

# Westford Stream Team

## 2012 Results

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10 July, 2013

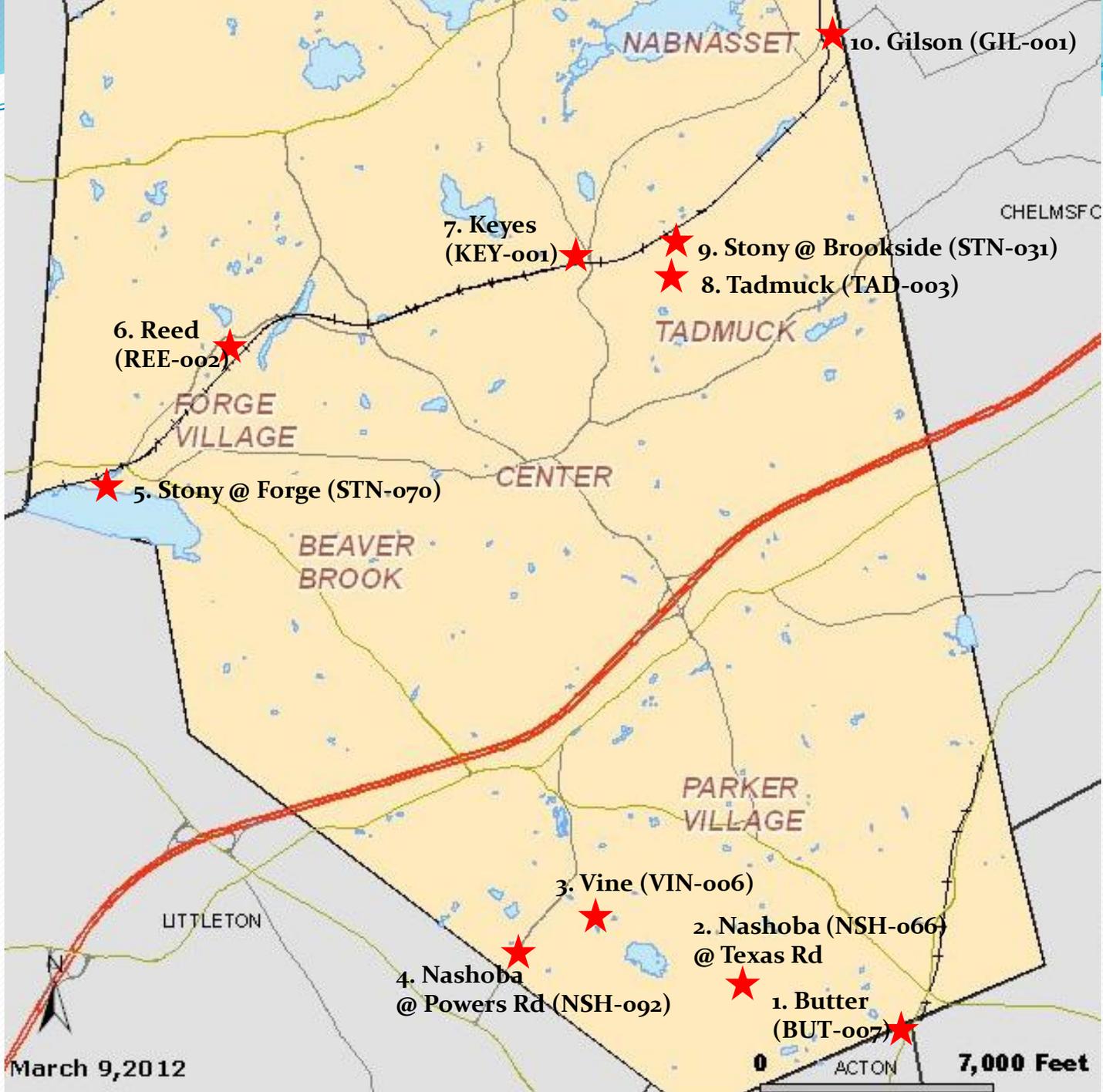
# Overview

## ➤ 2012 Summary results

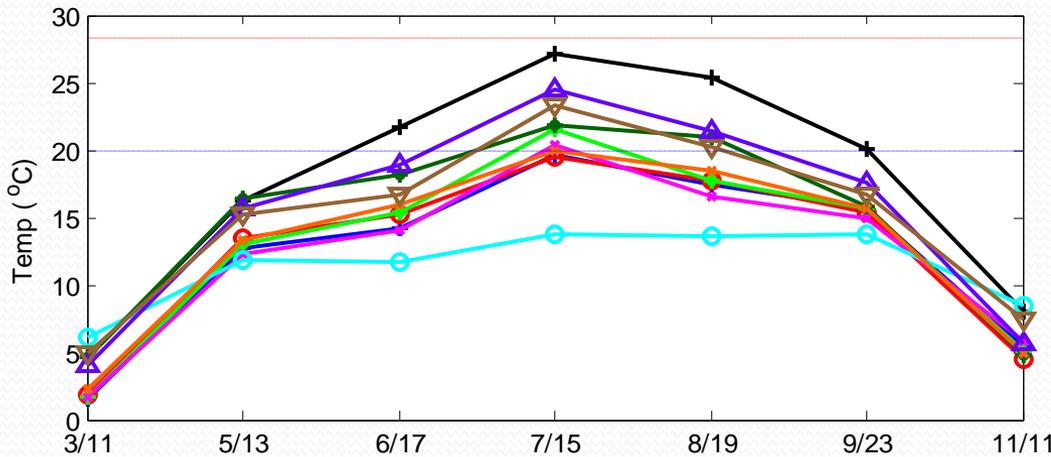
- No special studies due to low water levels (drought)
- Complete testing at all sites in May, July, September
- Nutrient & chemistry levels consistent with previous years

# 2012 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 March - July and supplies
  - Westford purchased 2 sets of meters in July
  - QC'd meters before/after sampling
  - 7 sampling dates: March, May, June, July, August, September, November
- Sampled N, P, TSS for 6 sites on all dates
  - Nashoba (2), Vine, Stony (2), Gilson
  - Bottle samples analyzed by Nashoba Analytical Laboratory
- Temp, pH, dissolved O<sub>2</sub>, conductivity, and river observations for all sites March – November
- Drought conditions in July. Water levels low through September



# Temperature and DO Results



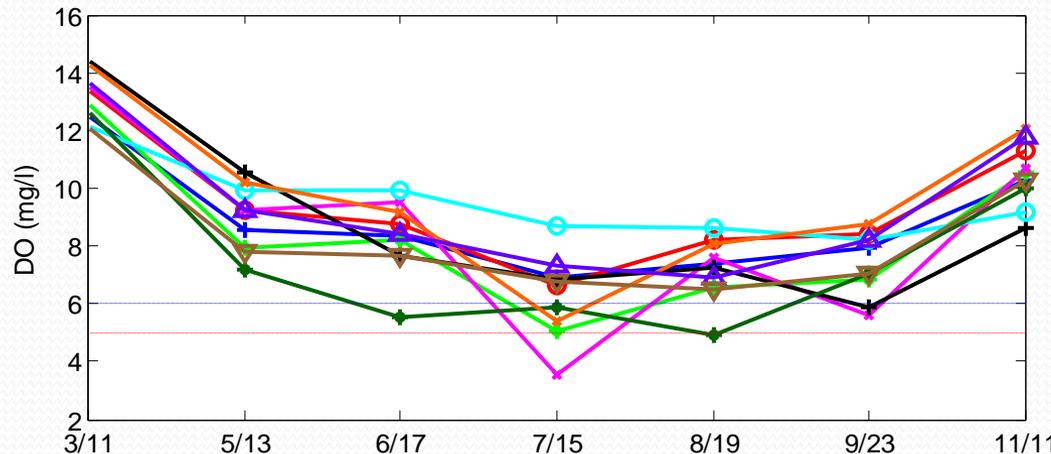
MA warm-water fisheries

MA cold-water fisheries

Reed , Vine, Tadmuck appear to be suitable for cold-water fish

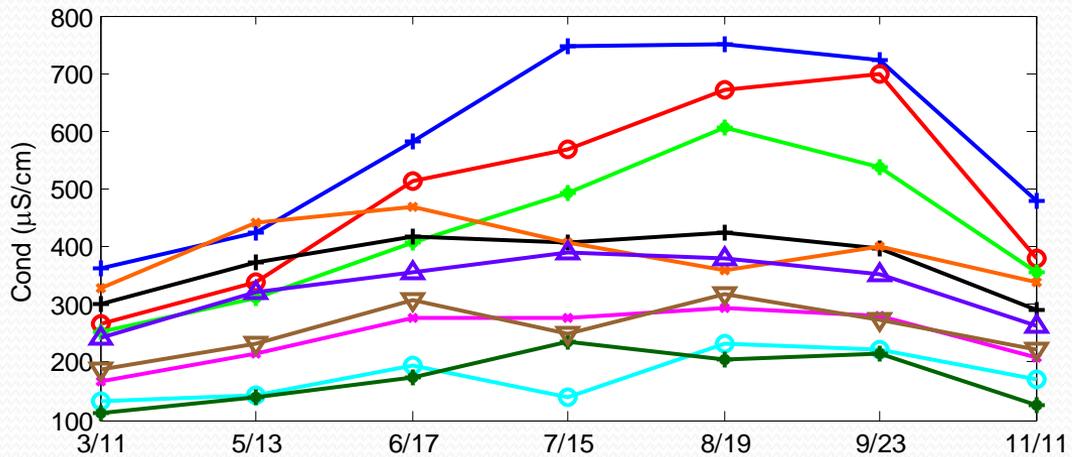
Other streams appear to be suitable for warm-water fish (excl Butter)

Recommend 24-hr DO collection to confirm



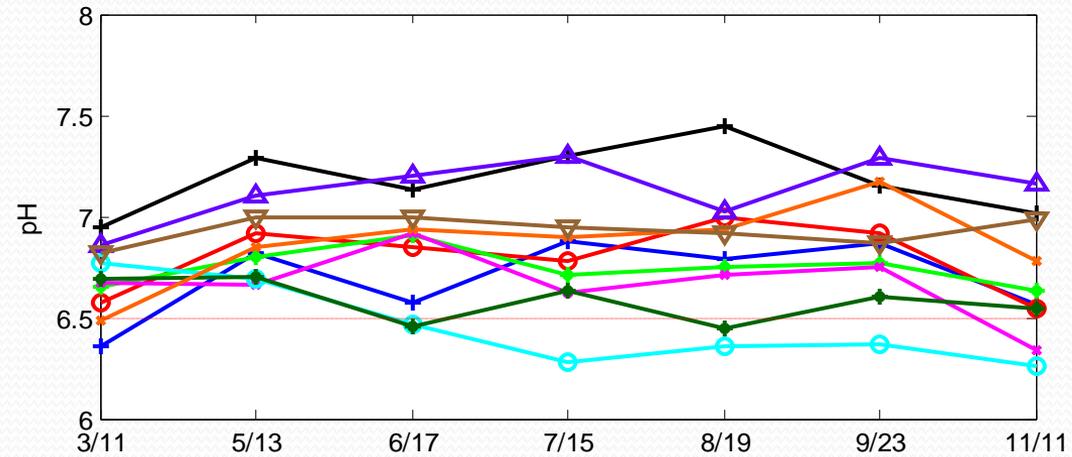
MA cold-water fisheries  
MA warm-water fisheries

# Conductivity and pH Results



Conductivity highest at Nashoba and Vine Brooks

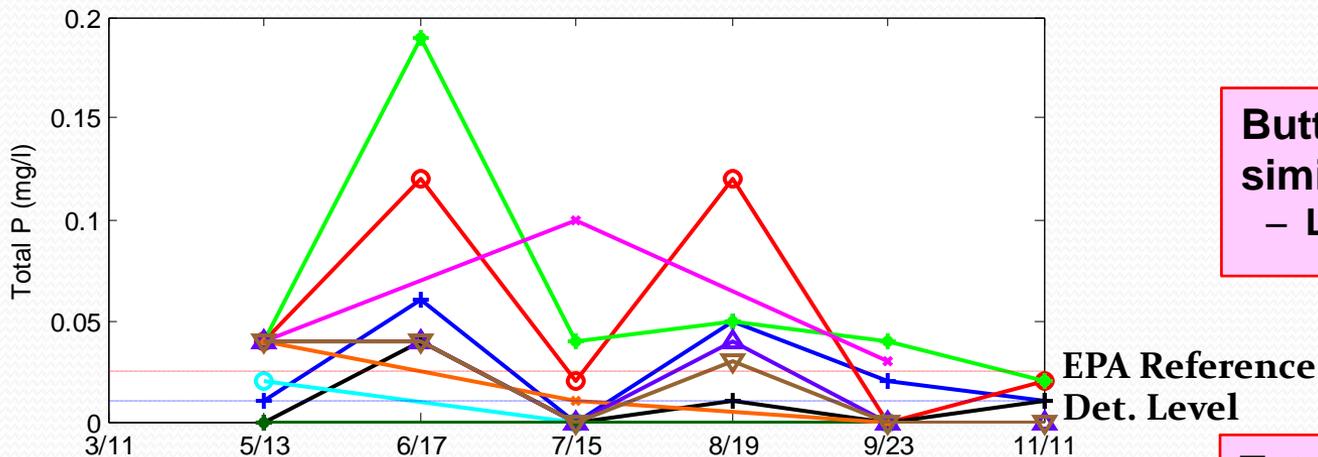
- Vine Brook special study conducted 5/19/13
- Nashoba deferred per Engineering comment that Kimball's will conduct H<sub>2</sub>O quality testing



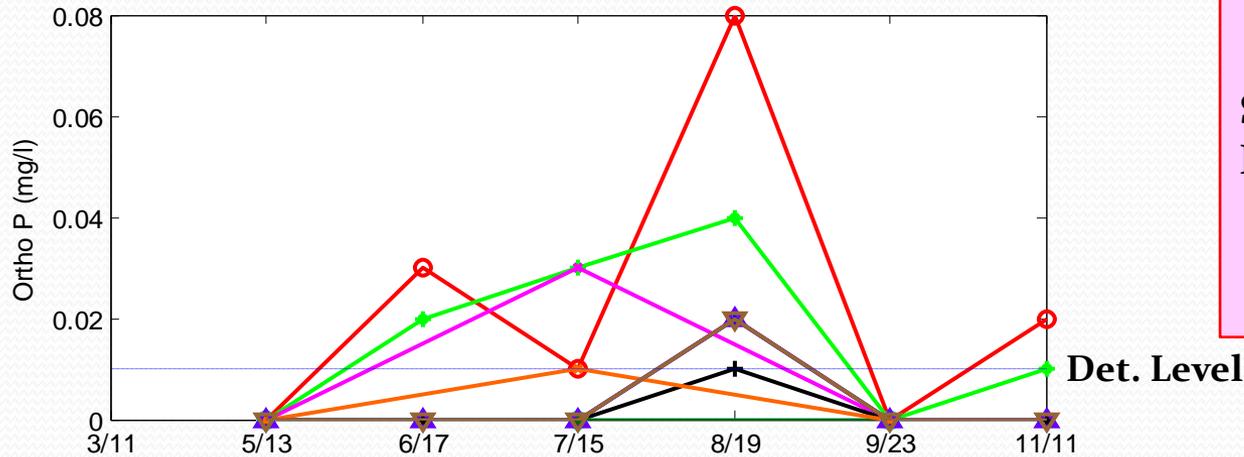
Trends consistent with 2011 results

MA Class B standard lower limit

# Total & Ortho Phosphorous Results

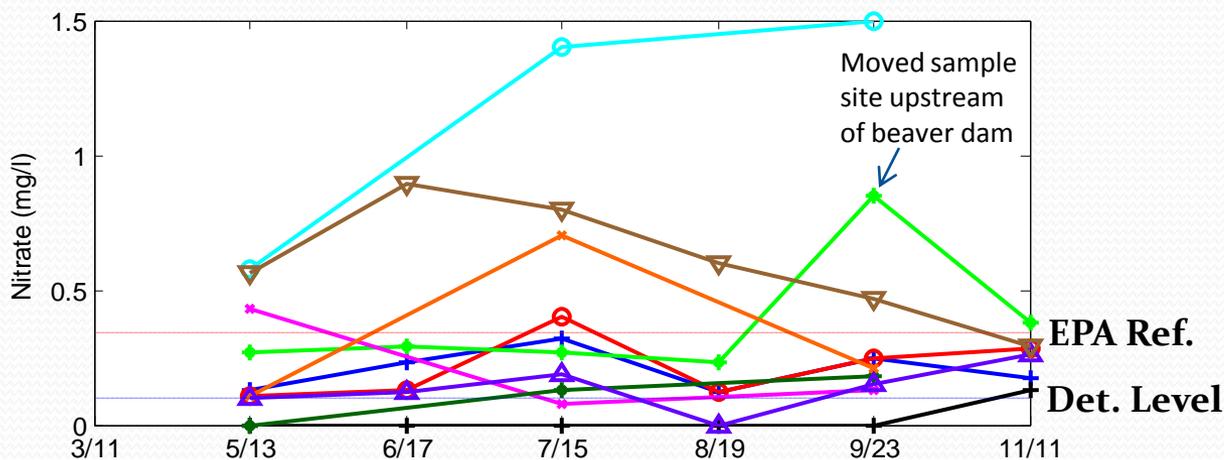


**Butter Brook values similar to 2011**  
 – Low flow noted on 7/15



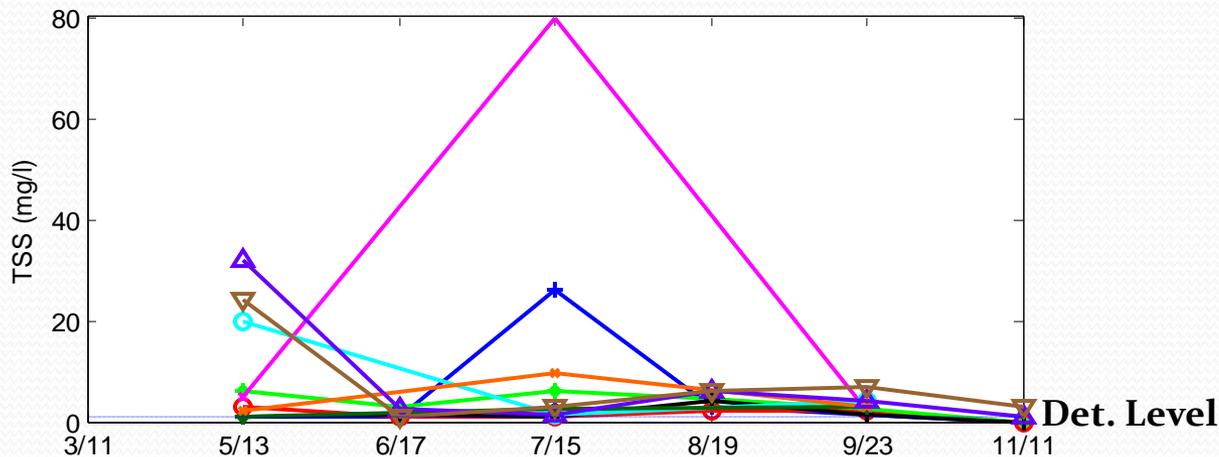
**Total P high in Vine Brook**  
 – Special study 5/19/13  
 Source of high total P in Nashoba/TX Rd unknown  
 – Vine Brook?  
 – Beaver activity?  
 – Other?

# Nitrate and TSS Results



**Nitrate concentrations generally good. High values in Reed and Gilson (same as 2011)**

- Recommend further investigation for Reed Brook (2014?)
- 2011 special study for Gilson



**TSS higher than 2011. Probably related to drought. Particulates in affected water columns**

# Summary and Recommendations

- Westford Stream Team monitored 8 major town streams on 7 dates in 2012
- In general, nutrient levels meet EPA standards
  - High phosphorous in Vine, Butter, and Nashoba Brooks
  - High Nitrates in Reed Brook and Gilson Brook
    - Gilson source is Blue Brook (from Nabnasset Lake)
- 2013 planned studies
  - 4 full (all sites) sample dates to confirm trends
  - Added Vine Brook special studies
    - Phosphorous, conductivity in Vine Brook
    - High pH in Vine Brook tributary
- Future studies: Reed (pH, nitrates), Nashoba (P)?, 24-hr DO?