



Update and Status of the USGS/MA Cooperative Hydrologic Monitoring Network



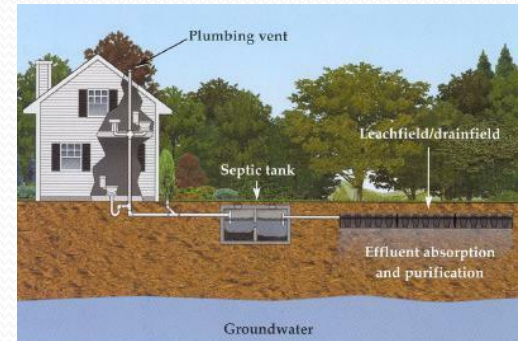
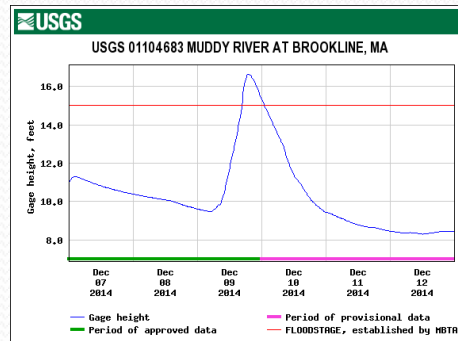
Richard Verdi (USGS)
Viki Zoltay (DCR-OWR)

May 10, 2018

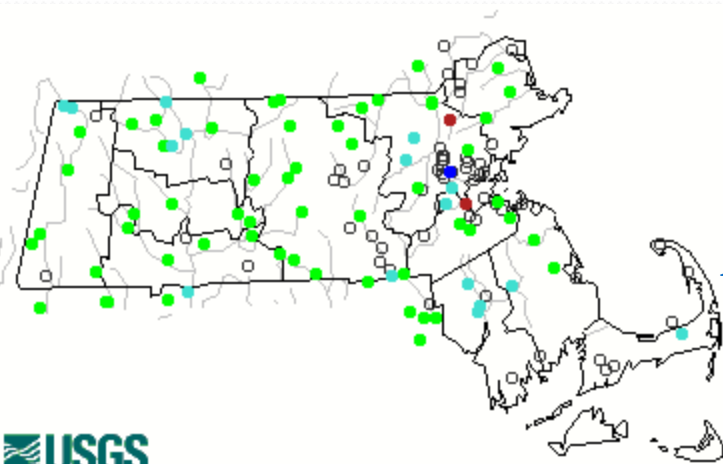


Data Uses

- Emergency management/flood forecasting
- Engineering– bridge design, flood zone mapping, septic system design
- Environmental monitoring– climate change



USGS Streamgauge Network

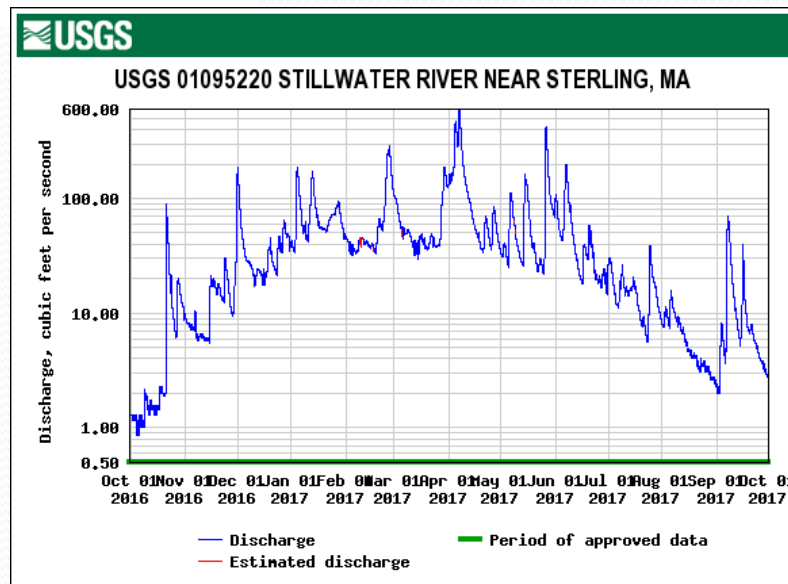


USGS

57 Real-time gages

No Changes Planned in
FY18

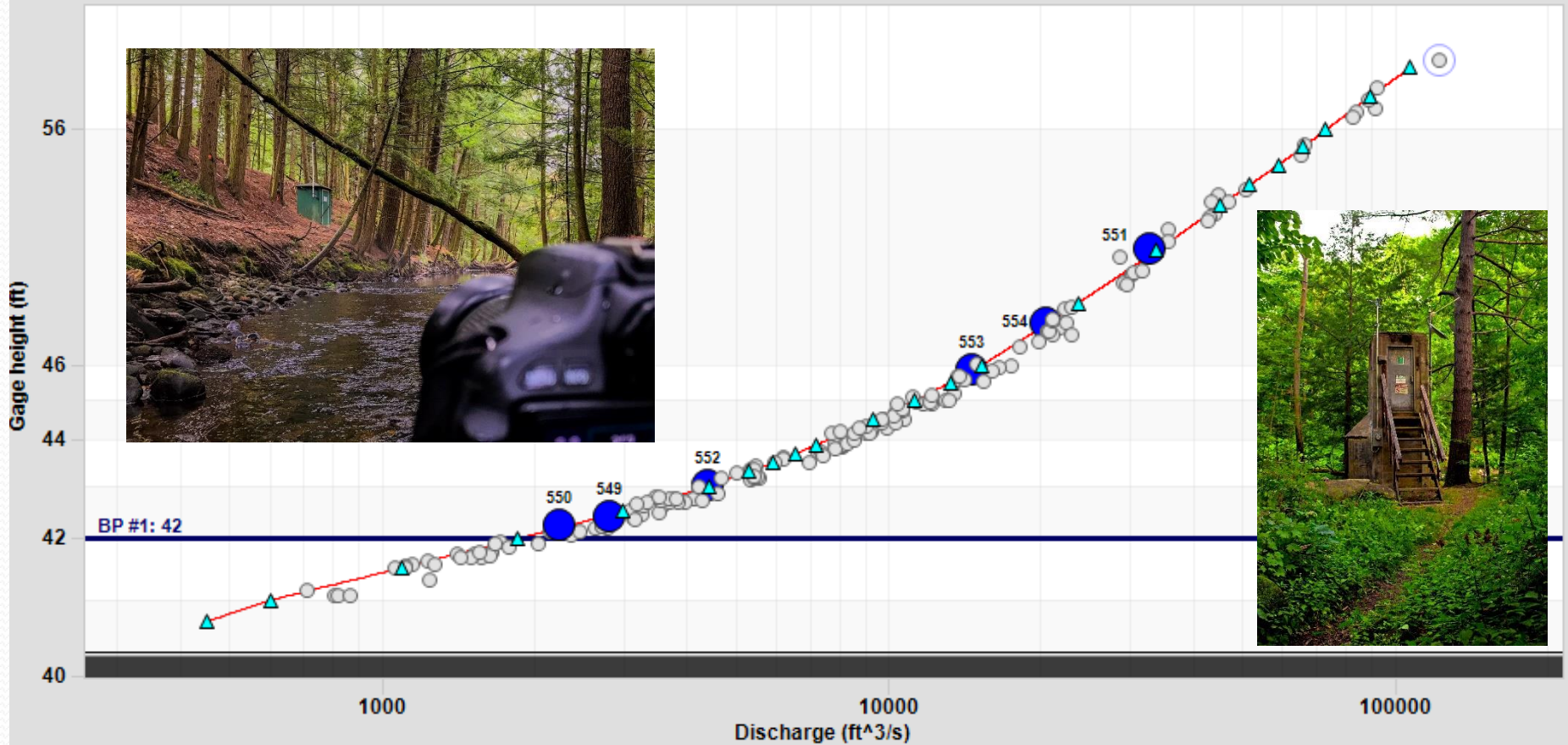
Annual O&M ~\$885,000



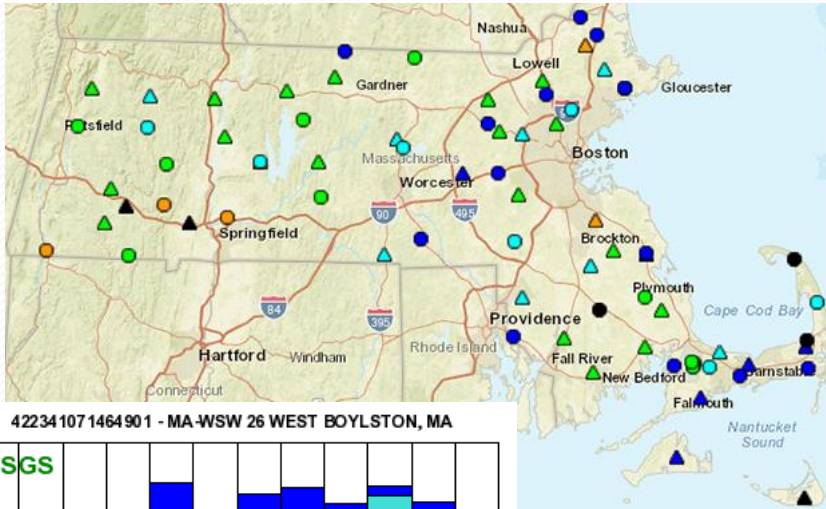
Stage-Discharge Relationship

01100000 - MERRIMACK RIVER BL CONCORD RIVER AT LOWELL, MA - DD: 1 Rating: 26

Rating period from 2016-10-16



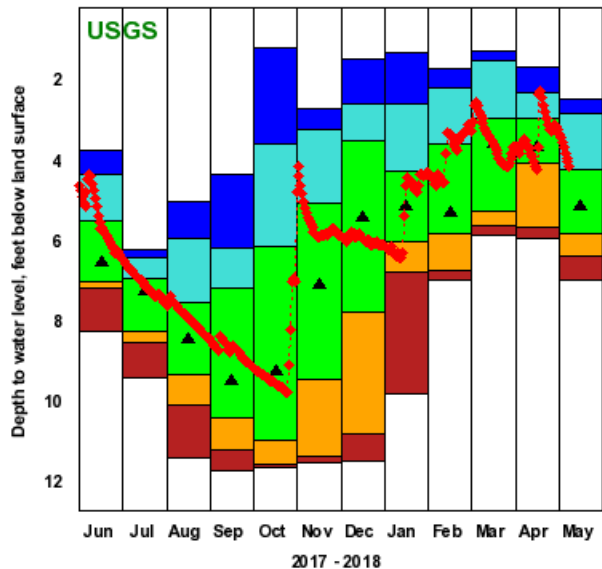
USGS Groundwater Network



92 Observation Wells

Annual O&M ~\$220,000

42234 107 1464 901 - MA-WSW 26 WEST BOYLSTON, MA

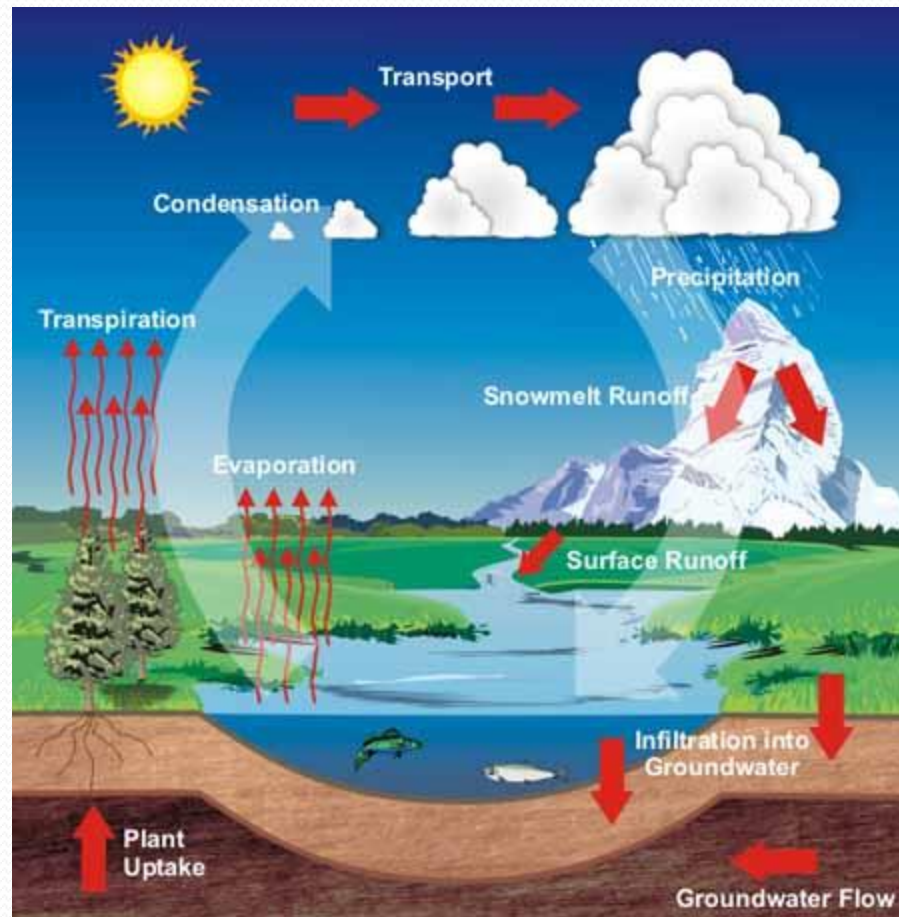


Pbt created 05/09/18 13:46

◆ Data Point
● <10 ● 10-24 ● 25-75 ● 76-90 ● >90
▲ Monthly Median

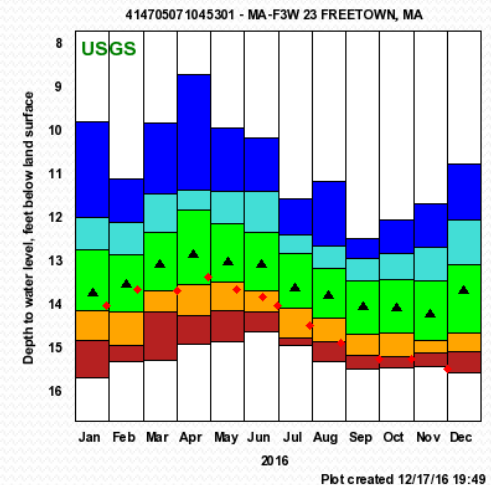
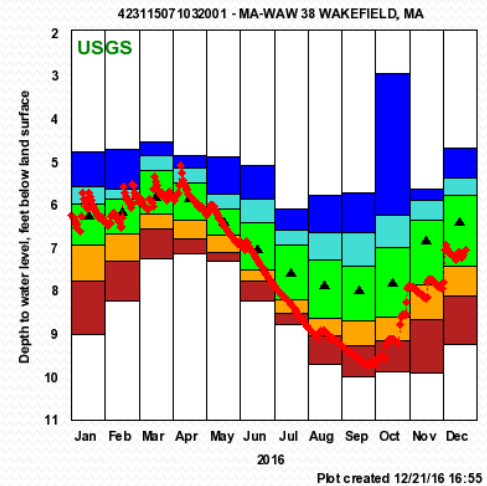
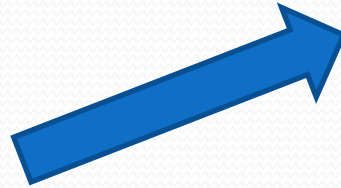


USGS Groundwater Network = Climate Response Network



USGS Groundwater Network = Climate Response Network

- 92 wells total (including 7 newer bedrock wells)
- 37 real-time wells at \$4,800 each, annually
- 55 measured by State staff monthly at \$750 each, annually



USGS Groundwater Network = Climate Response Network

Long-Term Network, 105 Wells With 20 or
More Years of Monthly Data



Long-Term Network, 58 Wells With 50 or
More Years of Monthly Data



Real-time Ground Water Obs

Massachusetts Real-Time Groundwater Level Network

Click site symbol to open information pop-up. Click Station ID in pop-up for information and data.



Explanation - Percentile classes (symbol color based on most recent measurement)						Wells		Springs	
●	●	●	●	●	●	●	●		
Low	<10	10-24	25-75	76-90	>90	High	Not Ranked	Real-Time	Continuous
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal			Periodic Measurements	

Precipitation/Weather Stations

- Flash Flood Warnings
- Spring Flood Modeling
- Soil Moisture at Heath
- MassDOT/ State Geologist/
UMass Amherst Culvert
Vulnerability pilot in
Deerfield River basin
(Route 2)



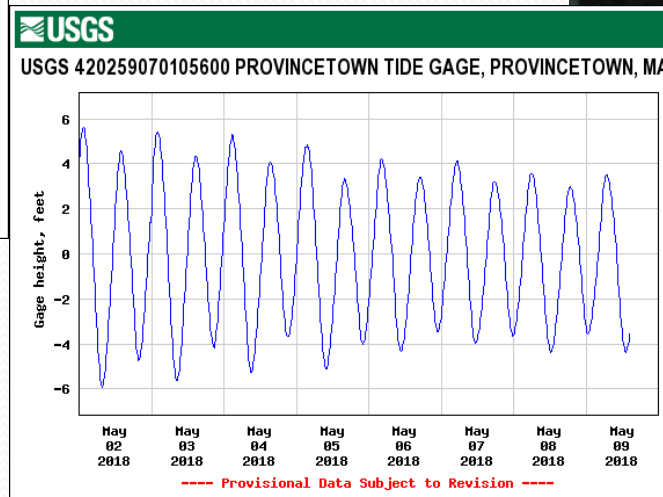
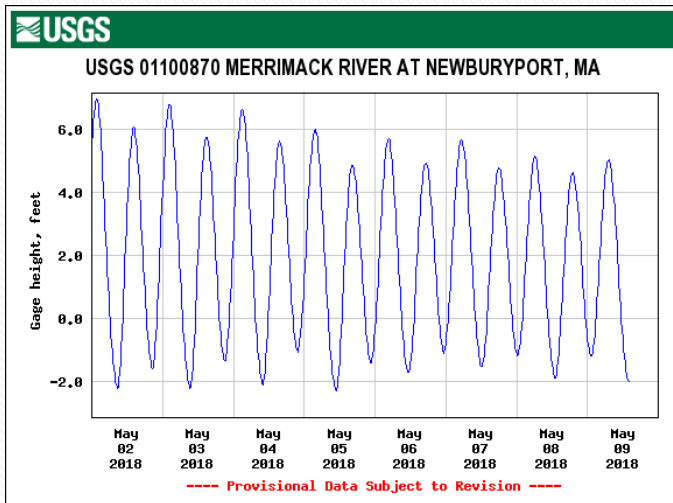
Meteorological Stations

- Peabody
- Fall River
- Groton
- Florida



Tide Gages

- Provincetown
- Dennis
- Merrimack



FY19 Hydrologic Monitoring Network Budget

- State
 - \$800,000
- USGS
 - \$290,124
- NSIP
 - \$68,900
- Total Budget
 - \$1,159,024

Program Budget FY19

- Streamgages
 - \$884,185
- Ground Water
 - \$220,320
- Precipitation/Weather
 - \$18,150
- Tide Gages
 - \$18,000
- Soil Moisture
 - \$2,500

Questions/Discussion?

