Hudson River
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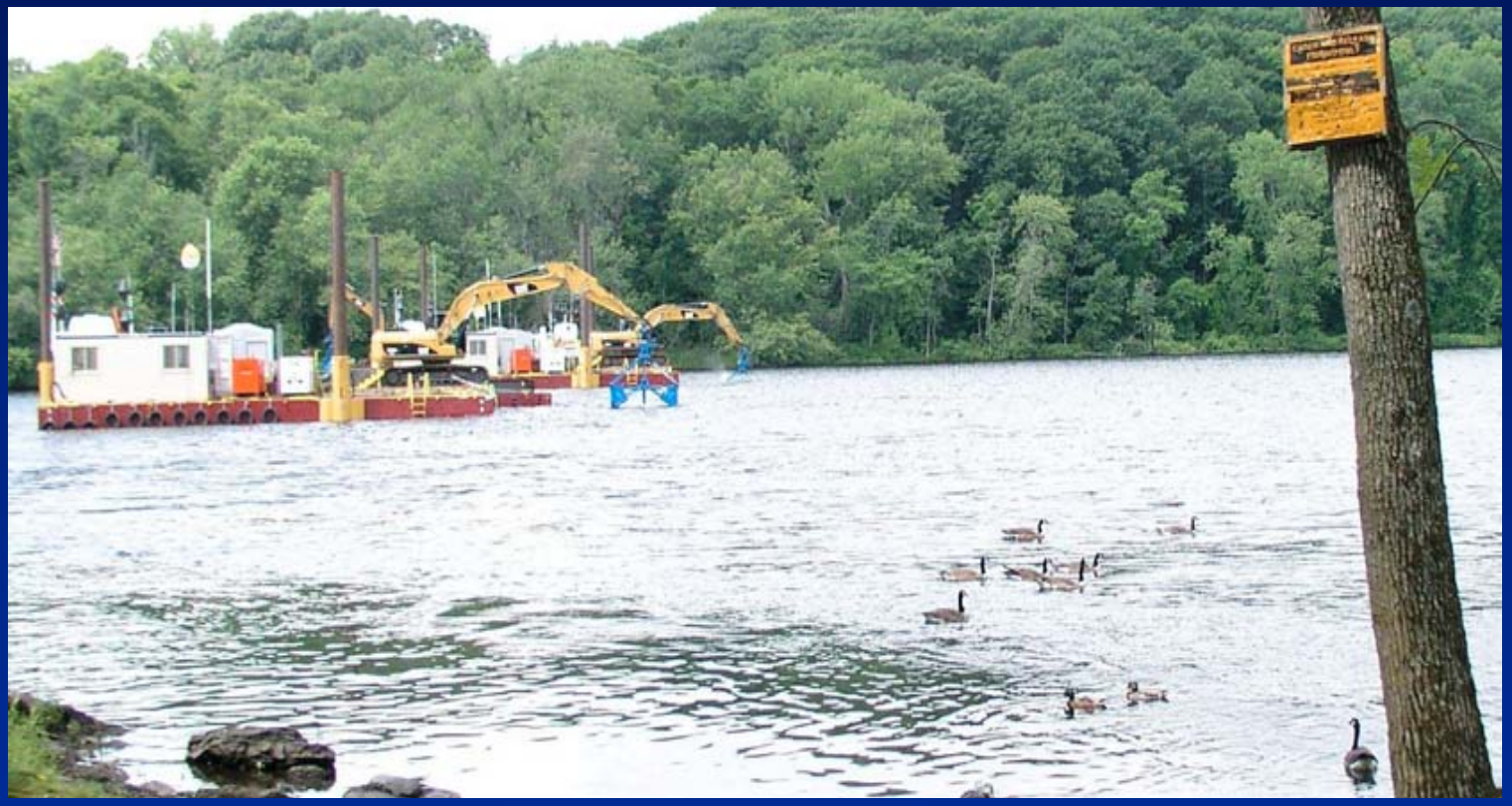
Dredging Project Update



Fall 2009

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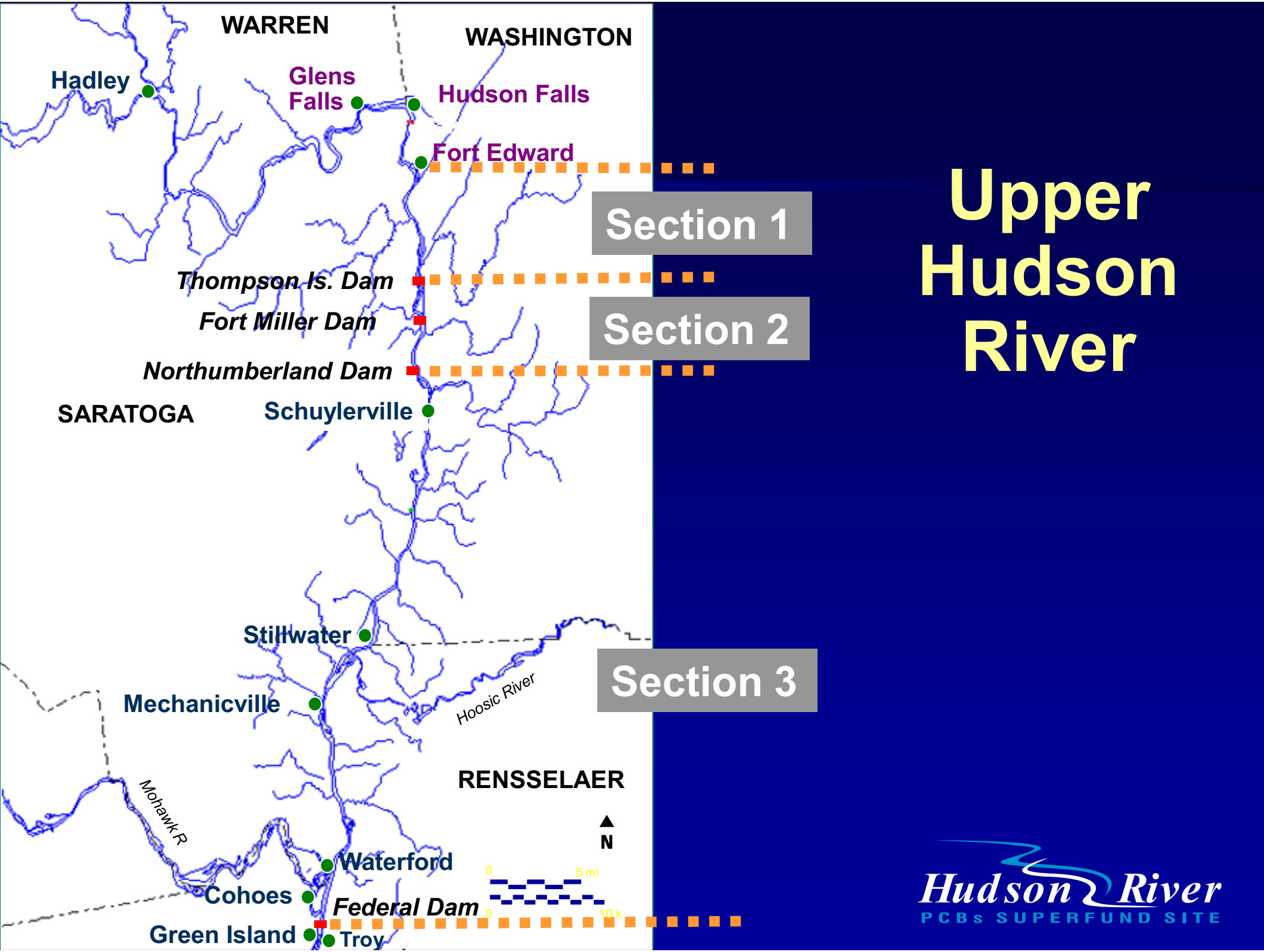
WARREN
WASHINGTON
Hadley
Glens Falls
Hudson Falls
Fort Edward
Section 1
Thompson Is. Dam
Fort Miller Dam
Section 2
Northumberland Dam
SARATOGA
Schuylerville
Stillwater
Section 3
Mechanicville
Hoosic River
RENSSELAER
Mohawk R
N
Waterford
0
5 mi
Cohoes
Federal Dam
0
10 k
Green Island
Troy
Upper Hudson River
Hudson River
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Project Phases

- > Dredging along 40 miles of river
- > Phase 1:
- — 1st year dredging (May - November) 2009
- — Test equipment/processing facility at peak performance
- — Test of EPA's performance standards
- > Review of Phase 1:
  - — Independent peer review panel
  - --- Receive public comments
  - — EPA decision on changes to project
- > Phase 2:
  - — Remaining dredging

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Phase 1 and 2 Dredge Area Delineation

- Based on more than 50,000 sediment samples (since 2002) sampling data allowed EPA and GE to:
  - determine the distribution of PCBs in the sediment
  - refine estimates of the amount and location of PCBs in the sediment
  - establish river sediment characteristics (e.g., silt, sand, gravel)
- 400 acres to be dredged during Phase 2 (490 acres total)
- Overall typical depth 3 ft (some areas extend to 5 ft or more)

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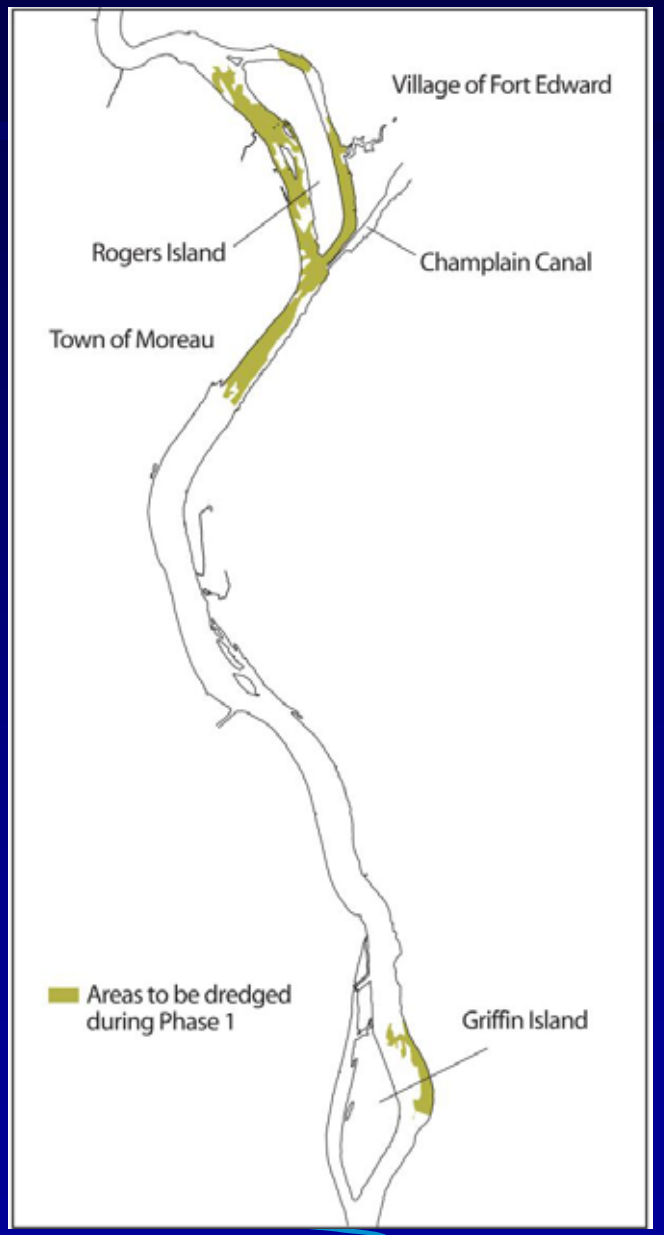
Phase 1 Dredging

- > May-November 2009; operate 24/6
- > 245,000 cubic yards from 90 acres in Thompson Island Pool
- > Need 6 months to complete
- > Up to 12 mechanical clamshell dredges working at same time
- > 27 Hopper Barges
- >21 Tugs
- > Constant monitoring to measure performance
- > Backfill after dredging
- > Habitat replacement



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Phase 1 Certification Units

- 18 Units in Phase 1
- Average 5 Acres
- Process
  - Inventory Dredging
  - Hydrographic Survey
  - PCB testing
  - Residual Dredging
  - Backfill or Cap

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Former Fort Edward Dam
Fort Edward
Moreau
SARATOGA COUNTY
WASHINGTON COUNTY
1
2
3
4
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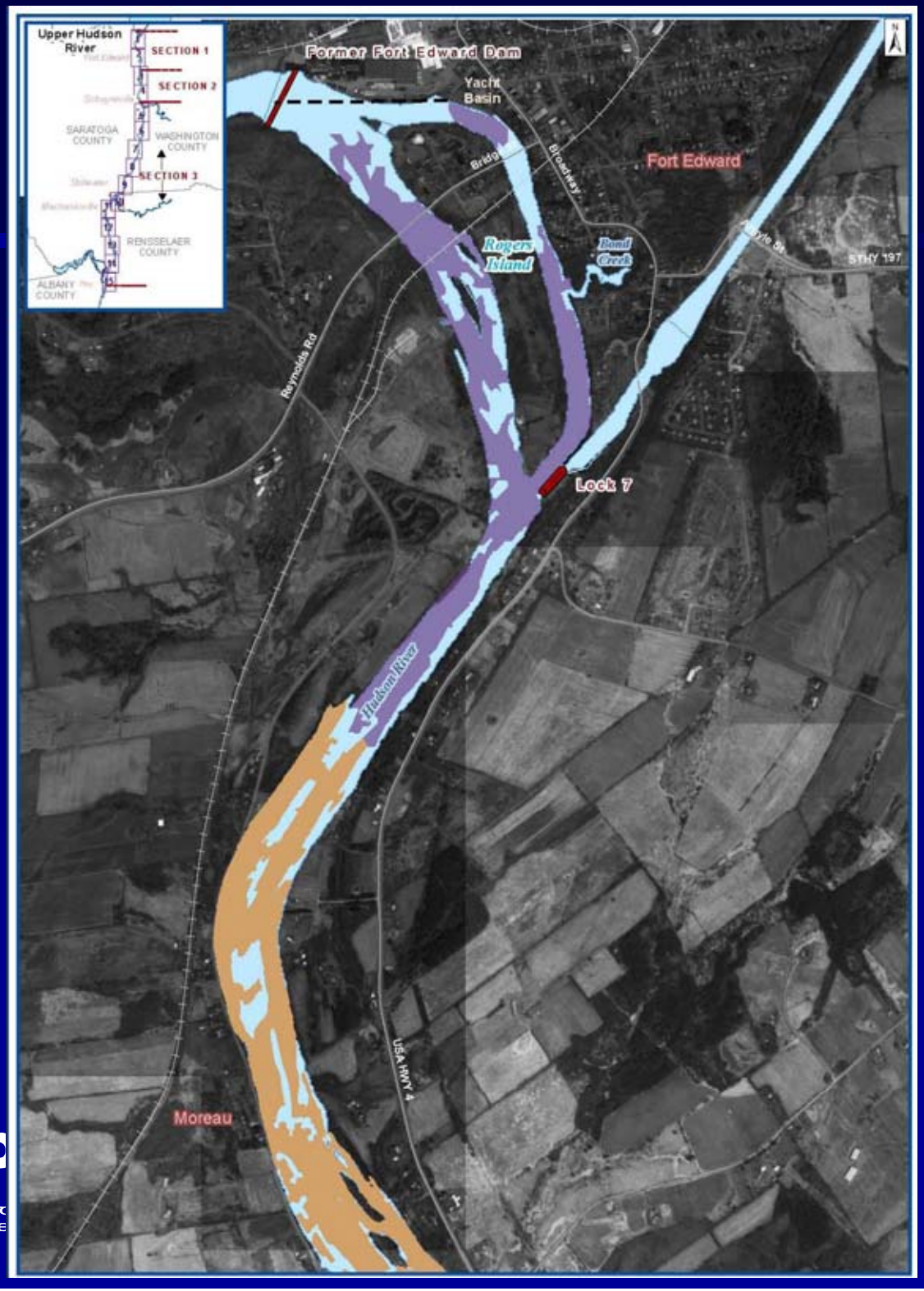
15
16

Moreau
Northumberland
Fort Edward
Thompson Island Dam

Map 1



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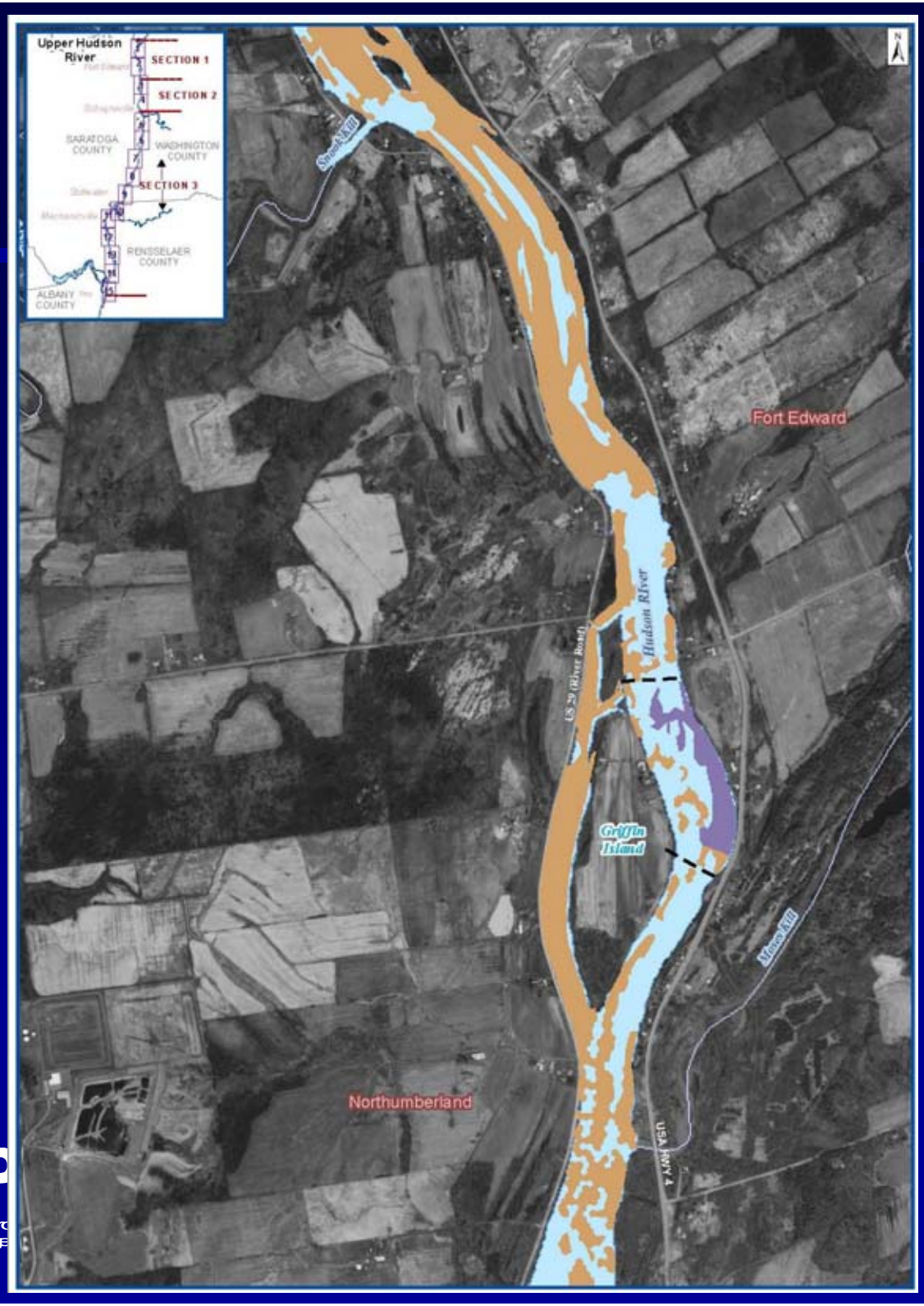
Map 2



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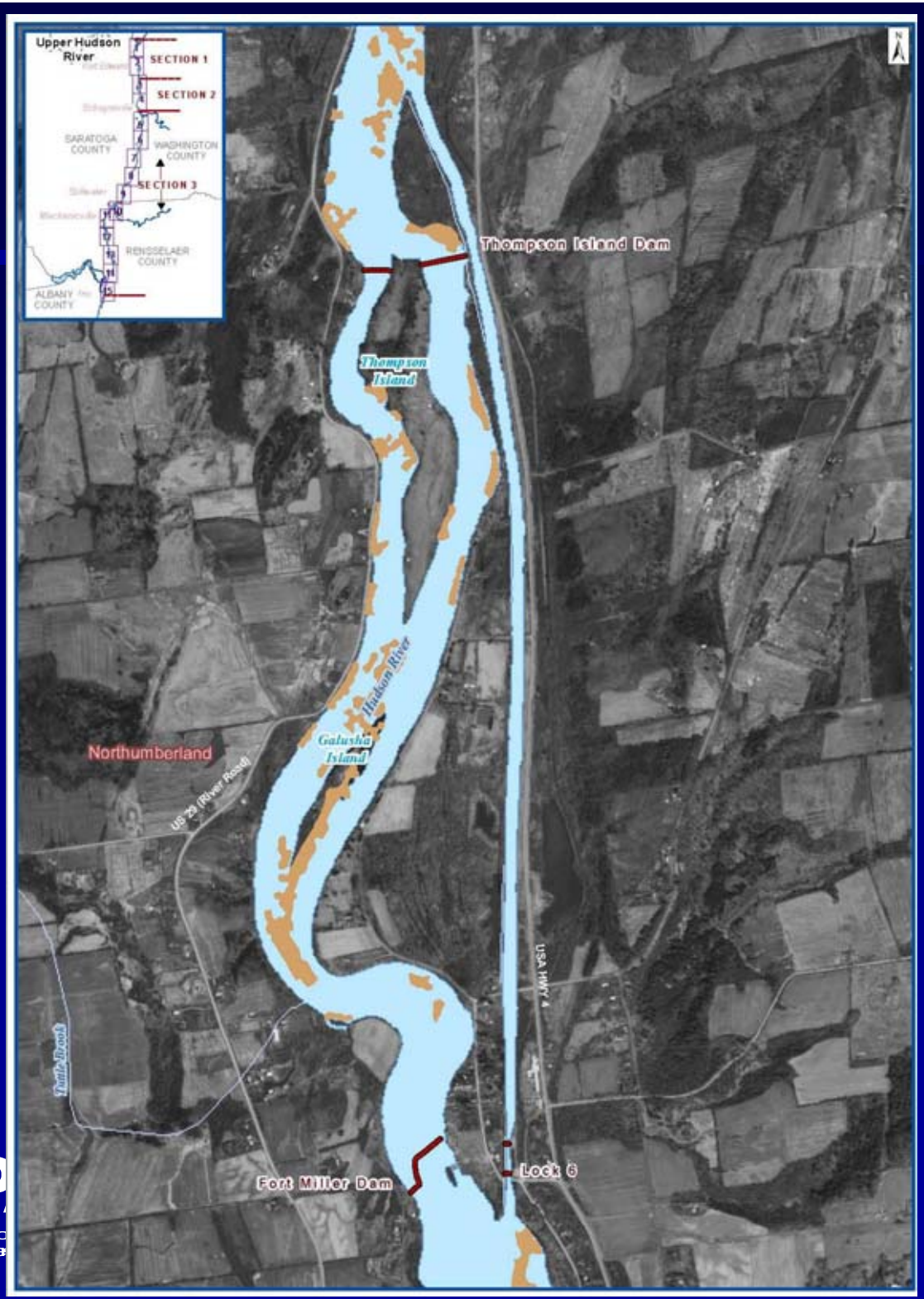
Map 3



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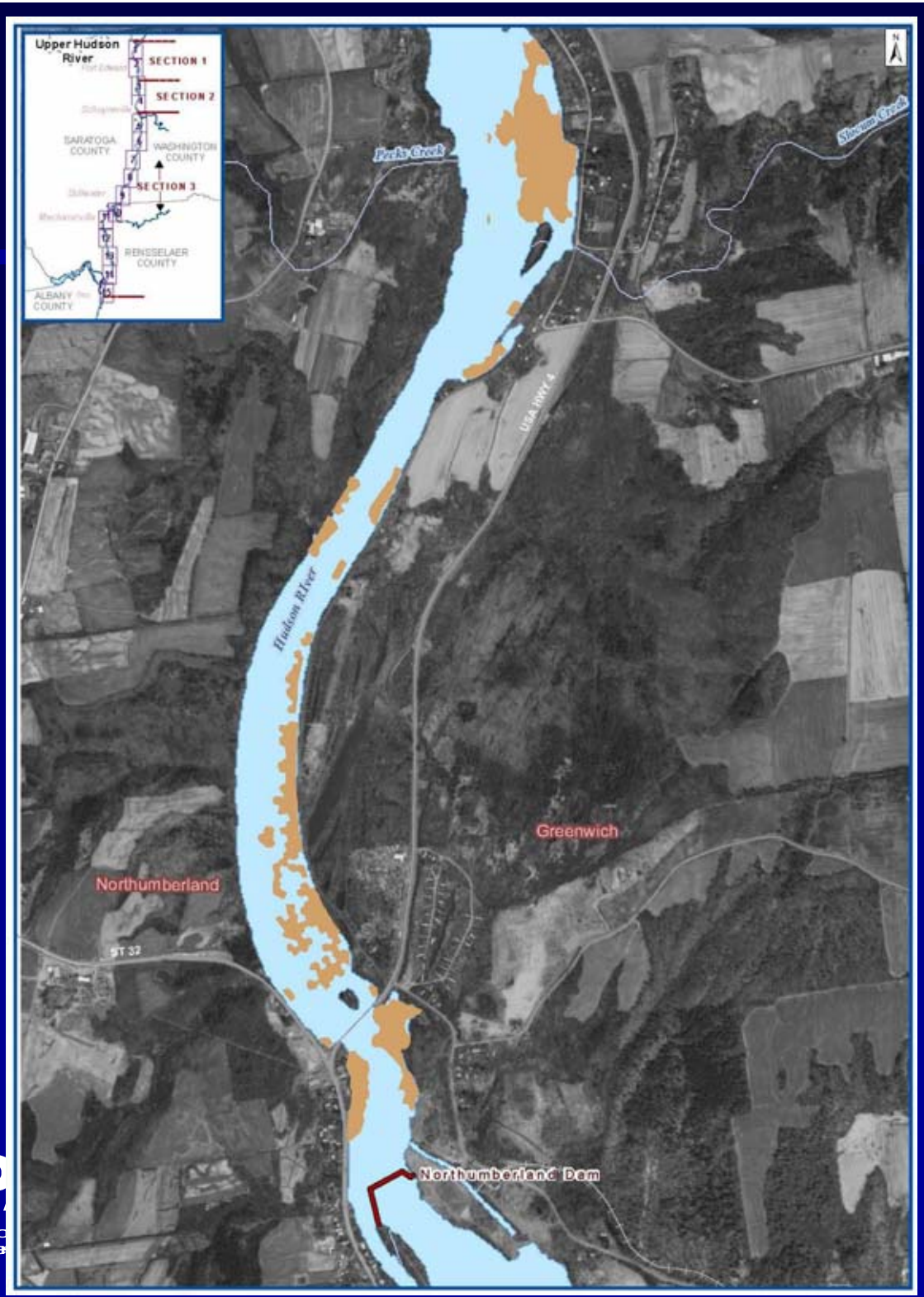
Map 4



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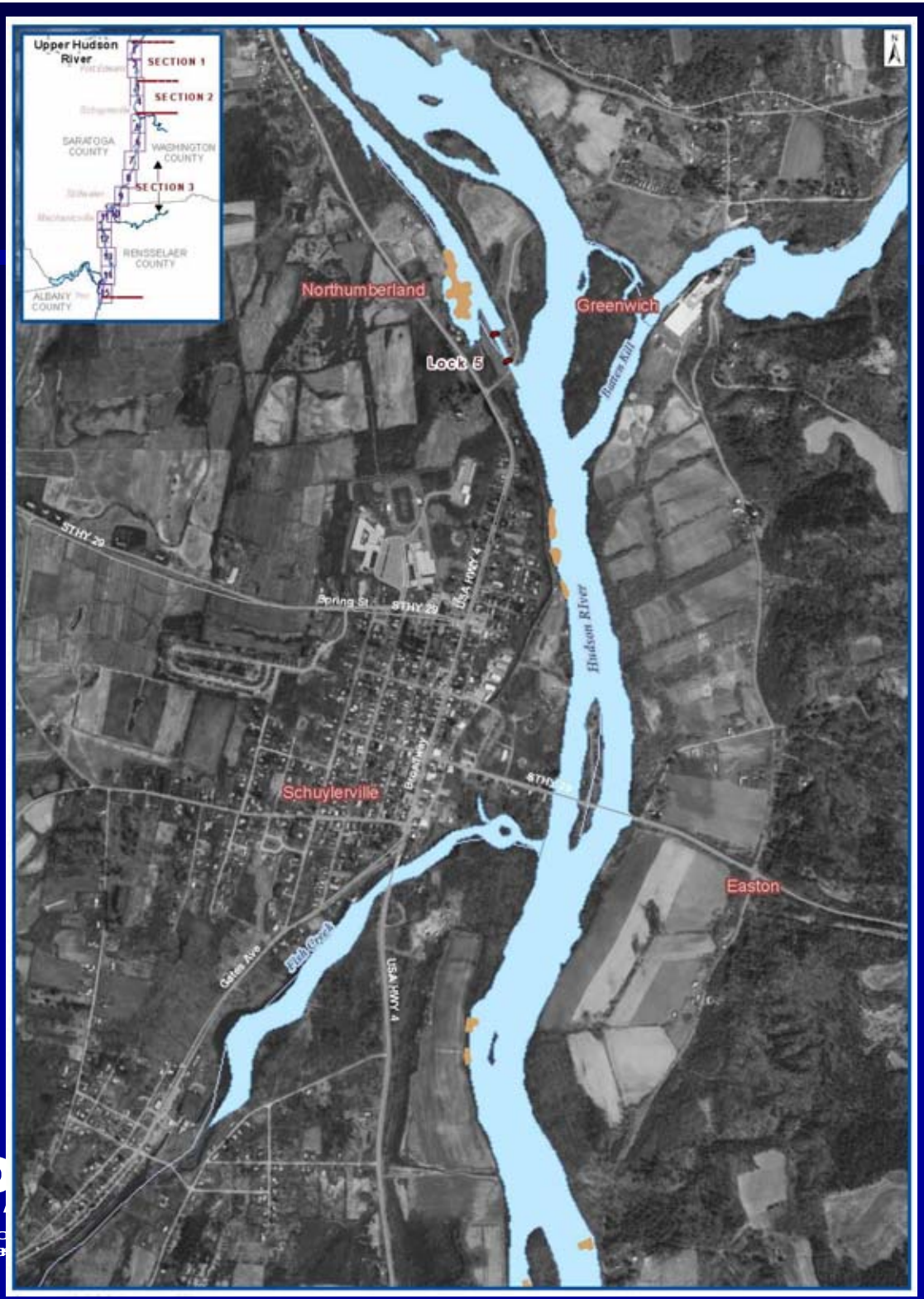
Map 5



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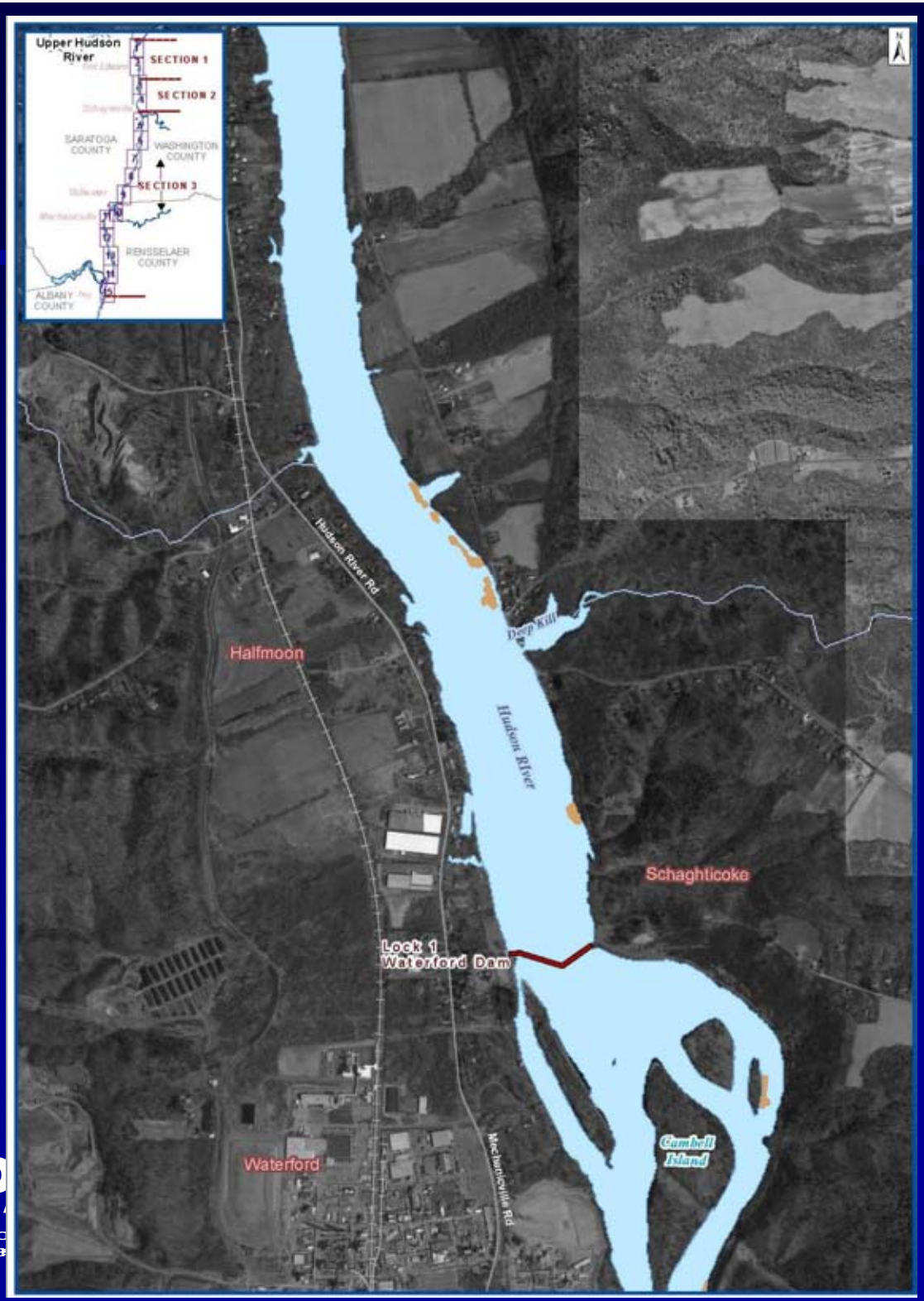
Map 13



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Engineering Performance Standards

- Resuspension, residuals and productivity standards are included in the basis of design
- Design analysis includes the assessment of the ability to achieve the standards
- Achievement of the performance standards will be tested in Phase 1

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Quality of Life Standards

- Noise
- Light
- Odor
- Navigation
- Air

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Dewatering Facility Operations

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Dredging Project Update

- Unloading at processing facility

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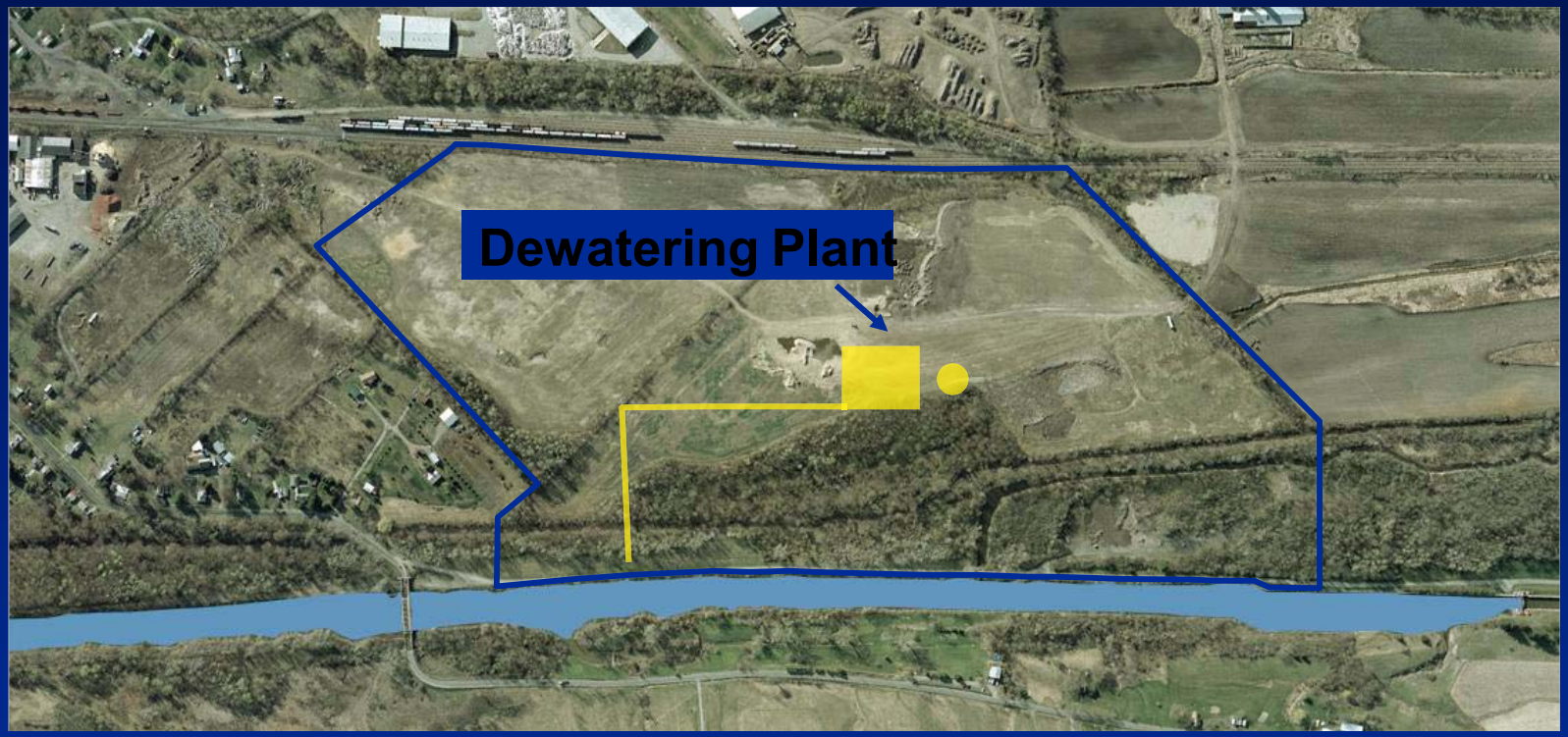
Water Treatment Plant



- > Handles process water and water from the stormwater basins
- > 25,500-square-foot building; 40-feet high
- > 2 million-gallon-a-day capacity

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Water Supply Issues

- Waterford and Halfmoon use the river for drinking water. New water line from Troy built by EPA for alternate supply.
- Village of Stillwater have well field next to river. GAC treatment built and operated by EPA for Village.

Dredging Project Update

- **Tree trimming**

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Dredging Project Update

- **Debris removal**

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River Dredging

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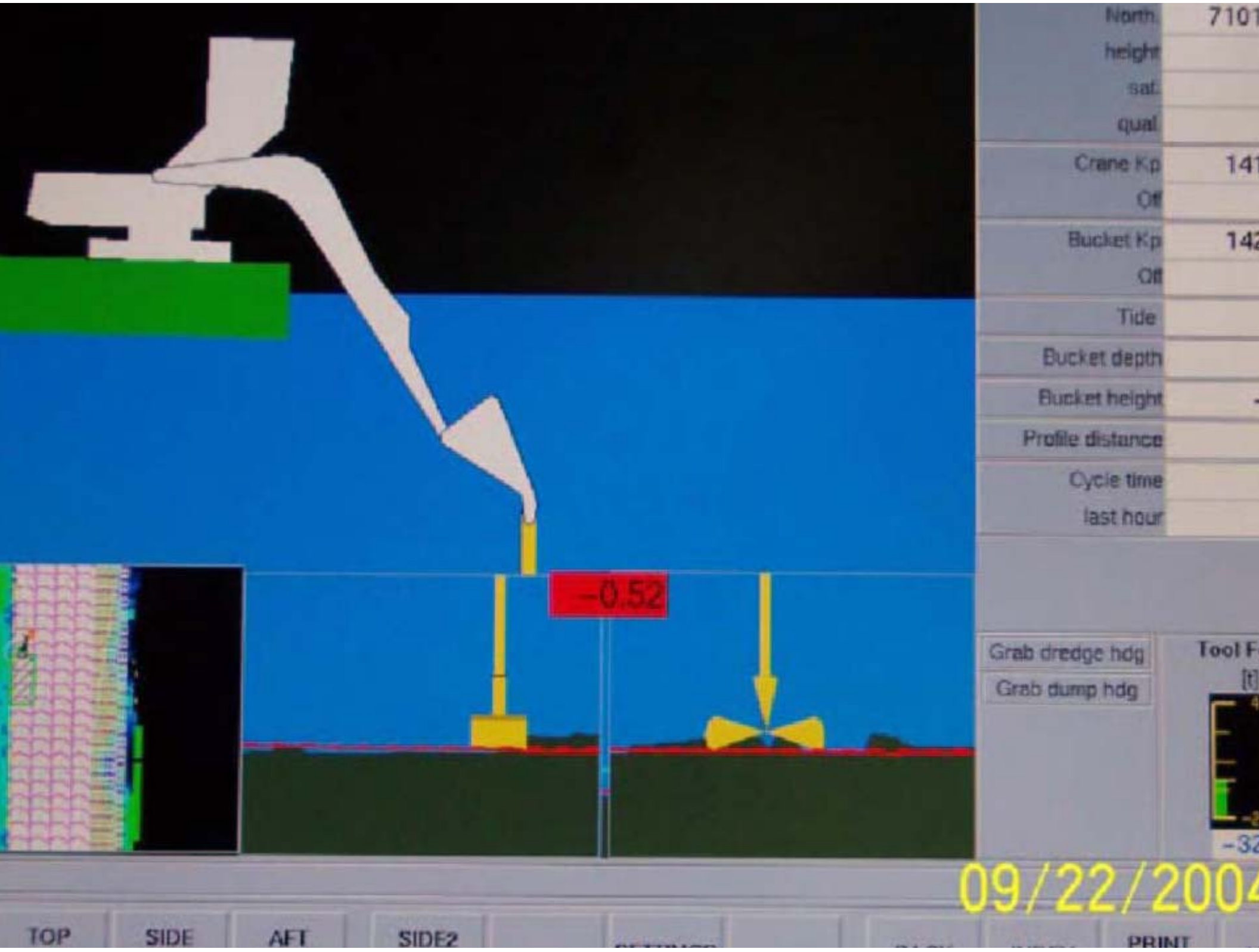
North
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SIDE
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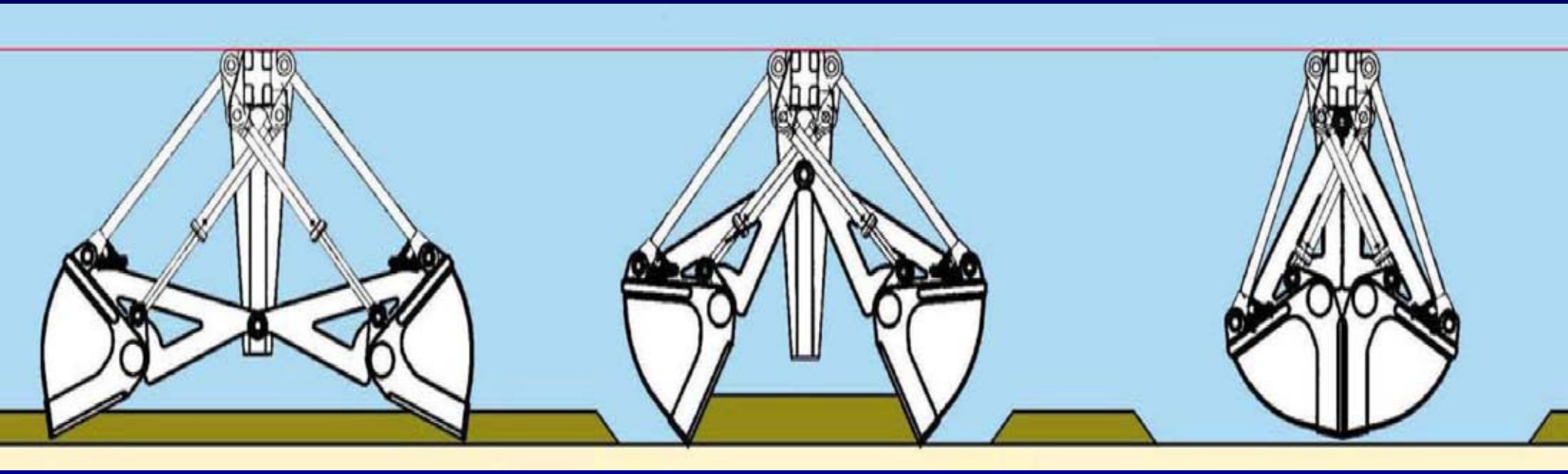
SIDE2
PRINT



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Update on Phase 1 (cont)

- Continuing River Operations Activities:
  - Certification unit review/approval
  - Backfilling/capping
- Backfilling to continue through fall season

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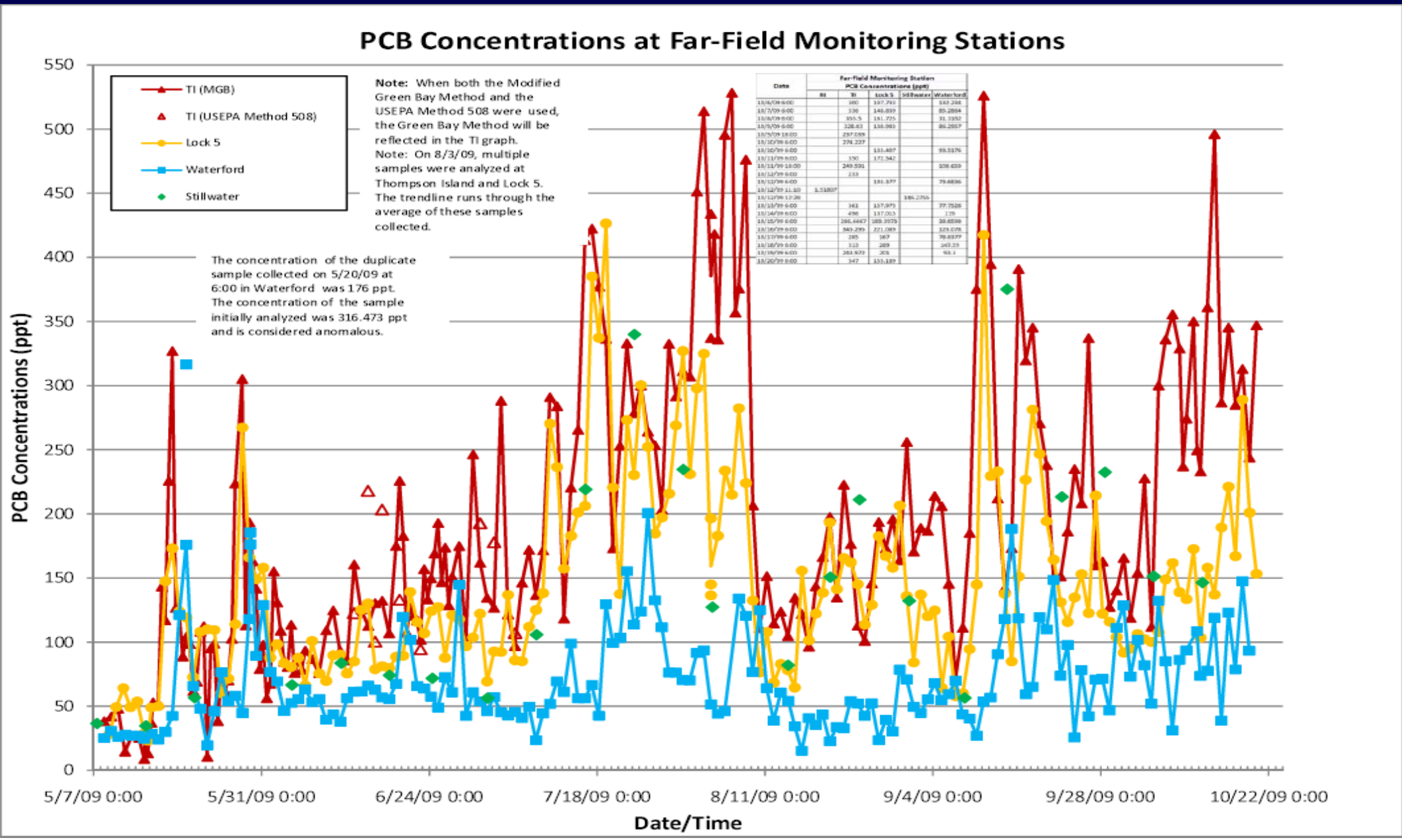
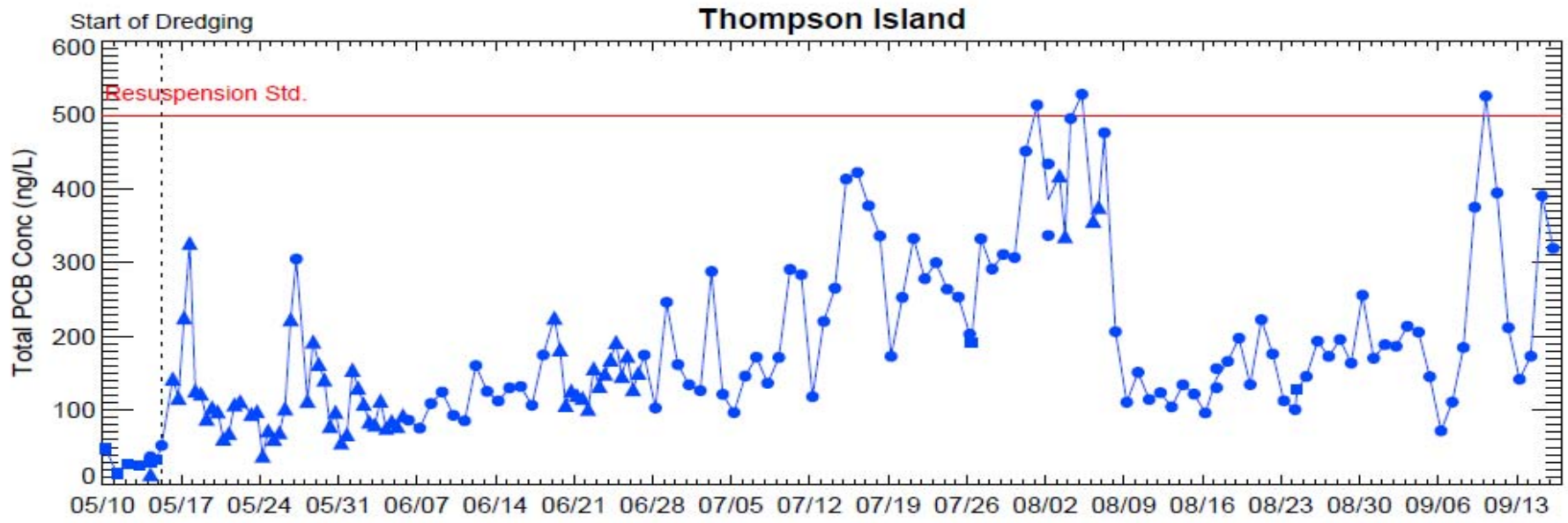
Water Monitoring

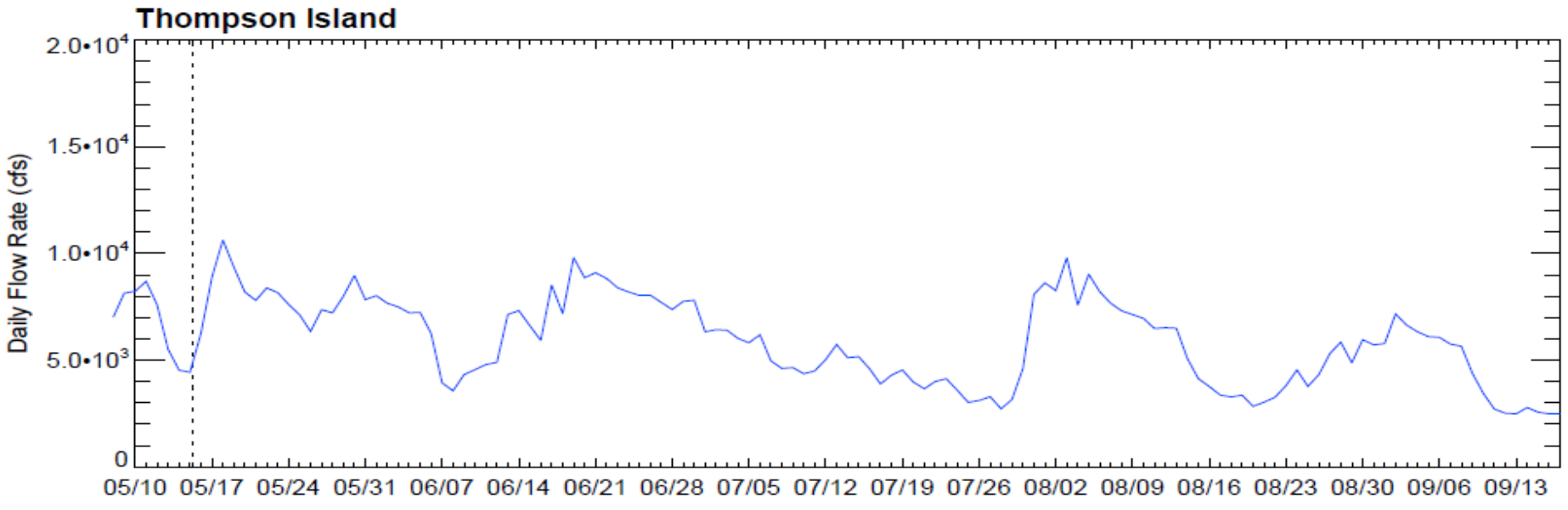
- One standard level exceedance in August
- Dredging halted, contingency monitoring began
- Dredging resumed once monitoring results over two consecutive days were below standard level
- One standard level exceedance in September (not a confirmed exceedance)

PCB Concentrations: Far-Field Stations

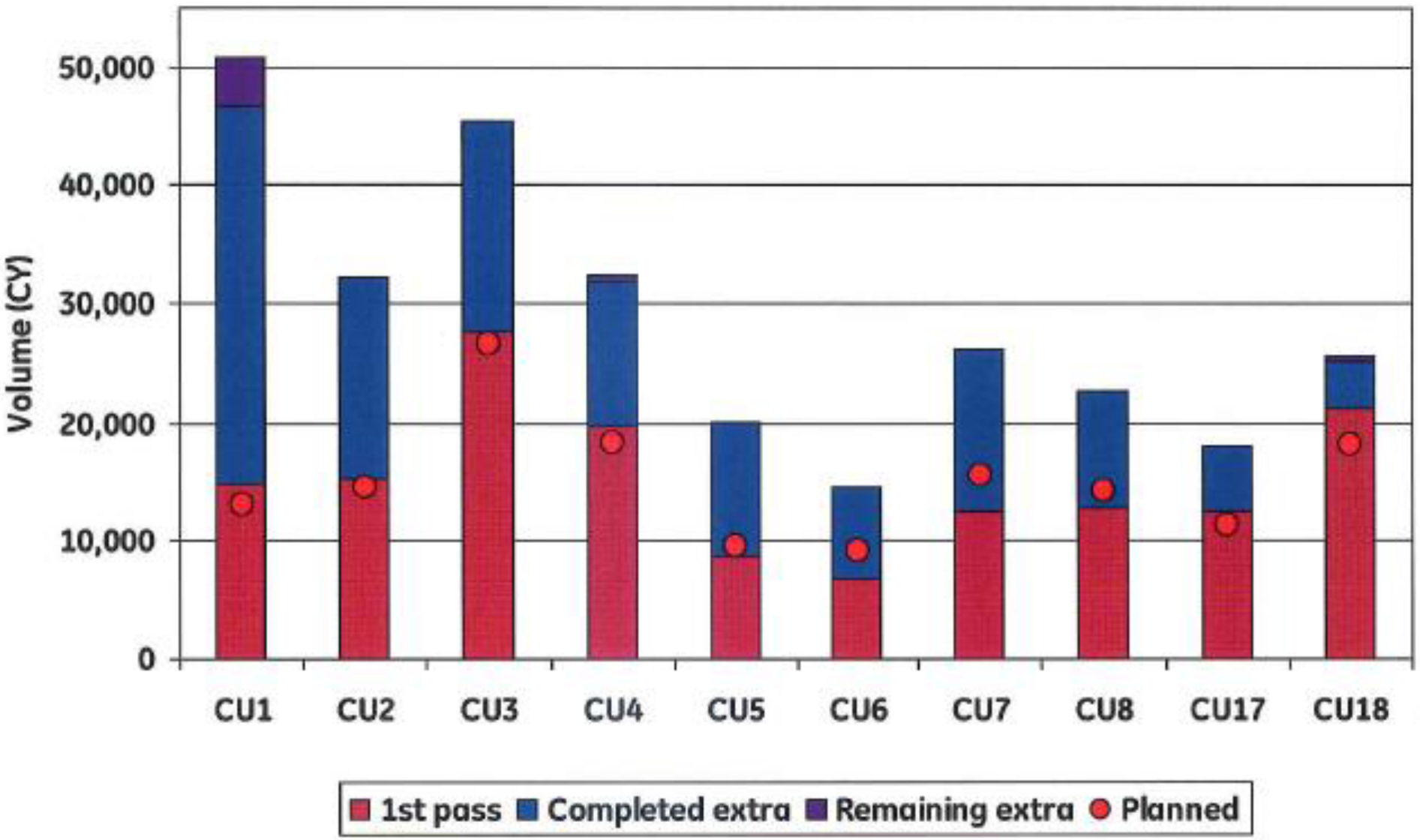


PCB Concentration: Thompson Island





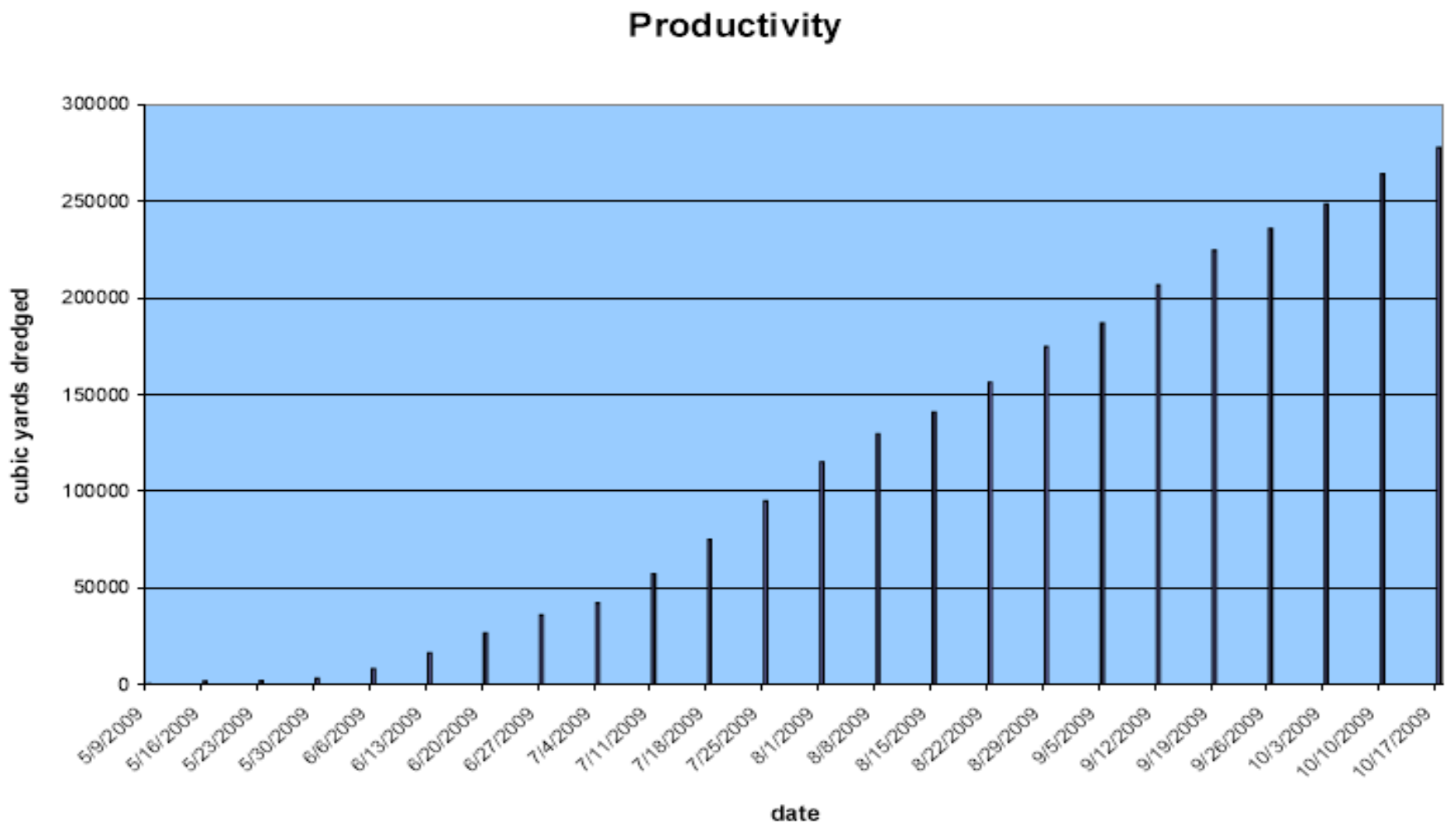
Dredged Volume By CU



On a CU basis, volumes have increase ~20% and 300%. Biggest increases in area around Rogers Island (close proximity to old dam)

Productivity

- **Approximately 278,000 cubic yards dredged as of October 17, 2009.**



Load (lbs) to October 18

Figure B-1a. Cumulative Net Total PCB Load due to Remedial Activities From Inception of Dredging (May 16, 2009) to October 18, 2009

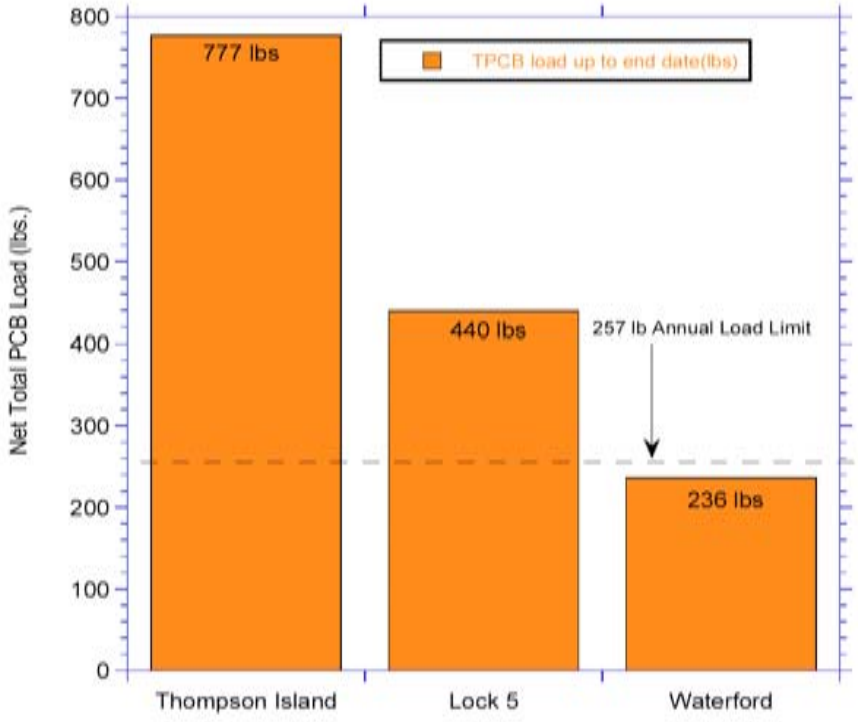
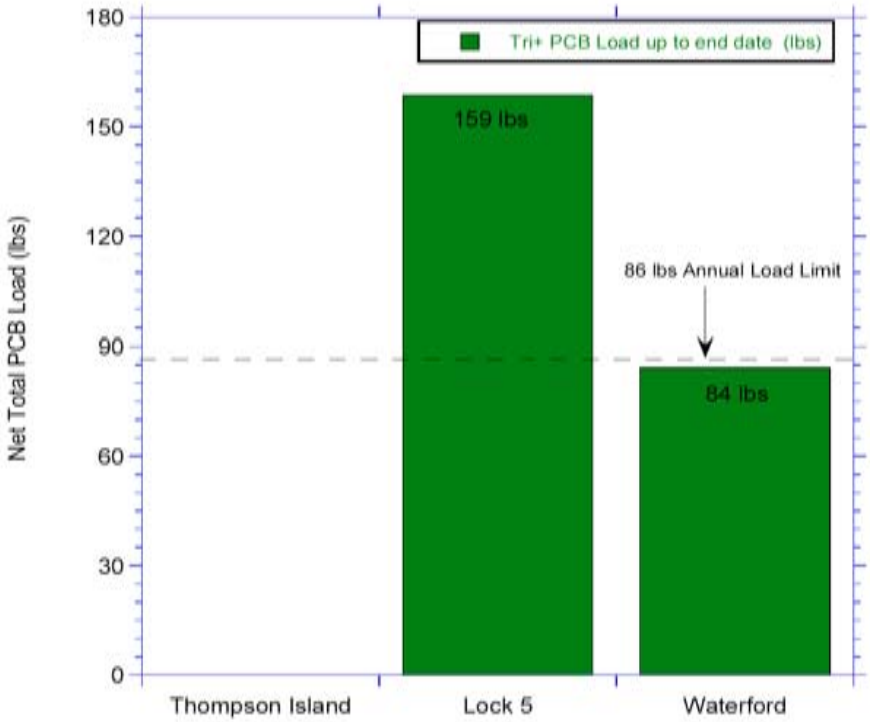


Figure B-2a. Cumulative Net Tri+ PCB Load due to Remedial Activities From Inception of Dredging (May 16, 2009) to October 18, 2009



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Performance Standard Monitoring

Air:

- **Approx 2,000 (24hr) samples collected since start of dredging**
  - **65 samples exceeded the standards along dredging corridor**
  - **11 samples exceeded the standards at the dewatering facility**
  - **Approximately 4% of all samples exceeded the standards**

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Productivity

- Approximately 224,500 cubic yards dredged as of September 23, 2009.

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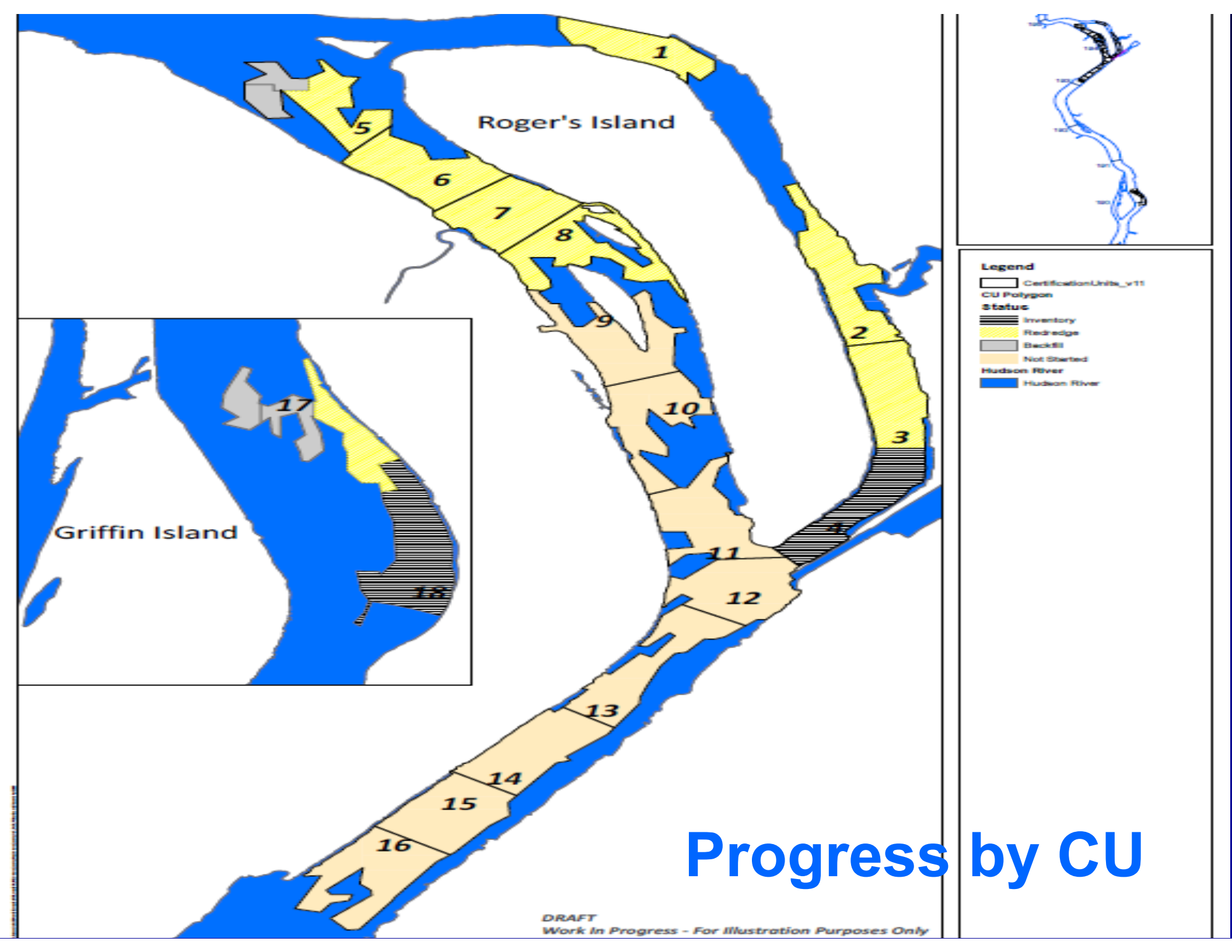
Roger's Island
Griffin Island
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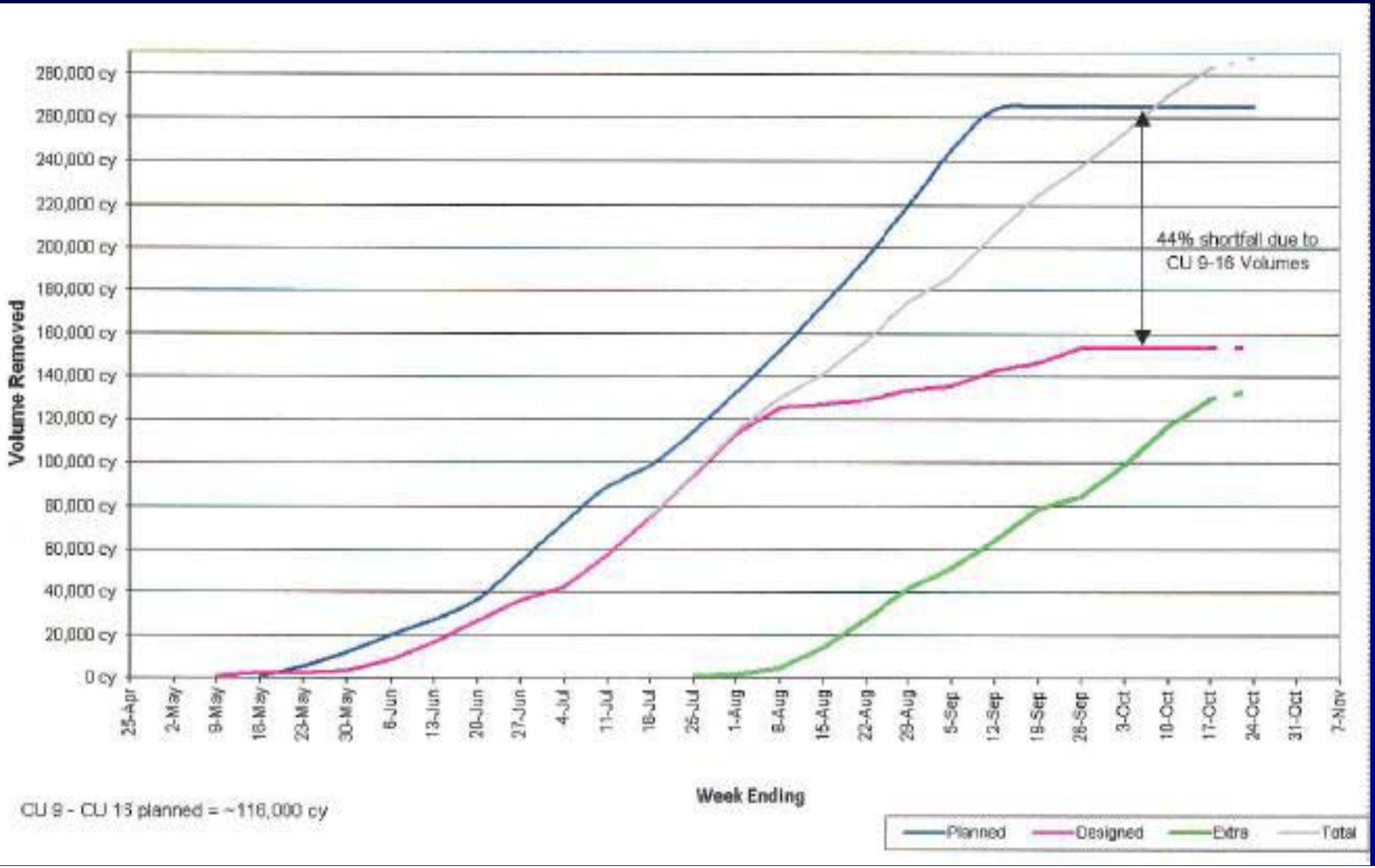
18
Legend
CertificationUnits_v11
CU Polygon
Statue
Inventory
Redredge
Backfill
Not Started
Hudson River
Hudson River
DRAFT
Work In Progress - For Illustration Purposes Only
Progress by CU

Volumes To Date



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Archeological Investigation

- Archeological work is underway at the site of historic Fort Edward.
- Archeologists have
  - completed underwater studies
  - removed the upper soil layers (recent material) to expose older strata dating from the time of the occupation of the Fort.

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CAUTION HAZARDOUS MATERIAL
CAUTION HAZARDOUS MATERIAL
CAUTION HAZARDOUS MATERIAL
CAUTION HAZARDOUS MATERIAL

Ingersoll Rand
Ingersoll Rand

Observations from the First Phase of Dredging

- River flows have varied significantly from typical conditions.
- Started in the worst case conditions
- Debris removal and prop wash are significant resuspension contributors.
- Lumber operation debris became a significant issue.
- Environmental bucket observations

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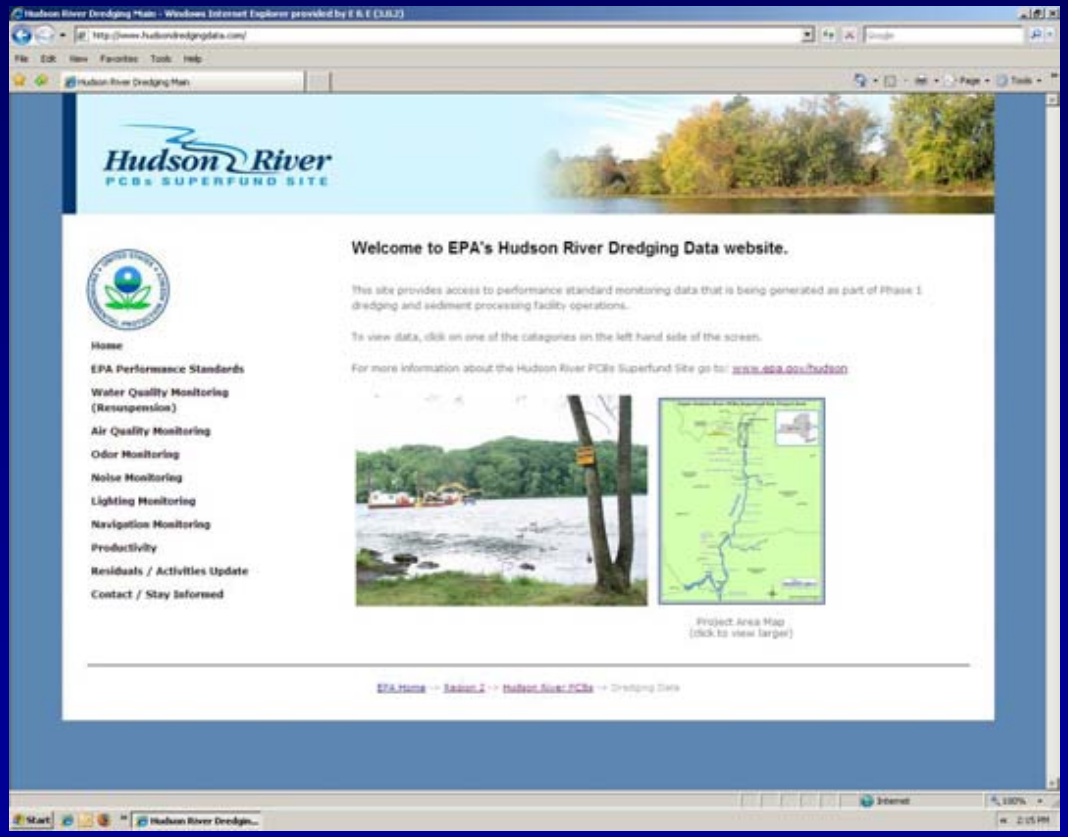
EPA's Monitoring Data Website

www.hudsondredgingdata.com



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Questions

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Questions for CEUs

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Question # 1

What are the Engineering Performance Standards?

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Engineering Performance Standards

- Resuspension, residuals and productivity standards are included in the basis of design
- Design analysis includes the assessment of the ability to achieve the standards
- Achievement of the performance standards will be tested in Phase 1

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Question #2

What are the Quality of Life Standards for?

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Quality of Life Standards

- Noise
- Light
- Odor
- Navigation
- Air

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Question #3

- **Why was mechanical dredging chosen over hydraulic dredging?**

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Mechanical Dredging

- Distance to pump material is 40 miles.
- Large amount of debris to be removed.
- Cobbles and boulders can clog transfer lines and must be removed mechanically anyway.

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Question #4

Why are there 2 phases to the project?

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Project Phases

- > Dredging along 40 miles of river
- > Phase 1:
- — 1st year dredging (May - November) 2009
- — Test equipment/processing facility at peak performance
- — Test of EPA's performance standards
- > Review of Phase 1:
  - — Independent peer review panel
  - --- Receive public comments
  - — EPA decision on changes to project
- > Phase 2:
  - — Remaining dredging

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Question # 5

What are the lessons learned so far in the project?

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Observations from the First Phase of Dredging

- River flows have varied significantly from typical conditions.
- Started in the worst case conditions
- Debris removal and prop wash are significant resuspension contributors.
- Lumber operation debris became a significant issue.
- Environmental bucket observations

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