



By Electronic and Regular Mail

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Subject: Comments on Operation, Maintenance and Monitoring for Sediment and Fish

The Federal Natural Resource Trustees for the Hudson River -- the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS) -- are submitting comments on the "Operation, Maintenance, and Monitoring Scope for Phase 2 of the Remedial Action" (OM&M Scope), Attachment E to the Statement of Work within Appendix B of the 2010 Remedial Action Consent Decree for the Hudson River PCBs Superfund Site. These comments address the sediment and fish monitoring programs described in the OM&M Scope.

The Hudson River Natural Resource Trustees are committed to restoring the Hudson River such that fish and wildlife can once again thrive and all people can fully enjoy the Hudson River and all that it offers.

The Federal Trustees' comments on the OM&M Scope for the Hudson River reflect our concerns about technical aspects of the OM&M Scope with regards to the sediment and fish monitoring programs, and provide our recommendations to address those issues. Our aim in sharing this information is to provide EPA our best available science, analyses and recommendations to help inform their decision-making regarding the sediment and fish monitoring, and other aspects of the remedial action that impact the Trustee's natural resource damage assessment. The sediment and fish monitoring data that will be collected pursuant to OM&M have a bearing on the Trustees' natural resource damage claim, particularly as it relates to determination of future injury to natural resources.

The Federal Trustees recommend that EPA implement adaptive management measures to improve the post-remedial monitoring of PCBs in fish and sediment in the Hudson River PCBs Superfund Site. The OM&M Scope describes, along with other tasks, the post-construction monitoring of sediment, water and fish to assess long-term recovery and activities to support

evaluation of fish consumption advisories. Dredging and capping ceased at the end of 2015. This is the first year following completion of all remedial dredging and capping.

Our recommendations will increase the quality of data that will inform the second and future Five Year Reviews. Further, as noted earlier, data collected as part of the OM&M program will also inform the Hudson River Natural Resource Damage Assessment (NRDA) and restoration process.

The Federal Trustees comments on the sediment and fish OM&M programs are provided below.

Sediment

DQOs

Three data quality objectives (DQO) are specified for sediment in the 2010 OM&M Scope

- Provide data on post-remediation PCB levels in sediments in undredged areas of the Upper Hudson River.
- Provide data on Select Areas that exceeded the MPA removal criteria that were not targeted for removal because they were buried by cleaner sediments to assess whether the deposits have experienced erosion.
- Provide data on post-remediation PCB levels in backfill to assess how surface concentrations vary over time.

We recommend modifying the third DQO to allow for assessing surface concentrations in capped areas as well as in backfill areas to meet the overall objective of the OM&M to assess long-term recovery. The modified third DQO combined with the first of the sediment DQOs, above, will allow for an assessment of the level of PCBs in the dredged and undredged areas of the Upper Hudson and provide a better basis for evaluating long-term recovery.

Determining the surface-weighted average PCB concentration (SWAC) by reach is essential to establishing a surface sediment baseline for evaluations of fish exposure, PCB loading to the Lower Hudson River, and the rate of recovery of the system. Measurements of surface concentrations should include both the EPA-defined surface of the top 12 inches (Final Dispute Resolution, July 26, 2004) and the top 2 inches.

Sampling Design

A study whose goal is to determine recovery rates requires a probability-based statistical design for selection of sample locations within dredged and undredged areas for each individual reach (river pool).

The 2010 OM&M Scope instead required the surface sampling program conducted by EPA in 2010 prior to completion of remedial activities. That was the special Downstream Depositional Study (DDS), which focused on selected locations immediately adjacent to dredged areas and at the downstream end of dredge areas. The DDS does not provide post-remediation baseline concentrations and is not suitable for evaluating sediment recovery rates. The sampling method (grab sampling) is not compatible with Sediment Sampling and Analysis Program (SSAP) core

data. Re-sampling the same locations will not provide the information needed to establish the post-remediation sediment baseline or to evaluate the rate of recovery.

Under the DDS, a subset set of stations were selected from the original transect design for RS1 based on an unknown approach. The sample selection for RS2 and RS3 focused on the downstream end of dredge areas and specific locations pre-selected using unspecified criteria. This represents a biased sample design that does not provide a useful baseline for determining sediment recovery rates. In addition, samples from RS2 & RS3 were composited by equal volume over varying distances based on visual observations of sediment type, which further reduces the value of the results for establishing the true baseline sediment concentration. In the DDS sample compositing, the visual determination of sediment type was not always consistent with the measured grain size information.

Given the importance of a probability based design, we recommend using the existing framework of the SSAP where cores were collected on an 80 foot sampling grid to quantify the concentrations in each reach (pool). Transects also should extend beyond the SSAP sampling area to extend coverage to the entire area of each reach, including previously unsampled areas as well as remediated CUs.

Sample size should be determined using variability of existing data to quantify temporal decay rates with adequate precision.

Sample Collection

Cores (not grabs) should be used to collect all samples to be consistent with the OM&M Scope Section 2.3.2.2, compatible with SSAP data and to quantify the surface as defined by EPA (top 12 inches). Each core should include three segments: 0-2 inches, 2-6 inches, and 6-12 inches. Information on those three cored segments would provide a reasonable baseline for understanding current and future changes in surface sediment.

The recommended segmentation is a modification of the 0-2 inch and 2-12 inch slices set forth in the OM&M Scope. Although the 2010 OM&M Scope requires that each core segment will be analyzed separately for the targeted measurements, the 2010 sampling program referenced in the OM&M Scope Section 2.3.2.1 composited sediments collected with a grab sampler rather than by coring, vibracoring, or manual coring techniques (See Sampling Design, above).

Our preference is for analyzing each sediment segment separately. If compositing of core segments is used, the samples should be collected from within a pre-defined radius and be comparable in grain-size. All individual subsamples should be dried prior to combining into the composite and subsampled by mass (rather than volume) to prevent underestimation of the average sediment concentration. The sampling design should include randomly selected field duplicates collected within 10 feet of the parent sample to evaluate small-scale spatial heterogeneity, which during the remedial design was shown to be large.

Analytes

All segments should be analyzed individually for PCBs, TOC, and grain size. The OM&M scope only includes PCB analysis of the 0-2 inch segment. All segments should be measured for total PCB using Aroclor Method 8082, total organic carbon (TOC), and grain-size. Ten percent (randomly selected) of the samples should also be analyzed for total PCBs using congener analysis (Method 1668). Samples for congener analyses should be splits of the homogenate analyzed for Aroclors so that a direct comparison can be made between total PCBs based on Aroclor and congeners reported by the two different labs. This is an important component to evaluate data quality. The congener and grain-size analyses are enhancements to the OM&M Scope.

Fish

The two data quality objectives (DQO) for fish in the OM&M Scope are as follows:

- Provide data on PCB concentrations in fish over time to assess whether the RAOs, RGs and target levels set forth in the ROD for reducing the cancer risks and non-cancer health hazards for people eating fish from the Hudson River (0.05 mg/kg PCBs in fish fillet; 0.2 mg/kg PCBs in fish fillet; and 0.4 mg/kg PCBs in fish fillet) and the risks to ecological receptors (from 0.3 to 0.03 mg/kg PCBs fish [largemouth bass, whole body]; and 0.7 to 0.07 mg/kg PCBs in spottail shiner [whole fish]) are being achieved;
- Provide data on PCB concentrations in Hudson River fish to the New York State Department of Health (NYSDOH) for evaluation of fish consumption advisories.

Analytes

PCB congener analysis should be conducted on 25% of the samples (randomly selected) using Method 1668 by an external laboratory that is not conducting the Aroclor analysis. Samples for congener analyses should be splits of the homogenate analyzed for Aroclors so that a direct comparison can be made between total PCBs based on Arcolor and congeners reported by the two different labs, thereby providing an assessment of each of the labs' analytical capabilities. Congener analysis also informs fish advisories. The Standard Reference Material developed by the New York State Department of Environmental Conservation (NYSDEC) should be analyzed for either Aroclors and for congeners, consistent with the analyses for the OM&M fish being conducted by the laboratory.

Sampling Locations

The OM&M Scope requires the sampling for Upper and Lower Hudson River fish for the primary program. The Federal Trustees recommend continuing to sample the baseline and remedial action monitoring fish locations in the Upper and Lower Hudson, but request modifications to these programs. Feeder Dam, Thompson Island, Northumberland/Ft Miller and Stillwater Pools have been the focus of Upper Hudson River sampling. We recommend that fish should be collected in each of the Upper Hudson River pools, consistent with our proposed sediment sampling recommendation, to provide sufficient data to assess pool by pool PCB concentrations per species and ultimately how those concentrations compare with the RAOs.

This would expand fish collections into the Upper and Lower Mechanicville, Waterford and Troy Pools.

The Albany/Troy, Catskill, and Tappan Zee area are currently monitored in the Lower Hudson River fish for PCBs. The Federal Trustees also recommend sampling at Poughkeepsie as part of the regular fish OM&M program.

Fish Species and Frequency

Section 2.2.4.2 of the 2010 OM&M Scope requires the sampling of the following Lower Hudson River fish at Albany/Troy: striped bass, black bass (smallmouth and/or largemouth bass), bullhead (brown and/or yellow), catfish (white and/or channel), and perch (white and/or yellow) annually and yearly pumpkinseed and forage fish (spottail shiner or alternative) annual for first three years and once every two years thereafter. At Catskill, the species sampled are striped bass, black bass, bullhead and catfish annually. At the Tappan Zee areas, the collection of striped bass is required annually.

White perch should be added to the regular fish monitoring program for Catskill. The fish species and frequency sampled at Catskill should also be implemented at Poughkeepsie. EPA should continue to require the annual sampling especially white perch at Albany/Troy, Catskill, and Poughkeepsie, as this species has been consistently sampled at those locations and will likely provide important long-term trend information. A lesser frequency of sampling every other year at Catskill and Tappan Zee, as described in Section 2.2.3 of the 2010 OM&M Scope is not recommended.

In addition, supplemental sampling under the OM&M Scope provides NYSDOH information on PCBs for evaluating fish consumption advisories. That program is designed to sample walleye, carp and herring (alewife and/or blueback) at Albany/Troy, white perch, walleye, carp, catfish and herring at Catskill, striped bass, white perch, carp, catfish, American eel, black bass and herring at Poughkeepsie, and white perch, catfish, carp, American eel and bluefish in the Tappan Zee area.

NOAA and USFWS support sampling additional fish species in the Upper and Lower Hudson River beyond those listed in the OM&M Scope to support evaluations regarding fish consumption advisories if NYSDEC/NYSDOH requests those collections. EPA should also consult with NYSDOH about whether an angler study should be conducted to support identifying other fish species that are being consumed by the public that are not currently sampled for PCBs.

Sampling Season

White perch, black bass, yellow perch, brown bullhead, and striped bass are sampled in the spring. A subset of long-term monitoring locations should be re-sampled in mid-late summer when fish would have higher lipid content than in the spring and may have higher PCB concentrations.

We appreciate the opportunity to offer these recommendations to address issues regarding the OM&M program for sediment and fish in 2016 and look forward to further coordination with EPA on our joint goal of successful recovery of the Hudson River. We look forward to receiving and commenting upon the 2016 OM&M Work Plan.

Sincerely,

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