

2008 Peconic River Monitoring Report Highlights

Community Advisory Council Briefing

June 11, 2009

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Environmental Protection Division*



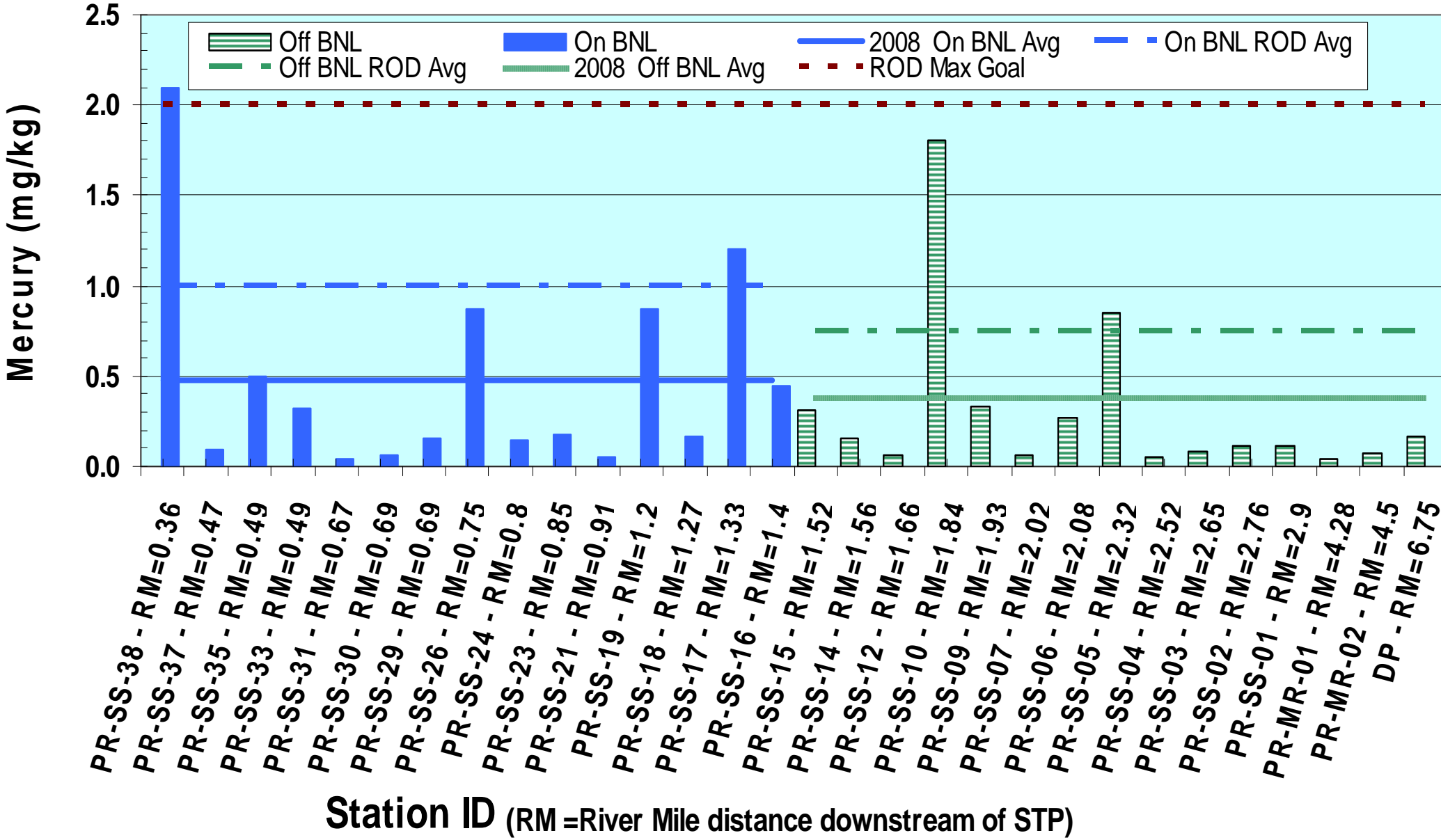
Agenda

- Summary of 2008 Annual Monitoring Results
 - Sediment – 2008 Routine and Supplemental Highlights
 - Fish – 2008 Mercury Highlights
 - Surface Water – 2008 Highlights

- 2008 Wetlands Highlights

- Sediment Trap Removal

2008 Routine Sediment Mercury Results



2008 Results – 30 Routine Sediment Monitoring Stations

- **Onsite (15 stations) Average = 0.48 mg/kg mercury**
 - 2008 Routine Monitoring Station Max = PR-SS-38 - 2.1 mg/kg.
 - PR-SS-38 History – (1.5 mg/kg (2006), 0.97 mg/kg (2007))
 - BNL/DOE recommend analyzing five additional PR-SS-38 sediment samples for mercury in 2009.
- **Offsite (15 stations) Average = 0.37 mg/kg mercury**
 - No offsite routine stations greater than or equal to 2.0 mg/kg

2008 Supplemental Sediment Sampling Mercury Results

■ 2008 PR-SS-10 Area: lateral extent results (7 samples)

- Mercury range: 0.05 to 0.74 mg/kg.
- Average mercury : 0.26 mg/kg

■ PR-SS-10 Area sample history:

- 2006 PR-SS-10 station: 7.1 mg/kg,
 - 2006 Follow up: 0.92 to 2.7 mg/kg, average = 1.86 (5 samples)
- 2007 PR-SS-10 station: 1.6 mg/kg
- 2007 7 PR-SS-10 transects, 20 samples 0.095 to 4.6 mg/kg, average = 1.58 mg/kg
- 2008 PR-SS-10 station: 1.8 mg/kg

- ## ■ PR-SS-10: BNL/DOE will continue to sample PR-SS-10 station on a routine annual basis.
- The 35 samples since 2006 between 150 feet upstream and 150 feet downstream of PR-SS-10 sufficiently characterized the area. Additional supplemental sampling is not necessary.

PR-SS-15 Area



2008 Supplemental Sediment Sampling Mercury Results

- **PR-SS-15 Area: 2008 Supplemental Sampling to evaluate 2007 elevated mercury results at PR-SS-15-U1-L40 (9.8 mg/kg) and PR-SS-15-U1-L65 (34.5 mg/kg).**
 - 2008 PR-SS-15-U1-L40: 5 Supplemental mercury samples 0.6 to 19.0 mg/kg. Average = 6.31 mg/kg
 - 2008 PR-SS-15-U1-L65: 5 Supplemental mercury samples 7.3 to 36.8 mg/kg. Average = 20.38 mg/kg

- **PR-SS-15 Area sample history:**
 - 2006 PR-SS-15 station: 14.2 mg/kg,
 - 2006 Follow up: 0.56 to 5.80 mg/kg, average = 3.23 (5 samples)
 - 2007 PR-SS-15 station: 0.24 mg/kg
 - 2007 7 PR-SS-15 transects, 33 samples 0.043 to 34.5 mg/kg, average = 1.86 mg/kg
 - 2008 PR-SS-15 station: 0.31 mg/kg

2008 Supplemental Sediment Sampling Mercury Results

- **BNL/DOE will initiate planning with the regulators for the remediation of the sediment with elevated mercury in the PR-SS-15 area.**
- **PR-SS-15 Area: BNL/DOE will continue to sample PR-SS-15 station on a routine annual basis.** The 51 samples since 2006 between 150 feet upstream and 150 feet downstream of PR-SS-15 sufficiently characterized the area. Additional supplemental sampling is not necessary.

2008 Peconic River Surface Water - Total Mercury

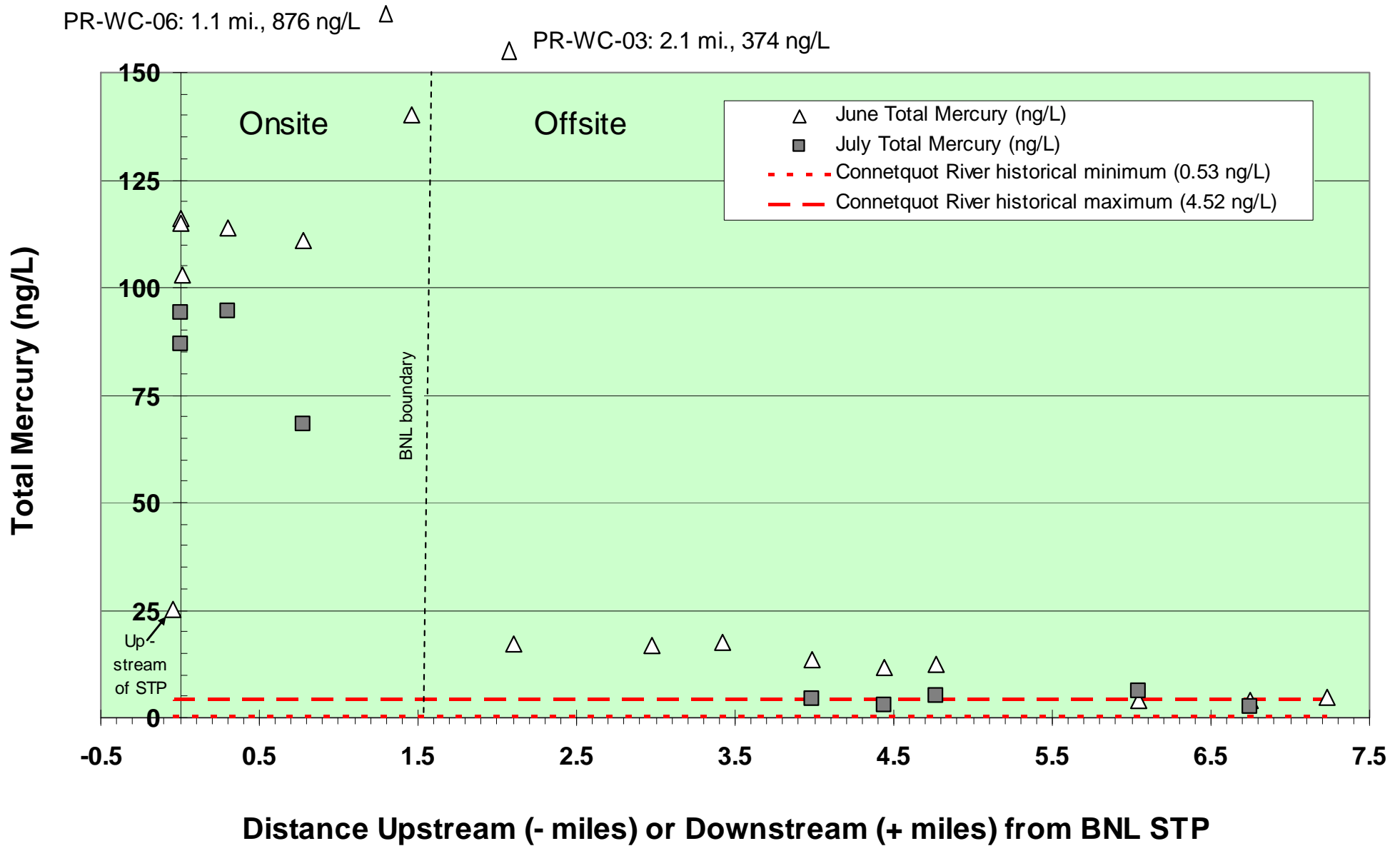
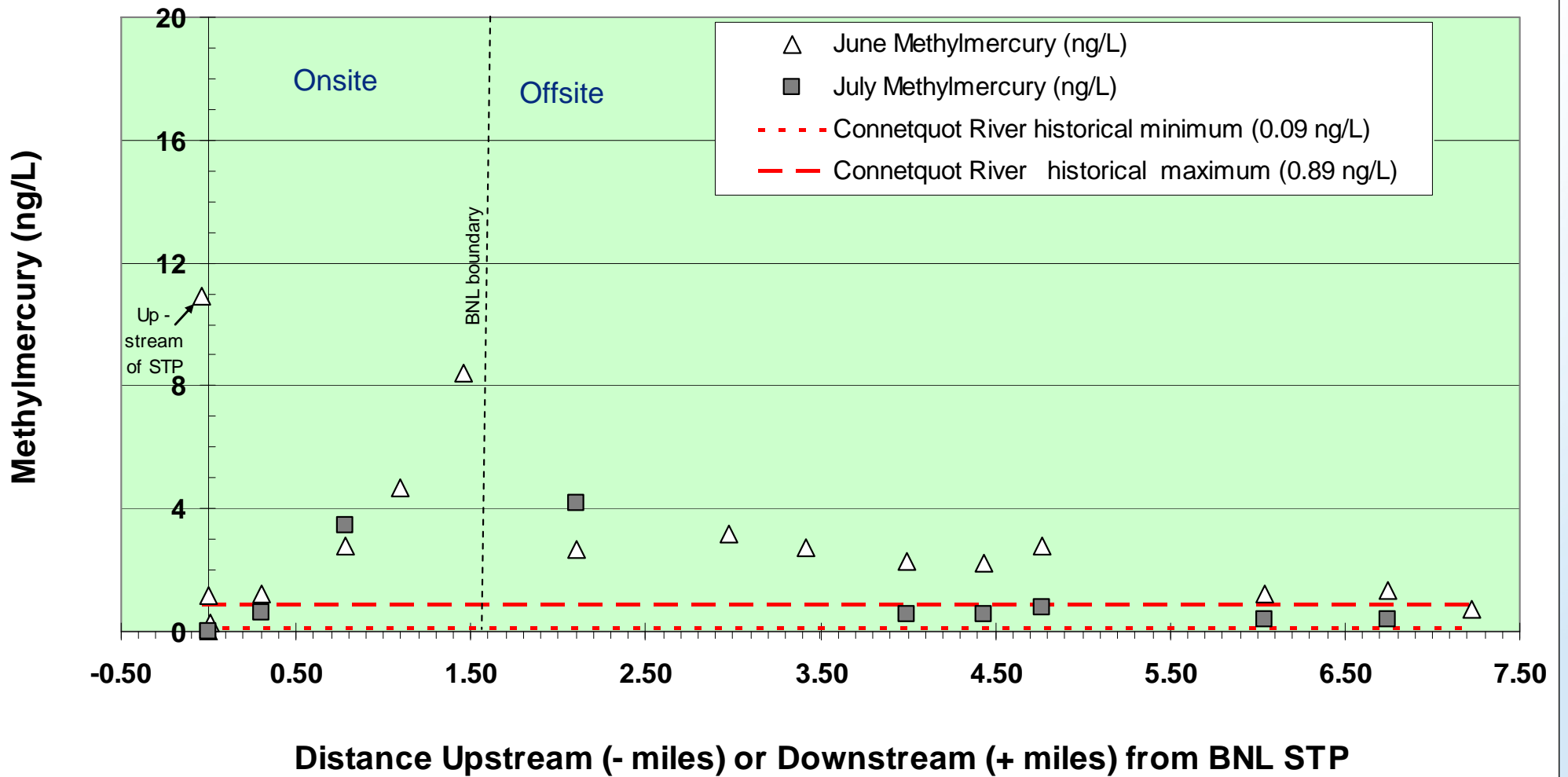


Figure 3-3. 2008 Peconic River Surface Water Methylmercury



2008 Water Column Highlights

- Total Mercury concentrations decline with distance downstream of STP.
 - STP effluent mercury is higher than upstream of STP.
- Methylmercury concentrations decline with distance downstream of BNL border.
- Potential contributors to observed declines in downstream total mercury and methylmercury.
 - Flow over downstream sediment with lower mercury concentrations
 - Dilution (surface runoff, tributaries, and/or the water table).

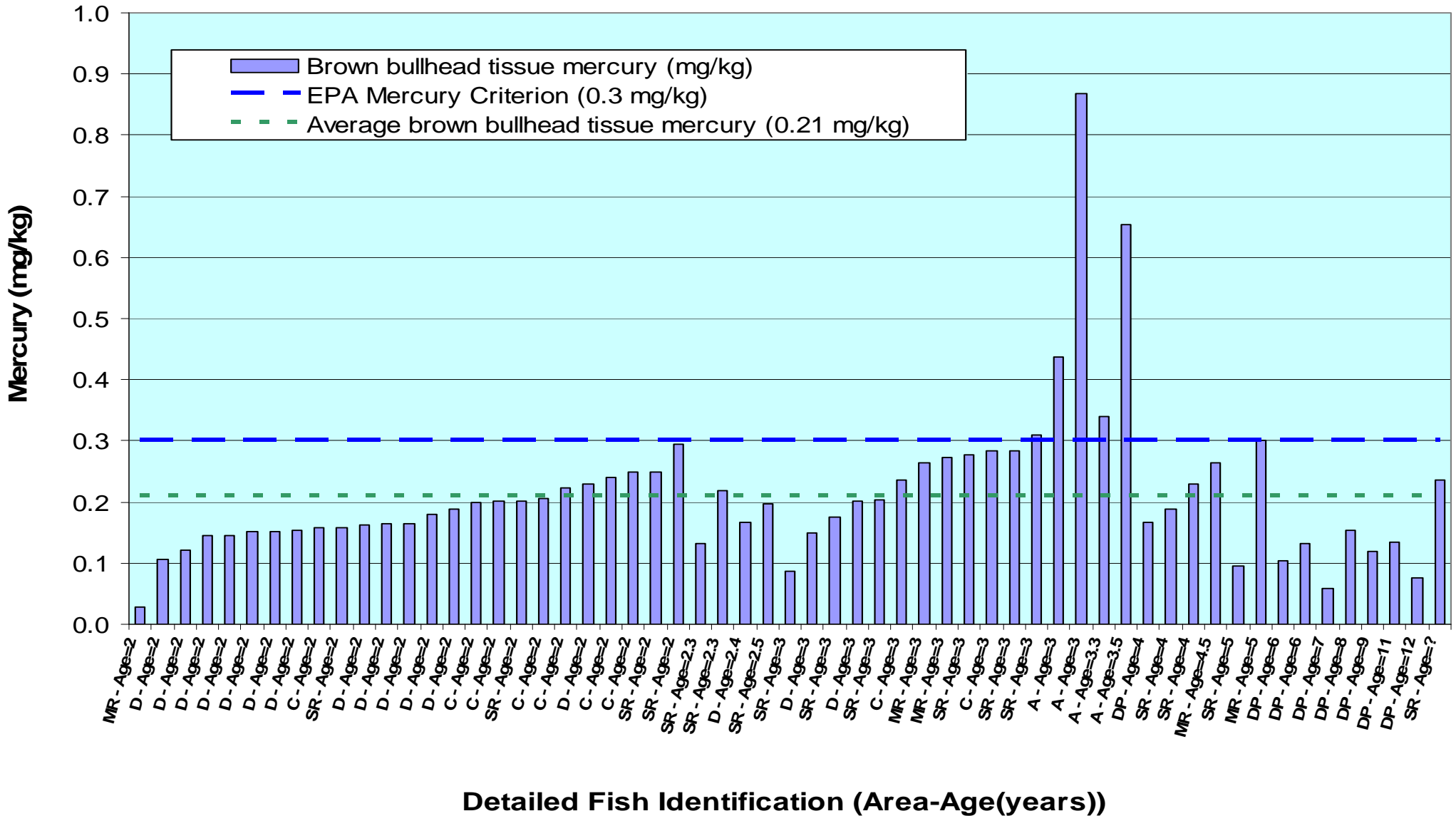
2008 Water Column Highlights

- **PR-SS-15-U1-L40 and PR-SS-15-U1-L65:** BNL/DOE will continue to evaluate potential downstream transport of mercury by the river at locations both upstream and downstream of the above stations four times annually, as flow conditions permit.
- **PR-WC-06:** Second occurrence of high mercury and TSS. Analyze sediment for mercury during June and July 2009 water column sampling for total mercury, methylmercury and TSS.



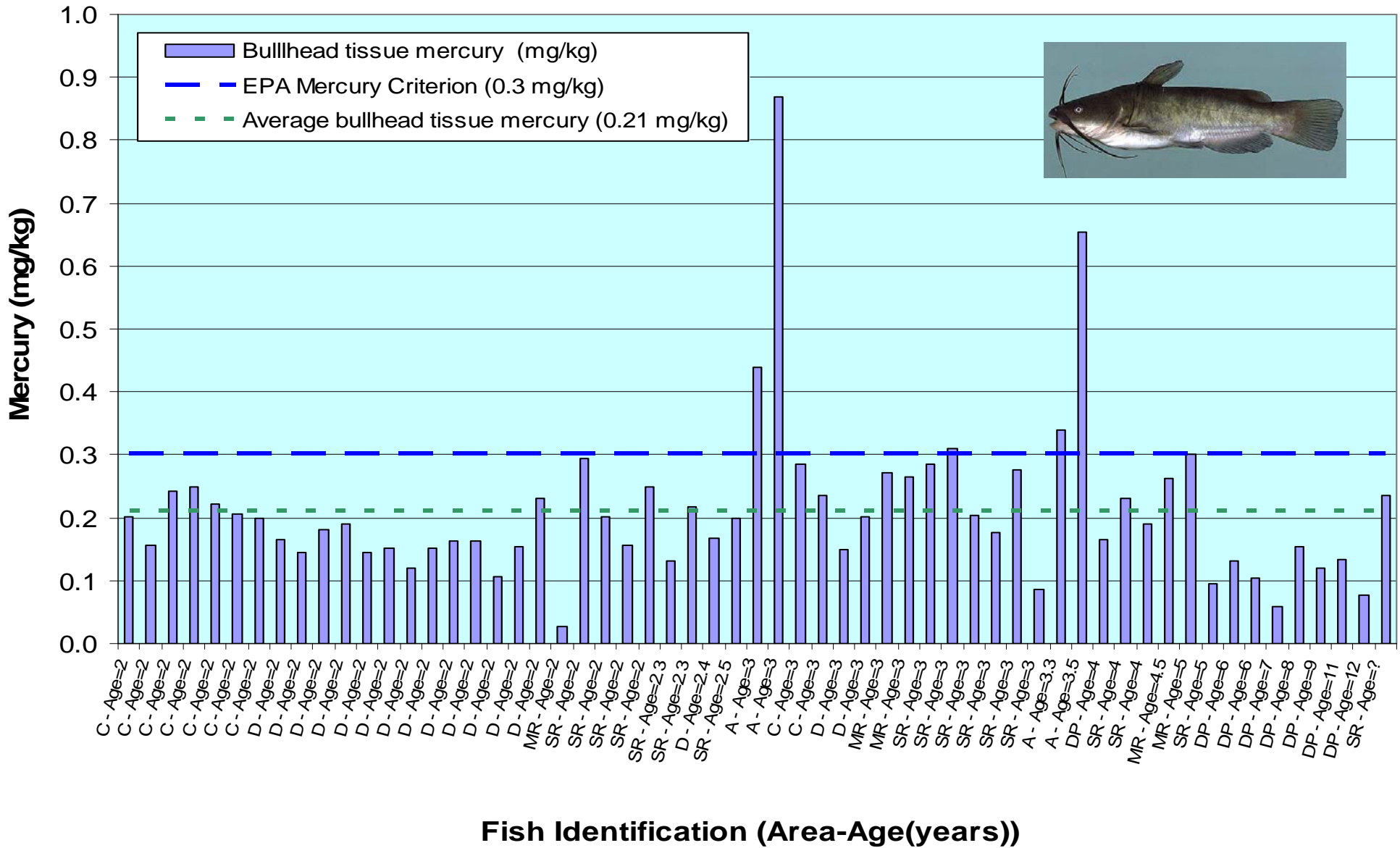
2008 Peconic River Brown Bullheads - Mercury

(Sorted by Age - Mercury Concentration - Area)



2008 Peconic River Brown Bullheads - Mercury

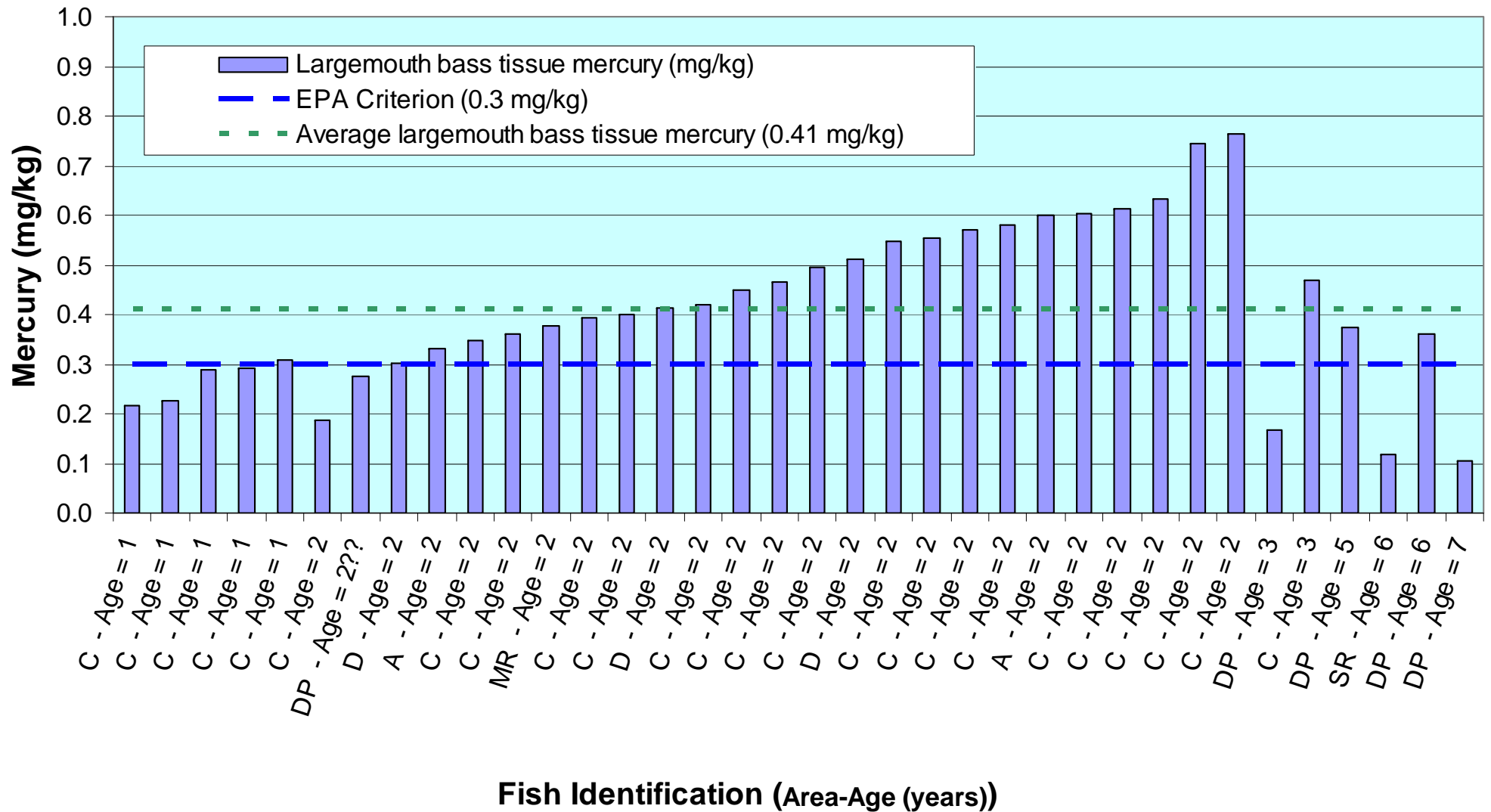
(Sorted by Age - Area - Length)





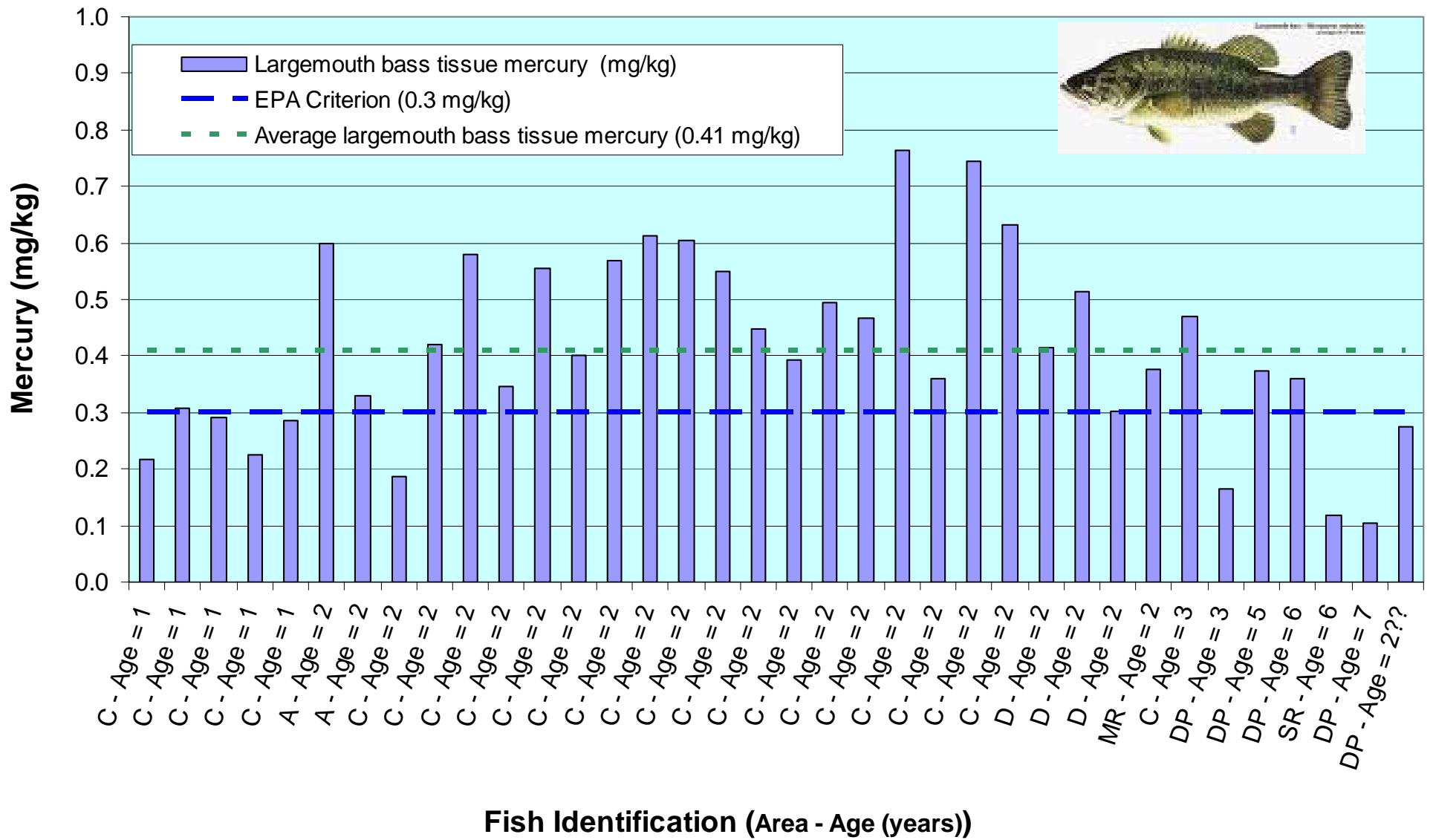
2008 Peconic River Largemouth Bass - Mercury

(Sorted by Age - Mercury Concentration - Area)



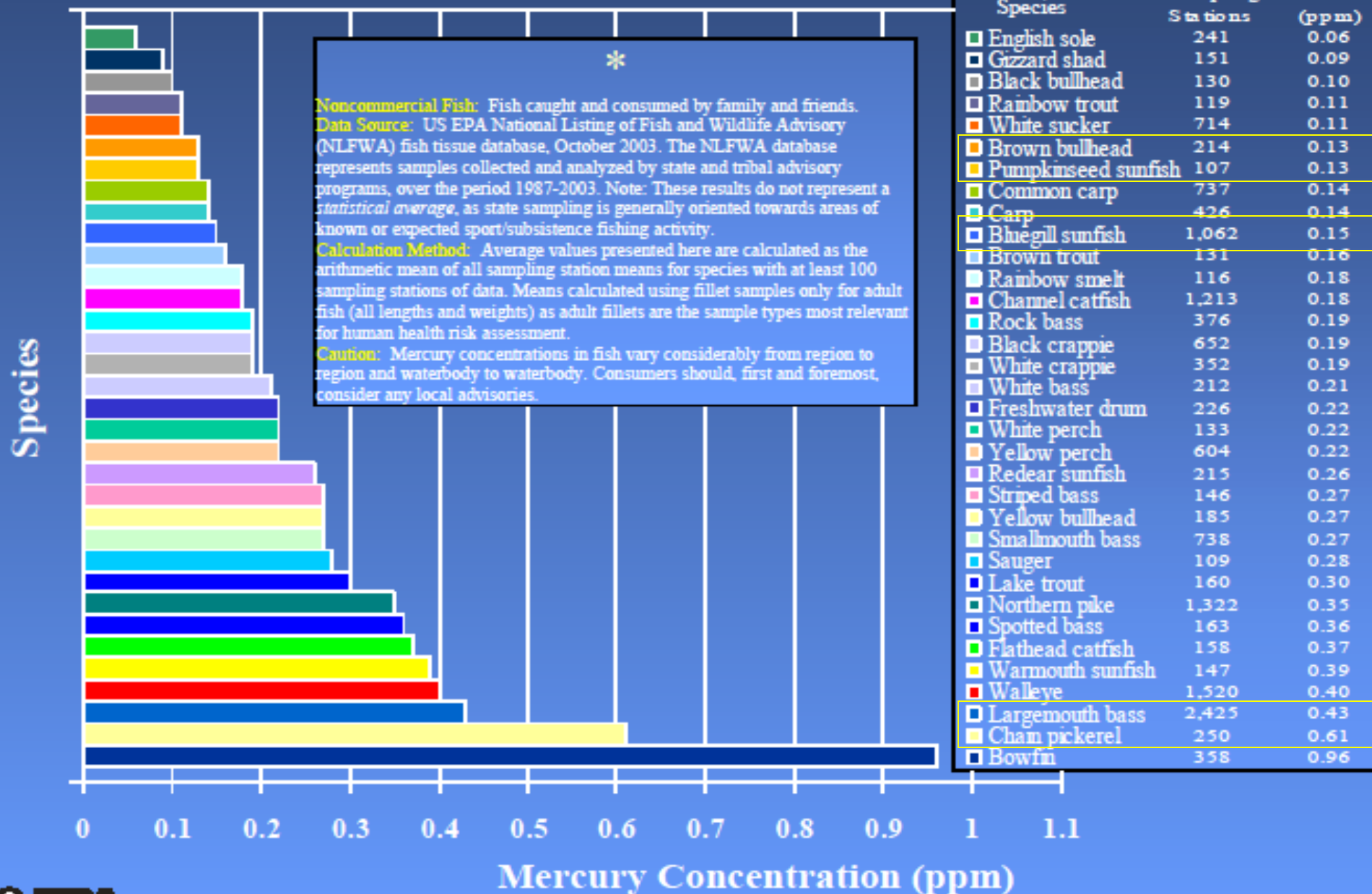
2008 Peconic River Largemouth Bass - Mercury

(Sorted by Age - Area - Length)



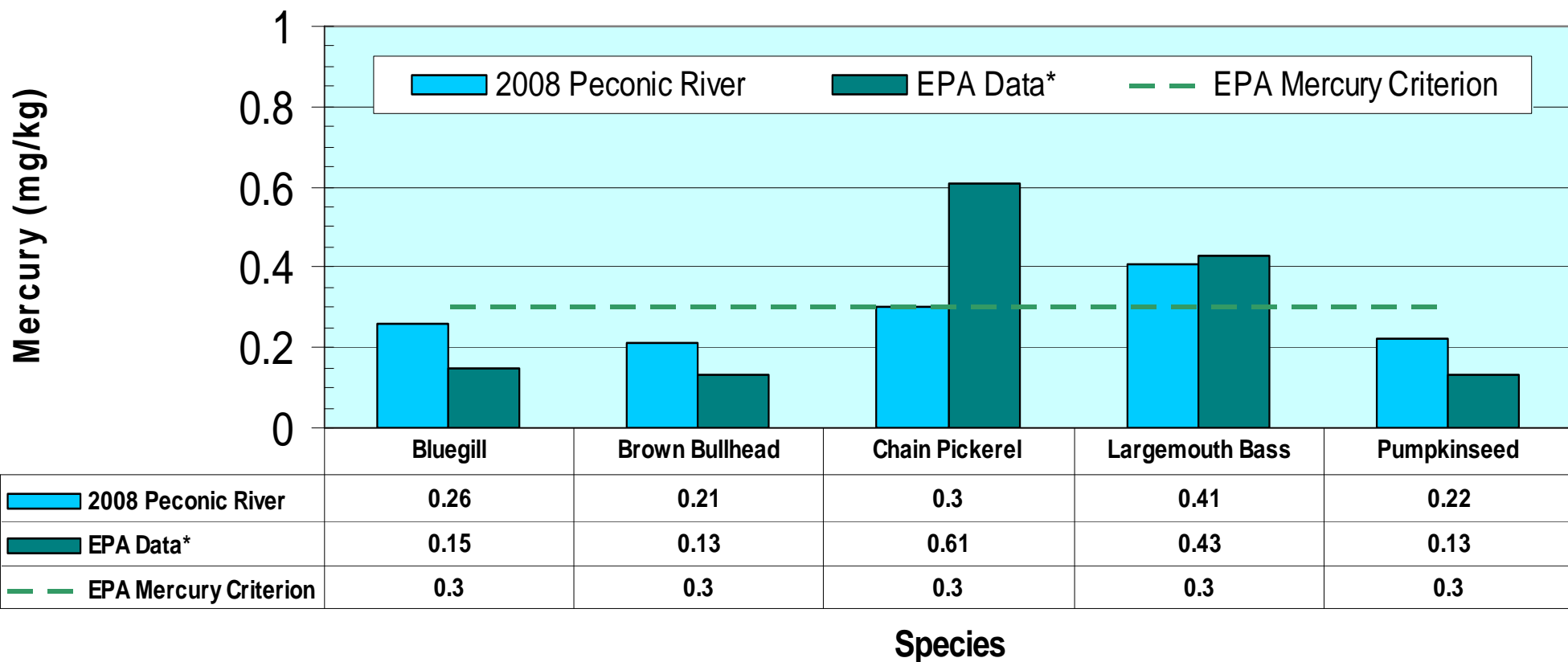
Average Tissue Mercury Concentrations in Noncommercial Fish*

*Source: <http://www.epa.gov/waterscience/fish/advice/tissue-slide.pdf>



Peconic River 2008 and 1987 to 2003 EPA* Average Fish Mercury Concentrations

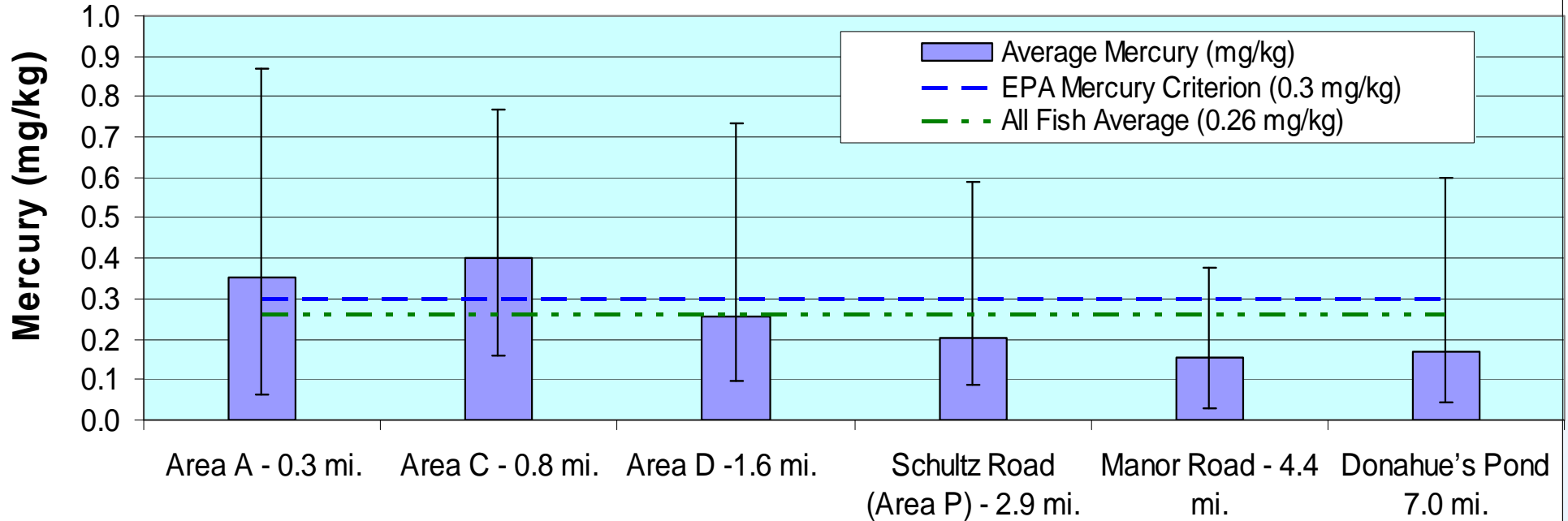
*Source: <http://www.epa.gov/waterscience/fish/advice/tissue-slide.pdf>



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2008 Peconic River

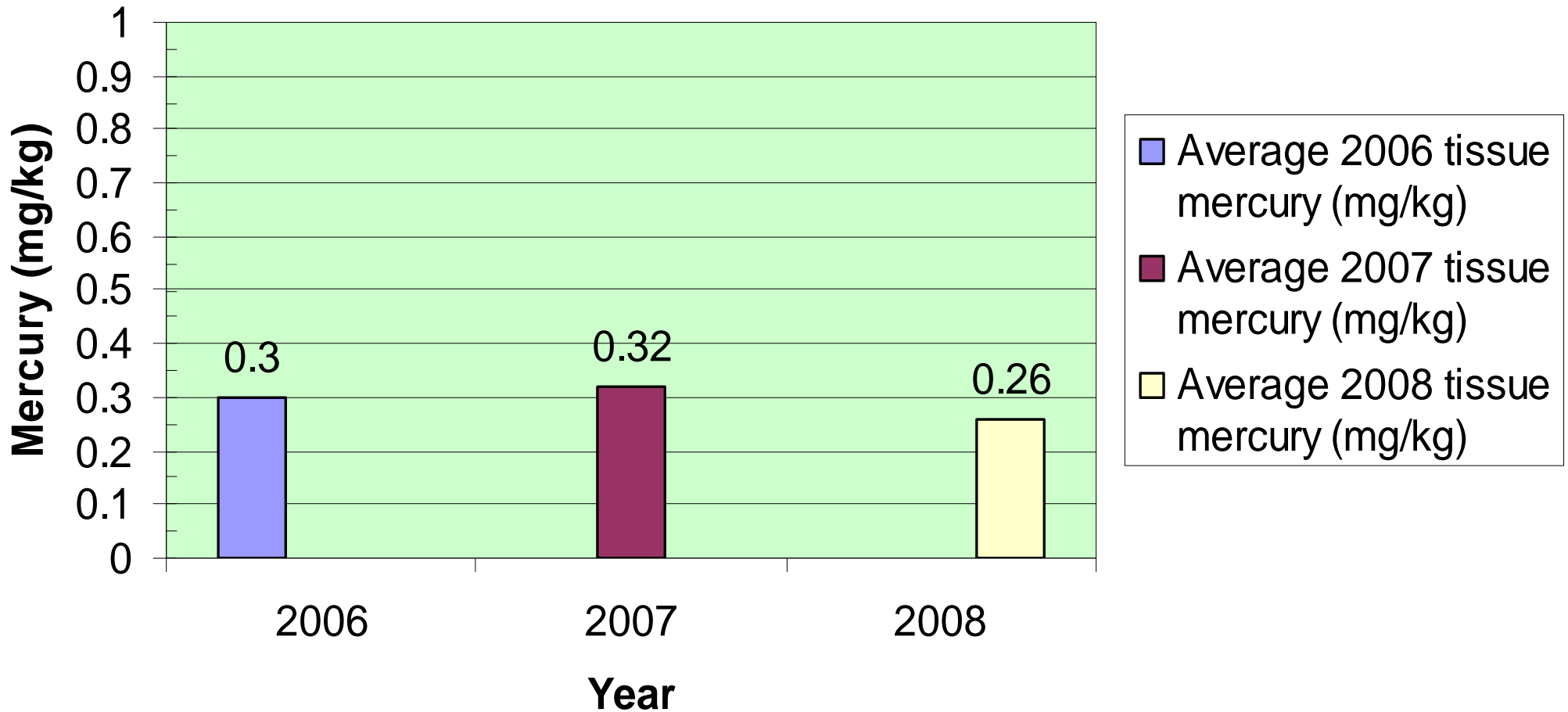
Average Fish Tissue Mercury by Area



Collection Area and Approximate Downstream Distance
 (Error Bars show the minimum and maximum for each location.)
 Distance is from BNL STP to mid-point of fish collection area.

Ageing Fish: BNL/DOE will continue to age fish through 2010. Ageing fish beyond 2010 will be based on the usefulness of the 2008, 2009 and 2010 age data.

2006 to 2008 Average Peconic River Fish Tissue Mercury Concentrations



2008 Wetlands Highlights

- Ninety-one 42 gallon bags of Phragmites removed by hand from onsite and offsite remediated and un-remediated areas.
- New York State wetland permit requirements, including invasive species, were met in 2007.
- Federal invasive species monitoring and control requirements were met in 2008.
- Wetlands Request:
 - BNL/DOE requests approval from EPA that federal wetland requirements have been met.

Sediment Trap

- ROD requires sediment trap to be removed.

Sediment Trap Request

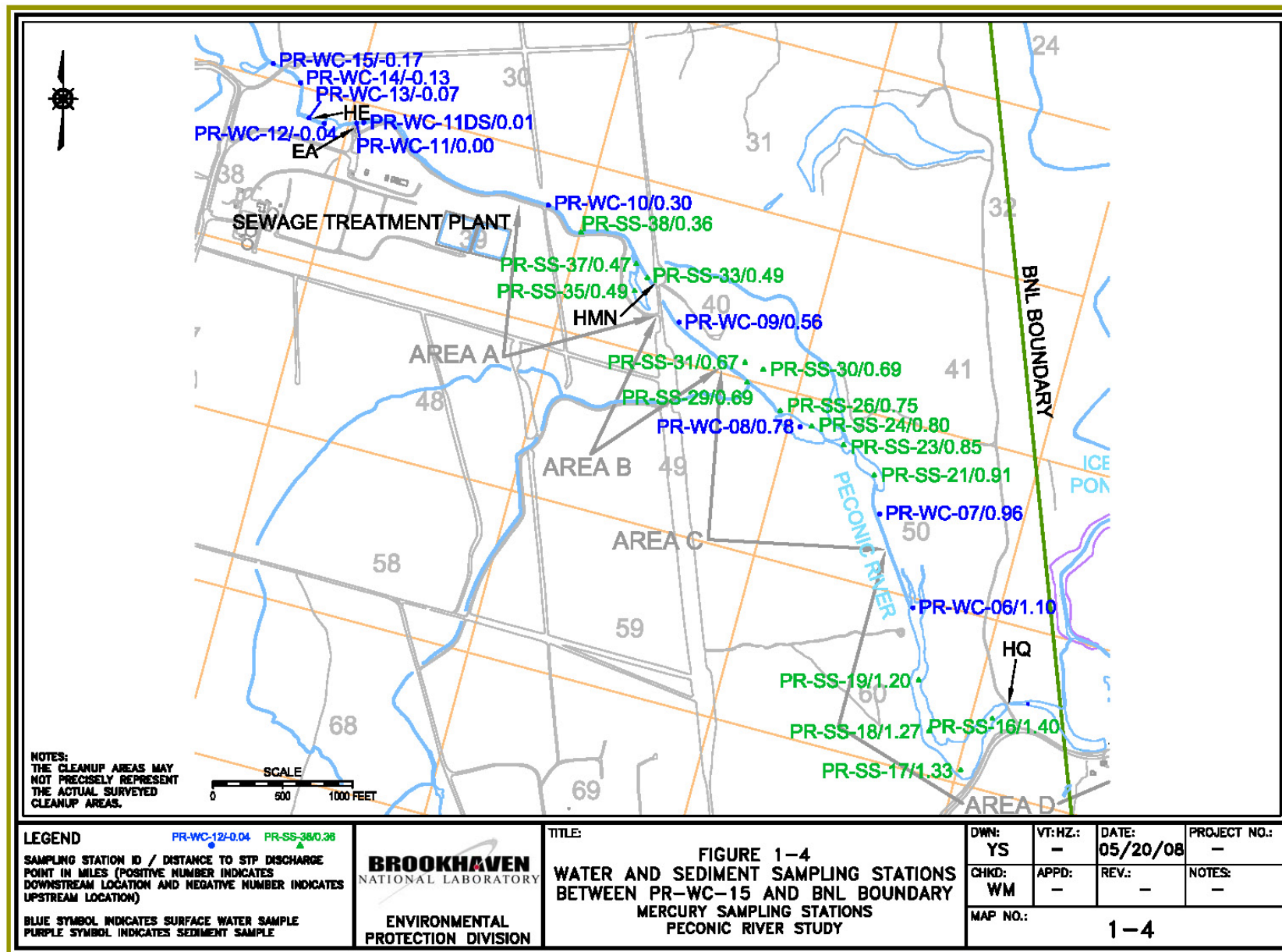
- BNL/DOE requested and received DEC approval to remove the trap during low water conditions to minimize operational costs and minimize potential dispersion of entrained contaminated sediment.
- Develop Removal Plan:
 - Recommend removal during low water conditions.
 - Approximately 40 cubic yards of bluestone rip-rap, followed by characterization of un-remediated sediment.

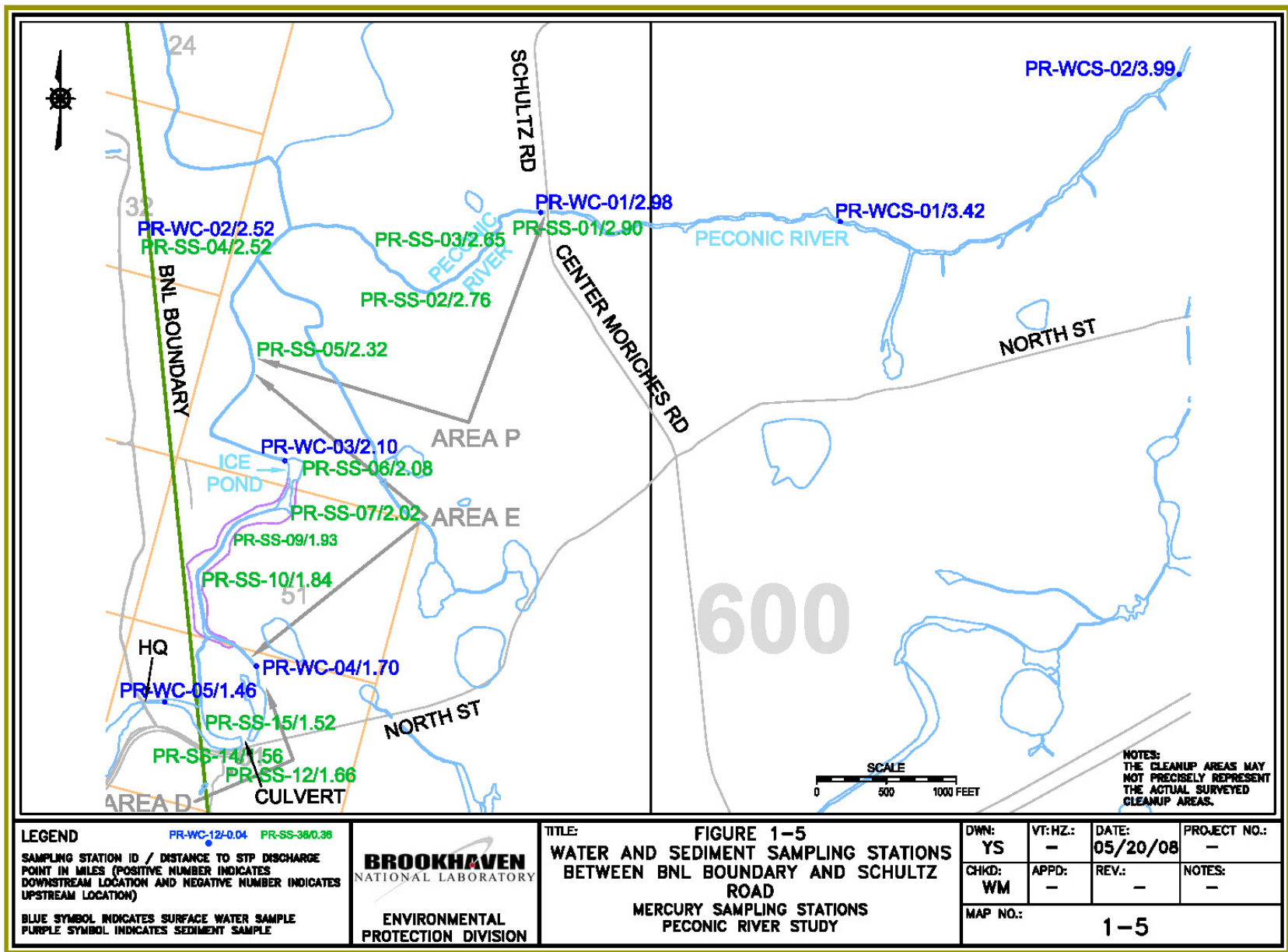
Sediment Trap - November 17, 2008

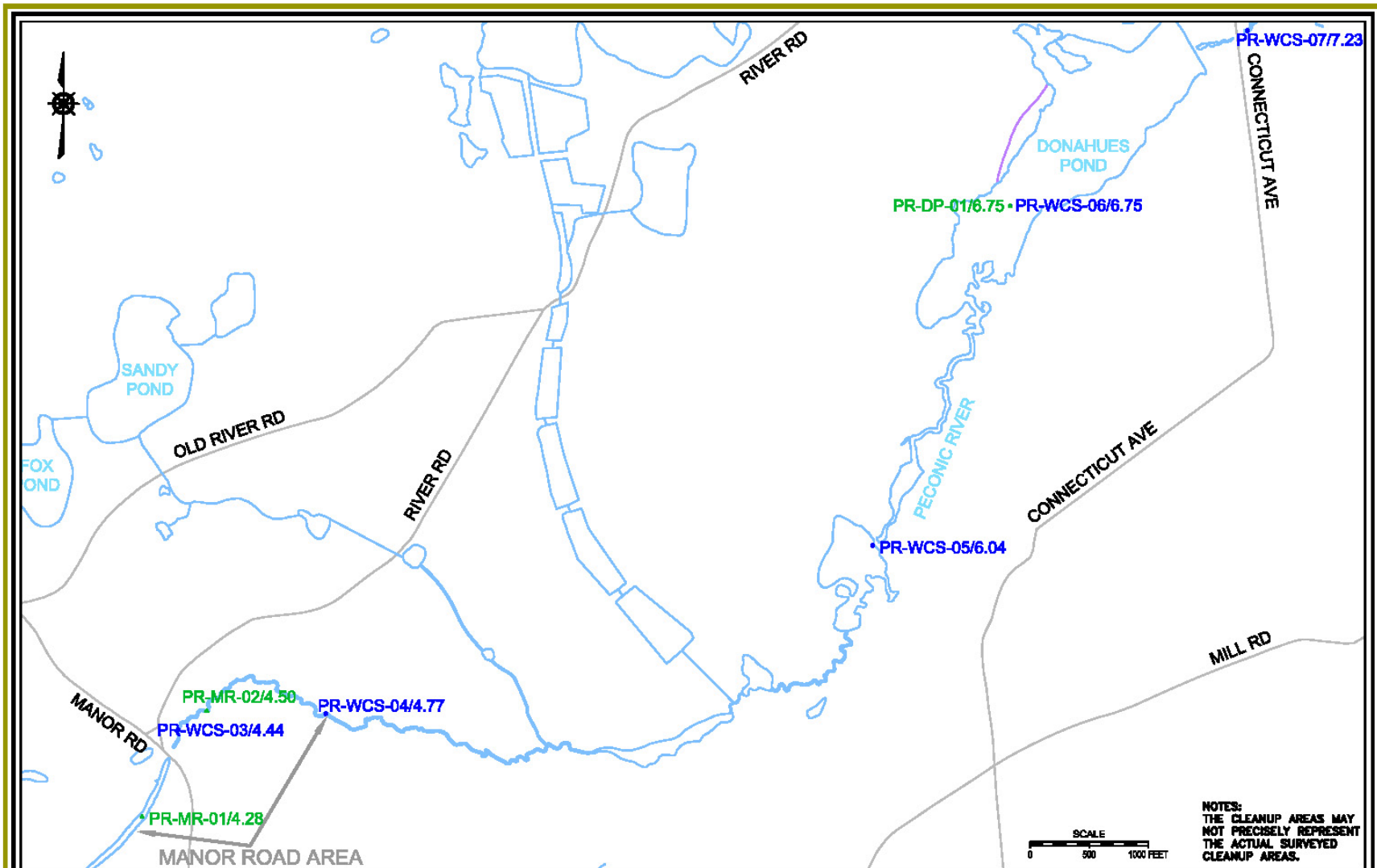


Discussion

Reference Maps







LEGEND

● PR-WC-12/0.04 ● PR-SS-38/0.36
 SAMPLING STATION ID / DISTANCE TO STP DISCHARGE
 POINT IN MILES (POSITIVE NUMBER INDICATES
 DOWNSTREAM LOCATION AND NEGATIVE NUMBER INDICATES
 UPSTREAM LOCATION)
 BLUE SYMBOL INDICATES SURFACE WATER SAMPLE
 PURPLE SYMBOL INDICATES SEDIMENT SAMPLE



TITLE:
FIGURE 1-6
WATER AND SEDIMENT SAMPLING STATIONS
BETWEEN MANOR RD AND CONNECTICUT AVE
MERCURY SAMPLING STATIONS
PECONIC RIVER STUDY

DWN:	VT:HZ.:	DATE:	PROJECT NO.:
YS	-	05/20/08	-
CHKD:	APPD:	REV.:	NOTES:
WM	-	-	-
MAP NO.:		1-6	