



Hudson River PCBs Superfund Site Project Update

Community Advisory Group Meeting
Tuesday, May 14, 2019
Gideon Putnam Hotel

Project Update

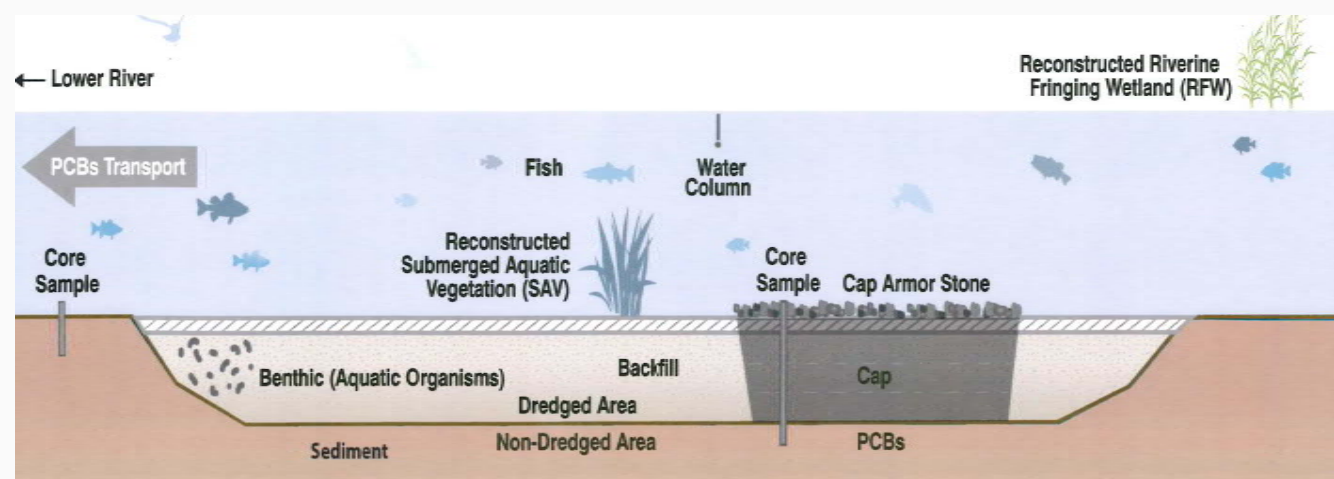


- Status of operations, monitoring & maintenance of water, sediment, fish, caps and habitat
- Floodplain comprehensive study
- Approach to data and information collection for the Lower Hudson – process/next steps
- High flow water sampling
- Flood mud sampling
- Schuylerville Old Canal sampling
- Recent project documents

Operations, Maintenance and Monitoring



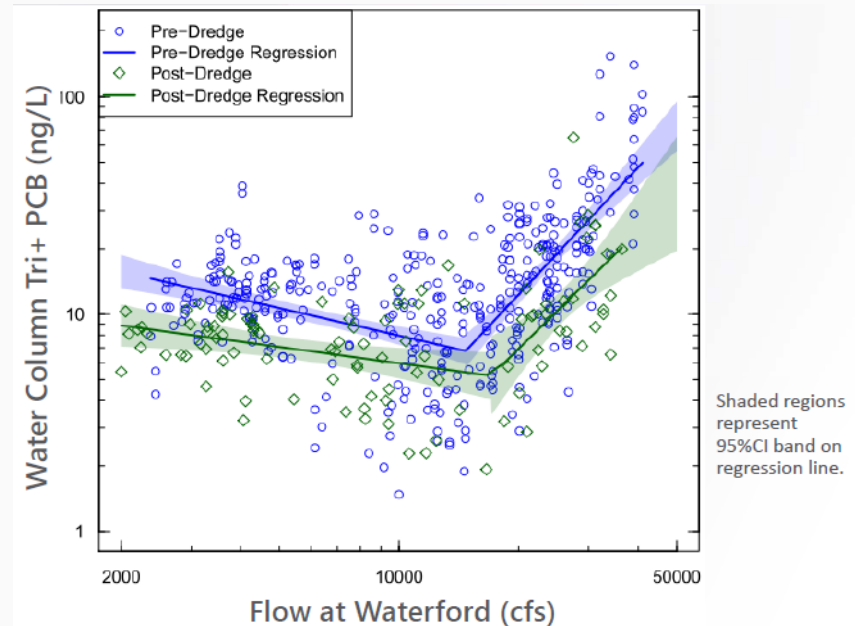
- Cleanup is two parts: dredging and natural recovery
- Long-term monitoring is very important to assess recovery - includes:
 - Water, sediment and fish
- Establishing scopes of work and work plans
- Revising quality assurance plans as needed
- Caps evaluated regularly
- Habitat monitored until success criteria is met



Water Monitoring



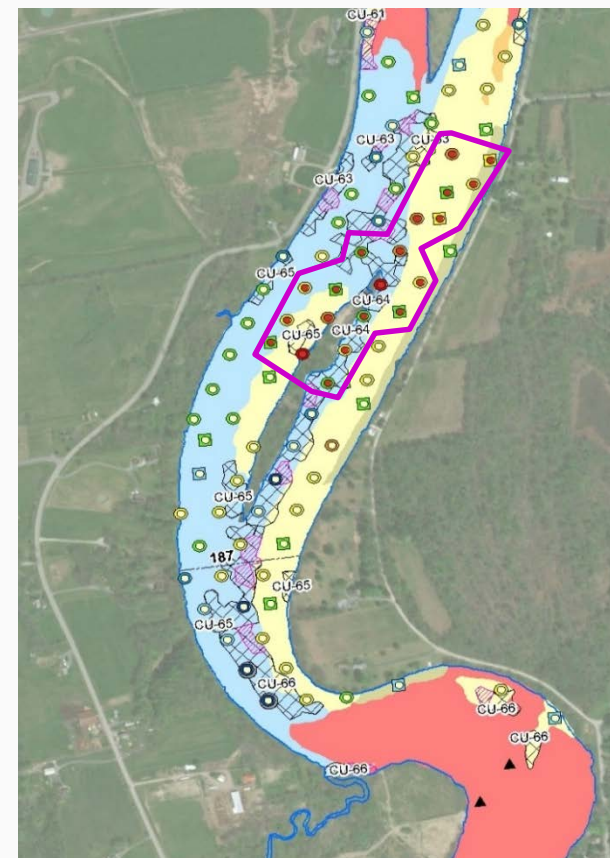
- Work plan is under development (ongoing discussions with NYSDEC and GE)
 - baseline/off-season monitoring continues
 - Details to be worked out include: additional locations and frequency
- Three locations sampled weekly (Thompson Island, Schuylerville, Waterford)
- Other locations monthly (Bakers Falls, Lower Hudson River)
- Sampling from bridges and by boat
- Samples analyzed for
 - Total suspended solids
 - PCBs using congener methods
- PCB loads to the Lower Hudson have decreased between 30 and 50% relative to baseline



Surface Sediment



- Initial scope of work established in 2016
- 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
 - Time is an important consideration in statistical power
- 2016/2017 EPA/NYSDEC Evaluation (>1,400 samples)
 - ~99% of samples are below ROD criteria in both dredged and non-dredged areas
 - 4 locations above ROD criteria
 - 8 locations above RS1 ROD criteria
 - Three localized “areas of interest” were identified - EPA will continue to track
 - As expected, some movement of sediment has occurred into dredged areas
 - Substantial reductions have occurred in surface sediment



Fish Monitoring



- OM&M work plan is under development (ongoing discussions with NYSDEC and GE)
 - Details to be worked out include: locations, species, frequency
- 2017 fish data
 - Ongoing review –Laboratory location change considerations
- 2018 fish analysis underway
 - Delayed due to important long term quality control improvements – reference standards
- 2019 spring fish collection underway
 - Includes spring fish (Reaches 1 through 4)
- NYS collects additional fish
- Fall fish data review (including DEC 2018)



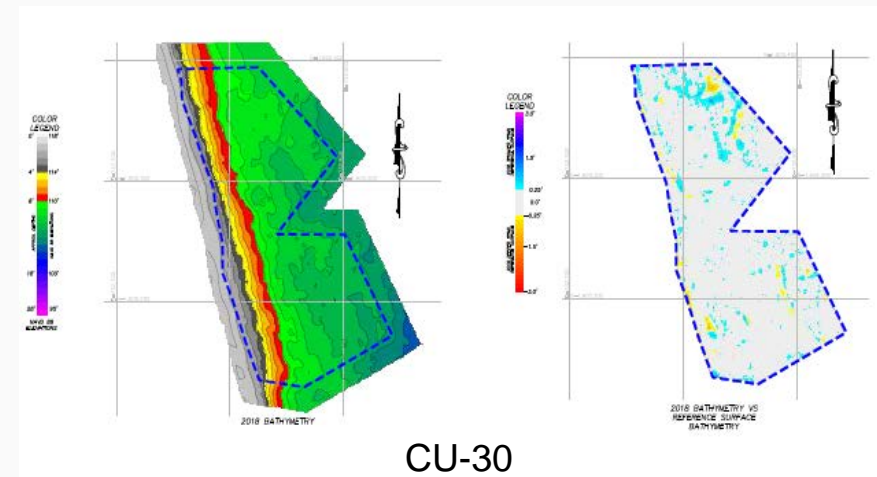
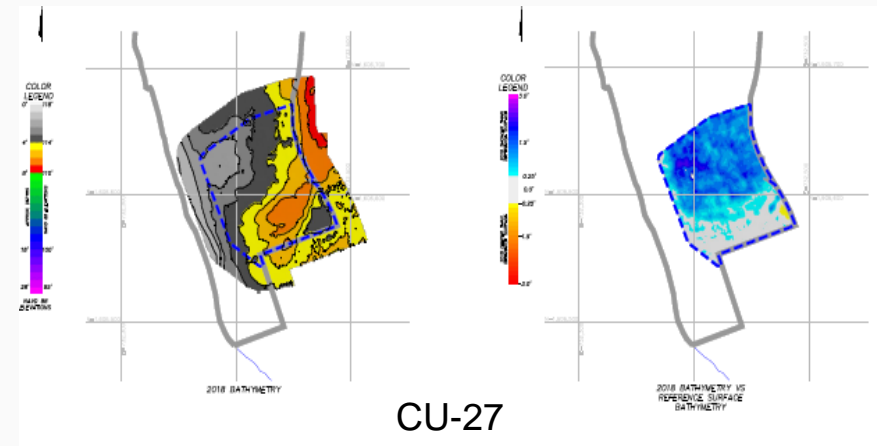
Species Weighted Average Fish Tissue PCBs (2004-2016)													
UHR Largemouth Bass, Brown Bullhead, and Yellow Perch Expressed as Species Weighted Average (mg/kg-wet weight, TPCB-Aroclors) 2004-2016													
RS and Species	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015*	2016*
RS1 Largemouth Bass	1.98	2.29	2.53	2.04	1.45	0.67	2.16	1.05	1.56	2.36	2.18	2.50	1.16
RS1 Brown Bullhead	8.33	4.02	3.99	4.30	2.11	3.57	5.14	3.41	5.63	4.03	3.93	1.61	1.66
RS1 Yellow Perch	2.39	0.66	1.61	0.84	0.61	0.64	0.84	1.12	2.00	1.11	1.37	1.07	0.51
RS2 Largemouth Bass	2.72	1.94	2.33	1.64	0.87	0.77	1.63	1.43	2.02	1.84	2.85	2.05	0.71
RS2 Brown Bullhead	5.63	5.80	4.14	3.15	5.19	3.98	2.70	3.98	5.65	4.69	5.00	1.98	2.02
RS2 Yellow Perch	1.65	0.61	1.29	0.43	0.45	0.50	0.76	0.75	1.27	1.52	1.81	1.23	0.61
RS3 Largemouth Bass	1.33	1.55	2.55	0.82	0.94	0.67	1.25	0.69	2.47	1.65	1.73	0.83	1.41
RS3 Brown Bullhead	2.42	3.53	3.93	3.15	1.66	2.00	1.81	2.46	2.14	2.12	3.61	1.75	1.21
RS3 Yellow Perch	1.31	0.37	0.66	0.42	0.28	0.20	0.26	0.36	0.55	0.44	2.53	0.62	0.34
ROD Species Length UHR Weighted Average	2.53	2.56	3.01	2.03	1.33	1.44	1.78	1.67	2.52	2.10	2.87	1.42	1.25
RS1 Species Weighted Average	4.81	2.91	3.09	2.93	1.66	1.94	3.35	2.10	3.39	2.98	2.88	1.98	1.32
RS2 Species Weighted Average	3.90	3.52	3.03	2.20	2.74	2.15	2.02	2.49	3.55	3.07	3.70	1.94	1.28
RS3 Species Weighted Average	1.81	2.31	2.98	1.81	1.01	1.21	1.41	1.44	2.15	1.75	2.72	1.21	1.23

* 2015 and 2016 data are preliminary (data validation is on-going)

Cap Monitoring



- All caps surveyed last year
 - EPA reviewing the results of this survey (including WGIA)
- Next survey:
 - Phase 2 areas 2023, and then every 10 years
 - Phase 1 areas 2028 and 2038
 - After significant flood events
- If cap disturbance – evaluation required
 - Repair as needed
- Discussing with GE select area survey schedule



Habitat Monitoring



- Remedy included reconstruction of habitat (river fringing and sub-aquatic)
- Habitat OM&M began after initial reconstruction confirmed
 - Surveys, reviews, recovery, and response actions as necessary ongoing
- Benchmark Evaluation Phase Underway
 - Consideration of individual areas
 - Observation of percent cover and species composition
 - Response actions identified as needed
 - Typically five years, including year of planting
- Success Criteria Phase
 - Consideration of larger areas
 - Quantitative, statistically-based evaluation



Floodplain Comprehensive Study



- 2018 data gap sampling
 - Soil and standing water samples collected
 - 222 total samples from 72 properties
 - EPA reviewing sampling results
 - Results to be sent to property owners
- EPA discussing with GE scope of sampling for 2019
- Short-Term Removal Actions
 - Annual inspections in late spring
 - Repairs will be conducted as needed
- Near shore in-river human use areas being evaluated
- Screening Level Human Health and Ecological Risk Assessments
 - Currently under EPA and other agency review

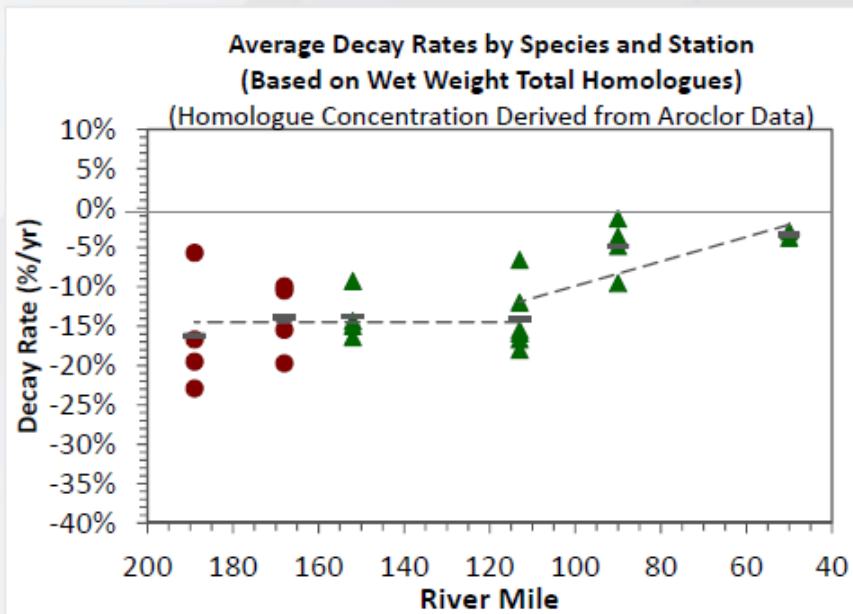


Lower Hudson River

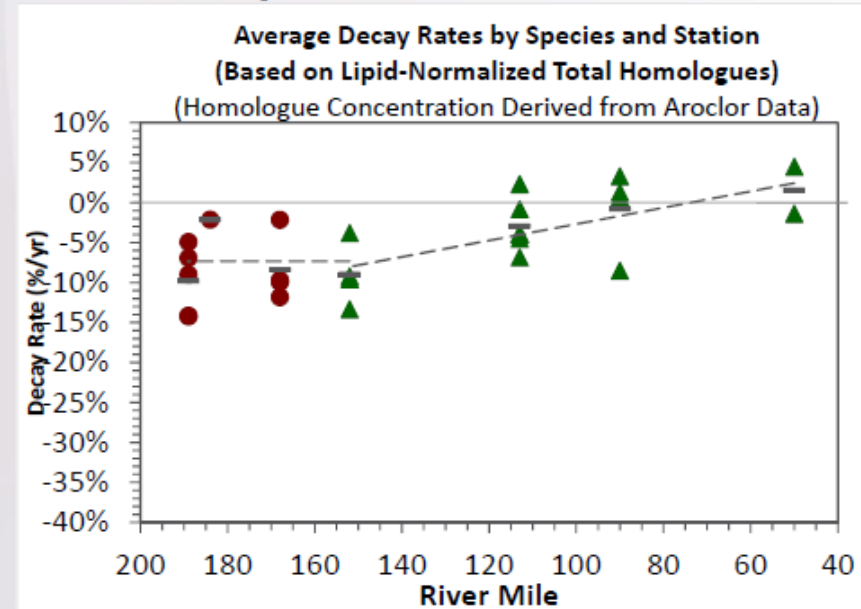


- In general fish tissue recovery rates decline with distance downstream in the Lower Hudson – some locations do not show a statistically significant recovery
- Data/information collection and supplemental studies necessary to evaluate next steps

Wet Weight Basis



Lipid-Normalized Basis



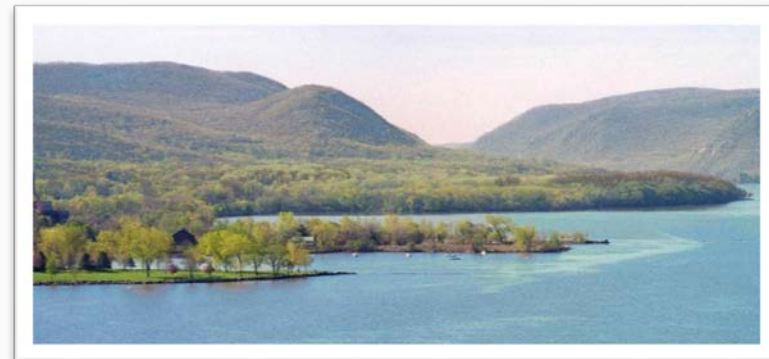
● Upper River ▲ Lower River — Average Decay Rate

Lower Hudson Supplemental Studies



Lower River Considerations – ongoing activities

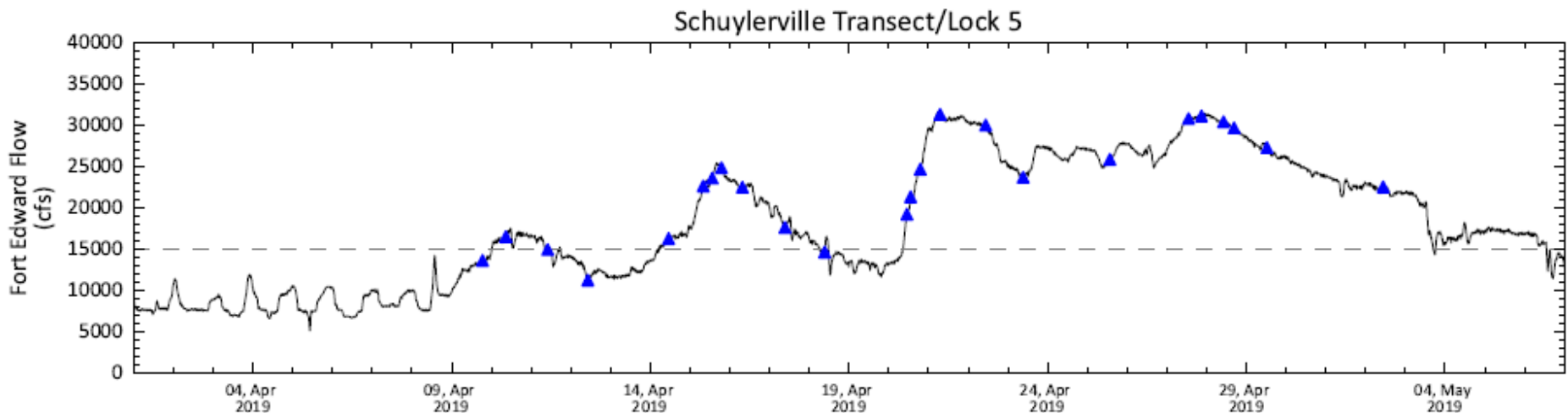
- EPA to collect and review existing data/information/studies – underway
 - Coordination - Hudson River Foundation, USACE, NYSDEC etc.
 - Met with NYSDEC – data and upland sites
 - Ongoing internal discussions – next steps
 - Developing potential initial scopes of work
 - NYSDEC provided thoughts on initial scope of work
 - EPA developing/refining lower river site understanding
 - EPA considering how to sub-divided the river for studies
- EPA is coordinating with NY State regarding Lower Hudson River considerations
- Fish and water collection continues
- Work anticipated in 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
- 2019 events: January, April – May
- High flow sampling will be included in OM&M work plan
 - Details to be worked out include additional locations and frequency



Flood Mud Sampling



- Flood mud samples collected after high flow events (>15,000 cfs)
- 24 locations evaluated – not all locations have sediment each event
- High flow event April – May this year
- Samples to be collected this month
- Results likely in June



Old Champlain Canal Sampling



- Two phases of work
 - Task 1: Surface sediments
 - Purpose: Evaluate potential presence of PCBs in the surface (follow-up to NYSDEC sampling results)
 - Task 2: Deeper cores
 - Purpose: in part to evaluate nature and extent of PCB contamination. Also to provide information to the town and village for potential sediment removal
- Task 1 samples collected last week (May 7 & 8)
- EPA to evaluate Task 2 scope based on Task 1 PCB results
- Task 2 sampling expected soon



EPA continuing coordination with community groups and municipalities to identify priority projects to minimize the potential for project delays due to potential presence of PCBs in site soil and sediment.

Recent Project Documents



- Five-Year Review
 - Extensive evaluation fish, sediment and water
- Response to Comment Document
 - Detailed responses to technical project concerns
 - Appendix B: Deferral Statement
 - Appendix C: Supplemental Technical Memorandum (NOAA emulation)
 - Appendix D: Black Bass Special Study
- Surface Sediment Tech memo
 - Detailed analysis of GE and NYSDEC 2016/2017 data
 - Additional analysis completed by EPA
- FAQs
 - 77 Questions and Answers

<https://www3.epa.gov/ HUDSON>

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Hudson River Cleanup

- Why is the cleanup of the upper Hudson River needed?
- What's being done to address the contamination?
- What comes next?
- Cleanup plans & technical documents

Get Involved

- How to stay informed
- Help educate local students about the river and the cleanup
- Learn about health advisories on eating Hudson River fish

Dredge Area Map

Map of dredge areas. (PDF 2.9 MB, 15 pp)
See map of the 40-mile project area. (PDF 202 KB, 1 pp)

Information for Project-Area Residents

From the NYS Department of Health

- Protecting Public Health During the Hudson River PCB Dredging Project (XHTML Briefing)
- Advice About Swimming in the Hudson River During Dredging (XHTML Brochure)

Cleanup Photos

View the Cleanup Photos Gallery

What's New

- Listen to the Audio Recording of the Press Briefing (04/11/19)
- Final Second Five-Year Review Report for the Hudson River PCBs Superfund Site (04/11/19)
 - Report Text & Appendices
 - Final Second Five-Year Review Comment Response
- Certification of Completion of Remedial Action
 - EPA Letter to GE (04/11/19) Re: Certification of Completion of Remedial Action
 - Reference: 2006 Consent Decree
 - GE Report (March 2019): Remedial Action Completion (text, tables, & figures)
 - EPA Letter to GE (12/26/18) Re: Comments on GE's December 2016 Remedial Action Completion Report
 - NYSDEC letter to EPA (04/05/19): Re: Certification of Completion
 - EPA letter to NYSDEC (04/11/19): Re: Certification of Completion
 - Technical Memorandum Evaluation of 2016 EPA/GE and 2017 NYSDEC Surface Sediment Data (04/11/19)

Response to Comments



- **Comment 26:** Need to update site conceptual model
- **Comment 28:** EPA will not reach fish targets in times listed
- **Comment 40:** Larger-than-expected mass and higher surface sediment concentration remain
- **Comment 47:** More PCBs than expected remain after dredging – delay river recovery
- **Comment 58:** More than expected PCBs than estimated in ROD - remedial activities were not adjusted

Please contact EPA with any question:

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Questions?

