



Hudson River PCBs SUPERFUND SITE

Region 2: NJ, NY, PR, VI • 290 Broadway, New York, NY 10007

EPA Response to NOAA Hudson River PCB Fish Analysis

March 29, 2016

Background

On March 25, 2016, the National Oceanic and Atmospheric Administration (NOAA) published a technical report, "Re-Visiting Projections of PCBs in Lower Hudson River Fish Using Model Emulation," in the journal Science of The Total Environment (Vol 557-558, pp 489-501) which focuses on the long-term recovery rate of fish in the Lower Hudson River. The EPA has prepared a scientific "white paper" which presents detailed responses to NOAA's analysis. EPA's white paper is available at <https://www.epa.gov/hudson/>.

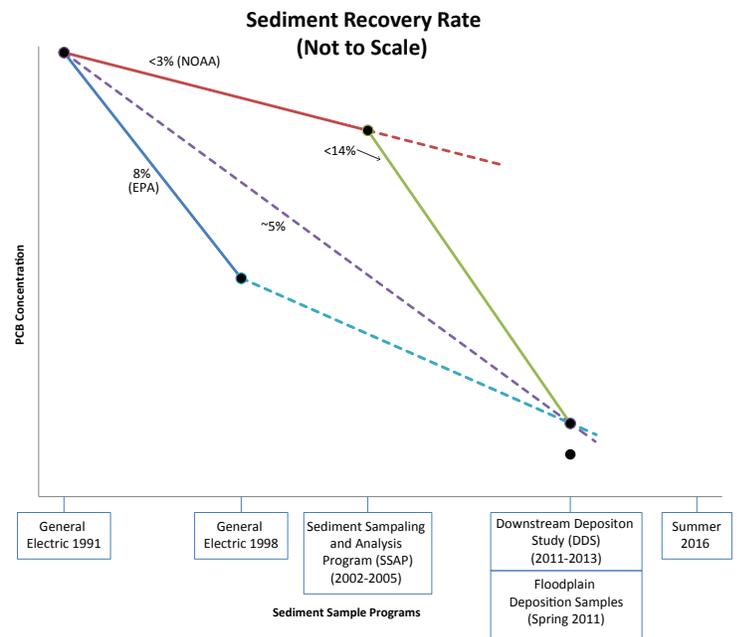
Summary of NOAA Analysis Limitations

The NOAA analysis concluded that the recovery of fish in the Lower Hudson River will take decades longer than predicted by peer-reviewed EPA models. EPA believes that NOAA's conclusions are not supported by the full range of available evidence.



NOAA did not consider all available sediment data to determine recovery rates

- NOAA used two data sets (1991 and 2002-2005) to draw conclusions about sediment, water and fish recovery. NOAA did not consider more recent data collected between 2011 and 2013, or the data from 1998 that was used by EPA to develop its computer model estimates.
- Notably, when the more recent data are compared to the 2002-2005 data, it paints a different picture (as depicted in the figure).
- NOAA used the two sets of data that yielded the slowest recovery rate (3%). The fastest recovery rate (14%) would be calculated based on the most recent data sets. An intermediate rate (5%) is calculated if you use the oldest and newest data sets. The recovery rate used by EPA in its 2002 Record of Decision (8%) is generally representative of the range of recovery rates.



This graphic represents the range of different predicted recovery rates (rates of decreases in sediment concentrations over time) based on the five different available data sets.

- Neither of the sediment data sets used in the NOAA analysis were collected for the specific purpose of evaluating changes in PCB concentrations over time. In contrast, the sampling programs for monitoring PCB levels in fish and water were developed specifically for that purpose.
- The rate of recovery in fish and water, as observed in actual fish and water data, is consistent with the recovery rate for sediment (8%) predicted by EPA.

NOAA's conclusions regarding delayed fish recovery were based on an analysis of a limited number of fish species collected at one location

- The NOAA analysis focused primarily upon PCB levels in two fish species at one location in the Lower Hudson River (the portion of the river below the federal dam at Troy). EPA considered the available fish data from all species collected from several locations in both the Upper and the Lower Hudson River.
- NOAA presented data for two species (white perch and black bass) at a single sampling location (River Mile 152) as representative of recovery rates in most Lower Hudson River fish.
- EPA examined PCB concentrations for the larger set of long-term fish records available for multiple locations in the Lower Hudson. This analysis showed that fish recovery rates can vary across species and stations, but the average rate for Lower Hudson fish is on the order of 5 to 9 percent per year, as compared to an approximate 2.3 percent per year presented by NOAA.
- NOAA did not consider fish and water data from the time period between 1995 and 2008, before dredging began, and when some natural recovery would have been expected to occur in the river. This time period would have provided a more appropriate basis for evaluating the natural recovery of fish, water and sediment in the river.



NOAA's conclusions do not reflect fish and water data that have been collected over a long period of time

- A major assumption in the NOAA analysis was that the higher concentrations measured in pre-dredge sediment would relate directly to higher water concentrations and longer fish recovery times. NOAA did not fully compare their model results to available water and fish data.
- EPA has ensured that water and fish monitoring has been conducted throughout the project. Actual data collected for the project over time reflect PCB fish tissue and water column trends that are consistent with EPA's original model forecasts.

Conclusions

EPA does not agree with NOAA's emulation analysis. EPA's White Paper evaluation of available fish and water data indicates that the river appears to be recovering within expectations. These data have been collected throughout the project and will continue to be collected into the future.

EPA is entering into the next phase of the project (Operation, Maintenance, and Monitoring), where we will continue to collect water, sediment, fish, and other data that will be used to further monitor the recovery of the river. These data will be evaluated closely and compared to the project goals.

The Hudson River dredging project was one of the largest and most technically complex environmental dredging projects ever conducted. Since the NOAA analysis became public it has been used to support claims that more dredging is needed. EPA does not agree that the sum of available evidence at this time suggests anything other than that the project is a success. The dredging project removed PCBs from the portions of the river bottom with the highest PCB concentrations. As a result, the volume of PCBs to which fish are exposed, as well as the average surface concentrations to which they are exposed, have been significantly and effectively reduced. EPA expects that the project will continue to help restore the environmental health of the Hudson River.



Next Steps

The EPA remains fully supportive of efforts by the Hudson River Natural Resources Trustee agencies (New York State Department of Environmental Conservation, U.S. Department of the Interior/U.S. Fish & Wildlife Service and NOAA) to address potential injury to natural resources through the Natural Resources Damages Assessment and claims process. Further information about the responsibilities of EPA and the Hudson River Natural Resources Trustees under Superfund are described in this fact sheet: https://www3.epa.gov/hudson/FactSheet_EPATrustees_041415_final.pdf.

The Natural Resource Trustees have been working on their case for many years and have the ability to seek more dredging as part of a plan to address injuries to and lost uses of the river caused by PCBs. This could include action by New York State to require GE to remove PCBs from the state's Champlain Canal for improved navigation.

EPA has responded to concerns raised by environmental groups and the Hudson River Natural Resources Trustees by agreeing to accelerate, to the extent possible, the second five-year review for the Hudson River PCBs Superfund Site. The five-year review, which is required under the Superfund law, will evaluate if the project is currently expected to meet its goals using all data collected through summer 2016. The review will be completed by or before April 2017. The first five-year review for the site was completed in 2012 and is available at <https://www.epa.gov/hudson/pdf/Hudson-River-FYR-6-2012.pdf>.

EPA will continue to cooperate and engage with the Federal Trustees, New York State and the site's Community Advisory Group as it designs its five year review and determines the best way to collect data to inform that review.

For More Information

For more information, visit*, call toll-free, or write to the Hudson River Field Office at the address below.

More information about the Hudson River PCBs Superfund site is also available online: www.epa.gov/hudson.

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**The Field Office hours are Monday - Friday, 8:00 am - 4:30 pm, with evening hours by appointment.*

River residents with specific concerns relating to dredging activities when work is being performed should call GE's dedicated 24-hour phone line at (518) 792-4087 or (888) 596-3655.

Regional Public Liaison:

If you would like information on general environmental concerns or the federal Superfund hazardous waste program, have concerns or complaints about the Superfund program, or if you seek assistance in resolving site-specific issues that were not fully addressed by the EPA, please contact: George Zachos, U.S. EPA, Regional Public Liaison, (732) 321-6621, zachos.george@epa.gov, or toll free at (888) 283-7626.