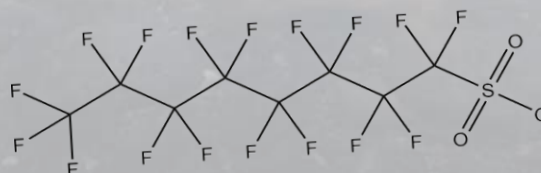
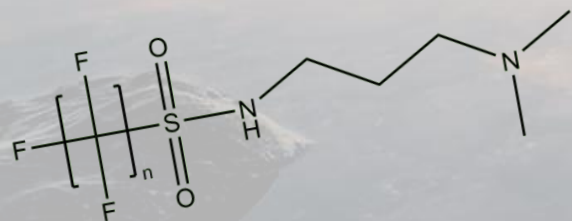
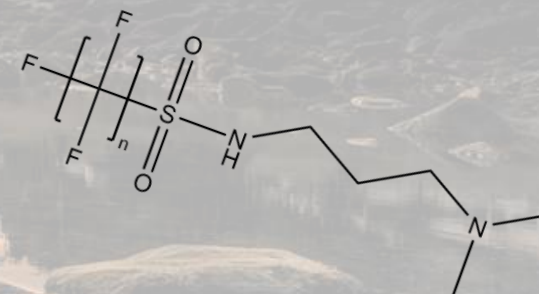


# Concentrations of Per- and Polyfluoroalkyl Substances (PFAS) in Selected Brooks and Rivers in Massachusetts, 2020

**Stephanie Cooper**  
Deputy Commissioner  
Massachusetts Department of Environmental Protection

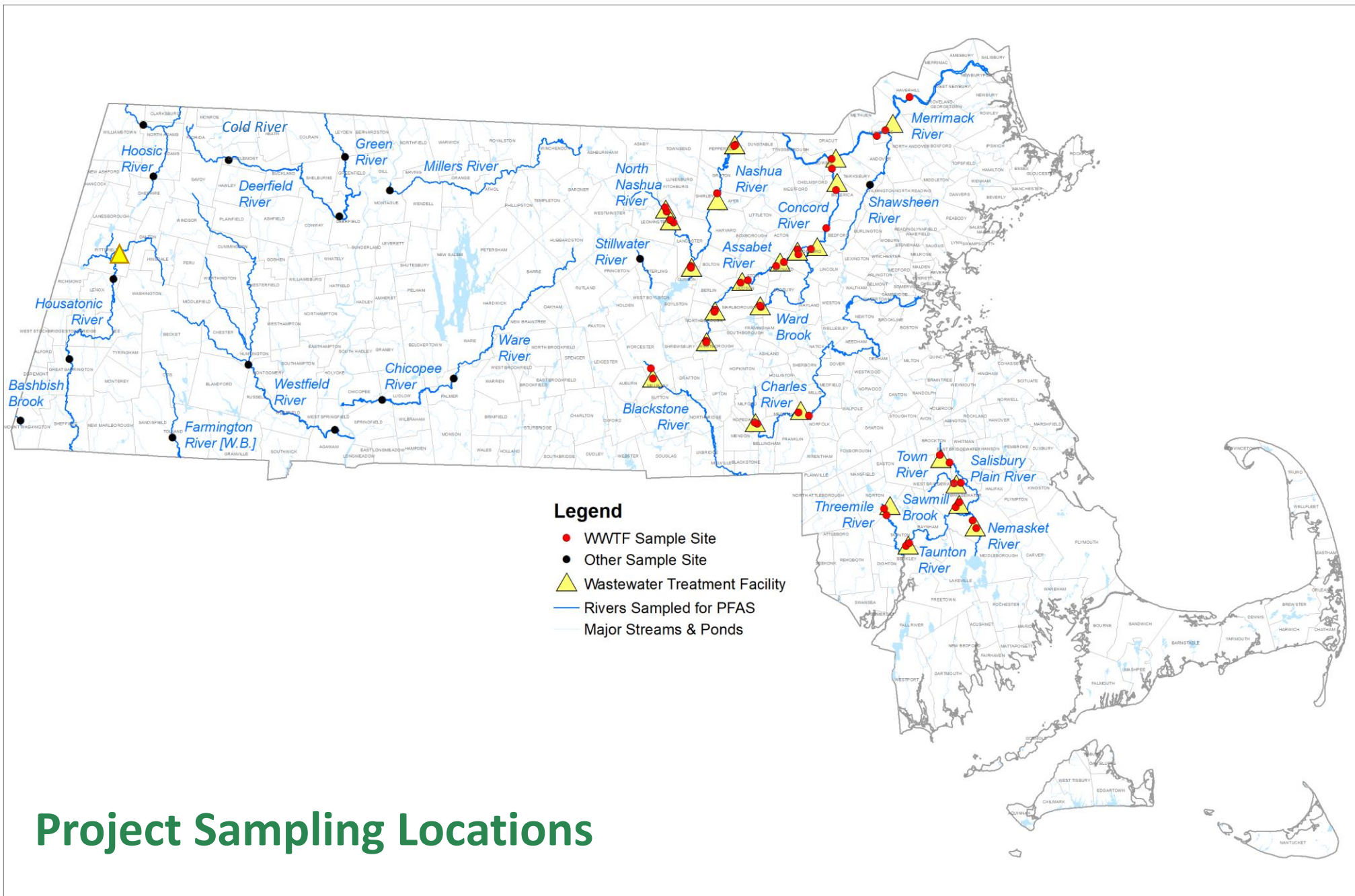


# Objectives: Analyze River Water for PFAS to Characterize...

1. PFAS near Wastewater Treatment Facilities (WWTF) that discharge upstream of public water supply intakes
  - 48 Sites: upstream/downstream of 24 WWTFs
2. PFAS downstream of possible non-point or industrial sources (non WWTF)
  - 9 Sites
3. Background PFAS at locations with no known PFAS sources
  - 7 sites



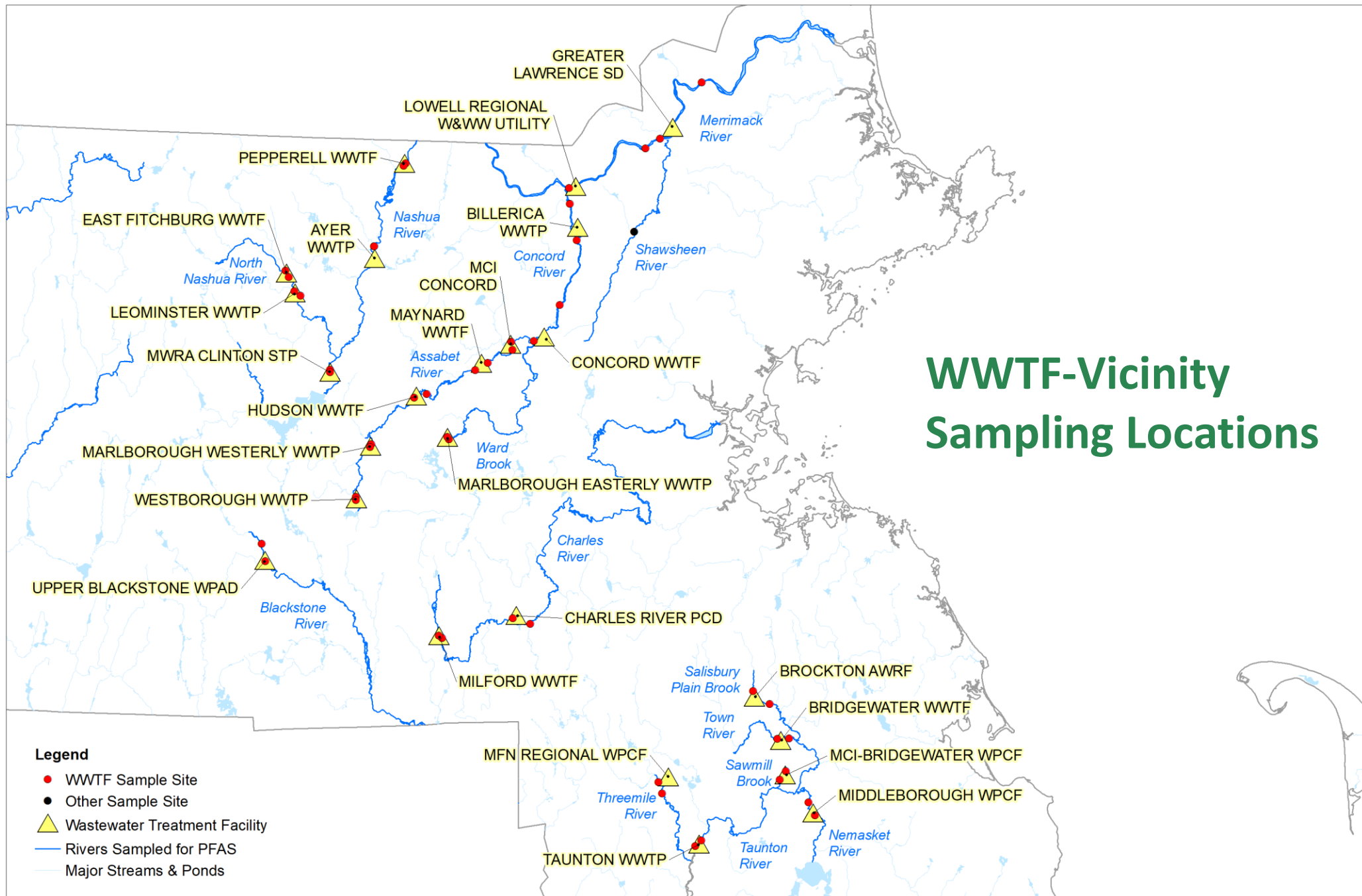
*Westfield River*



# Project Sampling Locations



# WWTF-Vicinity Sampling Locations



# Sampling Results

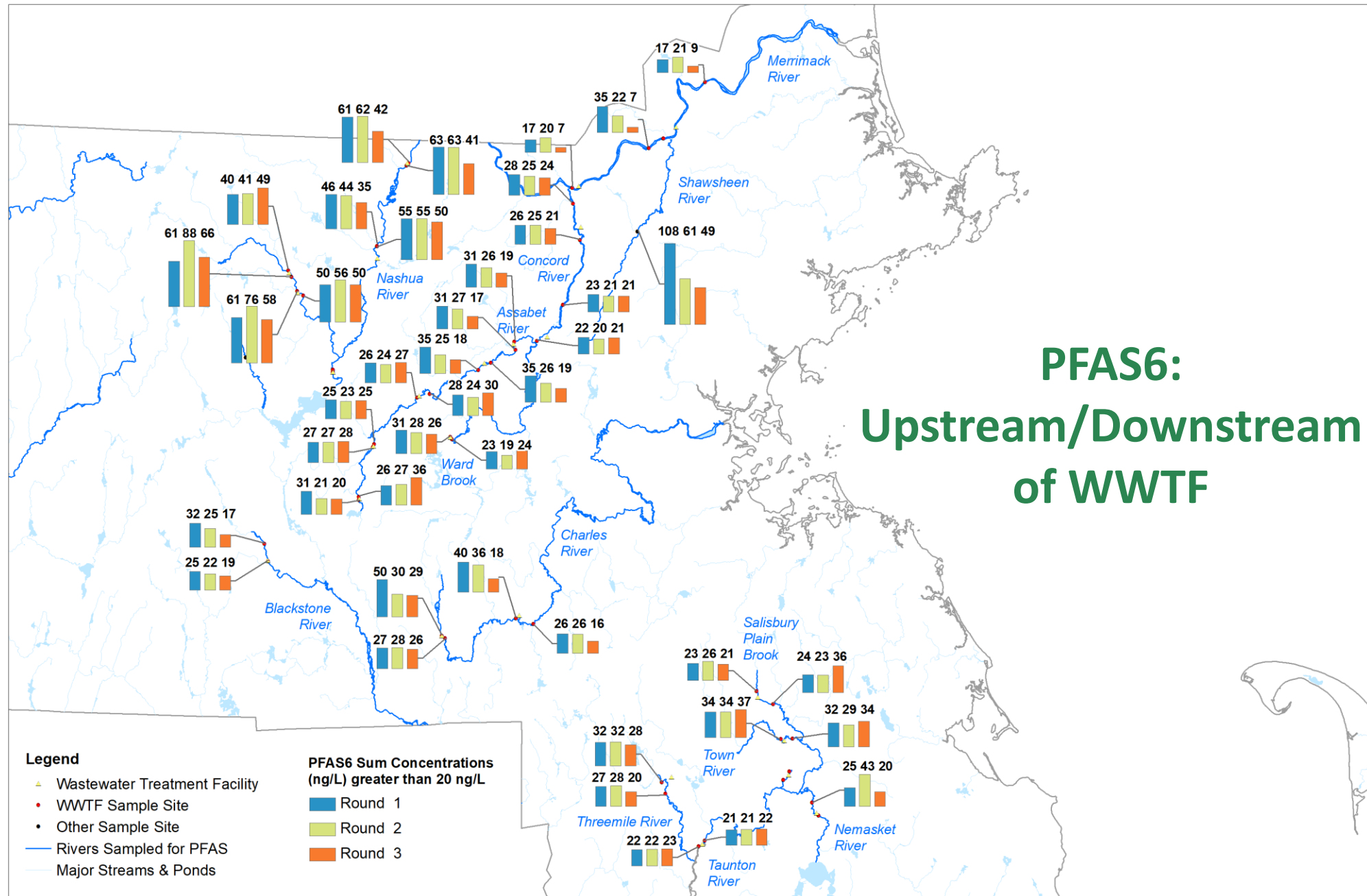
- PFAS detected in all 27 rivers sampled
- Number of PFAS compounds detected at each location (of 24 tested):
  - Average: 10 compounds
  - Range: 2 - 16 compounds
  - Largest number of detections: Shawsheen River (16 PFAS)
  - Concentration range for individual PFAS analytes Non Detect - 109 ng/L

# Observations: PFAS6\* Results

*\*PFAS6: the MassDEP PFAS Drinking Water Standard sets a limit for the sum of six PFAS*

- Concentration range for individual PFAS6 analytes only (all sites): **Non Detect-55 ng/l**
- Concentration range for PFAS6 (all sites): **Non Detect-108 ng/l**
- Number of sites (of 64 total) with PFAS6 concentrations greater than 20 ng/l: **43 sites**

# PFAS6: Upstream/Downstream of WWTF



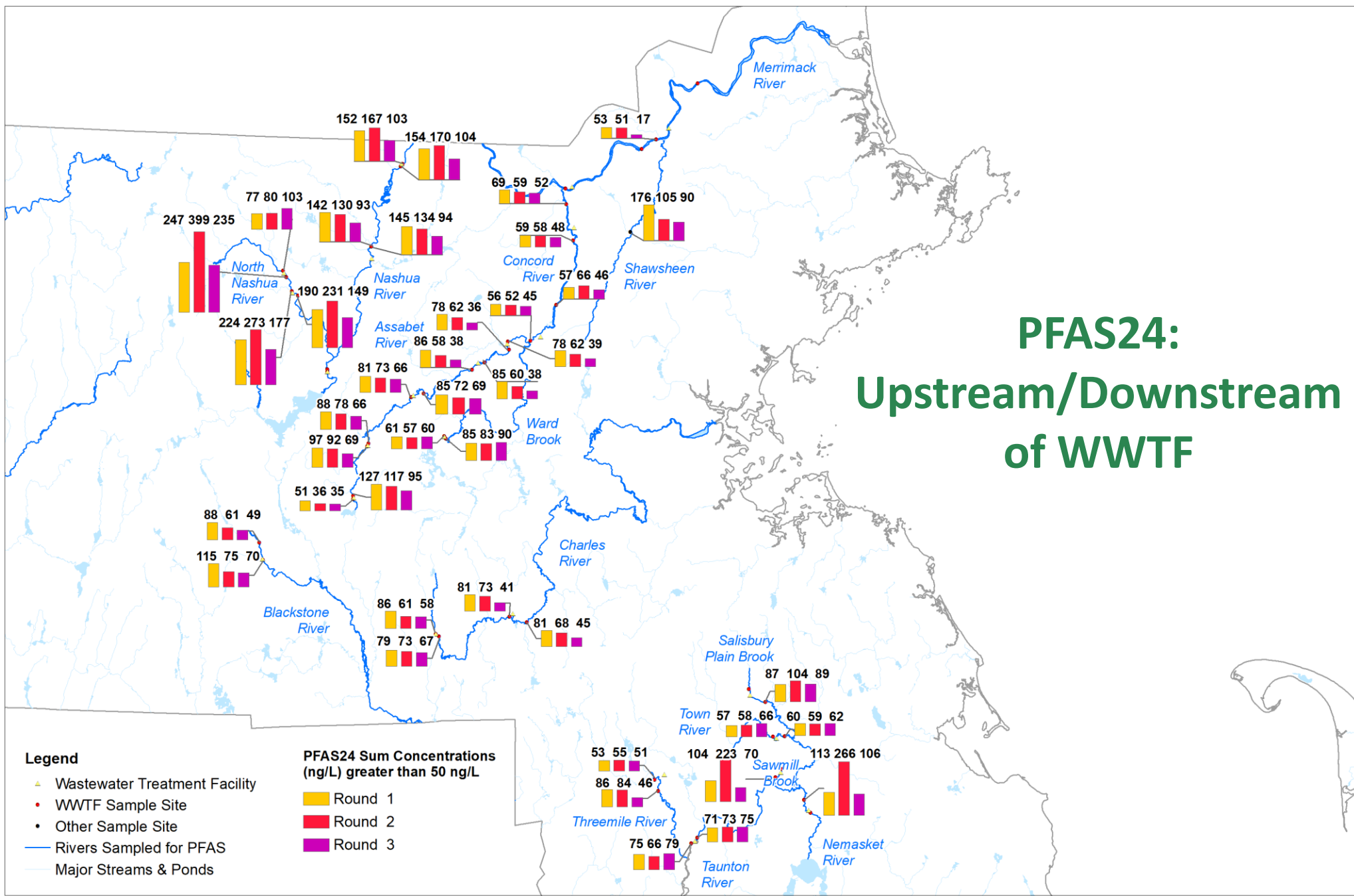
# Observations: PFAS24\* Results

*\*PFAS24: the sum of the 24 PFAS included in the lab methodology and is not a drinking water standard*

- Range of PFAS 24 (all sites): **0.3-399 ng/l (ppt)**
- PFAS24 > 50 ng/L detected at 41 of the 64 sites sampled
- Waterbodies with higher PFAS24 concentrations >~50 ng/l:
  - Assabet River
  - Sewage Brook
  - Concord River
  - Nashua River (*maximum [sum24] observed= 399 ng/l, DS of E. Fitchburg*)
  - Blackstone River
  - Charles River
  - Three Mile River
  - Sawmill Brook
  - Nemasket River
  - Salisbury Plain River
  - Town River
  - Taunton River
  - Millers River
  - Shawsheen River (*maximum [PFAS6] observed= 108 ng/l*)
  - Westfield River



# PFAS24: Upstream/Downstream of WWTF



# PFAS6 Results: Drinking Water from Concord, Merrimack & Taunton Rivers



Public Water Supply	River	Population	Drinking Water Standard PFAS6 (ppt)	Closest Upstream WWTF	Range of Upstream River PFAS6 (ppt)
Billerica	Concord	40,243	In Compliance – below 20 ppt	Concord (Concord River)	21.0 – 23.4
Tewksbury	Merrimack	31,044	In Compliance – below 20 ppt	Lowell (Merrimack River)	7.1 – 34.6
Methuen	Merrimack	50,706	In Compliance – below 20 ppt	Lowell (Merrimack River)	7.1 – 34.6
Lawrence	Merrimack	80,162	In Compliance – below 20 ppt	Lowell (Merrimack River)	7.1 – 34.6
Andover	Merrimack	33,201	In Compliance – below 20 ppt	Lowell (Merrimack River)	7.1 – 34.6
Lowell	Merrimack	106,519	In Compliance – below 20 ppt	Pepperell (Nashua River)	40.8 – 61.8
Aquarion	Taunton	93,810	In Compliance – below 20 ppt	Taunton (Taunton River)	21.8 – 23.0

# Follow up Actions

- USGS data available online in [National Water Information System](#)
- Presentations to participating wastewater facilities and watershed groups
- USGS data report & release: Fall 2021
- MassDEP ongoing planning for additional studies and actions
  - PFAS in Fish tissue
  - Additional surface water quality sampling
  - Source control and treatment

# MassDEP Contact Information

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