Hudson River
PCBs SUPERFUND SITE

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

Sediment Sampling Program 2003 Data Collection

July 2004

Highlights

This fact sheet provides information about the sediment sampling program that was conducted in 2003 by the General Electric Co. (GE) to support the design of the dredging project to remove PCB-contaminated sediment from the Upper Hudson River. GE is conducting the sediment sampling called for in the February 2002 Record of Decision (ROD) for the Hudson River PCBs Superfund site under an agreement with the U.S. Environmental Protection Agency (EPA). The multi-year program began in 2002 and will continue through 2004. Information about the 2002 sediment sampling was summarized in an October 2003 fact sheet, "Sediment Sampling Program 2002 Data Collection."

What Was Found

More than 33,000 sediment samples were collected in 2003 from more than 5,000 locations. Sampling focused on areas in the river targeted by EPA for dredging in EPA's Record of Decision for the site. Sampling occurred from May 19 to October 20, 2003 throughout the 40-mile stretch of river from Fort Edward to Troy. Sampling began near the northern tip of Rogers Island and progressed downstream (see Figures 1-33).

Out of the 33,126 sediment samples collected in 2003, 24,337 were analyzed for PCBs. The remaining samples, most of which were collected from 36 inches or deeper below the sediment surface, were archived and may be analyzed later, if necessary.

The median concentration of the PCB measurements in the 2003 samples — the level at which half the samples are above and half are below — was 2.6 parts per million (ppm). Among the samples analyzed for PCBs, 26% (or 6,210 of 24,337) were above 20 ppm. 17% (or 4,017 of 24,337) were above 50 ppm. 109 of the 24,337 samples — less than 1% — were greater than 1,000 ppm and none of the samples were greater than 10,000 ppm.

The 2003 results were comparable to results of the 2002 data collection program.

How the Data Will Be Used

The data collected will help determine the distribution of PCBs in the sediment, refine estimates of the amount of PCBs in the sediment, refine the areas to be dredged, and establish chemical and physical properties of the sediment to evaluate engineering options for sediment removal and processing.

2003 Sediment Sampling

More than 33,000 samples obtained

Crews conducting the 2003 sampling were carried on five boats equipped with global positioning systems (GPS). Other smaller boats were used to support the effort and to permit EPA, the New York State Department of Environmental Conservation (NYSDEC), and the U.S. Army Corps of Engineers to oversee the work on the river. Boat launch sites and staging areas for the 2003 program were at the former West River Road Marina in Moreau; Alcove Marina in Schuylerville; Admiral's Marina in Stillwater; and the Lock One Marina in Waterford.

In areas targeted for dredging in the February 2002 ROD, sample locations were identified based on an 80-foot triangular grid. In other areas, a 160-foot triangular grid was used. Sampling locations were transmitted electronically to the sampling vessels and downloaded into each vessel's on-board GPS for accurate positioning. Shore-based control points were established at each Champlain Canal Lock to guide the vessels to pre-programmed coordinates.

These locations are represented on the numbered, detailed maps on the following pages. Sampling locations represented as blue circles depict locations from which a sediment core sample or grab sample was obtained during the 2003 program. Sampling locations represented by green squares depict locations at which a collection was attempted but abandoned due to inability to collect a sample or to a lack of sediment. Ultimately, the collection of samples was attempted at 5,007 locations.

The Coring Process

Sediment samples were collected from the river by coring, a process that removes sections of river sediment in hollow tubes for testing. Before samples were collected, the sediment was probed with steel rods to estimate the approximate thickness and sediment type. The average probing depth for the 2003 sampling was 55 inches and ranged from less than one inch to 200 inches.

Cores of sediment were obtained by manually pushing an aluminum tube into the sediment and then advancing the tube deeper into the sediment by vibrating it until it did not penetrate further. The tubes were brought up from the bottom of the river and capped at both ends. This process resulted in the collection, on average, of two to three feet of sediment per core.

For each sediment core, the sediment type, water, probing, and core penetration depths and approximate length of the recovered core were recorded.

Core samples were obtained at 4,691 of the 5,007 attempted locations (approximately 94%), and grab samples were collected at 104 locations (approximately 2%). The remaining 212 locations (approximately 4%) were abandoned due to the inability to collect a sample or lack of sediment. In total, sediment samples were collected at 4,795 locations, an average collection rate of 51 cores per day. With each core containing four to five sediment samples, a total of 33,126 samples were obtained in 2003. Table 1 below summarizes the sample collection rate.

Table 1

Year	Locations Attempted	Cores Obtained	Grabs Obtained	Total Cores/ Grabs Obtained	Total Samples Generated	Samples Analyzed for PCBs
2002	1,169	967	35	970	5,515	5,105
2003	5,007	4,691	104	4,795	33,126	24,337
Total	**6,176**	**5,658**	**139**	**5,765**	**38,641**	**29,442**

Sediment Processing

Sediment samples were packed on ice, off-loaded from the sampling vessels at the staging area, and transported to GE's Fort Edward facility for processing the next day.

Sediment cores were sliced into approximately five sections, processed, and labeled. Samples of the top 36 inches of sediment were then transported to independent laboratories that were approved by EPA and New York State for analysis of PCBs, other chemicals, and engineering characteristics. Samples taken from deeper than 36 inches were archived and may be analyzed later, if necessary.

Prior to the shipment to the laboratories, the sediment samples were examined for cultural resources such as artifacts. If materials believed to be cultural resources were observed, they were then separated from the sediment, placed in sealable plastic bags, labeled, and placed in storage for analysis. During the 2003 program, approximately 30 potential cultural resources were retained for more detailed study.

Sediment Sampling Reporting

Information regarding the 2003 sediment sampling program will be in two documents: the Data Summary Report for Candidate Phase 1 Areas and the Data Summary Report for Phase 2 Areas. EPA is evaluating the draft documents. The documents will be made available to the public after they are finalized.

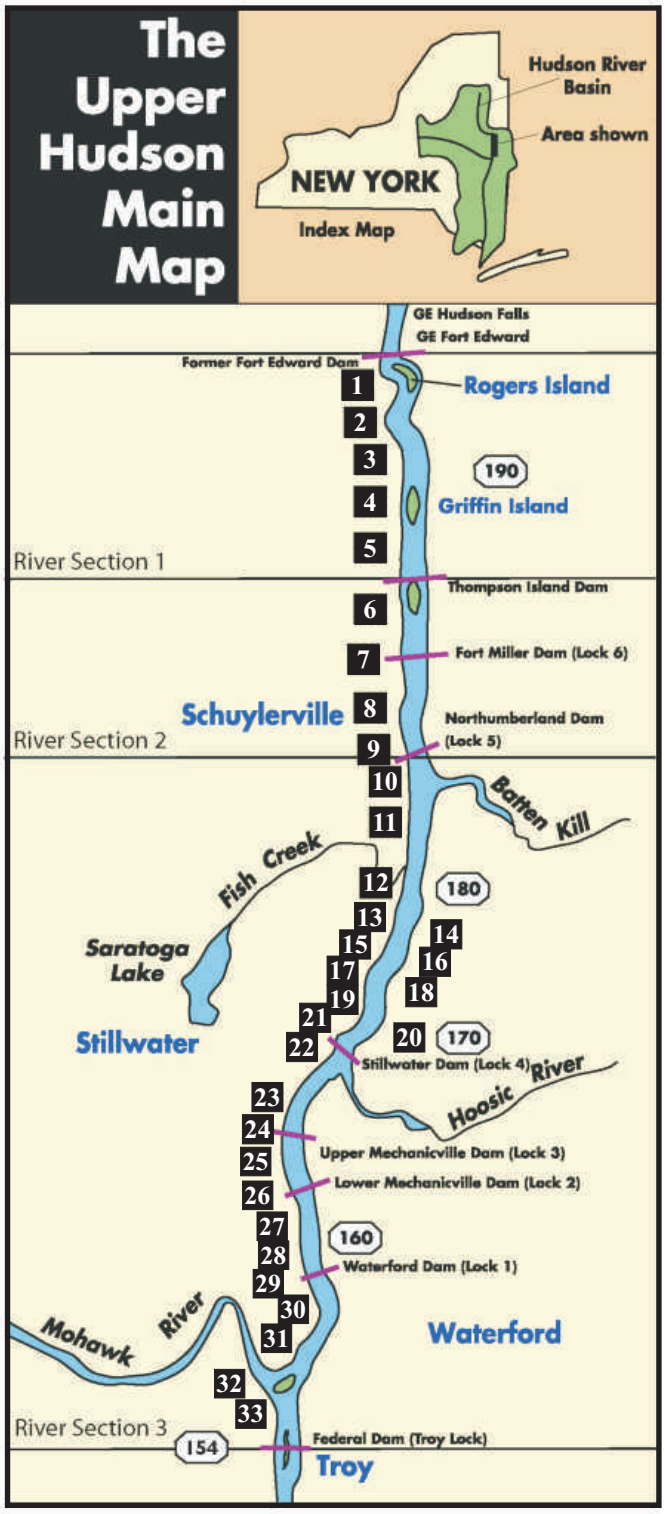
2004 Sediment Sampling

GE will be collecting samples throughout the three river sections in 2004 to fill data gaps from the previous years of sampling.

Determining Where to Dredge

Data collected from the sediment sampling program will be used to determine the areas to be dredged. Areas targeted for dredging will be identified consistent with the criteria specified in the February 2002 ROD. A mass per unit area (MPA) will be calculated for each sampling location, based on the analytical data collected. The MPA calculation is used to determine the amount, or mass, or PCBs in a given area of sediment.

A weight-of-evidence approach will be used for dredge area delineation based upon these MPA calculations and surface concentrations, in addition to other criteria identified in the ROD and Remedial Design Work Plan. PCB concentrations will be used to determine how deep in the sediment to dredge.


The Upper Hudson Main Map
Hudson River Basin
Area shown
NEW YORK
Index Map
GE Hudson Falls
GE Fort Edward
Former Fort Edward Dam
Rogers Island
190
Griffin Island
River Section 1
Thompson Island Dam
Fort Miller Dam (Lock 6)
Schuylerville
Northumberland Dam (Lock 5)
River Section 2
Batten Kill
Fish Creek
180
Saratoga Lake
Stillwater
170
Stillwater Dam (Lock 4)
Hoosic River
Upper Mechanicville Dam (Lock 3)
Lower Mechanicville Dam (Lock 2)
160
Waterford Dam (Lock 1)
Mohawk River
Waterford
River Section 3
154
Federal Dam (Troy Lock)
Troy
1
2
3
4
5
6
7
8
9
10
11
12
13
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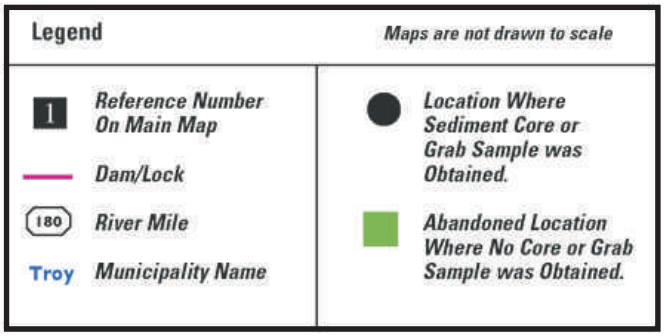
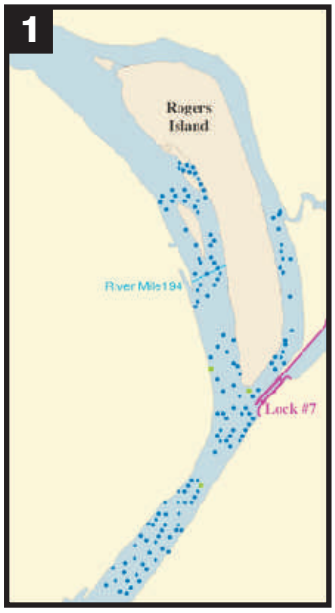
33


Legend
Maps are not drawn to scale
Reference Number On Main Map
Dam/Lock
180
River Mile
Troy
Municipality Name
Location Where Sediment Core or Grab Sample was Obtained.
Abandoned Location Where No Core or Grab Sample was Obtained.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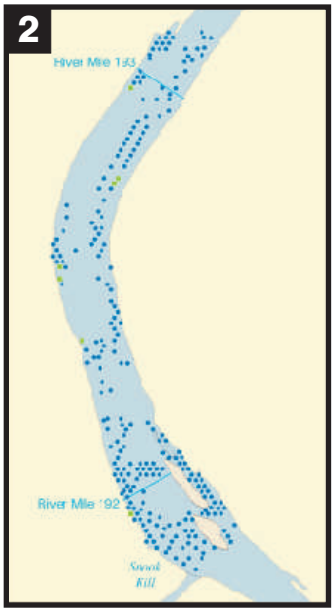
Rogers Island
River Mile 194
Lock #7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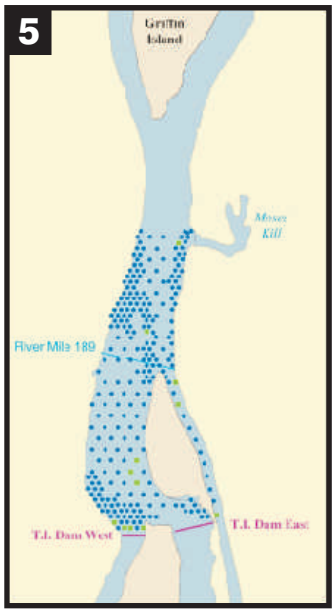
River Mile 193
River Mile 192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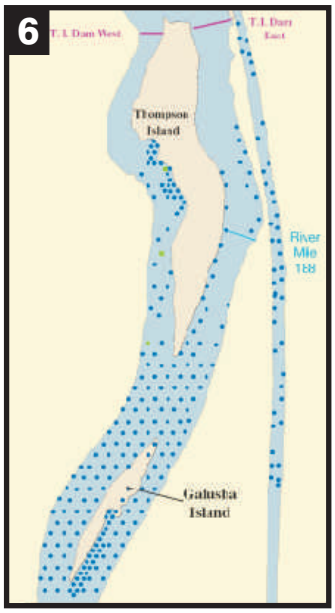
Griffin Island
River Mile 189
T.I. Dam West
T.I. Dam East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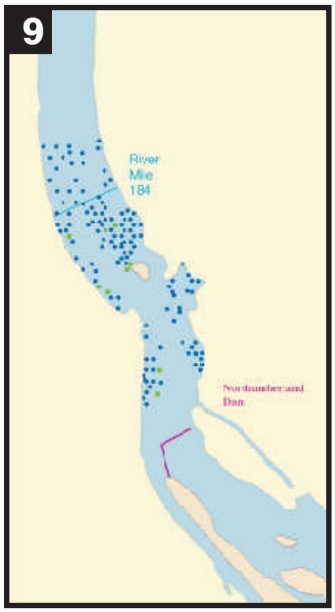
T.I. Dam West
T.I. Dam East
Thompson Island
River Mile 188
Galusha Island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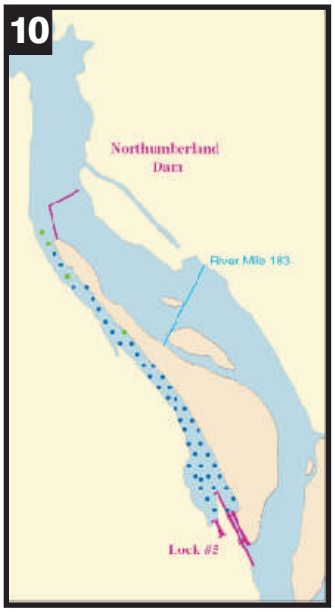
River Mile 184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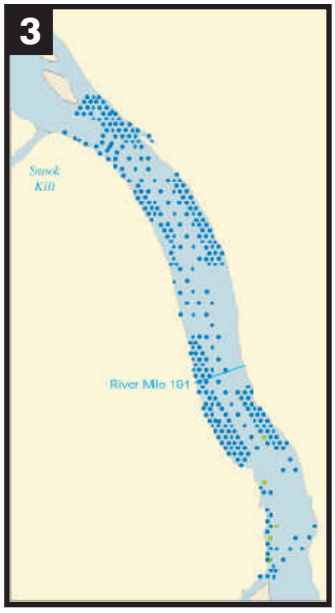
Northumberland Dam
River Mile 183
Lock #5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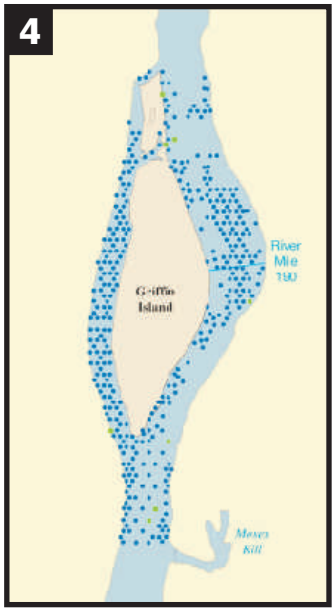
Snook Kill
River Mile 191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Griffin Island
River Mile 190
Mosey Kill


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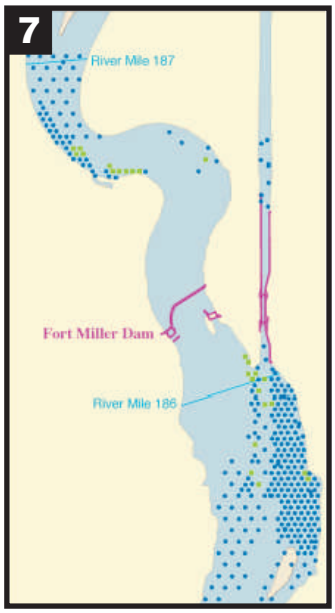
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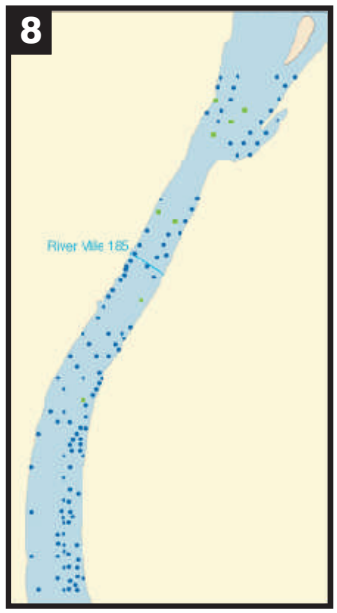
River Mile 187
Fort Miller Dam
River Mile 186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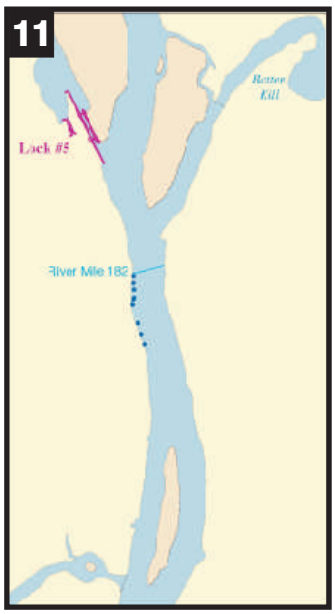
River Mile 185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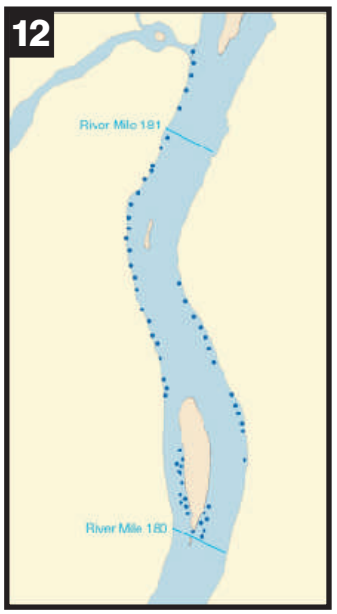
Ratter Kill
Lock #5
River Mile 182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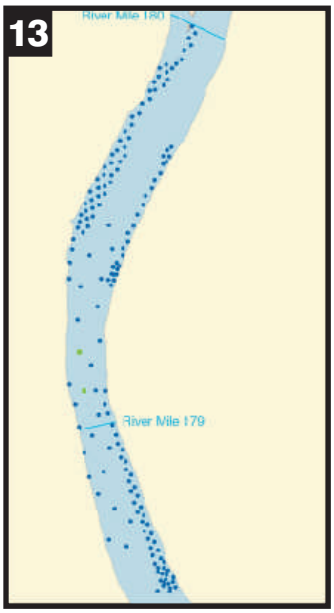
River Mile 181
River Mile 180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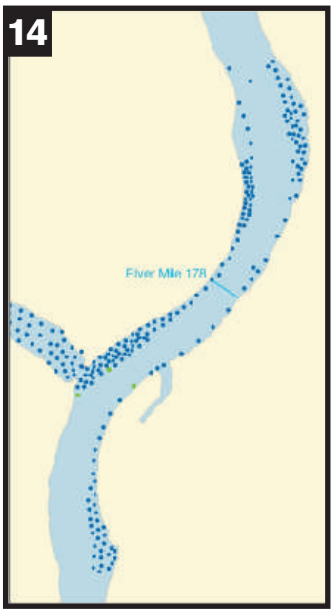
River Mile 180
River Mile 179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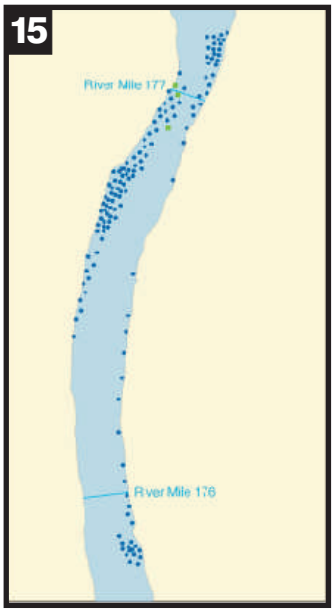
River Mile 178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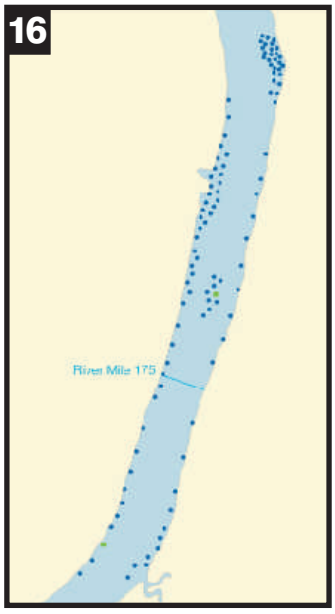
River Mile 177
River Mile 176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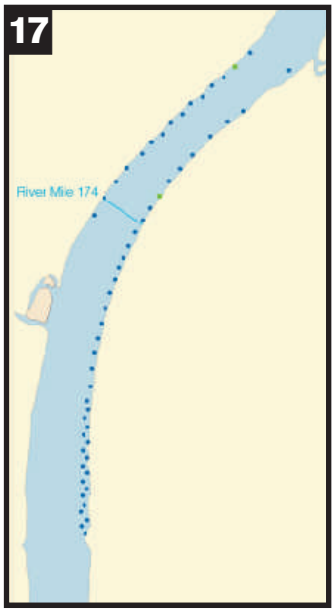
River Mile 175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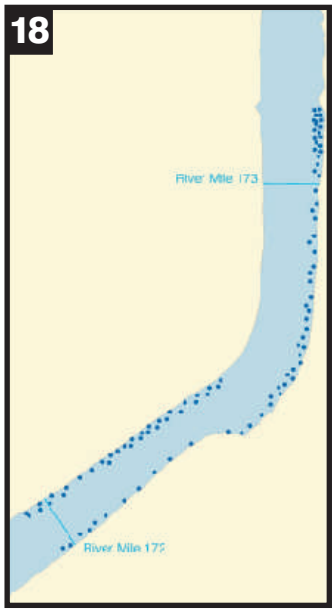
River Mile 174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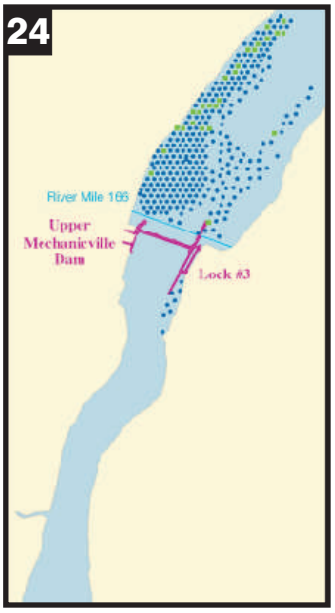
River Mile 173
River Mile 172


23
Green Island
River Mile 167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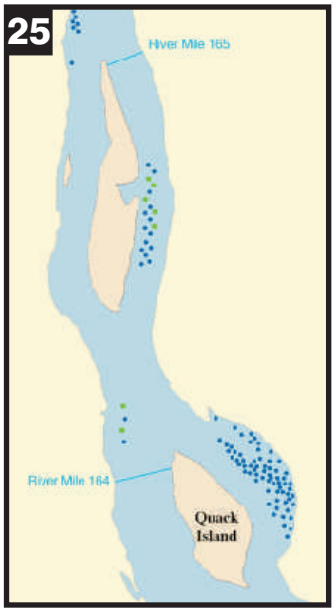
River Mile 166
Upper Mechanicville Dam
Lock #3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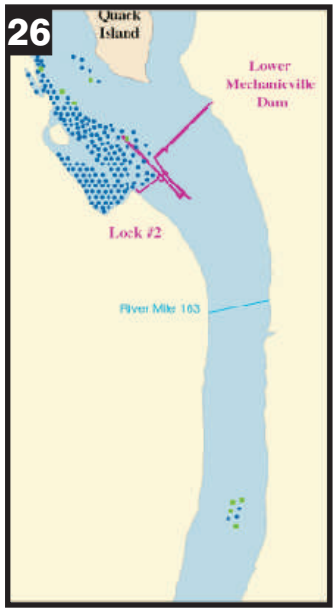
River Mile 165
River Mile 164
Quack Island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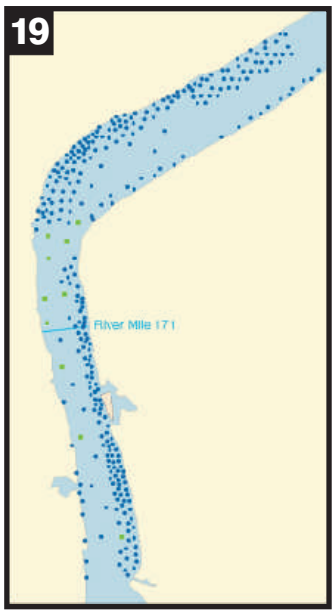
Quack Island
Lower Mechanicville Dam
Lock #2
River Mile 163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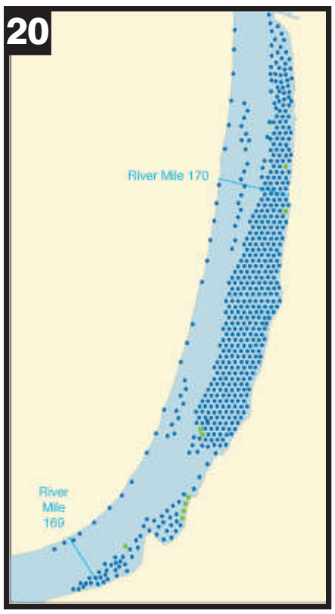
River Mile 171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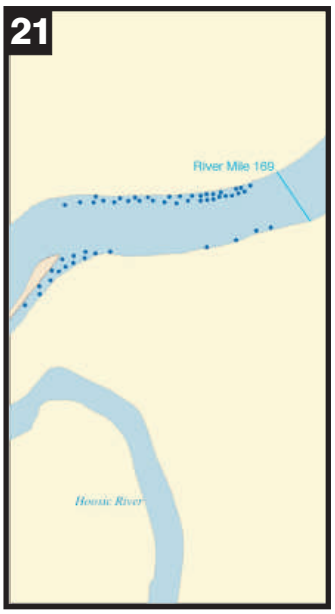
River Mile 170
River Mile 169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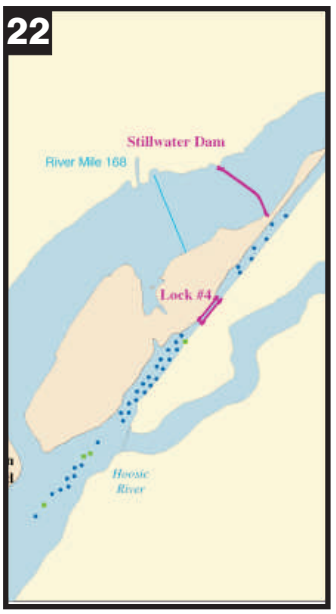
River Mile 169
Hoosic River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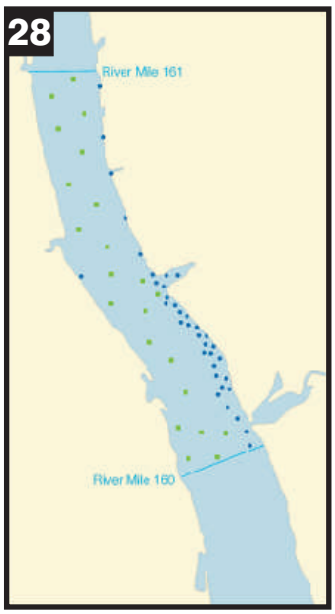
Stillwater Dam
River Mile 168
Lock #4
Hoosic River


27
River Mile 162
River Mile 161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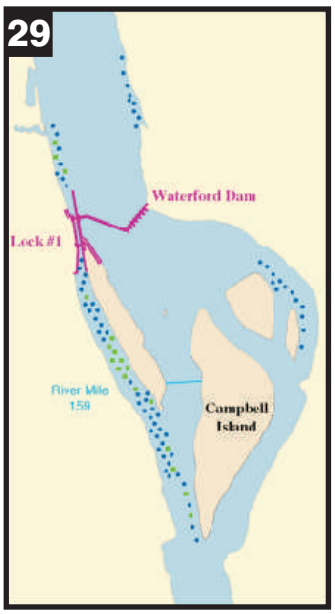
River Mile 161
River Mile 160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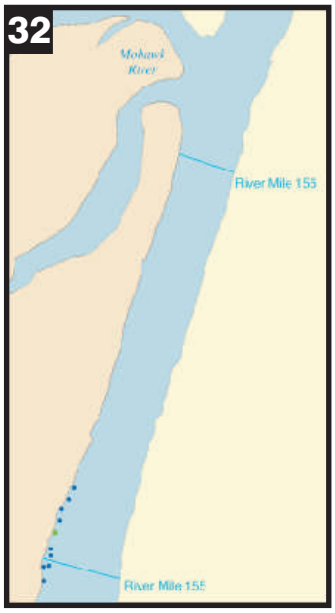
Waterford Dam
Lock #1
River Mile 159
Campbell Island


30
Campbell Island
River Mile 158


31
River Mile 157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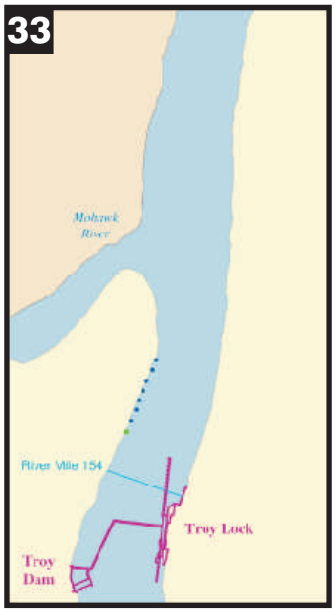
Mohawk River
River Mile 155
River Mile 155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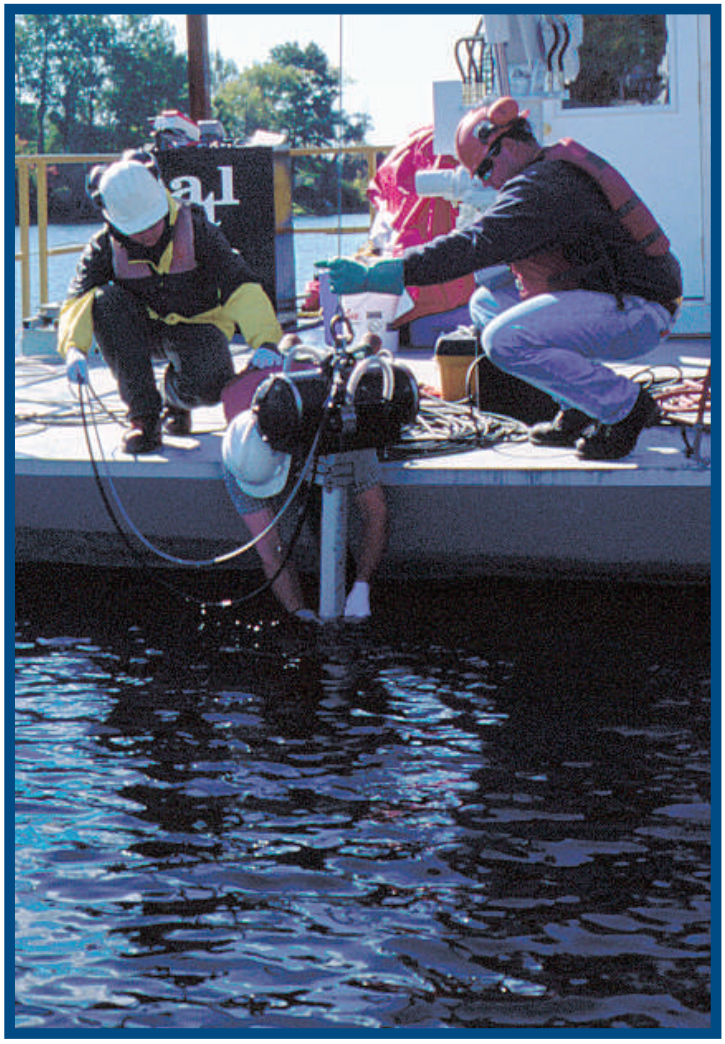
Mohawk River
River Mile 154
Troy Lock
Troy Dam



For More Information

Visit, call, or write to the Hudson River Field Office at the address below or log on to **www.epa.gov/hudson.**

EPA Contacts

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kluesner.dave@epa.gov

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

EPA Superfund Regional Public Liaison

EPA Region 2 has designated a Regional Public Liaison as a point-of-contact for community concerns and questions about the federal Superfund program in New York, New Jersey, Puerto Rico, and the U.S. Virgin Islands. To support this effort, EPA has established a 24-hour, toll-free number that the public can call to request information, express concerns, or register complaints about Superfund. The Regional Public Liason for EPA's Region 2 office is: George H. Zachos, U.S. EPA, Region 2, 2890 Woodbridge Avenue MS-211, Edison, New Jersey 08837, (732) 321-6621,Toll-free (888) 283-7626.