

The Long and Winding Road to Phosphorus Controls in the SuAsCo Watershed

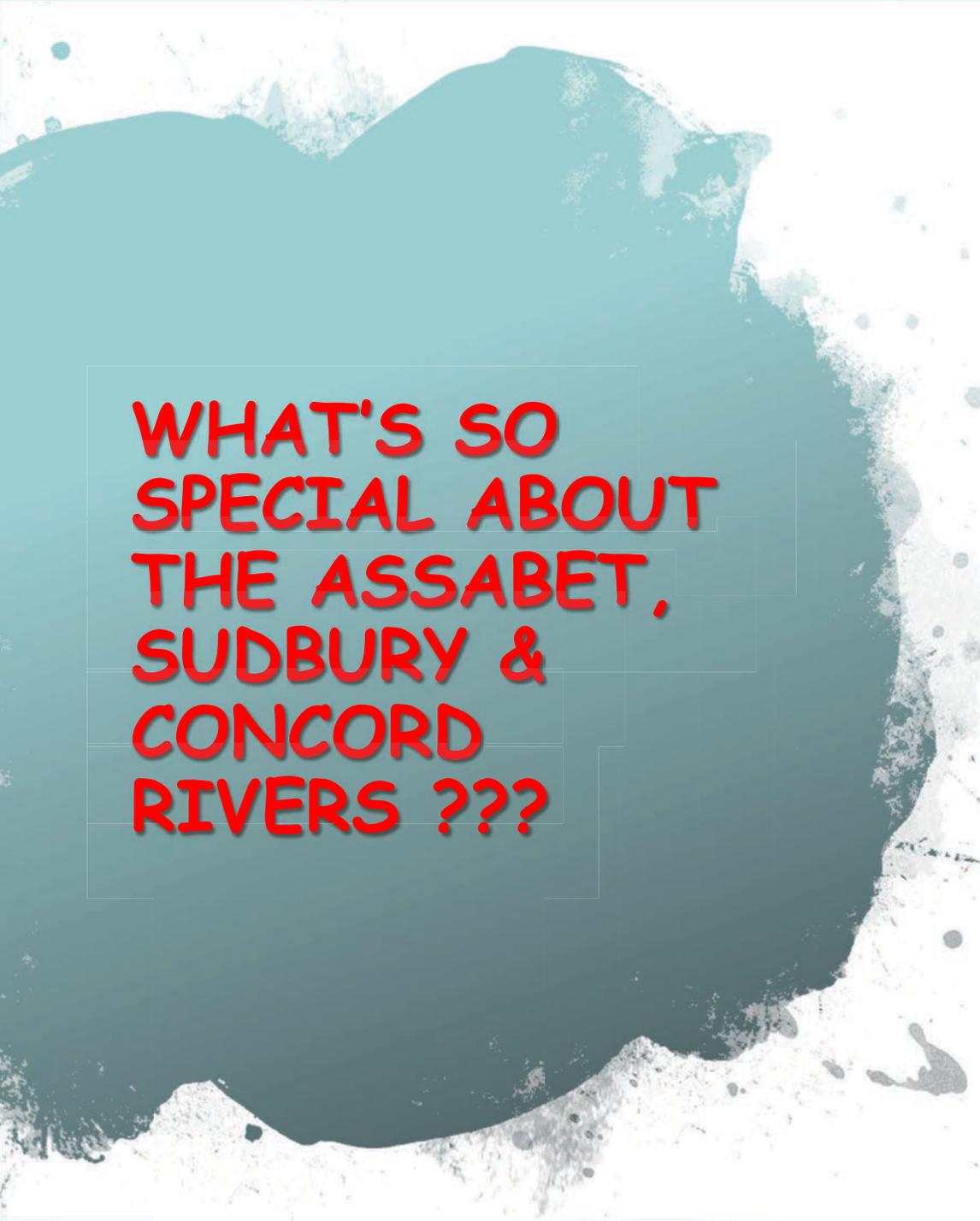
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NEWEA Specialty Conference
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SPRING IS HERE !!!



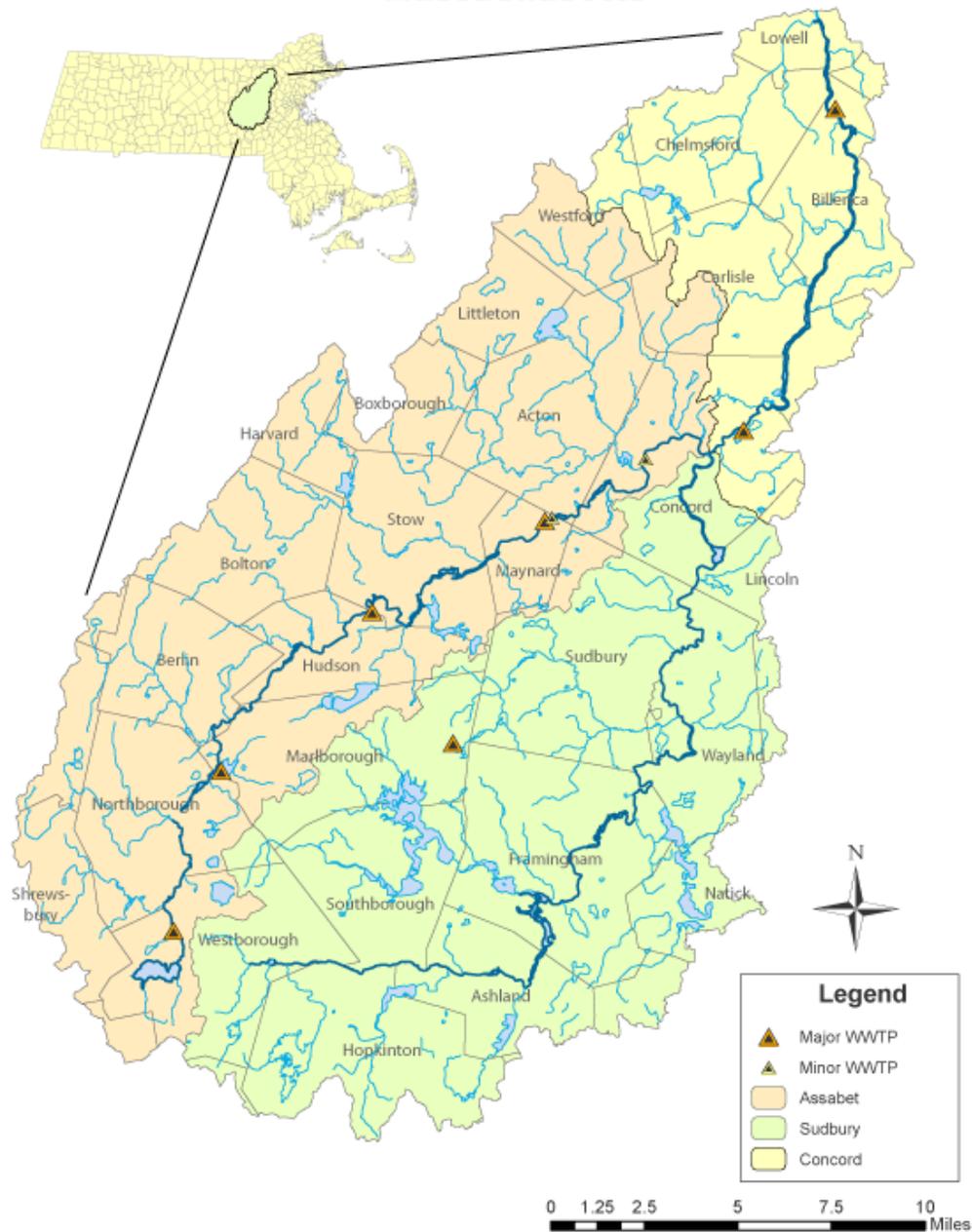


**WHAT'S SO
SPECIAL ABOUT
THE ASSABET,
SUDBURY &
CONCORD
RIVERS ???**

- ACEC designation 1975
- Wild & Scenic Rivers 1999
- National Wildlife Refuges

- Historical significance
 - Revolutionary War
 - Wayside Inn
 - Cotton Gin
- Perfect conditions for algae
- Mercury contamination
- Lots of studies & planning !!!
- Use of new technologies
- I worked on it !!!!!

Sudbury, Assabet and Concord Watershed Massachusetts























A Few Stat's

Assabet

- * 31 miles
- * 177 sq. mi
- * 9 dams
- * Algonquin name
- * 4 major WRRFs



Sudbury

- * 41 miles
- * 162 sq. mi
- * 7 dams
- * Boston water
- * 1 major WRRF



Concord

- * 15.8 miles
- * 59 sq. mi
- * 3 dams
- * Billerica 1899
- * 2 major WRRF



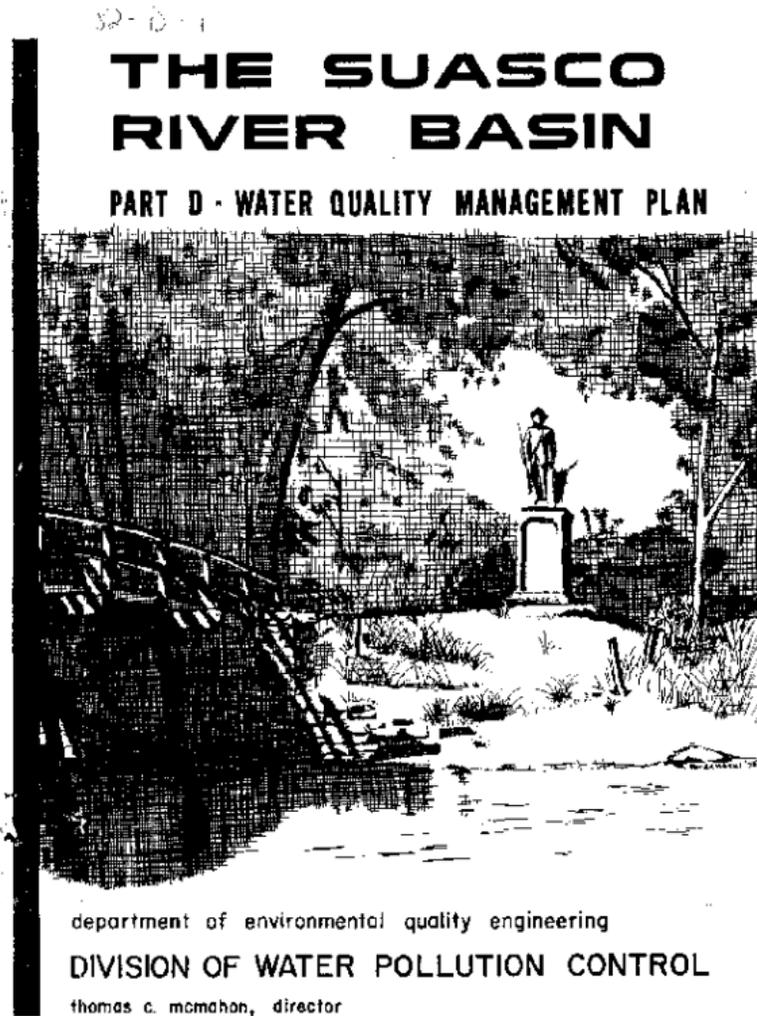
How Did the Long Road Start ???

- MA CWA 1966
- MDPH, DWPC, MassDEP
- EPA 1970
- Clean Water Act 1972
- “Dirty Dozen”
- SUASCO WQMP 1976
- NPDES
- Permits & changing TP goals



Water Quality Analysis & Plans 1973-1976

- Removal of dams could help
- Advanced treatment with nutrient removal is VITAL
- Programs several years behind
- Problems not eliminated due to NPS
- Land purchase along river
- Do not extend Concord outfall
- Facility plans to be done 1977-78
- Updated survey planned for 1979
- Public Hearing May 6, 1976



Surveys, Studies & Permits

- **Water Quality Surveys:**
 - 1965, 1969, 1973, 1974, 1979,
 - 1988, 1989, 1990, 1991, 1996,
 - 2000, 2006, SMART 2000-2013
- **Summary Water Quality 1977**
- **WQMP updates '81, '88, '89**
- **303d list 1992 was key**
- **NPDES 1972 and on**
- **Special studies: Hop Brook,
Sudbury & Assabet w/ ENSR, ACOE, USGS**



Phosphorus limits in permits....slowly

- **Marlborough East**
 - 1973-4 0.75 mg/l year-round then to seasonal
 - 1988 0.75 year-round
 - 2004 0.1/0.75 (0.5 interim)- 4 years to get there
 - 2006 0.1/0.75 (0.5 interim)- 6 years to get there
 - MOU w/ City, Sudbury & DEP
- **Assabet permits set**
 - at 1.0 & 1.5 in 1990's
 - then 0.75 with 2000
 - 0.1 in 2005
- **Concord & Billerica 0.2 in 2005/6**



Assabet TMDL: Key Turn in Road !!!

- ENSR contractor
- Surveys 1999-2000
- 2000-2005 TMDL
- Water Quality model
- TP = 0.1 mg/l
- Sediment TP flux < 90%
- Facility planning
- Updated permits 2005



Assabet River Consortium: NPDES challenge

- April 23, 1999 DEP letter
- Local watershed group was key !!
- 2000-2003
- 6 Communities
 - Westborough, Shrewsbury
 - Marlborough, Northborough
 - Hudson, Maynard
- \$3.5 M loan from SRF
- CWMP & EIR
- Permits and schedules to follow



Concord & Billerica joined the challenge

- No TMDL for TP
- Dilution calculation
- Not on 303d list for nutrients
 - On for excessive algal growth
- Concord has extended outfall
- Permit limits in 2000 = 0.75 mg/l
- TP = 0.2 mg/l in 2005-2006
- Concord 1st Co-Mag in U.S.



NPDES Permits circa 2005

- Set Assabet facilities @ 0.1 mg/l (0.75 interim); 1.0 mg/l winter
- Concord & Billerica @ 0.2 mg/l
- Compliance schedules 3-6 years to comply
- Appeals for some
- Updated permits coming 2019-2020



WHAT'S ON ROAD AHEAD ???

- Updated permits
- Base Flow maintenance
- NPS/SW controls
- Sediment/dams ???
- USGS studies
- Public access
- Bring on another “Dirty Dozen” !!



A photograph of a pond or stream completely covered in a thick layer of bright green algae. The water is surrounded by dense green trees and foliage. In the foreground, there are some rocks and grass on the left bank. A white object, possibly a piece of trash, is visible on the ground near the water's edge. A text box is overlaid on the left side of the image.

**HOPEFULLY NO MORE OF
THIS !!!!**



**...OR
THIS !!!!**

(Source:greenaction.org)



Thanks for listening and participating !!

Questions, Ideas, Comments???!!!!
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