Westford Stream Monitoring Results 2011

Westford Stream Team

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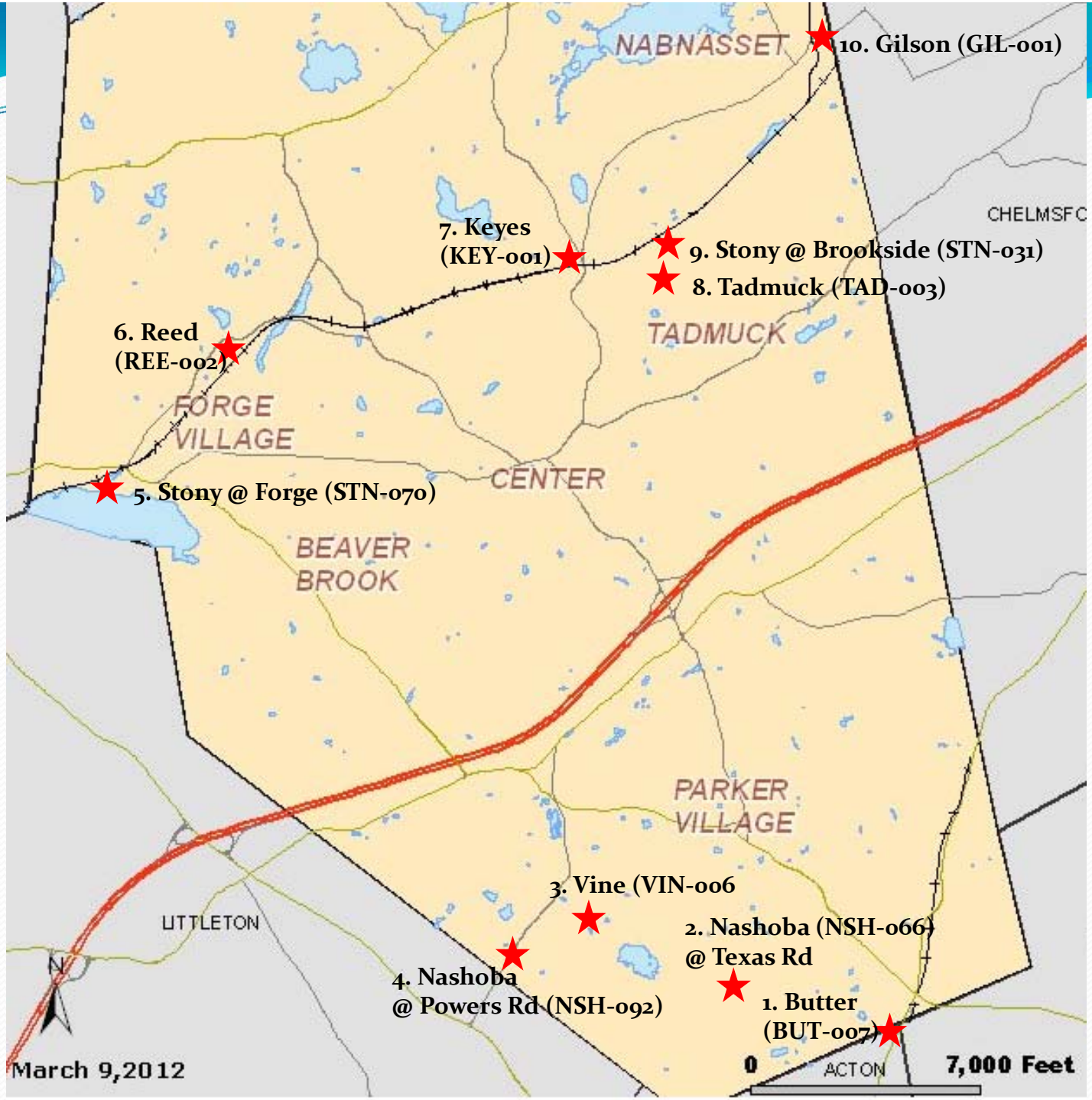
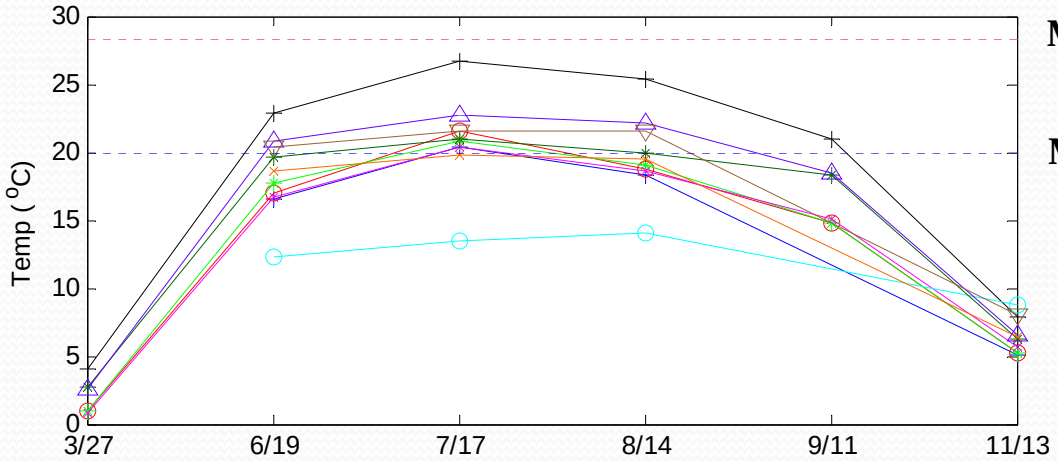
Sampling Overview

- Sampled 10 stream sites in Westford
  - Stony @ Forge Pond, Reed, Keyes, Tadmuck, Stony @ Brookside Mill, Gilson
  - Nashoba @ Powers Rd, Vine, Nashoba off Texas Rd, Butter
- Coordinated activities with OARS
  - OARS provided meter equipment and supplies
  - QC'd meter before/after sampling
  - 6 sampling dates: March, June, July, August, September, November
- Sampled N, P, TSS for 6 sites on all dates
  - Nashoba (2), Vine, Stony (2), Keyes
  - Bottle samples analyzed by Nashoba Analytical Laboratory
- Temp, pH, dissolved O_2, conductivity, and river observations for all sites June - November


NABNASSET
10. Gilson (GIL-001)
CHELMSFO
7. Keyes
(KEY-001)
9. Stony @ Brookside (STN-031)
8. Tadmuck (TAD-003)
TADMUCK
6. Reed
(REE-002)
FORGE
VILLAGE
CENTER
5. Stony @ Forge (STN-070)
BEAVER
BROOK
PARKER
VILLAGE
3. Vine (VIN-006
LITTLETON
2. Nashoba (NSH-066)
@ Texas Rd
4. Nashoba
@ Powers Rd (NSH-092)
1. Butter
(BUT-007)
N
March 9,2012
0
ACTON
7,000 Feet

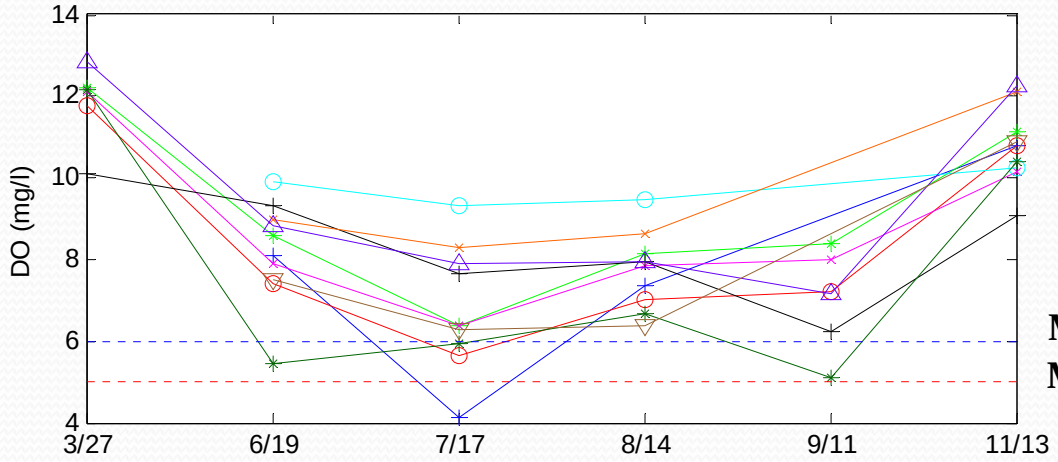
Temperature and DO Results

BUT(N)-007 NSH(N)-066 VIN(N)-006 NSH(N)-092 STN(S)-070
REE(S)-002 KEY(S)-001 TAD(S)-003 STN(S)-031 GIL(S)-001



MA warm-water fisheries

MA cold-water fisheries

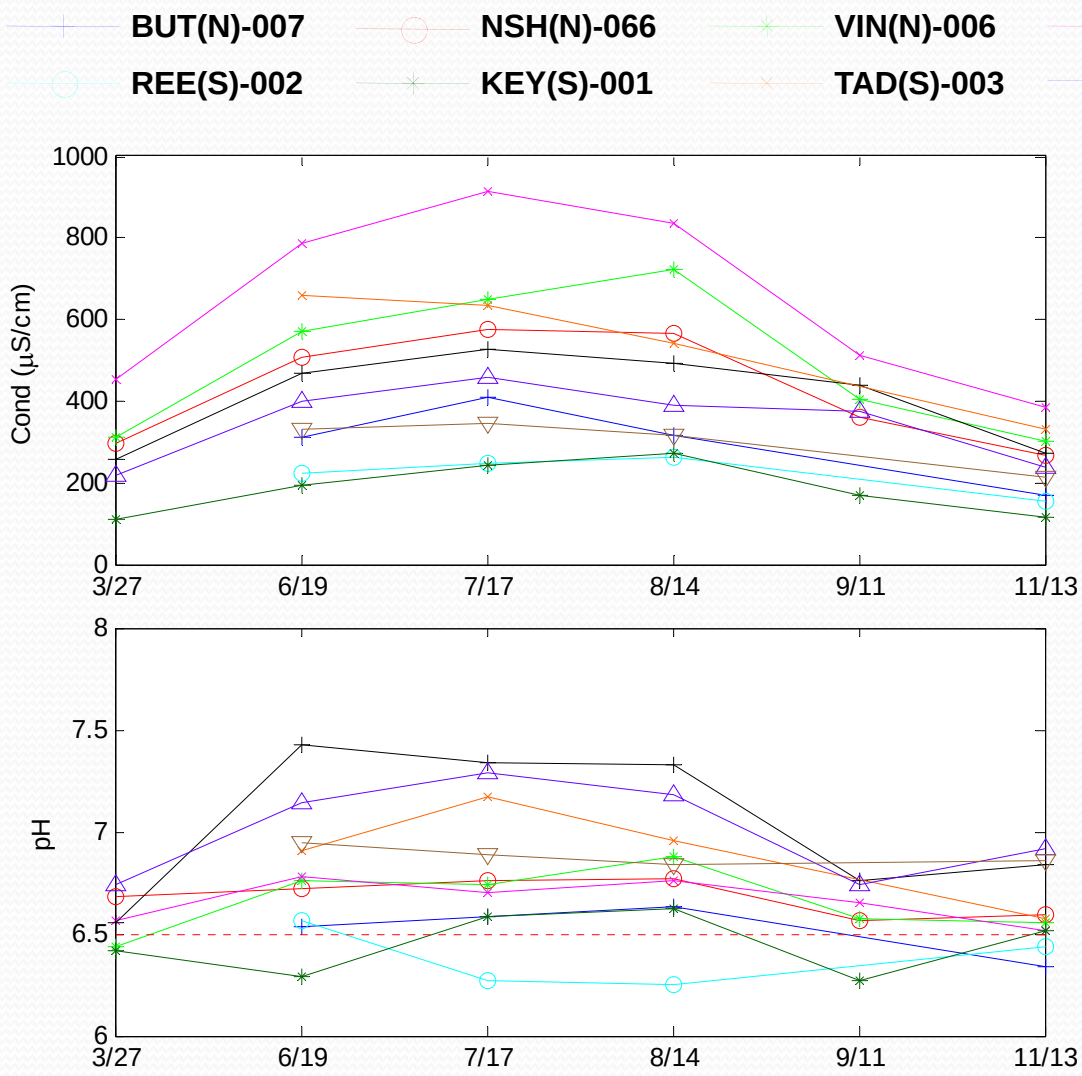


MA cold-water fisheries
MA warm-water fisheries

Reed Brook suitable for cold-water fish

Other streams suitable for warm-water fish

Conductivity and pH Results



Conductivity highest at Nashoba / Powers Rd

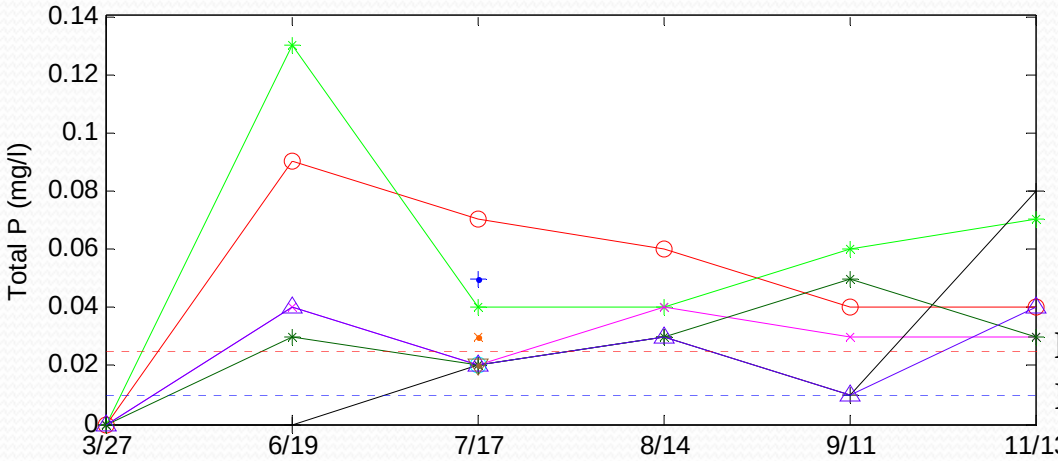
- 3/27: Also high readings upstream near Rt 110
- Recommend further investigation to ID source (natural or human)

Unknown why pH lowest in Reed Brook

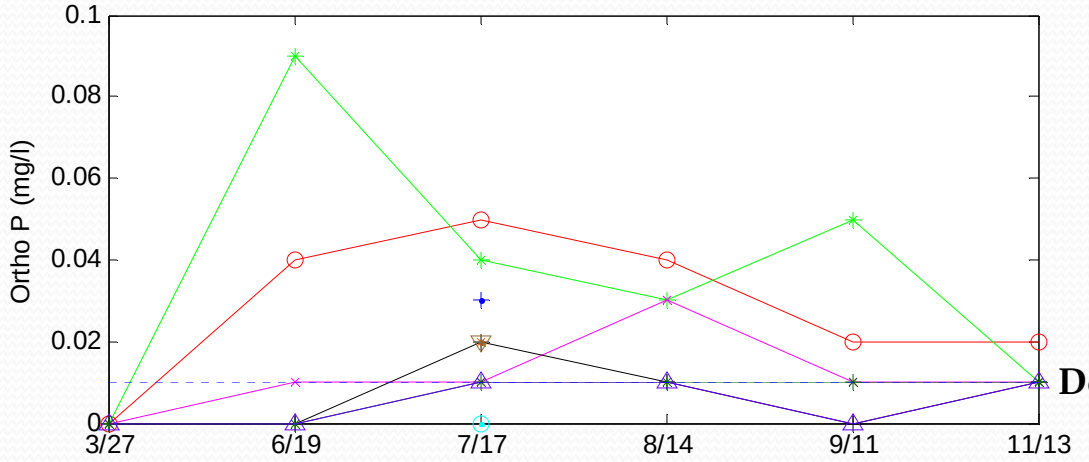
MA Class B standard lower limit

Total & Ortho Phosphorous Results

BUT(N)-007 NSH(N)-066 VIN(N)-006 NSH(N)-092 STN(S)-070
REE(S)-002 KEY(S)-001 TAD(S)-003 STN(S)-031 GIL(S)-001



EPA Reference
Det. Level



Det. Level

Total P high in Butter Brook

- 5/22: Special study at 4 sites
- Sources appears to be housing, stables

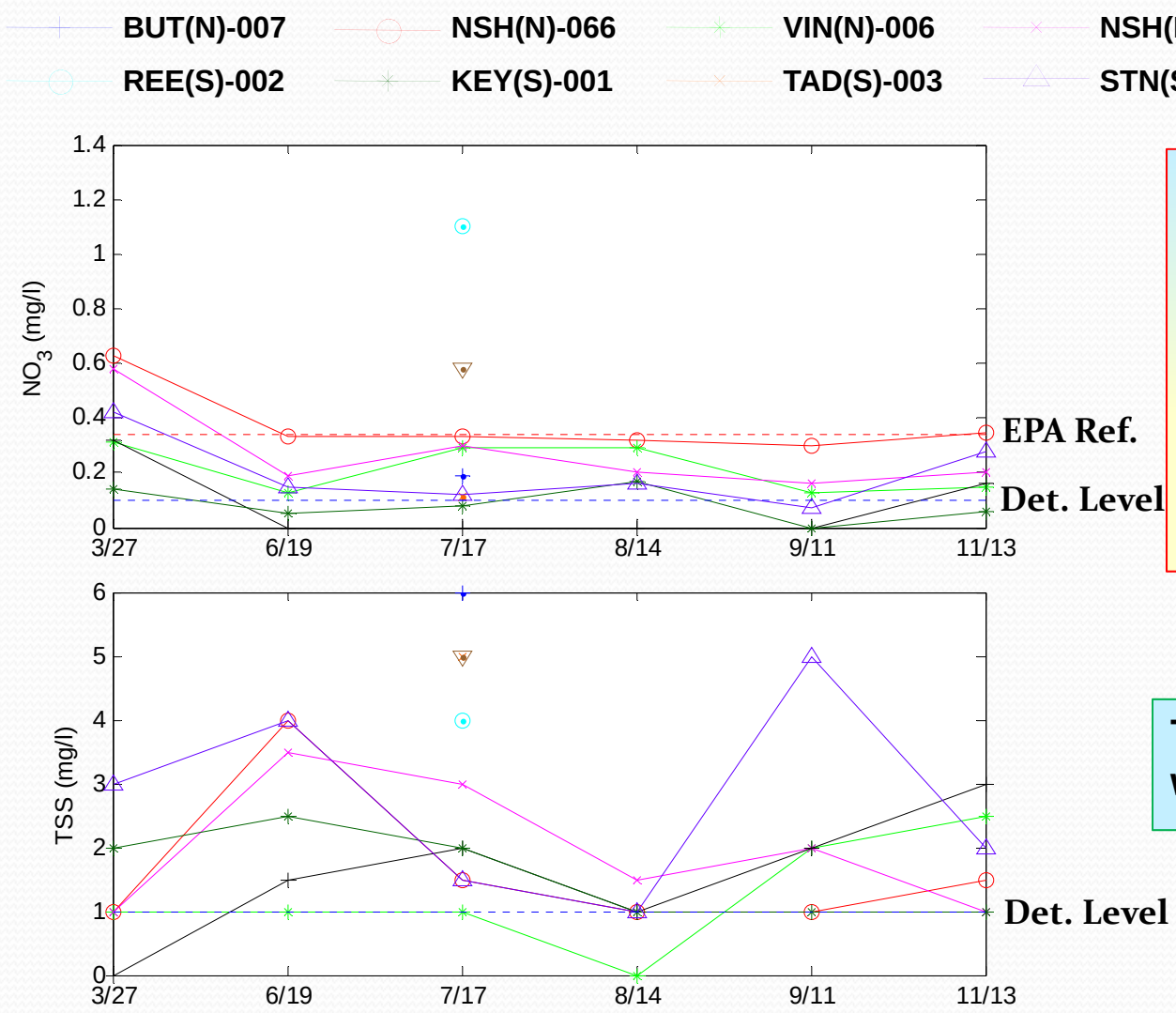
Total P high in Vine Brook

- Recommend further investigation to ID source

Source of high total P in Nashoba/TX Rd unknown

- Vine Brook?
- Beaver activity?
- Other?

Nitrate and TSS Results



Nitrate concentrations generally good
High values in Reed and Gilson

- **5/22: special study for Gilson Brook**
- **Recommend further investigation for Reed Brook**

TSS 'excellent' per OARS water quality index

Summary and Recommendations

- Westford Stream Team monitored 8 major town streams on 6 dates in 2011
  - Full sampling at 6 sites
  - Meters only at 4 sites
- In general, nutrient levels meet EPA standards
  - High phosphorous in Vine, Butter, and Nashoba Brook off Texas Rd
    - Butter Brook concentrations highest on E side of Rt 225 (stables?)
  - High Nitrates in Reed Brook and Gilson Brook
    - Gilson source is Blue Brook (from Nabnasset Lake)
- Recommendations for 2012 sampling
  - Add more full samples for the 4 sites to confirm trends
  - Add special studies
    - Conductivity in Nashoba Brook upstream from Powers Rd
    - Phosphorous, conductivity in Vine Brook
  - Future studies: Reed (pH, nitrates), Nashoba (P)?, 24-hr DO?