



# Upper Hudson River Floodplains

Hudson River PCBs  
Superfund Site

*CAG Meeting*  
*April 23, 2015*

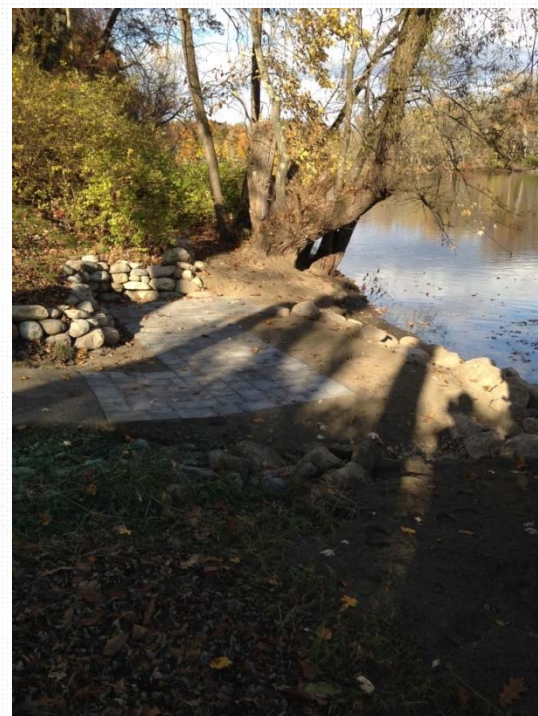




# Overview

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- Project Background
- RI/FS Process
- Study Area/Project Boundary
- Existing Data and Removal Actions
- Floodplain Sampling
- Human Health Risk Assessment
- Ecological Risk Assessment
- Next Steps





# Project Background

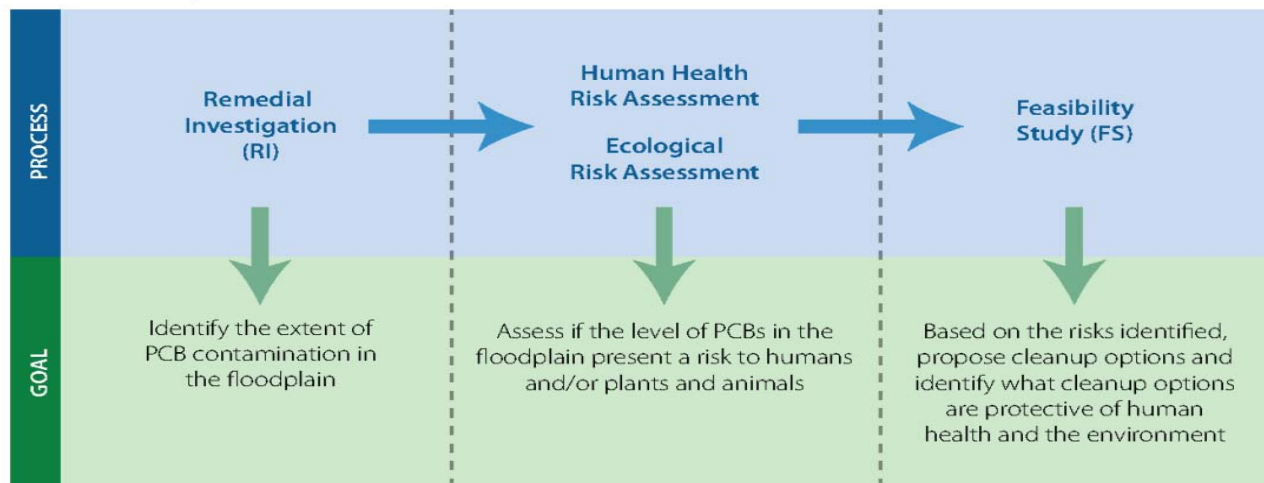
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- Floodplains Administrative Order on Consent (AOC) – September 30, 2014
  - Final RI/FS Work Plan
- Ongoing Agreement – Removal Actions
- The Upper Hudson River Floodplain - unique challenges
  - Floodplain encompasses ~3,000 properties covering ~6,200 acres
  - 40 river miles (80 miles of shoreline [east/west banks])

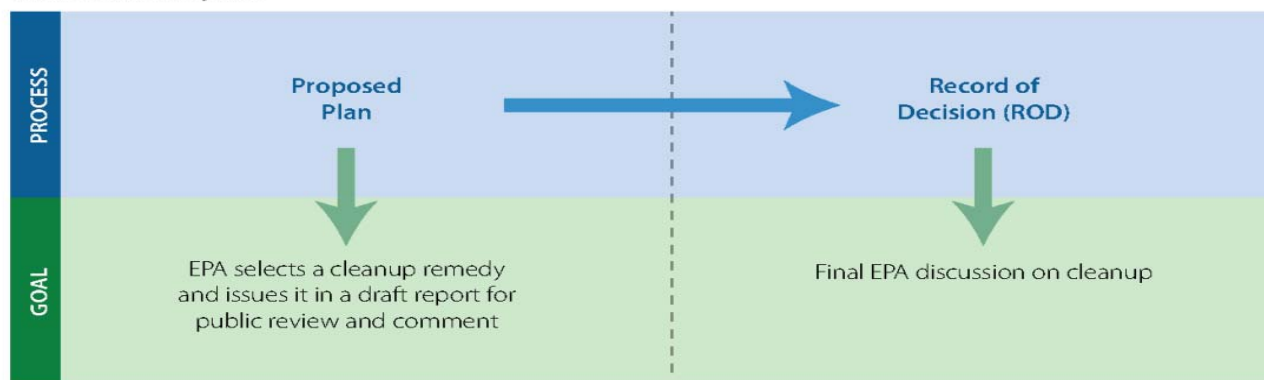


# Hudson River Floodplains RI/FS Process

Work to be completed under EPA's 2014 Administrative Order on Consent (AOC) with GE



Future Actions by EPA





# Project Organization

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- EPA – Lead Agency – Oversight - Decision Making
  - U.S. Army Corps of Engineers - IAG
    - Technical experts, review and oversight
    - Consultants
- General Electric
  - Conducting the RI/FS
    - Consultants
    - Contractors
- Involved Agencies
  - NYSDEC, NYDOH, NYSCC, NOAA, USFW, NPS (also land owner)
    - Support, review and recommendations
- Property Owners
  - Primarily private property and NY State property



# Hudson River Floodplain Location Map





# Project Area Boundaries

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- Baker Falls to Federal Dam in Troy, NY
- 100 year floodplain
  - Outer: Federal Emergency Management Agency (FEMA) or the extent of the highest-flow event in 2011 as agreed upon between EPA and GE
  - Inner: the river elevation corresponding to 2,000 cfs
    - Near-shore Sediments
  - Backwater Areas
- Area between Baker Falls and Ft. Edward
  - Will be assessed using the RI/FS Work Plan approach or by an approach approved by EPA
- Other Sites
  - Sites otherwise addressed – relocated river sediments
  - Evaluation of PCB deposition by flooding



# Existing Data/Removal Actions

- >500 properties have been sampled to-date
  - 3,152 core samples collected
  - 7,115 samples analyzed for PCBs
- 41 Removal Actions
  - Soil covers
- 23 properties
  - Signage placed

A photograph of a riverbank with a green soil cover. A grey warning sign is overlaid on the image. The sign contains the following text:

**WARNING**  
SOILS IN THIS AREA ARE  
CONTAMINATED WITH PCBs  
(POLYCHLORINATED BIPHENYLS)  
AVOID CONTACTING AND/OR  
DISTURBING SOILS

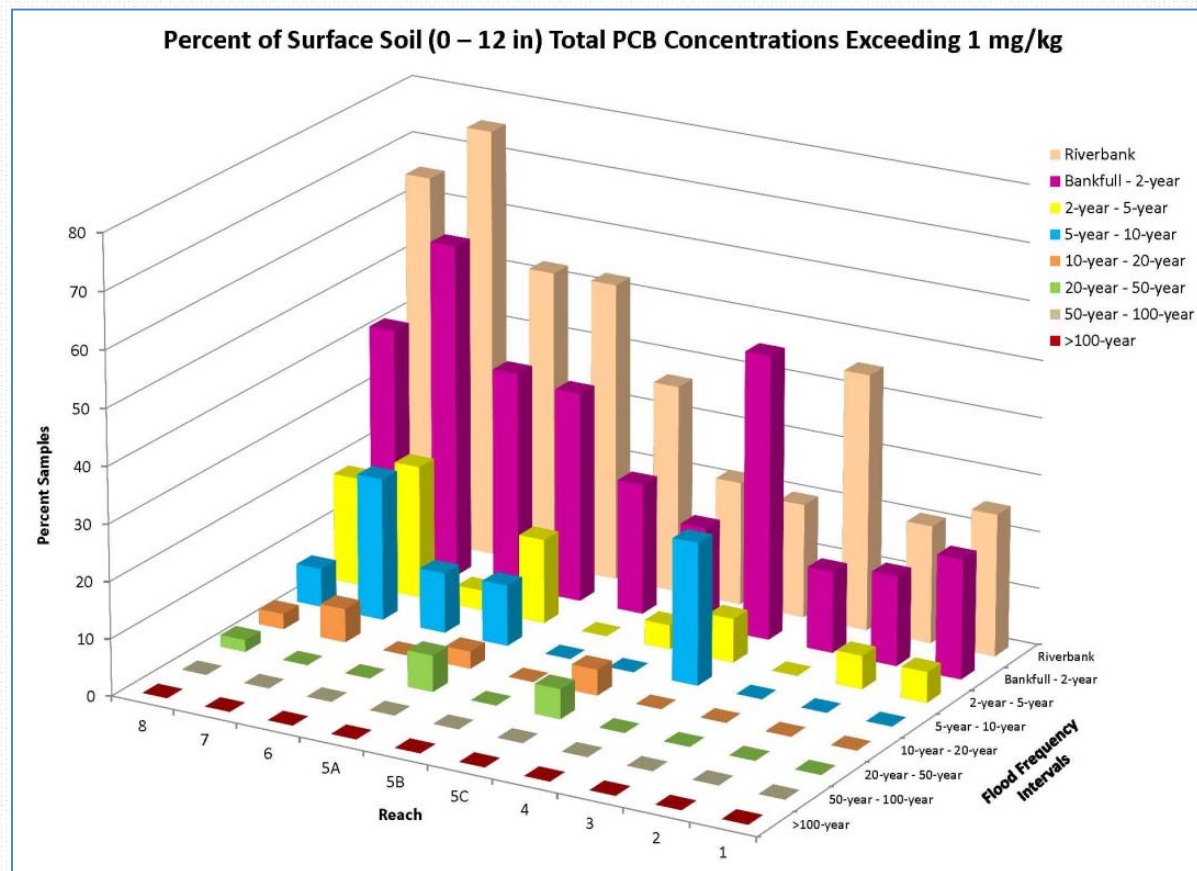
FOR FURTHER INFORMATION  
PLEASE CONTACT THE USEPA  
FIELD OFFICE AT (518) 747-4389 OR  
LOG ONTO THE USEPA HUDSON  
RIVER PCBs WEBSITE AT  
<http://www.epa.gov/udson>





# Frequency of Elevated PCB Concentrations

- General decrease in frequency and concentration with distance from source (down river) and distance from rivers edge





# Floodplain Sampling

- Collection and analysis of additional floodplain soils to improve the data set for the Floodplain Characterization Report and during the risk assessment (data gap sampling)
- Sampling for ecological risk assessment
- Multiple data collection events will be necessary





## Floodplain Sampling (cont.)

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- Backwater Area Sampling
  - Areas of standing water (e.g. ponds)
  - Areas of flowing water (e.g. streams)
  - Flooded areas that retain water
- Old Champlain Canal Sampling (standing water)
  - Additional sampling needed within floodplain
- GE to prepare sampling plan for EPA review
- Mapping field verification- standing water, nearshore sediments, Fort Edward Pool, etc
- Ongoing flood deposition sampling “Flood mud”





# Human Health Risk Assessment

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- Includes Screening Level Risk Assessment (SLA)
- Pathway Analysis
- Phase 1 Baseline Human Health Risk Assessment (Phase 1 BHHRA)
- Phase 2 Baseline Human Health Risk Assessment (Phase 2 BHHRA)
- Evaluation using Flood Frequency Unit (FFU)
  - Local regions proposed
- Includes evaluation of Unique Areas (e.g. islands and tributary banks)
  - Unique areas have been proposed



# Screening Level Risk Assessment

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- Each tax parcel will be evaluated – decisions made by parcel
- Conservatively identify properties to be carried forward
  - Maximum concentrations will be used
- SLA primarily uses existing sampling data
  - Comparison to residential default value of 0.24 mg/kg
  - For properties proposed for elimination - evaluation includes supplemental consideration of the physical characteristics
    - Geographic location
    - Topography
    - Land cover
    - Land use
    - Others



# Pathway Analysis

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- Consideration of:
  - Current and reasonably anticipated future uses,
  - Current ownership, land use, zoning, topography, planning documents,
  - General trends in residential development,
  - Agricultural practices,
  - Recreational activities
- Data used:
  - County land use data
  - Historic aerial photos
  - Human use and habitat maps
  - Others as applicable





# Phase 1 BHHRA

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- Conservative, refined screening level risk assessment to identify areas of the floodplain to be carried forward to the Phase 2 BHHRA
- Assign general use categories: residential, agricultural, commercial/industrial, and recreational
- Compared to appropriate exposure factors
- Statistical approach will be used to calculate the Exposure Point Concentrations (EPC) for each Exposure Area (EA)
- Verification sampling for a subset of EAs screened out using calculated EPCs
- Supplemental Evaluation of EAs which were screened out



## Phase 2 BHHRA

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- Refine risk estimates from Phase 1 using site specific data for Exposure Area specific Exposure Point Concentrations
- Prepare Data Collection Plan for Phase 2 parcels
- Separate assessment conducted during Phase 2 to assess Near-shore Sediment areas
- Compared to appropriate exposure factors





# Near-Shore Sediments





# Near-Shore Sediments Evaluation

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- Includes near-shore sediments between the elevation of 2,000 cfs flow and 5,000 cfs
- Near-shore sediments evaluation will identify areas that are likely to be accessible for human use, excluding areas that have been or will be dredged
- Identification and assessment will include existing and additional sampling and other factors including:
  - Bank height & slope, substrate, vegetation, width of sediment, and land use



# Ecological Risk Assessment

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- Problem Formulation Workshop (PFW)
- Screening Level Ecological Risk Assessment
- Phase 1 and 2 Baseline Risk Assessment





# Problem Formulation Workshop

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- December 2013
- Collaborative effort between EPA, GE and Involved Agencies
- Set the process for making decisions on the assessment and measurement tools for the ecological risk assessment
- Consensus achieved
- Next steps
  - Interactive stepwise process as it relates to the ecological risk assessment



## Next Steps

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- Flood Plains Characterization Report under review
- Cultural Resources Work Plan under review
- Screening Level Human Health and Ecological Risk Assessments
- EPA and GE discussing statistical approach for calculating Exposure Point Concentrations
- Pathway Analysis
- Prepare Field Sampling Plan (data gaps)
  - GE to work with EPA to establish sampling locations
- Floodplain Sampling
- Data management approach
- Refining schedule
- Community Involvement Plan



# Questions and Contact Information

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EPA Hudson River field office relocated from Hudson Falls, NY to Albany, NY on April 20, 2015

## **Hudson River Field Office:**

U.S. Environmental Protection Agency – Region 2

Hudson River Field Office

187 Wolf Road, Suite 303

Albany, NY 12205

(518) 407-0400 (FAX is same number)

(866) 615-6490 toll-free

[EPAHRFO@outlook.com](mailto:EPAHRFO@outlook.com)



## **Field Office Hours of Operation:**

MON – FRI: 8 a.m. – 4:30 p.m. (evenings by appointment)

Closed weekends and federal holidays.