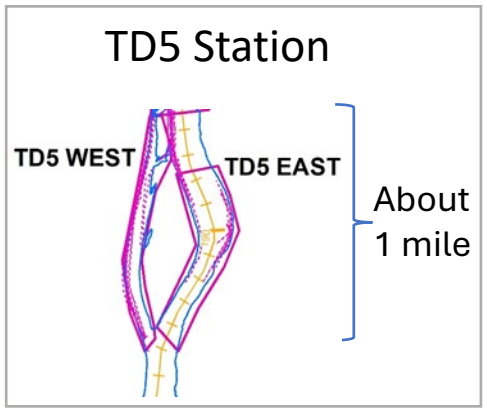
Pre-Dredging (2004-2008)
Dredging (2009-2015)
Post-Dredging (2016-2023)

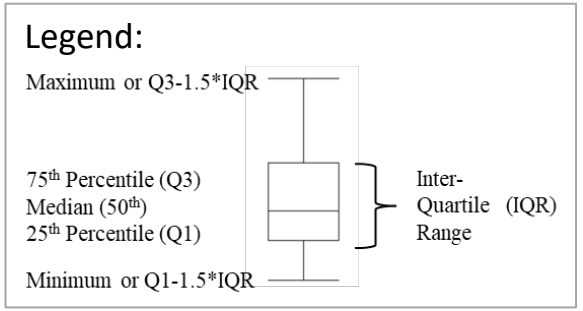
RAO Target PCB Concentration
- 0.4 mg/kg-ww
- 0.2 mg/kg-ww

95% Upper Confidence Limit
Mean
95% Lower Confidence Limit

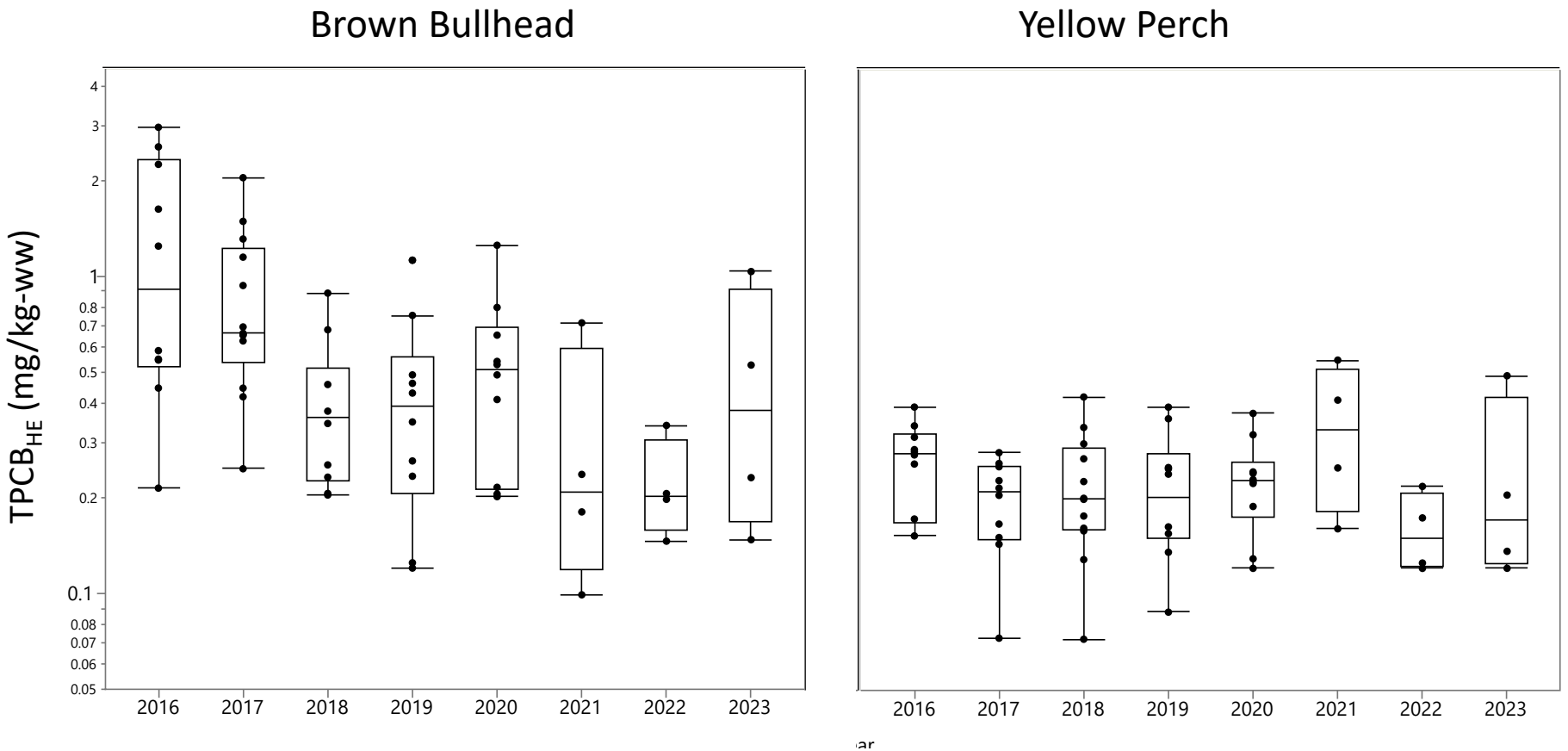
Notes
1. A single correction factor is used to convert the 2017-2022 data from Aroclor basis to Total PCB-homologue equivalent ($TPCB_{HE}$). The matched pairs used in the correction factor are from 2018,2020, 2021 and 2022
2. Individual species are averaged by collection station and then averaged together by River Section
3. River Section fish tissue PCB concentrations are weighted by species. Largemouth and smallmouth bass = 47%, brown bullhead = 44%, yellow perch = 9%
4. Upper Hudson River average is weighted by both species and river section length. River Section 1 = 6.3 miles (15.4%); River Section 2= 5.1 miles (12.5%); and River Section 3= 29.5 miles (72.1%). Data from river Reaches 4 through 1 are not included in this calculation since they were not collected regularly. Reach 5/River Section 3 is weighted to reflect all 29.5 miles of River Section 3, while the fish monitoring stations representing River Section 3 are all located in Reach 5, which is 14 miles long
5. 95% confidence limits on the mean are calculated using a bias-corrected and accelerated (BCA) bootstrap method
6. The samples from 2007-2013 are rib-out fillets, all other data is NYSDEC standard fillet samples

Changes of PCB Concentrations Over Time Vary by Species





Station TD5 – Individual Species $TPCB_{HE}$ from 2016 to 2023



Break

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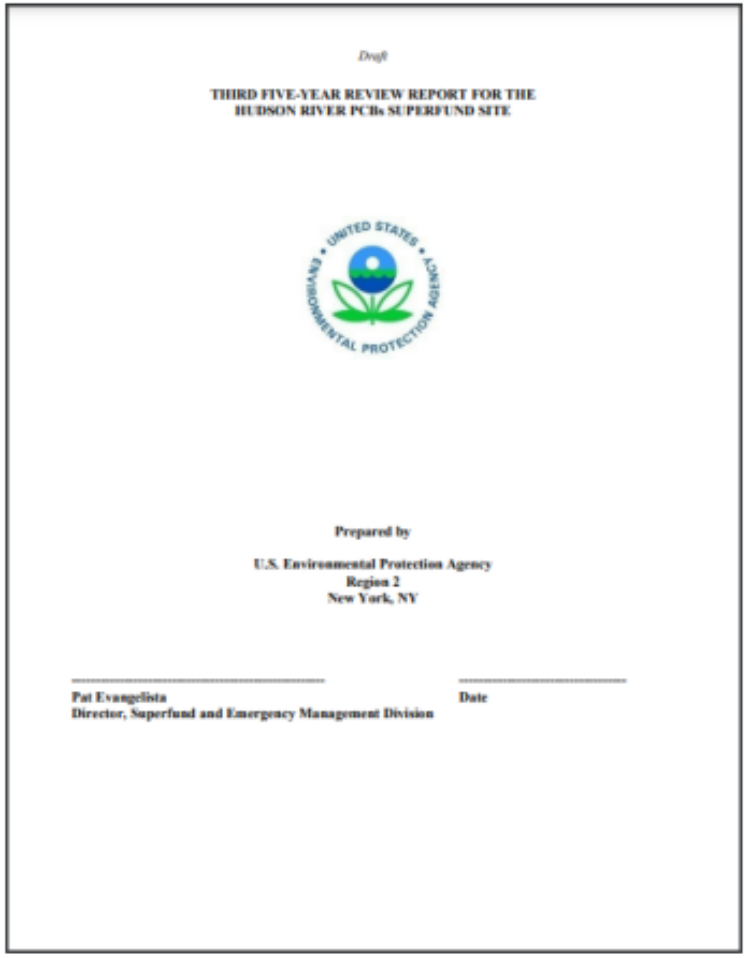
Project Updates

- Five-Year Review Update
- Powerhouse & Allen Mill Update
- Lower Hudson River Update

Five-Year Review Update

- Draft issued 7/10/2024
- 90-day comment period with 30-day extension (7/10/2024 to 11/7/2024)
  - ~2,100 comments received during the comment period
  - EPA currently reviewing and developing responses to comments
- Report will be finalized soon



Draft

THIRD FIVE-YEAR REVIEW REPORT FOR THE
HUDSON RIVER PCBs SUPERFUND SITE

Prepared by

U.S. Environmental Protection Agency
Region 2
New York, NY

Pat Evangelista
Director, Superfund and Emergency Management Division

Date

Project Updates: Powerhouse & Allen Mill

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Powerhouse & Allen Mill - Background

- Buildings located adjacent to the General Electric (GE) Hudson Falls Plant Site
  - GE plants at Hudson Falls and Fort Edward have been removed
  - Extensive remedial systems are located at each site as required by NYSDEC
  - GE's contamination remains under the Powerhouse and Allen Mill
- EPA reached legal agreement with National Grid and GE in July 2022 to oversee deconstruction of the Powerhouse and Allen Mill
  - EPA involvement due to potential for release to the environment (e.g., river)
- Close coordination NYSDEC/NYSDOH

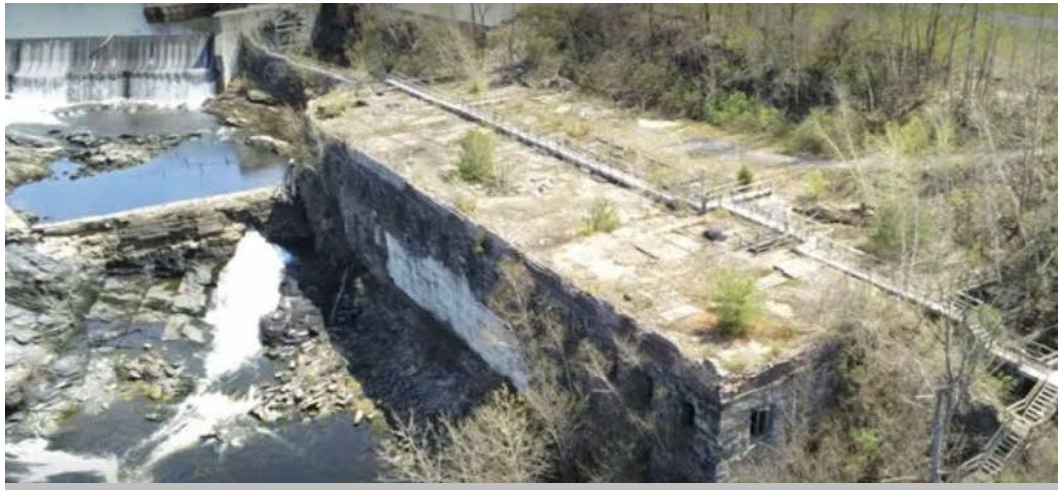
Powerhouse Deconstruction - Overview

- Powerhouse deconstruction began in October 2022 and is nearly complete
- Extensive environmental monitoring and protective measures
  - River water, groundwater and air monitoring
  - River turbidity curtain and absorbent boom
- Environmental monitoring data indicates that a release to the river was successfully prevented
- Progress continues on remaining items (e.g., floor slab piping and slab trench)

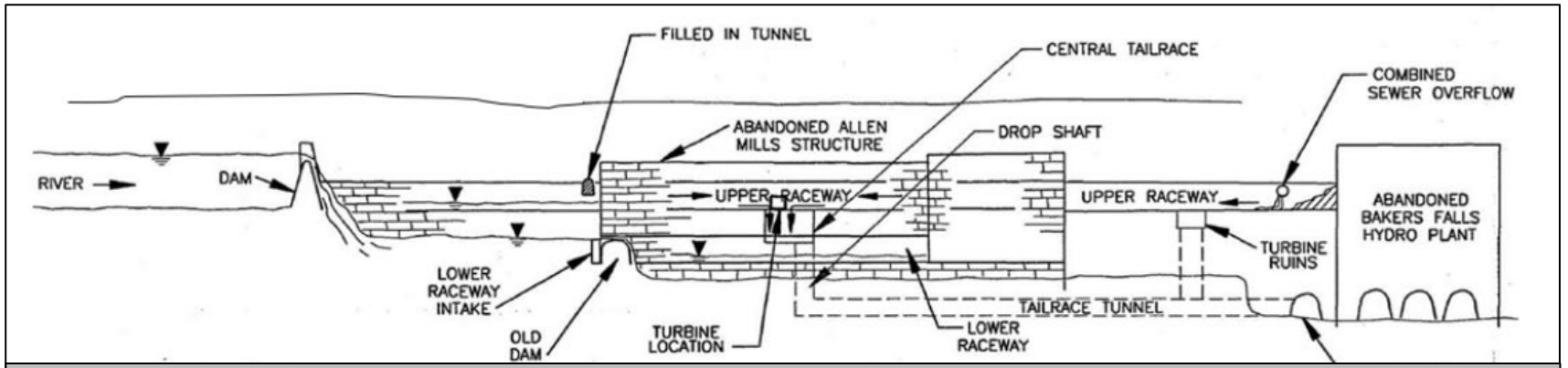
Powerhouse Deconstruction Progress

Allen Mill Deconstruction

- Complex building history and layout
  - Originally built in the 1800s as a paper manufacturing facility
  - River water conveyed through channels (raceways) to generate power
  - Complex history of environmental releases and cleanup work
- Access to the building obtained in September 2023
  - Some areas remain restricted due to deteriorated conditions
  - Work is ongoing to provide access to tailrace tunnel
- Extensive pre-design investigation work needed before deconstruction can proceed
  - Access restrictions have limited the ability to conduct environmental work in and around the building



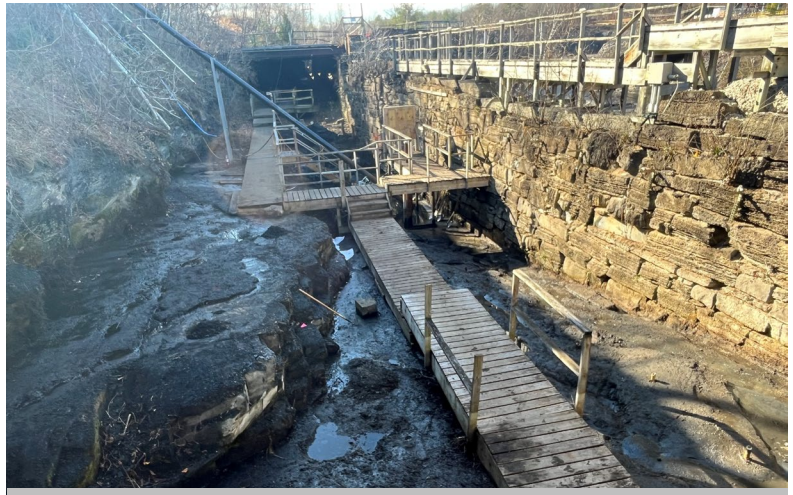
Allen Mill (Aerial)



Schematic of Allen Mill and Related Features

Allen Mill Pre-Design Investigation Work

- Building characterization sampling
- Eastern Raceway investigation and cleanup work
- River plunge pool and Baker's Falls – baseline sampling
- Air conditions – baseline evaluations
- Groundwater investigations near the edge of the river



Ongoing Cleanup Work in Open Section of Eastern Raceway

Example of Debris in the Allen Mill

Ongoing Cleanup Work in Covered Section of Eastern Raceway

Baseline River Water Sampling

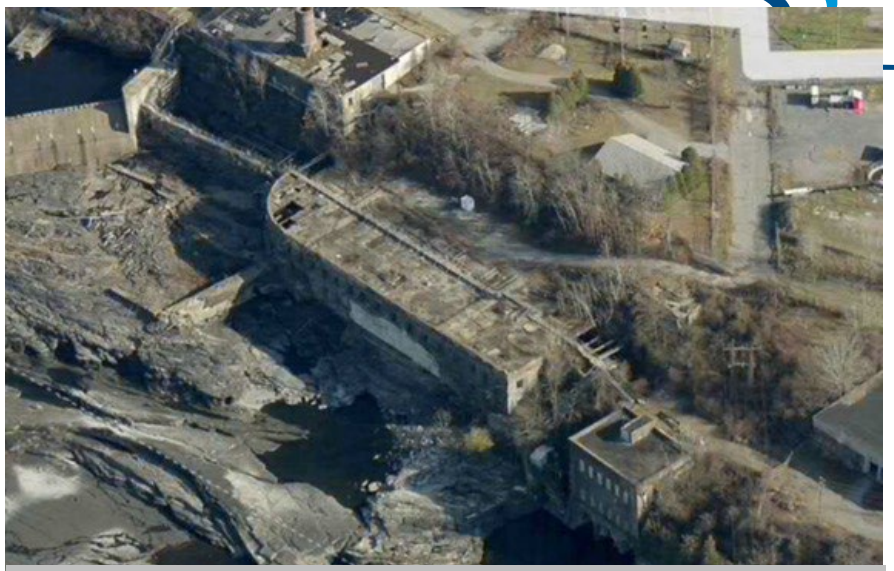
Allen Mill Deconstruction

Unique Project Challenges

- Building characterization
  - Access challenges (tailrace tunnel, lower room)
  - Variety of building materials and debris
  - Complex environmental history
- Complex deconstruction design
  - Approach needed that considers access limitations, challenging work area (from heights and near river edge), and environmental conditions
- Project Schedule
  - Timing and approach/sequence in consideration of weather/flow conditions

Next Steps

- Continue pre-design investigation work
- Deconstruction design (early 2025)
- Contractor procurement (2025)
- Deconstruction – scheduled to begin late 2025/early 2026



Historic Aerial Photo of Allen Mill and Surrounding Area

Example of High Flow Conditions Adjacent to Allen Mill

Project Updates:
Lower Hudson River

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2024 Lower Hudson River (LHR) Ongoing Work

- Investigations are ongoing and being conducted under an agreement with GE
- 2024 field work included:
  - High resolution (High-Res) core sampling (sampling completed; core processing on-going)
  - Supplemental core sampling (completed)
  - Water column sampling (on-going)
  - Fish sampling (completed)
- EPA is assessing results to determine next steps:
  - 2023 Beryllium-7 data
  - 2023 and 2024 fish data
  - 2023 and 2024 water column data

Sampling and Investigations Schedule (Lower River)

2023

- Water sampling (monthly 5 stations)
- Fish sampling (800+) – based on availability of species
  - Salt and freshwater species
  - Migratory, local and forage fish
  - Blue crab and eel
- Sediment collection – recently deposited (tributaries 100 and 150 main stem)
- Data evaluation

2024

- Monthly water column sampling continued
- Fish sampling continued
- Sediment collection
  - Supplemental sediment sampling (10 areas with 20 samples per area at locations where fish are collected)
  - High resolution coring (6 to 10 locations to span the length of the lower river)
- Data evaluation

2025

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

Community Engagement and Outreach

Hudson River PCBs Superfund Site

Hudson River Fish Consumption Advisories

Join Us for an Informational Meeting and Community Conversation on December 12, 2024

On December 12, the U.S. Environmental Protection Agency is holding a public meeting and community feedback session to talk about ongoing efforts to study and address polychlorinated biphenyls, or PCBs, in the Hudson River. The meeting will also provide important information about New York State's health advisories for eating fish.

What should you consider when deciding whether or not to eat the fish you catch? The New York State Department of Health issues health advice for people who eat fish from waters like the Hudson River where chemical contamination may be a concern. PCBs are a type of man-made chemical in Hudson River fish that can harm your health. Anyone who can get pregnant and children under 15 should not eat any fish or crabs from the Hudson River.

When: Thursday, December 12, 6:30-8:30pm

Where: Orange County Community College, Newburgh Campus
Kaplan Hall Great Room #101

Interested in attending?
Let EPA know you plan to be there.
(Registration is not required)

FREE PARKING
Address for Kaplan Hall parking garage:
73 1st St, Newburgh, NY 12550

LEARN MORE ABOUT:

- Which types of fish and crabs from the Hudson River are safe to eat, and in what amounts.
- Best practices for cleaning and cooking fish to reduce chemical exposure.
- How the state is working to inform communities, including newcomers, about safe fish consumption.

JOIN THE CONVERSATION!

- Talk about where people fish and what fish people eat.
- Support the state's efforts to get fish advisory signs where they're needed.
- Help get the word out about the advisories to other people who fish the Hudson River.
- Let EPA know how you'd like to receive information and updates about the Superfund site.

For more information contact the EPA Hudson River Office:
(518) 407-0400 ext. 2 or romanowski.larisa@epa.gov

Interpretation services will be available for this event. If you require special accommodations, including live interpretation into a language other than English or Spanish, please contact the Hudson River Office.

Hudson River PCBs SUPERFUND SITE

CALLING ALL HUDSON RIVER FISHERMEN

Questions?

EPA

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