2 Site Background

2.1 Site Description

The February 2002 ROD for the Hudson River PCBs Superfund Site, which identifies the cleanup plan, divides the site into two major areas (see Figure 2-1):

RM
River Miles

TI
Thompson Island

1. **The Upper Hudson River** runs from the Fenimore Bridge in Hudson Falls to the Federal Dam at Troy for a distance of slightly more than 43 river miles (RM). This area is predominately rural and agricultural and is interspersed with towns and cities.

   The Upper Hudson River is also referred to as the **Project Area** because the ROD calls for the dredging to occur in the Upper Hudson portion of the site. The Project Area is subdivided into three major sections:

   - **River Section 1** consists of the Thompson Island (TI) Pool, a river section that extends 6.3 RM from the former Fort Edward Dam to the TI Dam.
   - **River Section 2** extends 5.1 RM from the TI Dam to the Northumberland Dam near Schuylerville.
   - **River Section 3** extends 29.5 RM from below the Northumberland Dam to the Federal Dam at Troy.

2. **The Lower Hudson River** runs from the Federal Dam at Troy to the southern tip of Manhattan at the Battery in New York City. Land use ranges from forest and agriculture to intensive residential, commercial, and industrial development. A subset of the Lower Hudson that runs from the Federal Dam at Troy to just south of Poughkeepsie is sometimes referred to as the Mid-Hudson.

02:002260_HR04_02_03\Fig2-1.CDR-4/10/09-GRA

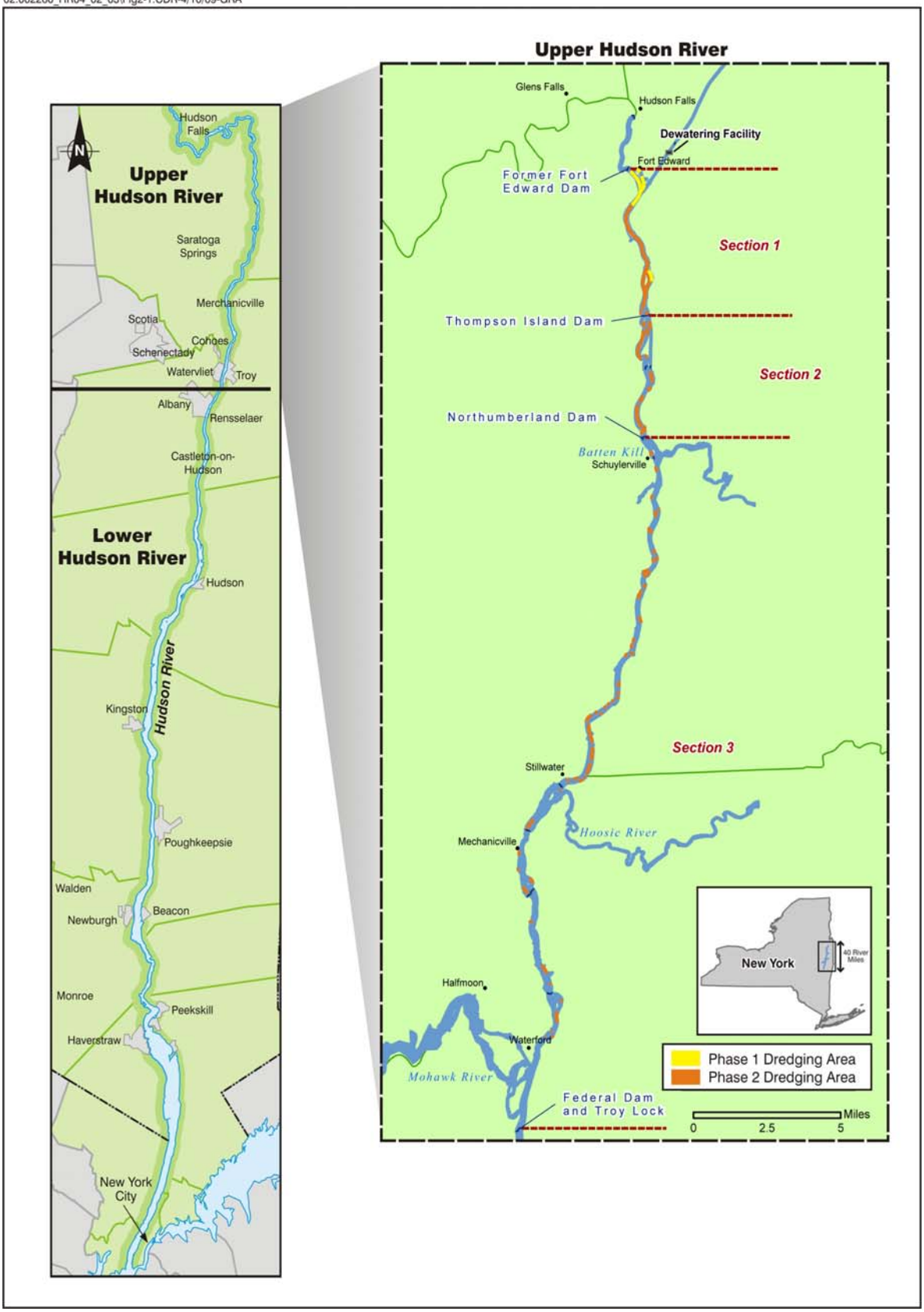

Figure 2-1 Site Location and Project Area Map
Hudson River PCBs Superfund Site, New York

2.2 Site History

GE
General Electric Company

PCBs are a group of synthetic (man-made) chemicals consisting of 209 individual compounds that have a similar chemical structure. Before commercial uses were prohibited in 1977, PCBs were widely used as a fire preventive and insulator in the manufacture of transformers and capacitors because of their ability to withstand exceptionally high temperatures. In the environment, PCBs generally degrade slowly and tend to accumulate in fatty tissues, causing increased concentrations in higher levels of the food chain.

From approximately 1947 to 1977, the General Electric Company (GE) discharged as much as 1.3 million pounds of polychlorinated biphenyls (PCBs) from its capacitor manufacturing plants at the Hudson Falls and Fort Edward facilities into the Hudson River. A 40-mile stretch of the Upper Hudson is now the subject of the environmental dredging cleanup action described in the February 2002 ROD and in Section 2.3. A summary of actions that occurred before the February 2002 ROD is presented in Figure 2-2.

The primary health risk associated with the site is the accumulation of PCBs in the human body through eating contaminated fish. Since 1976, high levels of PCBs in fish have led New York State to close various recreational and commercial fisheries and to issue advisories restricting the consumption of fish caught in the Hudson River (see Figure 2-3). PCBs are considered probable human carcinogens and are linked to other adverse health effects such as low birth weight, thyroid disease, and learning, memory, and immune system disorders. PCBs in the river also negatively affect fish and wildlife.

Information about New York State Fishing Advisories can be found in Appendix J.

02:001515_HR03_03_02-B1120\Fig2-2_Timeline.CDR-4/18/03-GRA

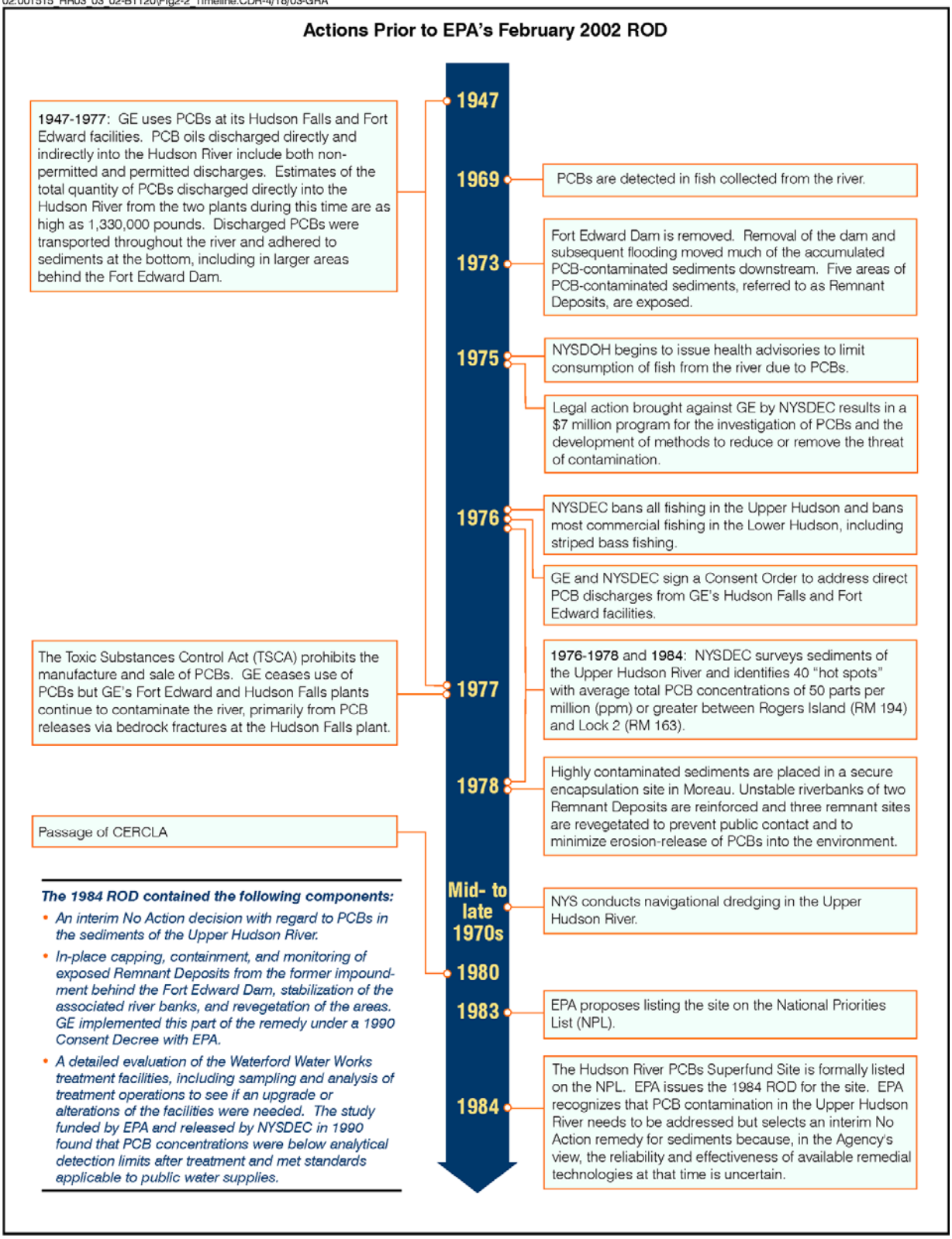

Figure 2-2 Site History

02:001515_HR03_03_02-B1120\Fig2-2_Timeline.CDR-4/10/03-GRA

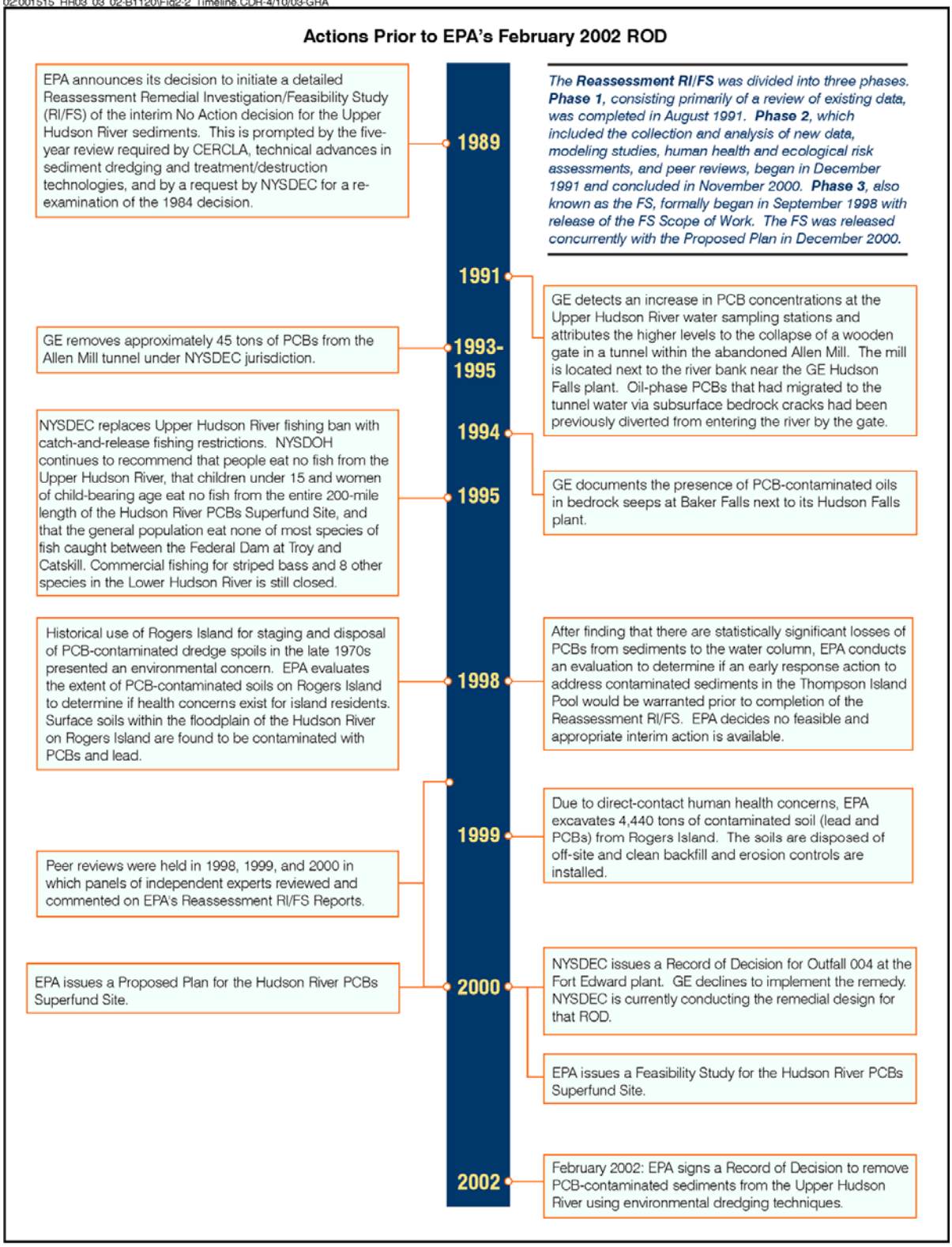

Figure 2-2 (Cont.) Site History

02:002260_HR04_02_03\Fig2-2.CDR-6/9/09-GRA

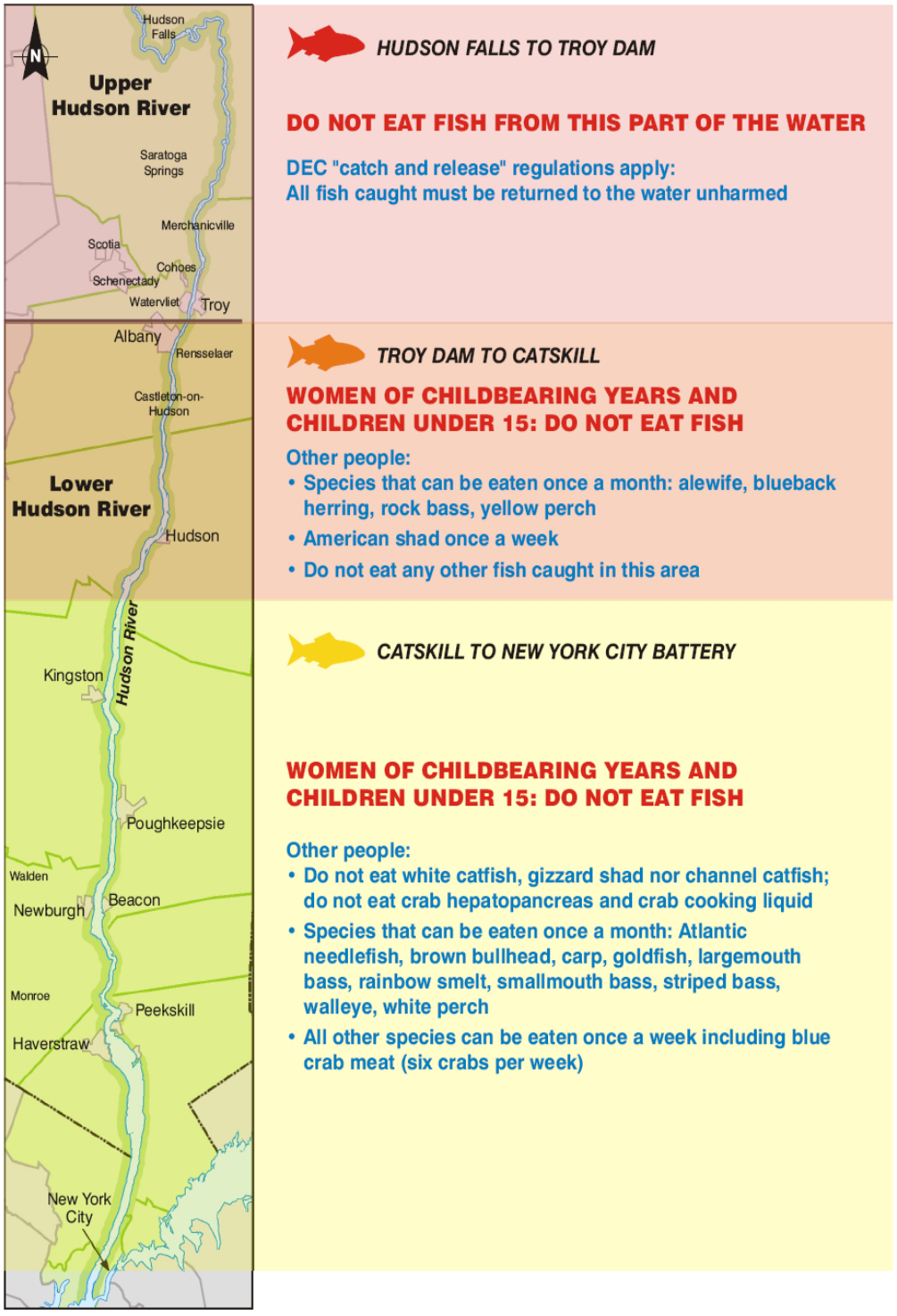

Figure 2-3 Hudson River Fish Advisories Downstream of Hudson Falls, New York
www.health.state.ny.us/environmental/outdoors/fish/hudson_river/advisory_outreach_project/index.htm

2.3 Site Cleanup: The Selected Remedy

The Record of Decision can be viewed at the Hudson River Field Office, at the repositories identified in Appendix J, or online at www.epa.gov/hudson

The February 2002 ROD called for targeted environmental dredging of approximately 2.65 million cubic yards of PCB-contaminated sediments from a 40-mile stretch of the Upper Hudson. Since then, the project design has been refined to remove more PCBs while dredging less sediment than originally estimated in the ROD (see Table 2-1).

Table 2-1 Targeted Dredging Amounts

Upper Hudson River Targeted Area Dredging (Estimated) Amounts	
River Section 1	Approximately 939,800 cubic yards
River Section 2	Approximately 364,000 cubic yards
River Section 3	Approximately 491,000 cubic yards

In the ROD, the EPA selected a cleanup that addresses the risks to people and the environment associated with PCBs in the sediments of the Upper Hudson River. The actions in the Upper Hudson will lower the risks to people, fish, and wildlife in both the Upper and Lower Hudson River.

The Hudson River cleanup plan includes:

- Dredging the navigational channel as necessary to implement the remedy and avoid hindering canal traffic during the project work;
- Developing and applying the three engineering performance standards that address resuspension, residuals and productivity;
- Developing and applying quality of life performance standards for air quality, noise, lighting, odor and navigation;
- Independent external peer review of the engineering performance standards for dredging resuspension, PCB residuals, and production rates during dredging and peer review of the report prepared at the end of the first phase of dredging that will evaluate the dredging with respect to the engineering performance standards;
- Using dredging techniques that minimize and control resuspension of sediments during dredging;
- Transporting dredged sediments via barge to the sediment processing/transfer facility for dewatering and, as needed, stabilization;
- Transporting by rail the dewatered, stabilized sediments to Waste Control Specialists (WCS) in Andrews, Texas for disposal in their licensed off-site landfill;
- Using barges to transport clean backfill materials within the Upper Hudson River area;

Performance Standards
Engineering and quality of life performance standards have been developed to make sure the dredging is done safely and is protective of people's health and the environment. For example, performance standards have been developed for resuspension of PCBs during dredging and for air and noise.

Independent External Peer Review
A panel of scientists and engineers provided an independent review of the engineering performance standards.

Natural Attenuation
The natural process (i.e., unaided by human intervention) by which a contaminant is reduced in concentration over time through absorption, adsorption, degradation, dilution, and/or transformation.

- Monitored natural attenuation of PCB contamination that remains in the river after dredging;
- Monitoring fish, water quality, and sediment to determine when cleanup goals have been reached;
- Monitoring the restoration of aquatic vegetation; and
- Implementing or modifying appropriate institutional controls such as fish consumption advisories and fishing restrictions by the responsible authorities until the relevant cleanup goals are met.

2.4 How the Cleanup Is Being Conducted

Targeted environmental dredging is being conducted in two phases. Phase 1 started in May 2009 and will be conducted in two areas of River Section 1; the northern portion of the Thompson Island Pool and the east channel of Griffin Island. All of the Phase 1 dredging will occur in River Section 1 (see Figure 2-1).

Information and experience gained during the first phase will be evaluated to determine if adjustments are needed to operations during the second phase or to the performance standards. The 2002 Record of Decision calls for an independent external peer review of the dredging resuspension, PCB residuals, and production rate performance standards and the attendant monitoring program, as well as the reports prepared at the end of the first phase of dredging that will evaluate the dredging with respect to these performance standards.

The 2006 Consent Decree provides further details for this process. In particular, it provides that GE will prepare a Phase 1 Data Compilation, and that GE and EPA will each prepare a Phase 1 Evaluation Report that will include an evaluation of the Phase 1 dredging operations, will set forth proposed changes to the standards, if appropriate, and in general will evaluate the experience gained from the Phase 1 dredging operations. EPA will then consider the conclusions of the peer review panel and determine whether changes to the performance standards should be made and will inform GE of any modifications that would be required during Phase 2 of the dredging program. GE is then to notify EPA as to whether it will implement Phase 2 of the dredging.

Phase 2 will be the remainder of the dredging operation conducted at full-scale and will take place in River Sections 1, 2 and 3. Operations will continue to be monitored, evaluated against performance standards, and adjusted as necessary. Aspects of both phases will be monitored extensively. Dredging the entire 40 mile section of the river is estimated to take six years.

2.5 Hudson Floodplains Investigation

AOC
Administrative Order on Consent

EPA's 2002 ROD for the Hudson River Cleanup also states that concerns related to possible exposure of residents to PCBs in the Hudson River floodplain will be further evaluated in coordination with New York State. Potential health risks from exposure to PCBs in the floodplain soils depend on PCB concentrations and the extent to which people contact soils containing PCBs.

Several soil sampling events in the floodplain of the river took place between 2002 and 2007, and results from those sampling events indicated PCBs may be present in some areas that are routinely flooded by the river. In September 2008, EPA and GE reached agreement on carrying out an Upper Hudson River floodplain sampling program. The agreement also required GE to map ecological and human use areas within the floodplain to identify areas where removal of contaminated soils may be needed.

In fall 2008, GE conducted soil sampling on 283 properties between Fort Edward and the Troy Dam to further evaluate the extent of PCBs in the floodplain. The properties included private, residential properties, agricultural properties and public lands. The individual results of all sampling are being given to property owners and an overview of floodplains sampling data has been presented to the public during information sessions and Community Advisory Group (CAG) meetings.

EPA and GE will be conducting another round of floodplain soil sampling in summer 2009. The data from the sampling will be used to supplement a comprehensive study to determine if interim cleanup measures are needed.

2.6 EPA, GE and New York State

The federal Superfund program takes place within a legal, regulatory, and financial framework that defines many of EPA's activities and affects the decision-making process. EPA has lead responsibility for the project and must maintain all decision-making authority. EPA is supported in its decision-making and oversight work by state and federal agencies. Other organizations that play a significant role in the cleanup of the Hudson River PCBs Superfund Site are the New York State Department of Environmental Conservation (NYSDEC), the New York State Department of Health (NYSDOH), the New York State Canal Corporation (NYSCC), the United States Department of Justice (USDOJ), the United States Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and the United States Army Corps of Engineers (USACE).

NYSDEC
New York State Department of Environmental Conservation

NYSDOH
New York State Department of Health

NYSCC
New York State Canal Corporation

USDOJ
United States Department of Justice

USFWS
United States Fish and Wildlife Service

NOAA
National Oceanic and Atmospheric Administration

USACE
United States Army Corps of Engineers

PRP
Potentially Responsible Party

AOC
Administrative Order on Consent

The USACE assists EPA in preparing and reviewing design work plans and cleanup plans and in overseeing work. To date, GE, the potentially responsible party (PRP) has signed two Administrative Orders on Consent (AOCs) with EPA: the first, in July 2002, to fund and perform sediment sampling as the initial step in the design, and the second, signed in August 2003, to fund and perform the remainder of the design work except for those tasks for which EPA has direct responsibility.

In October 2005, GE reached an agreement with the USDOJ requiring it to begin the dredging called for in EPA's 2002 ROD. Under the terms of the consent decree, GE constructed the sediment transfer/processing facility needed for the project and is performing the first phase of the dredging. The consent decree was modified in January 2009 to require GE to pay a portion of the costs of protecting the Waterford, Halfmoon, and Stillwater, New York water supplies during dredging, and to improve its program for monitoring water quality and further protect the towns' water supplies. Dredging is scheduled for the 2009 spring through fall dredging season. After Phase 1 dredging, GE will determine whether or not they will perform Phase 2 dredging.

EPA has had direct responsibility for three major components of the project, including the selection of the sediment processing/transfer facility location, the development of engineering and quality of life performance standards, and community outreach and involvement. GE also periodically assists EPA in developing information or displays for community involvement efforts and assists with public availability sessions and other community involvement activities.

2.7 EPA and NYSDOH

For More Information:

New York State Department of Health:

(800) 458-1158

www.health.state.ny.us

In addition to serving as a vehicle for commerce and habitat for wildlife, the Hudson River is enjoyed recreationally by many river residents. NYSDOH is working with EPA to address questions from the public regarding the safety of swimming in the Hudson River during dredging. For most of the river, NYSDOH generally advises that people who wish to swim take steps to reduce exposure to bacteria and microorganisms. For the immediate area of the upper river where dredging activities are occurring, there are additional safety concerns regarding the significant amount of boat traffic and equipment that will be operating. NYSDOH advises that people avoid swimming in cloudy water in the six mile stretch of the river between Fort Edward and the Thompson Island Dam during Phase 1 dredging because clouded water could contain both microorganisms and PCB-contaminated sediments. NYSDOH has prepared a fact sheet: Advice About Swimming in the Hudson River During Dredging which is available on the EPA web site. Other questions or concerns can be addressed by contacting NYSDOH: (800) 458-1158.

The Hudson River is also a popular recreational spot for anglers, however, since 1976, high levels of PCB's in fish have led New York State to close various fisheries and issue advisories restricting fish consumption. NYSDOH issues a yearly report: Chemicals in Sportfish and Game and has been engaged in a public outreach campaign, in coordination with EPA, to ensure that people along the river are aware of the advisories that are in place (see Figure 2-3) and the health risks of consuming PCB-contaminated fish. More information about the Hudson River Fish Advisory Outreach Project is available on the NYSDOH web site.

NYSDOH Web Links:
Advice About Swimming in the Hudson River During Dredging:
www.epa.gov/hudson/090239_HudsonDredgeSwimming.pdf
Chemicals in Sportfish and Game:
www.health.state.ny.us/environmental/outdoors/fish/fish.htm
Hudson River Fish Advisory Outreach Project:
www.health.state.ny.us/environmental/outdoors/fish/hudson_river/advisory_outreach_project/
For all NYSDOH Hudson River PCB project materials:
www.nyhealth.gov/environmental/outdoors/hudson_river/

2.8 Community Involvement During Design of the Cleanup Plan

Since the February 2002 ROD was signed, EPA has been proactive in conducting public outreach and soliciting public input to ensure river communities and other interested individuals are provided with the tools and information they need to understand and participate in the design of the Hudson River cleanup. The 2003 CIP specified the outreach activities EPA would use to address community concerns and expectations and has been the foundation of EPA's community involvement program to date.

EPA Hudson River Website:

www.epa.gov/hudson

EPA's Hudson River Field Office:

(518) 747-4389

Toll-free: (866) 615-6490

GE Hudson River Project Website:

www.hudsondredging.com

GE Toll-Free Dredging Hotline:

(888) 596-3655

The design phase of the Hudson River cleanup included the selection of a sediment dewatering facility site, as well as numerous technical documents, studies and reports that were used to develop work plans, performance standards and health and safety plans. EPA provided public comment periods on 11 key design documents and prepared 45 fact sheets on various aspects of the project design to ensure that information about the project was readily accessible to the public and presented in plain language to explain highly technical reports and concepts.

In an effort to directly engage local communities, EPA held more than 150 public meetings, including stakeholder meetings and presentations on the project to schools and universities throughout the Hudson River area. Each meeting has given EPA the opportunity to provide information to the community while providing EPA with insight into the issues and topics that are most important to local citizens. Other community events, like the Washington County Fair, have been a yearly opportunity for EPA to share project information and speak to people most directly affected by the project.

In 2004, EPA established a diverse and representative CAG which has afforded EPA additional opportunities to hear and consider community input. Forty-one CAG meetings have been held to date. During each meeting, EPA presented information on various aspects of project design, based on CAG interests.

EPA has also built relationships with local media outlets to ensure project information is broadcast widely and has participated in frequent print and television interviews, resulting in more than 2,600 news articles since 2002. EPA's Hudson listserv has been another effective method of disseminating project-related information, including the dates of upcoming meetings and events, and currently has more than 800 members.

Throughout project design, EPA has been committed to providing the public with opportunities to give informed and meaningful input (see Figure 2-4). EPA's experience working with local communities, talking to river residents, and using the tools outlined in the CIP over the last six years have allowed EPA to prepare this updated CIP that focuses on dredging implementation and the different concerns and expectations that will come with the commencement of dredging.

See Figure 2-4 for more information about community involvement activities since 2002.

Community Outreach Tools

Since the February 2002 ROD was signed, EPA has been proactive in conducting community outreach. The Community Involvement Plan was prepared with intensive public input and finalized in August 2003 and updated in June 2009.

EPA has used the following outreach tools:

- Established a project field office in Fort Edward
- Activated the EPA Hudson listserv (more than 800 current members)
- Established a diverse and representative Community Advisory Group (CAG) which meets approximately every other month - 41 meetings held to date
- Established a federal and state interagency workgroup to showcase economic-benefit opportunities available to communities potentially impacted by the project
- Hosted more than 150 public meetings including stakeholder meetings and presentations on the project to schools and universities throughout the Hudson River area
- Prepared 45 fact sheets
- Maintained technical documents at seven information repositories
- Participated in annual county fairs and community events
- Provided public comment periods on 11 key design documents
- Participated in frequent print and television interviews totaling more than 2,600 news articles since 2002

Figure 2-4 Summary of Community Involvement Activities