

# Hudson River PCBs Superfund Site Proposed Second Five-Year Review

**Community Advisory Group Meeting**  
**Thursday, July 20, 2017**

1-4 p.m.  
Saratoga Town Hall  
Schuylerville, NY

# Second Five-Year Review Report


- Report released June 1, 2017
- Covers Remnant Deposits and In-River Sediments
- Comprehensive Report is over 1,000 pages
  - Executive Summary
  - Text – 80 pages
  - Appendices – 15 – detailed technical evaluations
  - Fact sheet
- Extensive public outreach
- Report is available on project webpage  
[www.epa.gov/hudson](http://www.epa.gov/hudson)
- Public comments will be accepted until September 1, 2017
- EPA will carefully consider all comments

PROPOSED SECOND FIVE-YEAR REVIEW REPORT FOR  
HUDSON RIVER PCBs SUPERFUND SITE



Prepared by

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Region 2  
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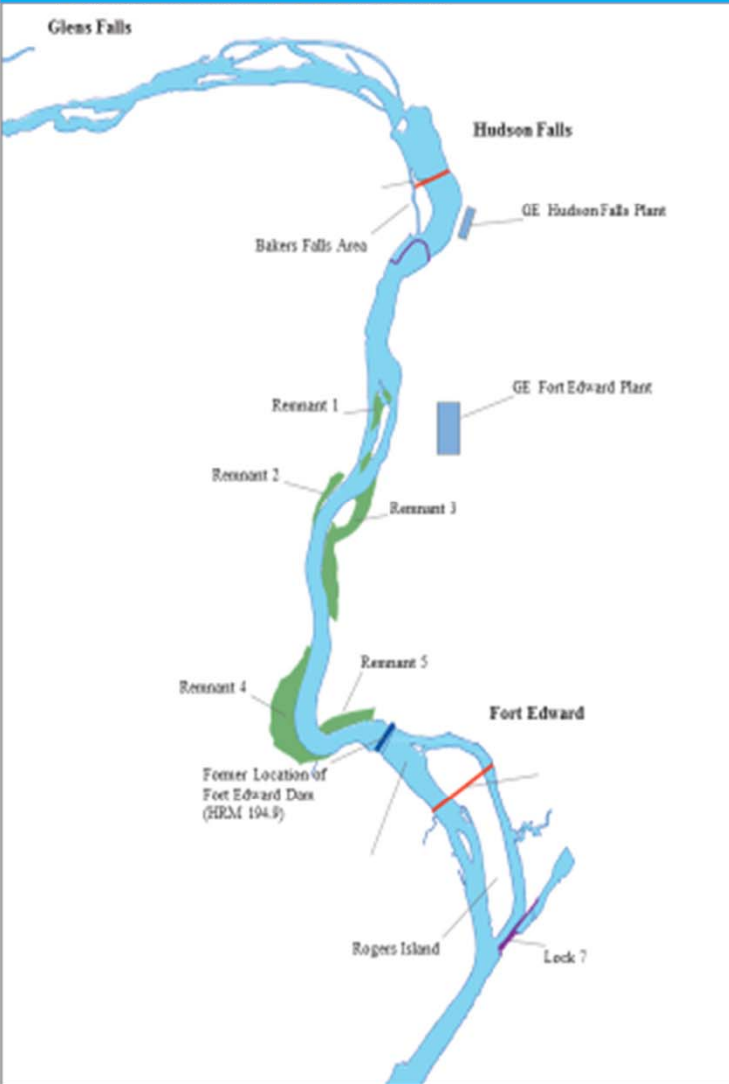
May 31, 2017  
Date

## Topics for today's meeting

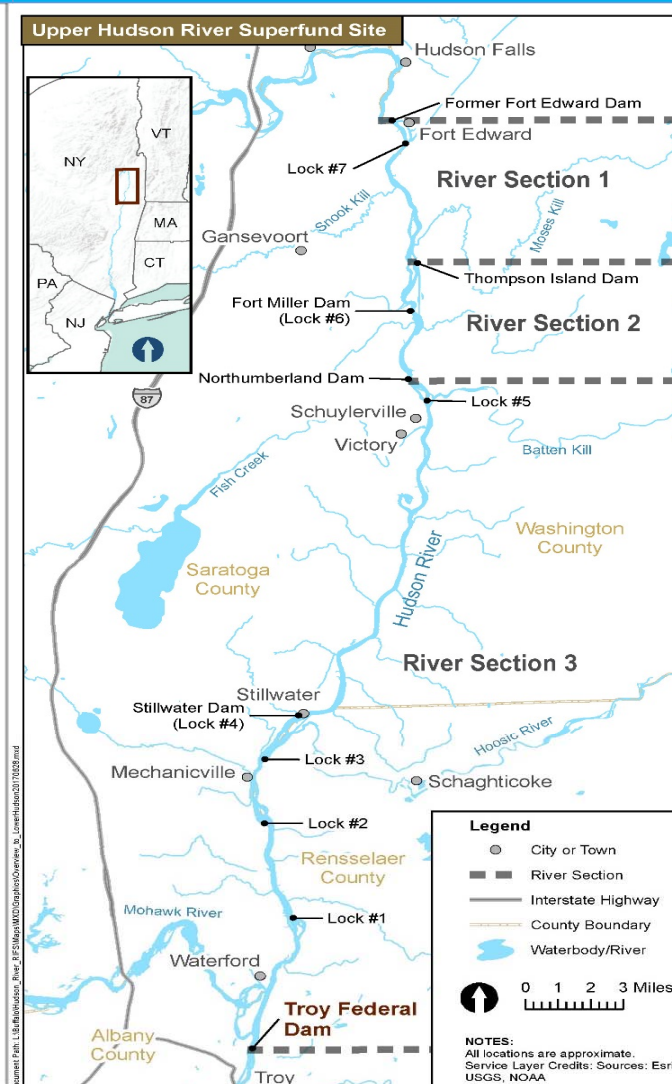
- Project background
- What is a five-year review?
- Five-year review process
- Findings of report
- Next steps & other activities
- How to submit your comments
- Q&A



## Remnant Deposits (2 miles)



## In-River Sediments (40 miles)



## Lower River (160 miles)





## Background: Remnant Deposits

- 1984 Record of Decision
- Sediment became exposed after removal of the Fort Edward Dam (1973)
- In-place containment and cap system
- Perimeter fencing and signage
- In-place containment remains



## Background: In-River Sediments

- Two-part cleanup remedy selected in 2002 (Record of Decision)
- Dredging
  - Upper river (40 miles) is series of pools (dams and locks)
  - Phase 1 dredging 2009
  - Peer Review 2010
  - Phase 2 dredging 2011-2015
  - 2.75M CY of sediment removed ( $\approx$ 310,000 lbs of PCBs)
- Monitored natural attenuation (MNA)
  - Monitoring of sediment, water and fish ongoing



## Record of Decision (2002)

- (Page 98)

“EPA’s **selected remedy** for the Site **includes** a combination of remedial activities that were tailored to the conditions at the Site, including removal of contaminated sediment using **environmental dredging** techniques, **institutional controls**, and **monitored natural attenuation** of residual PCB contamination **until acceptable PCB concentrations in fish are attained.**”

- (Page vi)

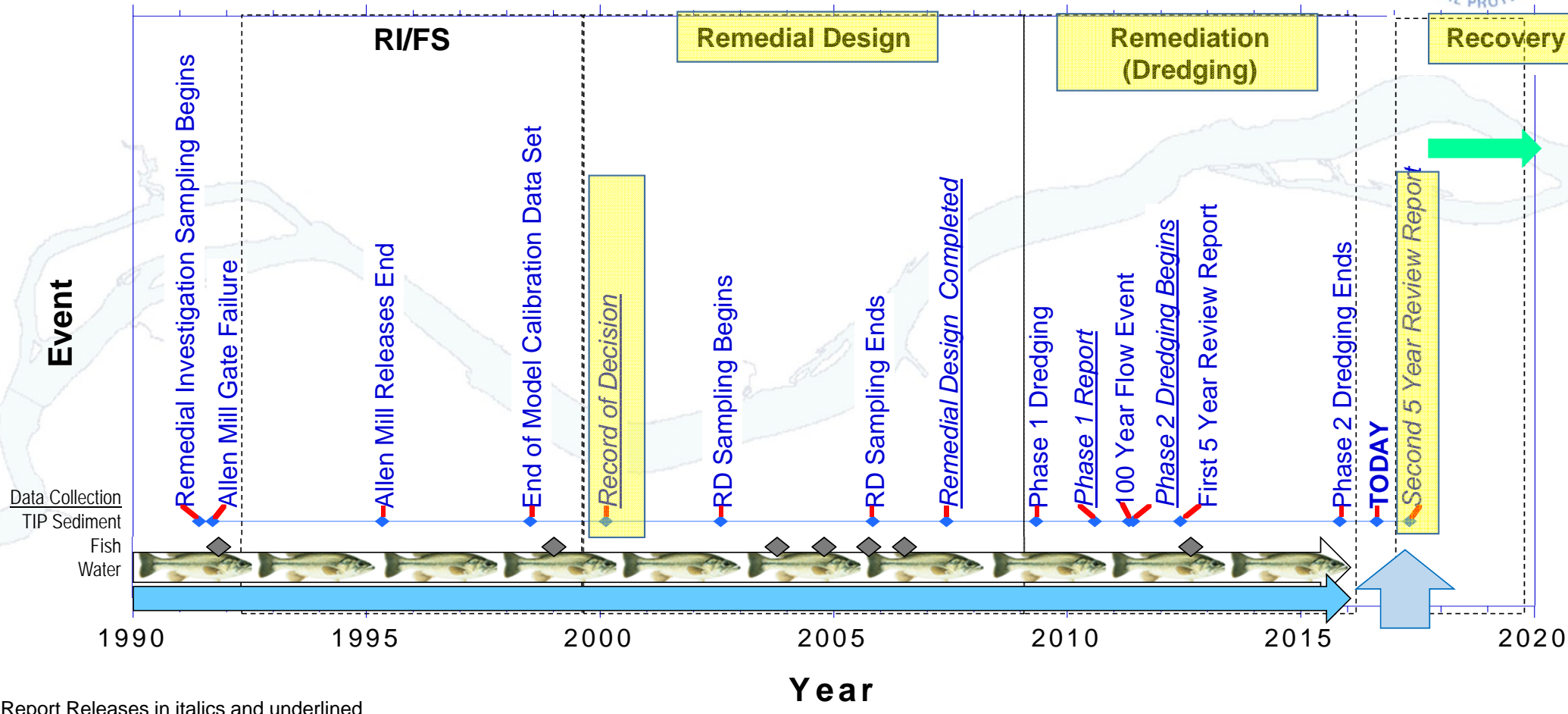
“The selected **remedy** meets the requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621. It **is protective of human health and the environment**, complies with Federal and State applicable or relevant and appropriate requirements (ARARs) (unless a statutory waiver is justified), is cost effective, and utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.”

## What is monitored natural attenuation (MNA)?

- Monitored natural attenuation is a **risk reduction approach for contaminated sediment that uses ongoing naturally occurring processes** to contain, destroy, or reduce the availability or toxicity of contaminants in sediment to living organisms. Monitoring of the ecosystem during MNA ensures that the conditions needed for MNA are occurring and that progress is being made towards cleanup goals.
- Primary processes
  - Sediment entering the river from upstream and tributaries
  - Sediment movement and burial
  - Binding to organic matter
- Often relied upon at sediment and groundwater sites



## Some Major Hudson River Site Events



## What Is A Five-Year Review?

- **Required for remedial actions that will leave contamination in place** above levels that allow for unrestricted land/resource use
- **Uses current information** (data, site visits, document review) **to evaluate the implementation and performance** of the selected remedy
- The process is **intended to assess protectiveness of the selected remedy**, not to explore alternative remediation options or strategies
- EPA has issued **guidance** and memoranda on the five-year review process, including a report template and clarifying protectiveness statements

## Five-Year Review – Process

- Review began spring 2016
- Five-Year Review Team
  - EPA technical experts (Corp of Engineers)
  - Support agencies (NOAA, USFWS, NYSDOH, NYSDEC)
  - Members from Community Advisory Group (CAG)
  - Team provided input to EPA through technical meetings
  - Met regularly
- Public workshops were held
  - May 5, 2016 - Saratoga
  - October 13, 2016 - Hyde Park
  - November 30, 2016 – Albany
- Public meetings
  - June 28 – Poughkeepsie
  - July 19 - Saratoga



## Considerations

- Review is narrowly focused
  - Is remedy functioning as intended?
  - Are conditions as we expected them to be in 2017?
- EPA followed best available science and Superfund law
- EPA is aware that concerns have been raised about remaining contamination
- Purpose of the review was not to determine whether more dredging needs to be done



## Considerations (cont'd)

- EPA is not claiming success in this five-year review
  - More years of post-dredging data are needed to determine long-term trends
  - As more data are collected we will have a higher degree of confidence in long-term trends
- EPA is not abandoning the cleanup
  - Cleanup is not yet finished
  - Monitored recovery phase continues
- If at some point in the future the cleanup is determined to be not protective, EPA will evaluate next steps

## Technical Assessment (required for all five-Year reviews)

- Question A: Is the remedy functioning as intended?
- Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?
- Question C: Has new information come to light that would call into question the protectiveness?

## Protectiveness Determination

- Remnant Deposits
  - **Short-term protective**
  - In-place capping is effective
  - Inspections and monitoring conducted regularly
  - Institutional controls related to long-term protectiveness



## Protectiveness Determination

- In-River Sediments
  - **Will be protective**
  - Cleanup is functioning as intended
  - While it is not yet protective, EPA expects that it will accomplish its long-term goal of protection of human health and the environment when the cleanup is complete
  - In the interim, the State of New York has fishing restrictions and advisories in place to control human consumption of contaminated fish



## Is the remedy functioning as intended?

- Source control in place (GE plant sites)
  - Achieved goal of less than 2 ng/L tri+ PCBs at Rogers Island
- Advisories in place
  - State of New York - fishing restrictions and advisories
  - NYSDOH continues to adjust/improve outreach
- Project implemented within expectations
  - Surface sediment – reduction consistent with the Record of Decision
  - Mass removed - 72% vs Record of Decision prediction of 65%
  - Compliance with project standards – Quality of Life and Engineering

## Is the remedy functioning as intended? (cont'd)

- Monitored natural attenuation occurring in agreement with expectations
  - Water, fish, and sediment recovery rates are within expectations
    - Extensive data sets have been collected
  - Lower river recovery slower
    - Less influence further from dredging
- Differences in implementation
  - Potential lag in recovery
    - Delayed start
    - Sequence of the dredging work
    - Operational adjustments
    - Reduction in surface concentrations in River Section 2



## Is the remedy functioning as intended? (cont'd)

- Post-dredging data within expectations
  - Recent data (2016) are encouraging
  - Water column PCB data within expectations
  - Fish have begun to recover
  - Surface sediment data outside of dredge areas indicate ongoing recovery
- Monitoring will continue
  - Data will be evaluated as it is received
  - Will inform five-year reviews

## Are the risk assumptions etc. still valid?

- Assumptions for human health and ecological risk were evaluated
  - Exposure and other parameters were evaluated to determine if the conclusions of the risk assessments remain valid
  - Cancer and non-cancer health effects were considered for human health
  - Appropriate literature search was completed
  - EPA guidance was followed
- Remedial Action Objectives are still valid and appropriate



## Has new information come to light that would call into question the protectiveness?

- No such information has come to light
- Considerations regarding model forecasts
  - Adequate for comparison of alternatives
  - Forecasts include uncertainties in predicting future PCB levels in fish



## Issues and other findings

- Institutional Controls at Remnant Deposit Sites
  - Needed to prevent long-term exposure
  - Property ownership to be determined
  - Passive recreation also being considered by the Town
- Other findings
  - EPA will monitor IRIS database updates
  - Fish Advisory Outreach program follow-up
  - Institutional Control(s) for caps
  - Uncertainty regarding fish recovery clarified
  - Importance of long term monitoring program



## Expected timeline to meeting target levels in fish

- New York State establishes fish consumption advisories
- **In about 15 years**, some people would be able to eat **one fish meal every two months** (target - 0.4 mg/kg)
- It will be **more than 55 years** before some people would be able to eat **one fish meal per week** (goal - 0.05 mg/kg)
- More dredging would not significantly improve this timeline
  - Other options/scenarios were considered as part of selection of the remedy

# Predicted Attainment of Remedial Action Objectives

Years at which Human Health Targets and Goals will be achieved in  
Species-Weighted Fish Fillet (Value is mg/kg)

Years After Dredging	Upper River Average	River Section 1	River Section 2	River Section 3
0 (2015)	--	--	--	<b>0.389</b>
2	<b>0.386</b>	--	--	--
4	--	--	--	<b>0.195</b>
14	<b>0.184</b>	--	<b>0.398</b>	--
15 (2030)	--	<b>0.397</b>	--	--
30	--	--	<b>0.198</b>	--
41	--	--	--	<b>0.047</b>

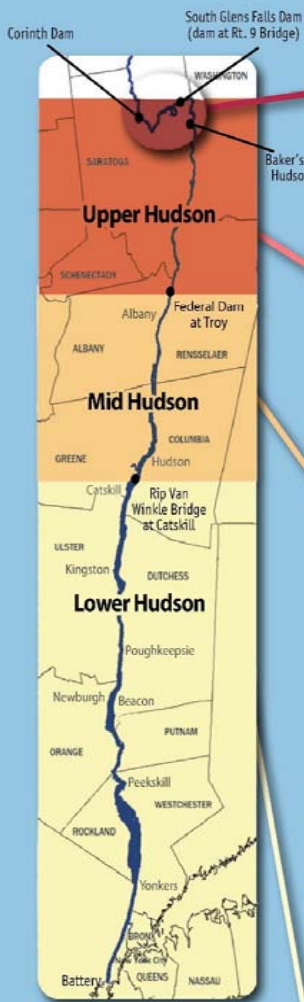
Projected to be within five years of completion of dredging

**First Target:**  
In about 15 years –  
1 fish meal every two months

- Goal - 0.05 mg/kg PCBs in fish fillet - 1/2 lb. meal per week
- Target - 0.2 mg/kg PCBs in fish fillet - 1/2 lb. meal per month
- Target - 0.4 mg/kg PCBs in fish fillet - 1/2 lb. meal per 2 months



## Information on Advisories/Restrictions Provided to the Public by NYSDOH



**Upstream of South Glens Falls Dam**  
Visit [www.health.ny.gov/fish](http://www.health.ny.gov/fish) for this advice or see the Northern Hudson River brochure.

**Upper Hudson**  
From South Glens Falls Dam to Federal Dam at Troy  
Do not eat fish from the South Glens Falls Dam to the Federal Dam at Troy.  
From Baker's Falls to the Federal Dam at Troy, New York's State Department of Environmental Conservation's "catch and release" regulations apply.

**Take No Fish. Eat No Fish.**

<b>Mid Hudson</b> From Federal Dam at Troy to Rip Van Winkle Bridge at Catskill	 Men over 15 and Women over 50	 Women under 50 and Children under 15
 Alewife  Blueback herring  Rock bass  Yellow perch	Up to 1 meal/month	DON'T EAT
All other fish from the Mid Hudson (including Striped bass and Walleye)	DON'T EAT	DON'T EAT

<b>Lower Hudson</b> From Rip Van Winkle Bridge at Catskill to the NYC Battery	 Men over 15 and Women over 50	 Women under 50 and Children under 15
 Walleye  White catfish  Channel catfish  American eel*  Gizzard shad <small>*DEC regulations prohibit taking American eel for food from the Hudson River</small>	DON'T EAT	DON'T EAT
 Striped bass  Smallmouth bass  Largemouth bass  Bluefish  Brown bullhead  White perch  Carp  Rainbow smelt  Goldfish  Atlantic needlefish	Up to 1 meal/month	DON'T EAT
 Blue crab <small>Do not eat the tomalley ("green stuff", mustard, hepatopancreas) or reuse cooking water</small>	Up to 6 crabs/week	DON'T EAT
All other species	Up to 4 meals/month	DON'T EAT

Don't forget that specific advice applies to tributaries and connected waters if there are no dams, falls, or barriers to stop the fish from moving upstream.



## Lower River Considerations

- Effects to the Lower Hudson not fully known
  - Remedy expected to benefit the recovery of the lower river
- Important that data collection continue (fish, water, sediment, flow, etc.)
  - Other sources of PCBs (several sites under NYSDEC oversight)
  - Fate & Transport (where are the PCBs and how do they move?)
  - EPA is evaluating need for additional data collection
- Ongoing coordination with NYSDEC and Hudson River Foundation



## Next Steps

- Continue to monitor the water, fish and sediment
  - All data will be shared
  - Data will be evaluated on an ongoing basis
  - As many as eight or more years of actual post-dredging fish data are needed to establish a statistical trend in PCB levels in fish
- Floodplain Investigation
  - Comprehensive investigation underway
  - Sampling events planned for later this year
  - Record of Decision expected after remedial investigation and feasibility study are complete



## QUESTIONS

**Written comments** are being accepted until **September 1, 2017**

Comments can be sent by mail or email to:

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