



Beaver River Watershed *PCB Investigation*

Technical Committee Meeting
June 8-9, 2010

PCB TMDL Background

- Completed Ohio River PCB TMDL in 2002
 - Entire WV border (277 river miles)
- Mainstem TMDL only
 - Basin is too large and data is too limited to address issue with a single TMDL for entire watershed
 - Assigned allowable loadings to major tributaries
 - Follow-up tributary TMDLs/source reductions necessary to meet WQS in the Ohio River

Current Challenge

- The contamination is wide-spread
 - TMDL required for the entire Ohio River
- Identifying specific sources has been difficult
 - Sampling indicates POTWs and numerous types of industrial facilities may discharge PCBs
 - Thousands of potential sources spread over basin
- Need to focus on a smaller scale
 - Select tributary sub-basin to focus efforts

Why the Beaver River Watershed?

- Needed smaller area to focus source identification effort
 - 3,130 square miles (Ranks 14th of Ohio R. tribs)
- Beaver River has elevated PCB levels
 - Highest single sample concentration (19,300 pg/L)
 - Highest average concentration (11,700 pg/L)
 - Fourth highest load
 - Highest PCB yield (i.e. load/area)
- Interstate tributary

Sampling Approach

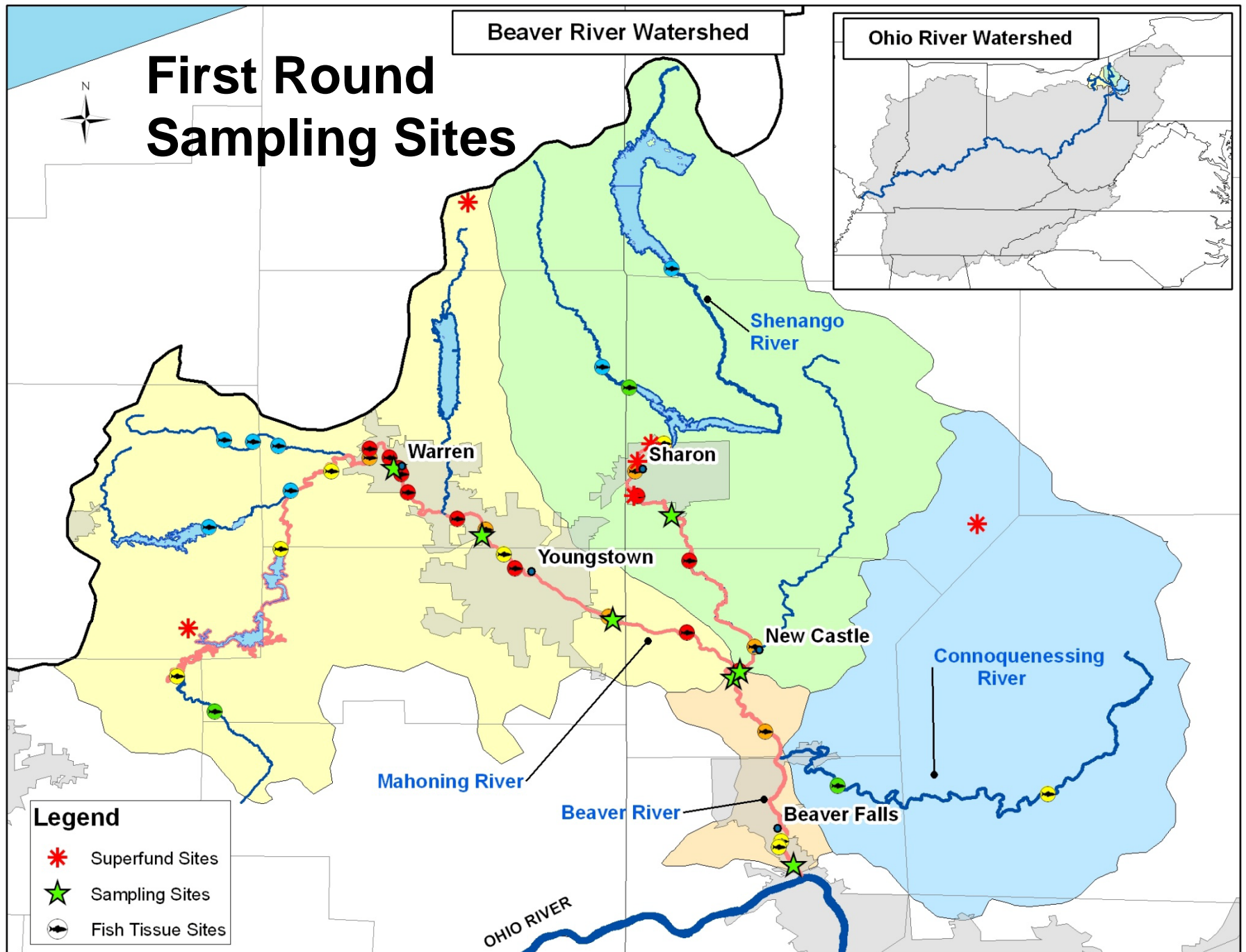
- Phased sampling approach
 - Conduct initial round of sampling
 - Subsequent rounds based on previous results
 - Focus in on hot-spots
- First round of sampling
 - Completed December 2009
 - Sampled at 7 locations
 - 4 sites on the Mahoning River
 - 2 sites on the Shenango River
 - 1 site at the mouth of the Beaver River



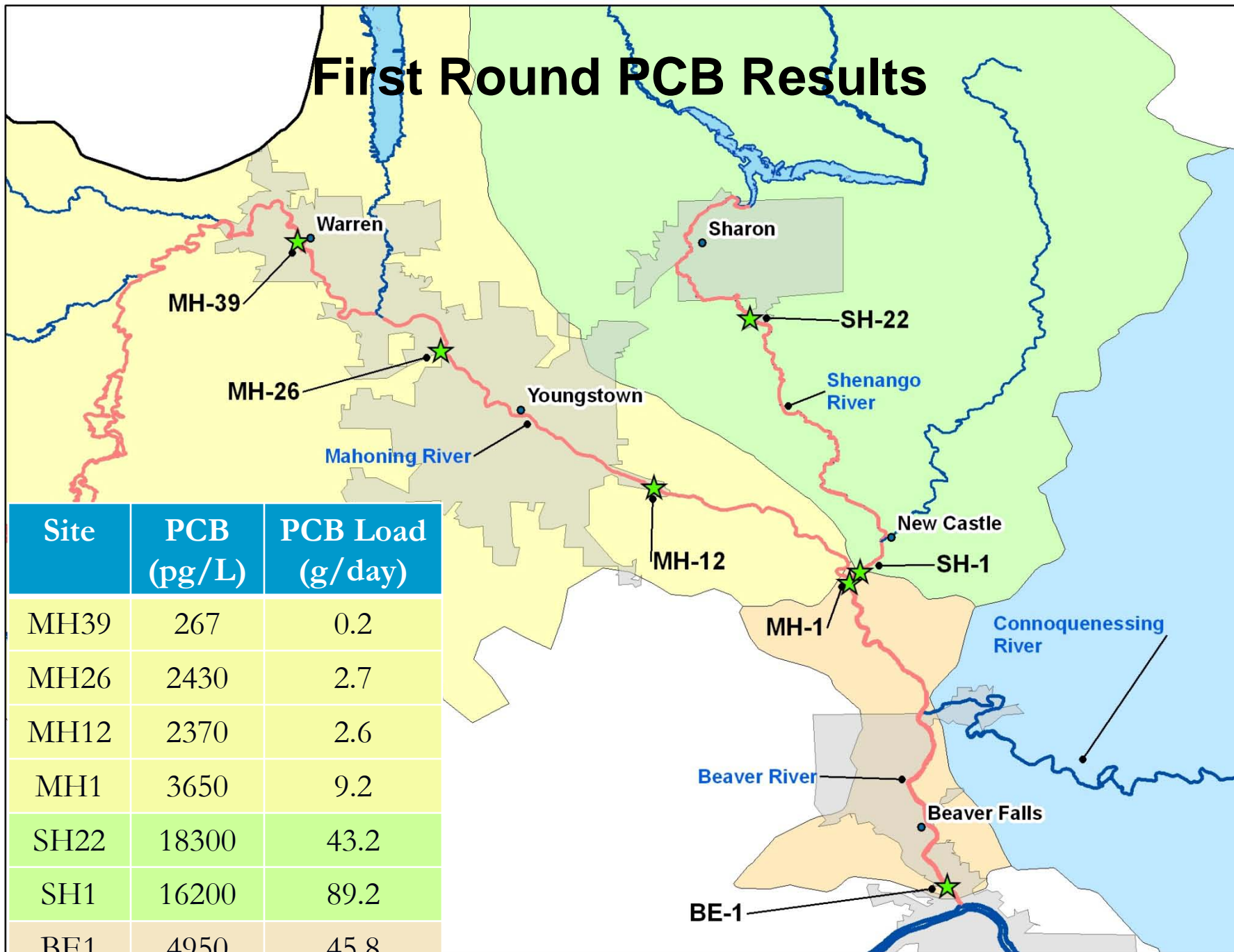
Beaver River Watershed

Ohio River Watershed

First Round Sampling Sites



First Round PCB Results



First Round Results

Site	PCB (pg/L)	PCB Load (g/day)
MH39	267	0.2
MH26	2430	2.7
MH12	2370	2.6
MH1	3650	9.2
SH22	18300	43.2
SH1	16200	89.2
BE1	4950	45.8

■ Mahoning River

- Small load increase from mile 39 to mile 12
- Moderate load increase from mile 12 to mile 1

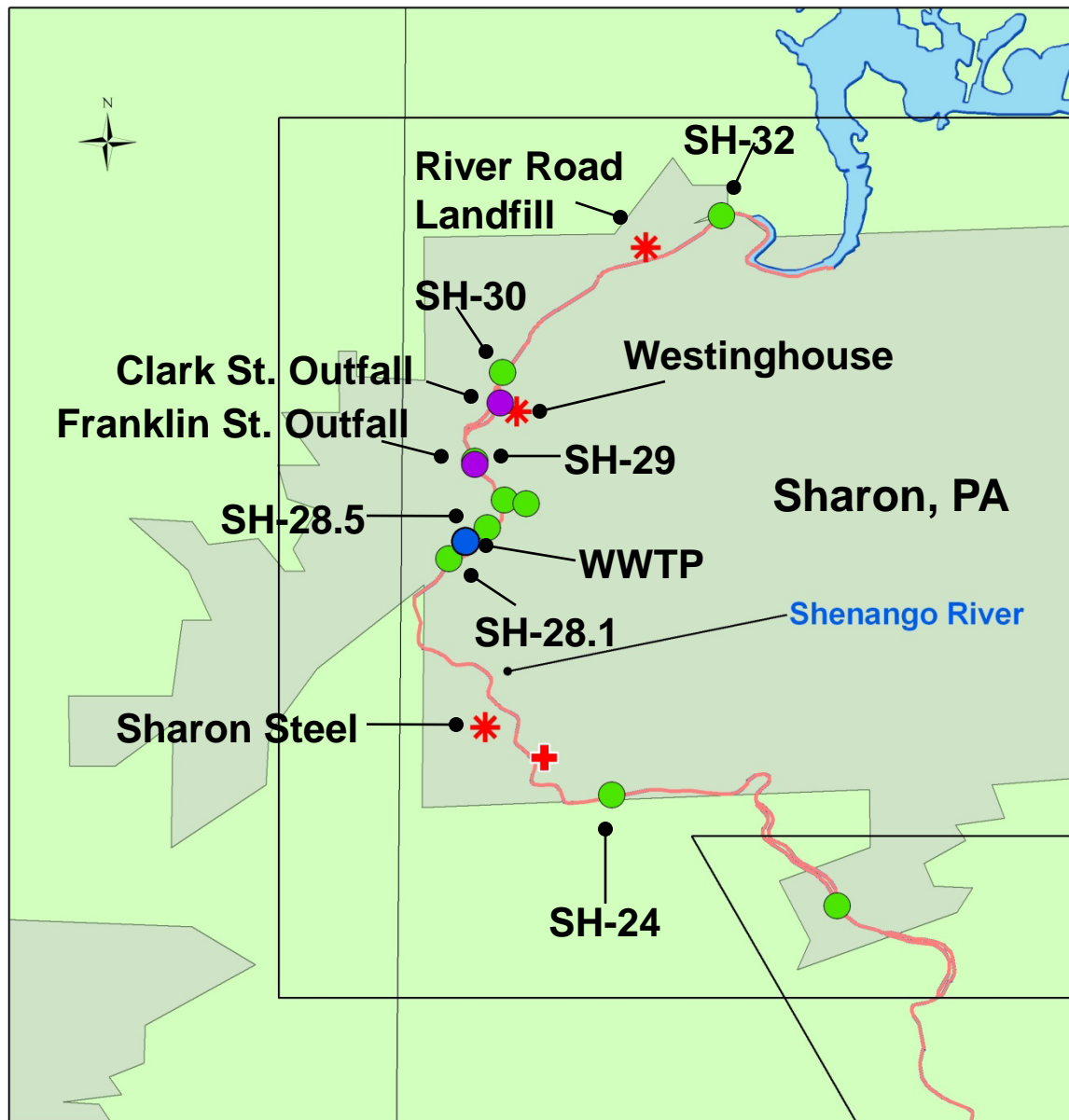
■ Shenango River

- Large load at mile 22 indicate significant sources upstream
- Significant load increase between mile 22 to mile 1

Three Areas Targeted for Follow Up Sampling

- Shenango River – Miles 33 to 22 (Sharon, PA)
 - Conducted additional sampling at 6 river sites and 2 stormwater outfalls (Westinghouse Superfund site) to bracket potential sources.
- Shenango River – Lower 22 Miles
 - Sampled 5 additional sites on the Shenango and 2 on Neshannock Creek to bracket potential sources.
- Mahoning River – Lower 12 Miles
 - Repeated sampling at mile 12 and mile 1, plus sampled effluent at Lowellville (OH) and New Castle (PA) WWTPs.

Shenango River – Miles 33 to 22

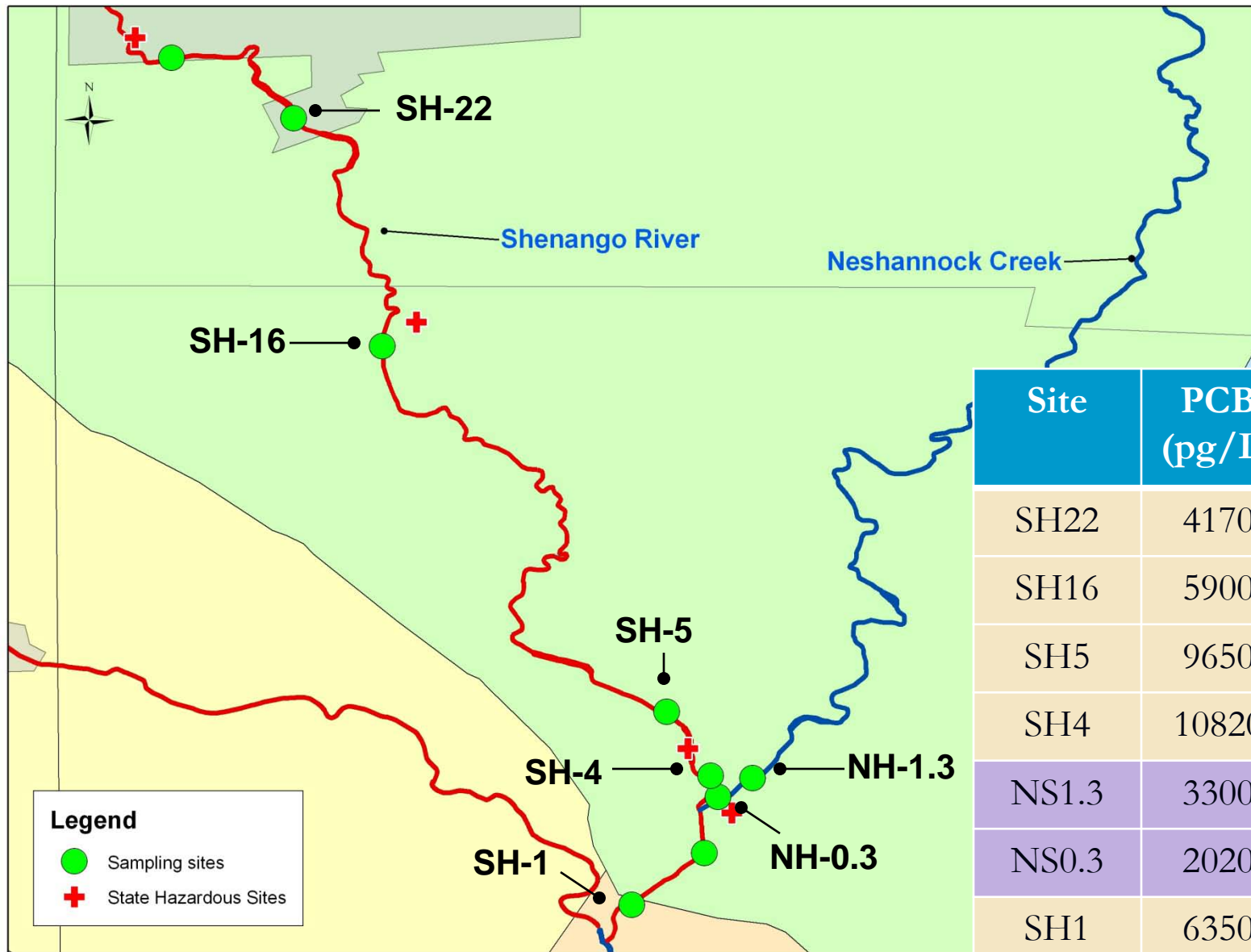


Site	PCB (pg/L)	PCB Load (g/day)
SH32	552	0.8
SH30	1960	2.5
Clark	338,000	
SH29	2828	3.7
Franklin	1070	
SH28.5	3880	5.1
SH28.1	8180	10.8
SH24	6682	11.7

Legend

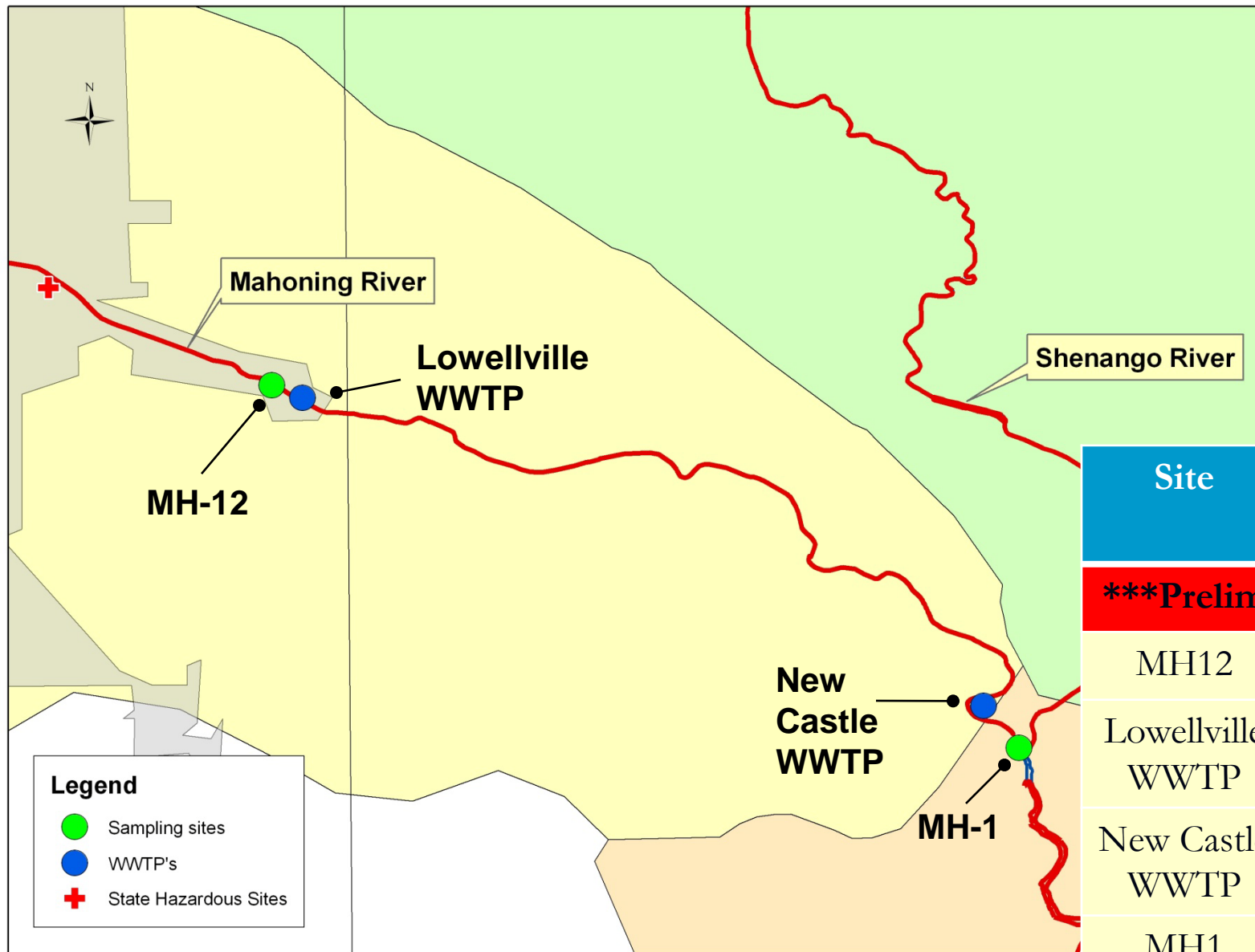
- Sampling sites
- Storm Sewers
- WWTP's
- ✱ Superfund Sites
- + State Hazardous Sites

Shenango River – Lower 22 Miles



Site	PCB (pg/L)	PCB Load (g/day)
SH22	4170	11.3
SH16	5900	16.9
SH5	9650	39.1
SH4	10820	44.7
NS1.3	3300	12.5
NS0.3	2020	6.5
SH1	6350	73.0

Mahoning River – Lower 12 Miles



Site	PCB (pg/L)
Preliminary Data	
MH12	3,500
Lowellville WWTP	16,000
New Castle WWTP	2,000
MH1	3,300

Conclusions from Follow Up Sampling

- Overall – Focus on smaller study area has yielded identification of some sources, but large amount of load remains unaccounted.
 - Clark St. stormwater outfall had very high levels of PCBs; additional outfall of former Westinghouse facility was sampled in May (No data yet).
 - Bracketing of Sharon WWTP suggests plant is possible source; follow up sampling conducted on effluent (No data).
 - Loadings on lower Shenango suggest possible large source; however, changing flow conditions may be responsible for load increase; additional sampling completed to confirm.
 - Preliminary data suggests POTWs on lower Mahoning are minor sources of PCBs.

Next Steps

- Still waiting on results from all 3 targeted areas.
- Remaining Watershed Program funds for up to 10 high-volume or sediment samples.
 - Sampling must be completed by June 30!
- Final results will be presented at the October Technical Committee meeting.

Questions or Comments?

