



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



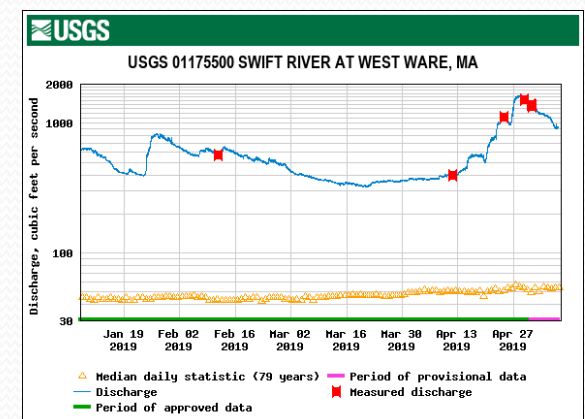
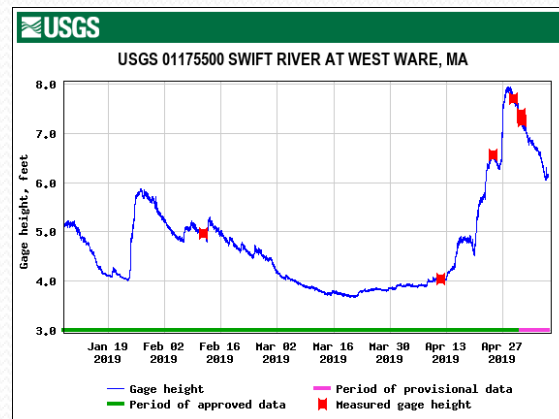
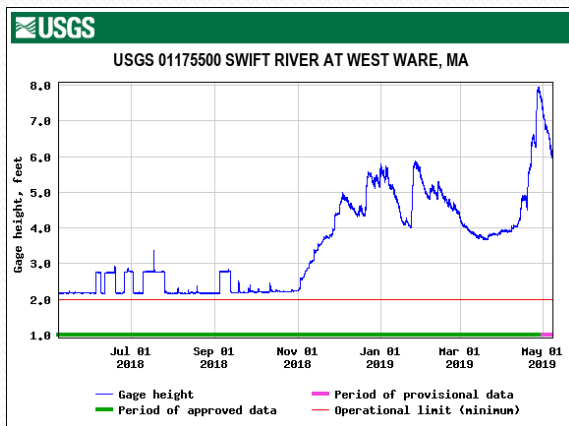
Richard Verdi (USGS)
Viki Zoltay (DCR-OWR)

May 9, 2019



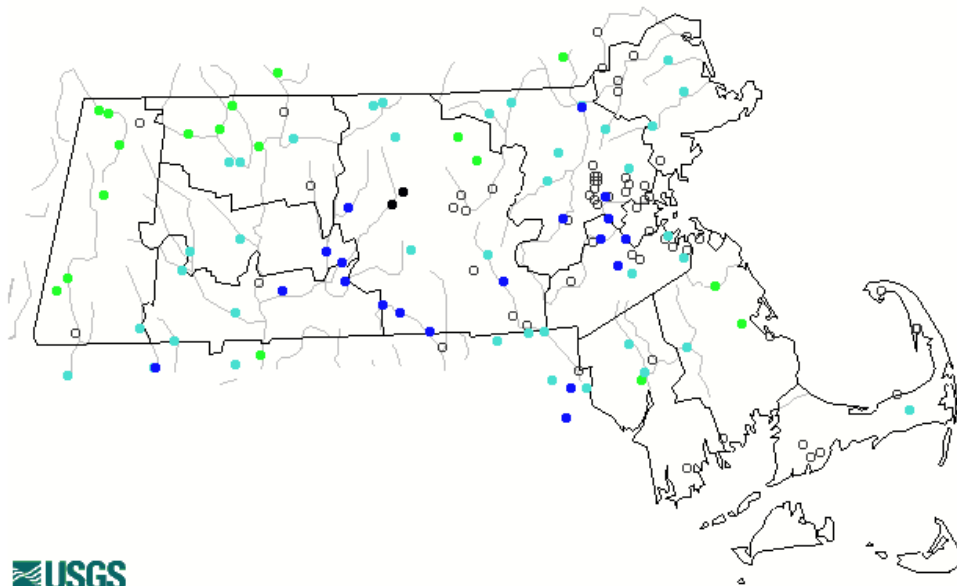
Data Uses

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



USGS Stream Gage Network

Wednesday, May 08, 2019 08:30ET



Search USGS streamgage

Choose a data retrieval option and select a location on the map

- List of all stations
 Single station
 Nearest stations
 Peak flow

Explanation - Percentile classes

Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

57 Real-time gages

No Changes Planned in FY20

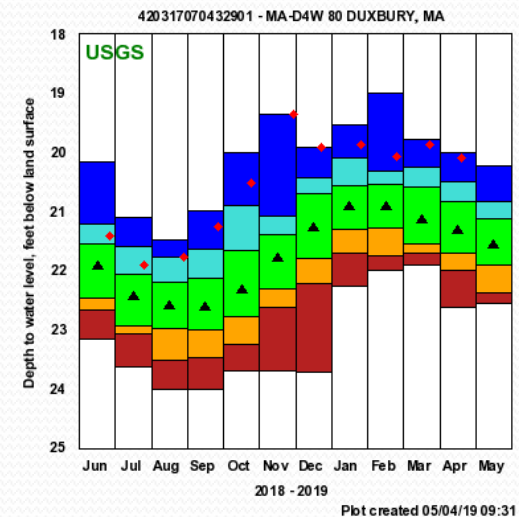
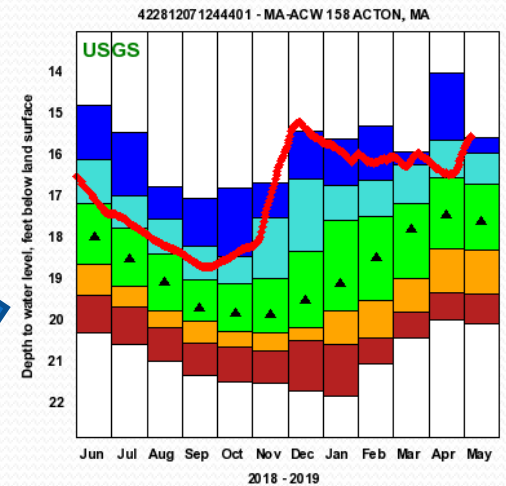
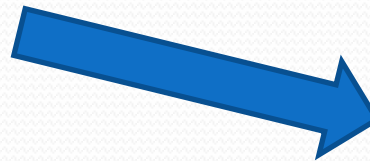
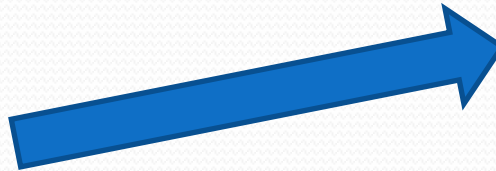
Annual O&M ~\$900,000

\$15,800 per streamflow gage



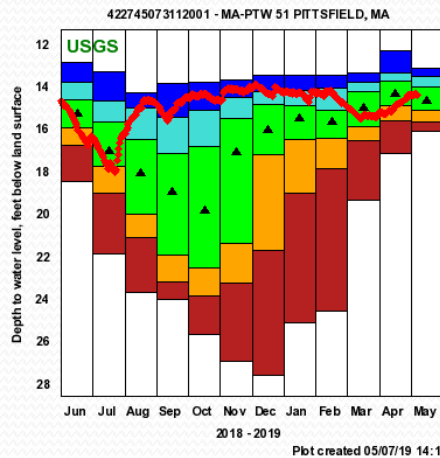
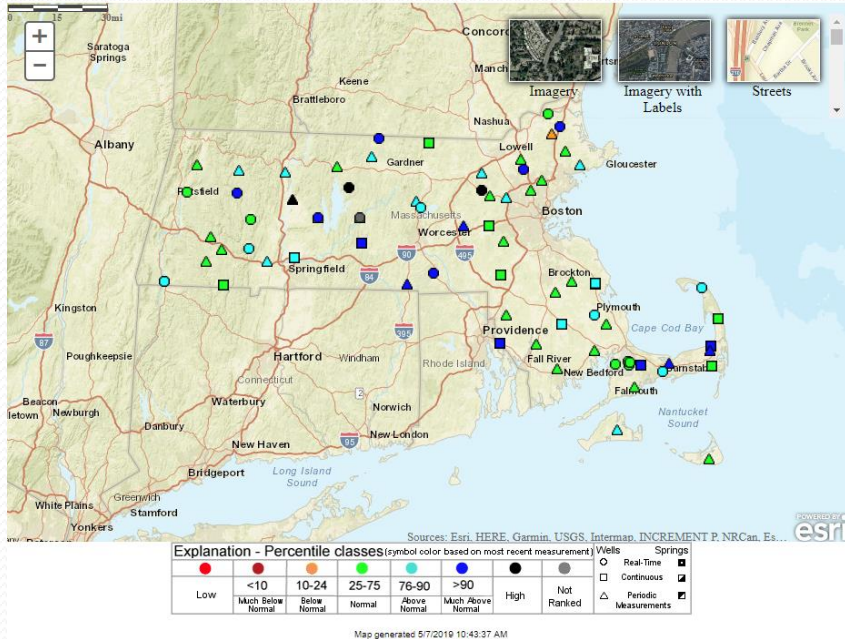
Climate Response Network

- 92 wells total (including 7 bedrock wells)
- 39 real-time wells
- 53 wells measured monthly by State staff

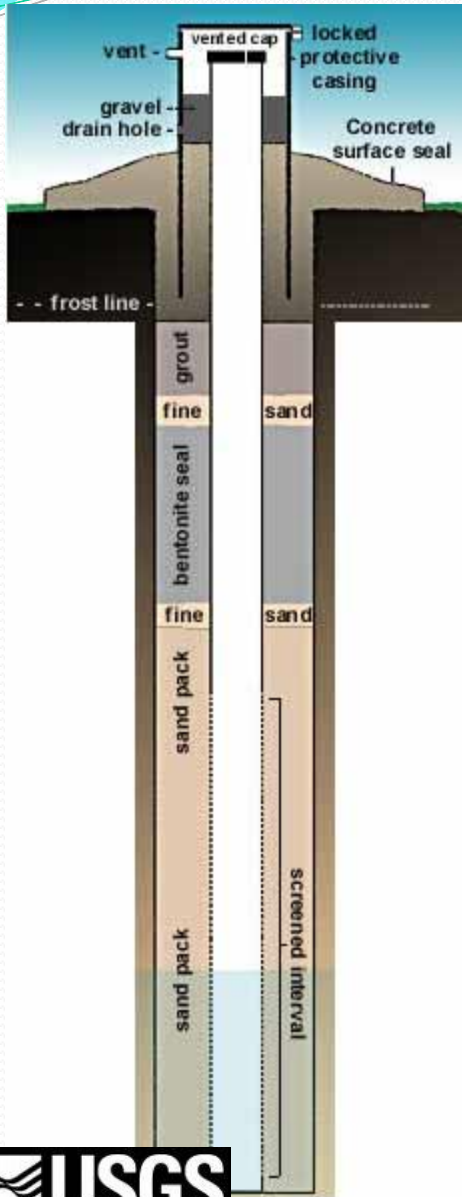


Climate Response Network

92 Observation Wells
 Annual O&M ~\$230,000
 \$5,000/\$750 per well



USGS Groundwater Network

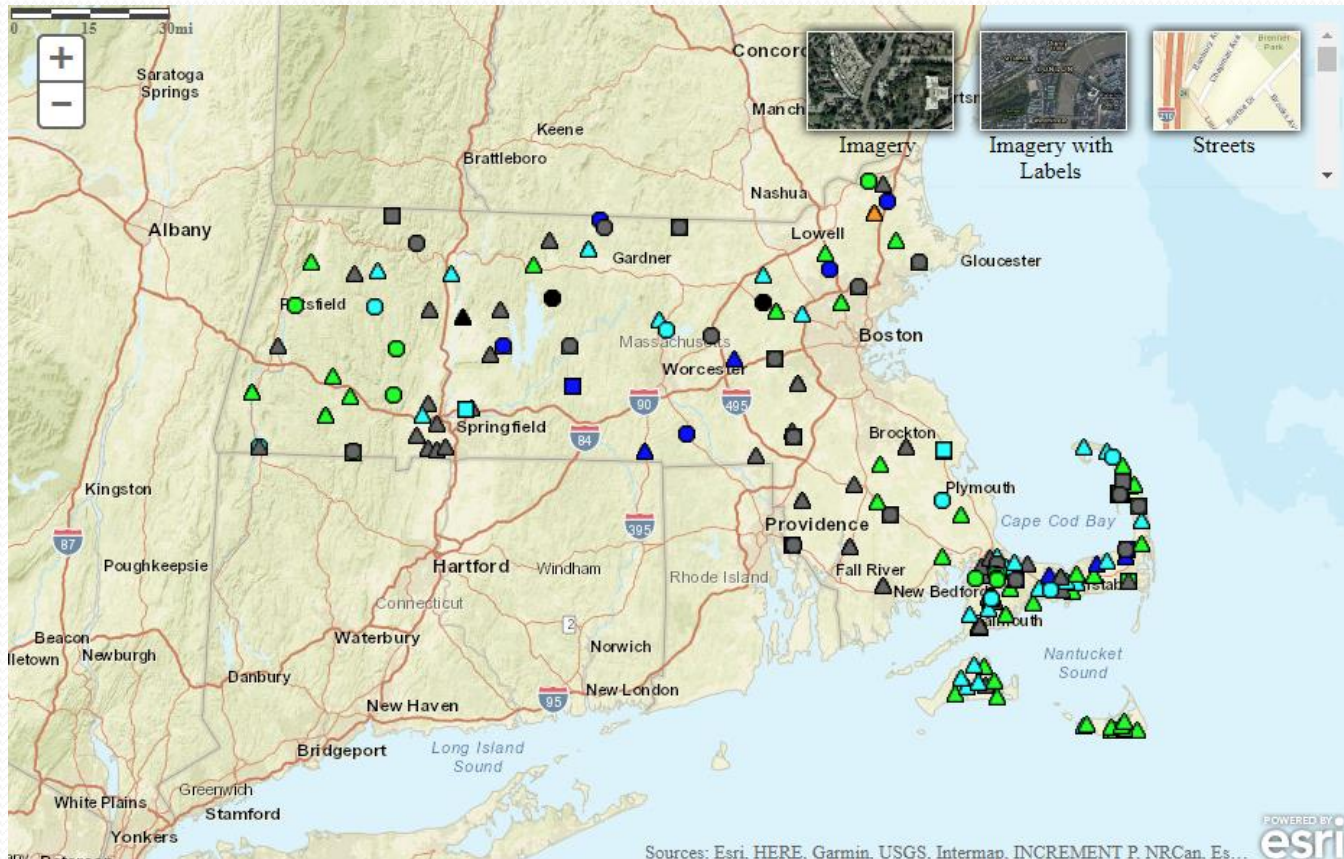


- A number of steel wells older than 50 years (1965 and before) in acidic ground water have been replaced!
- Three left to do!



www.shutterstock.com · 282324110

Active Water Level Network



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	Periodic Measurements
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal					

Real-time GW Network (three years ago)

 **USGS**
science for a changing world



USGS Home
Contact USGS
Search USGS

Groundwater Watch **Latest News...**

Massachusetts Real-Time Groundwater Level Network

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

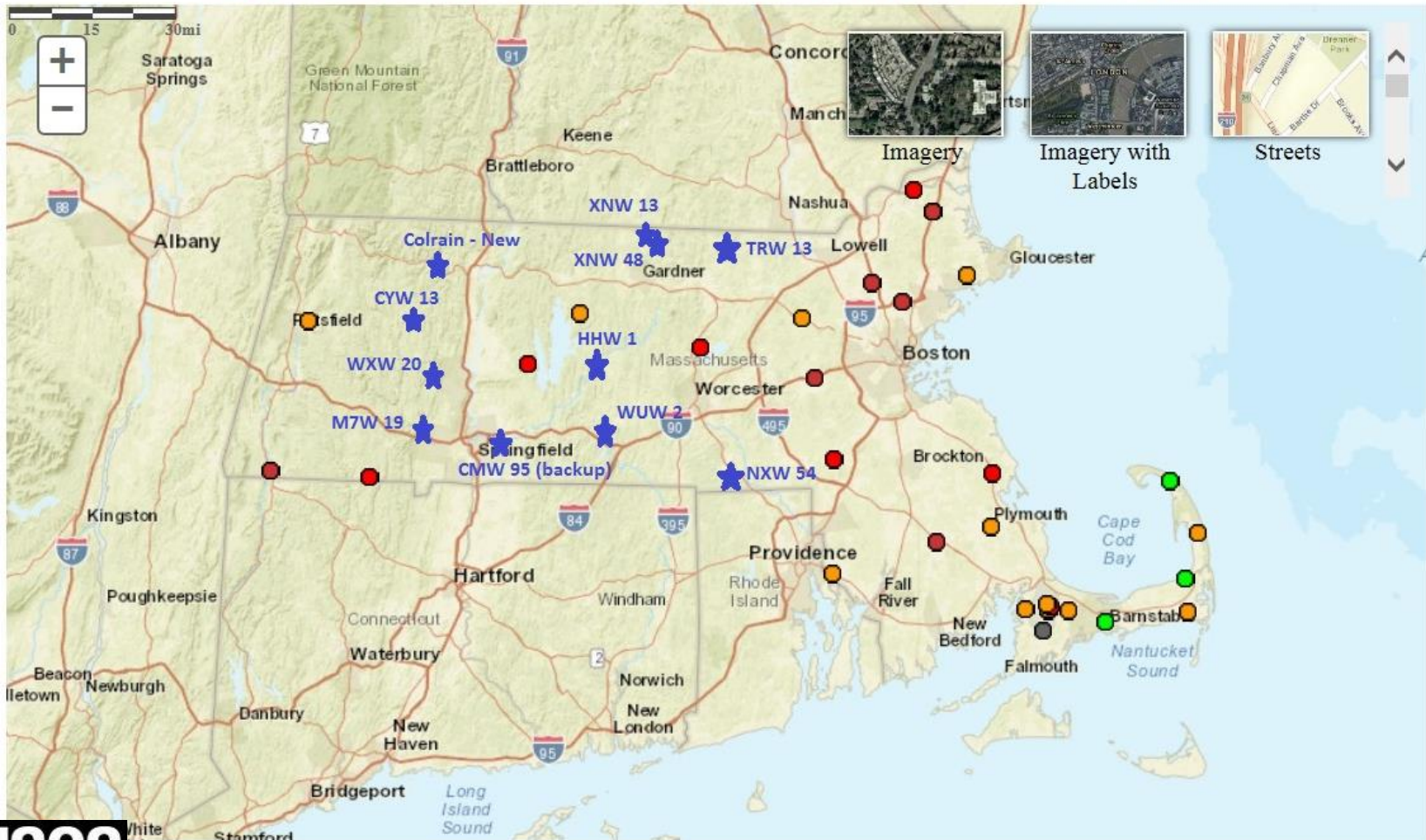


Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCA...

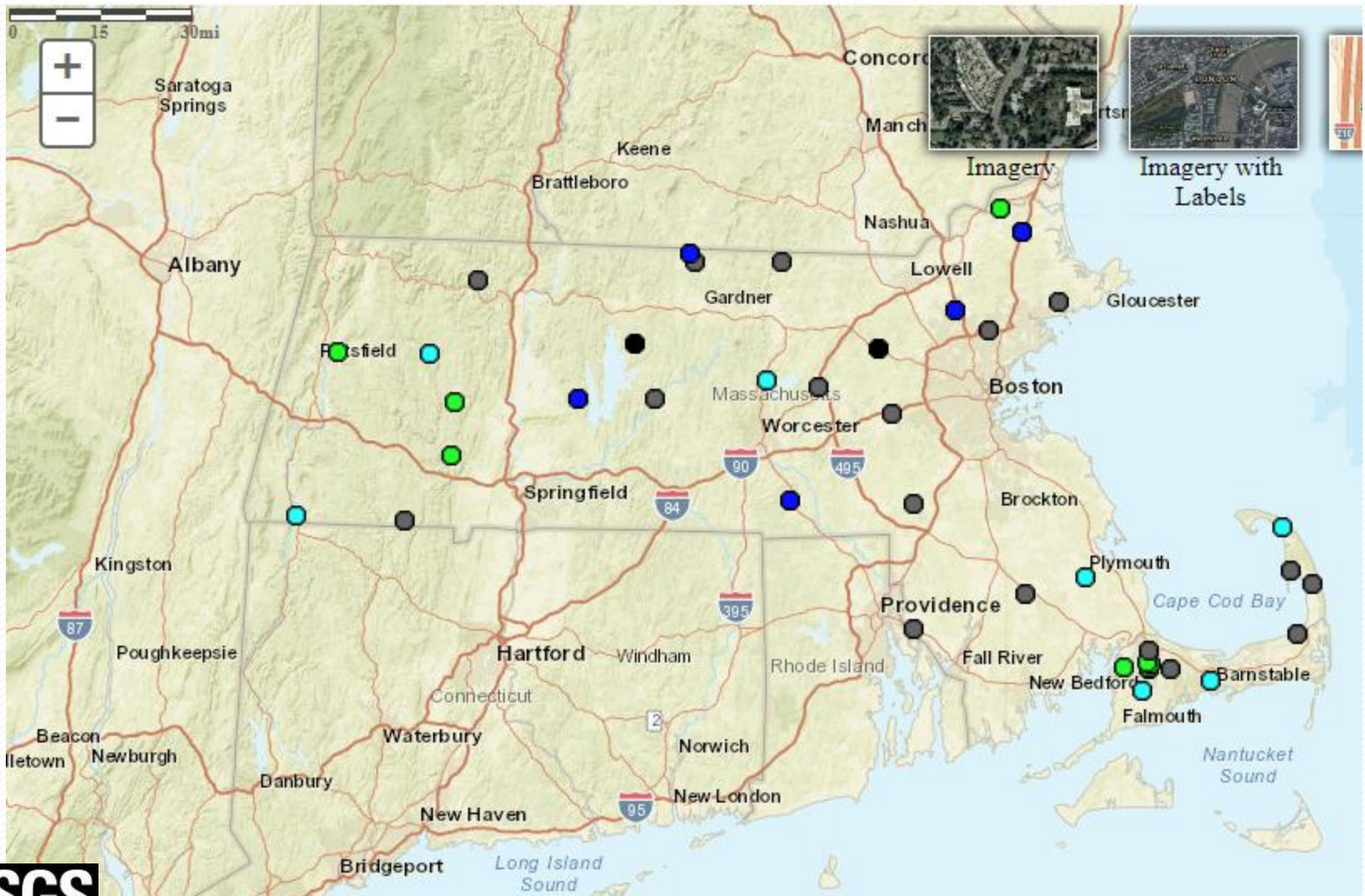
Proposed Changes to the RT Network

Massachusetts Real-Time Groundwater Level Network

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



Actual changes real-time groundwater network!



Precipitation/Weather Stations

- Flash Flood Warnings
- Spring Flood Modeling
- Soil Moisture at Heath



Precipitation/Weather Stations

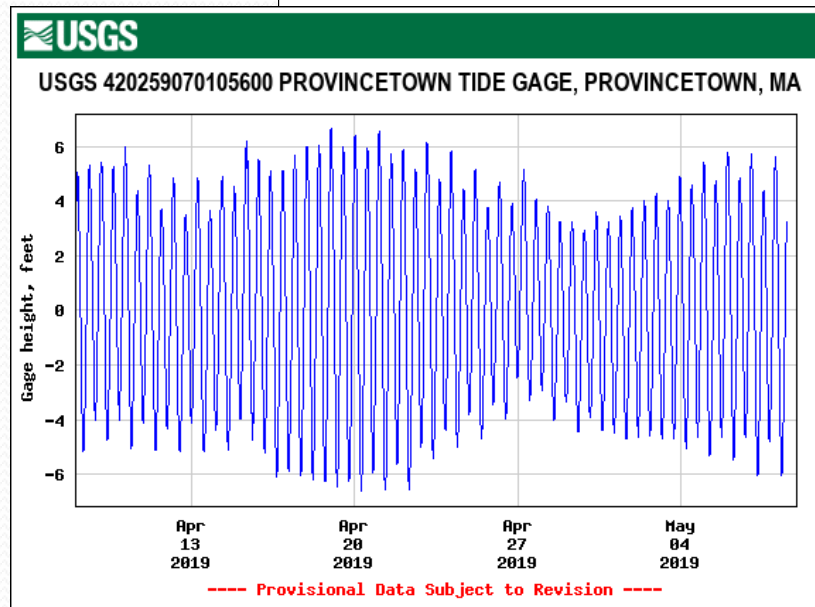
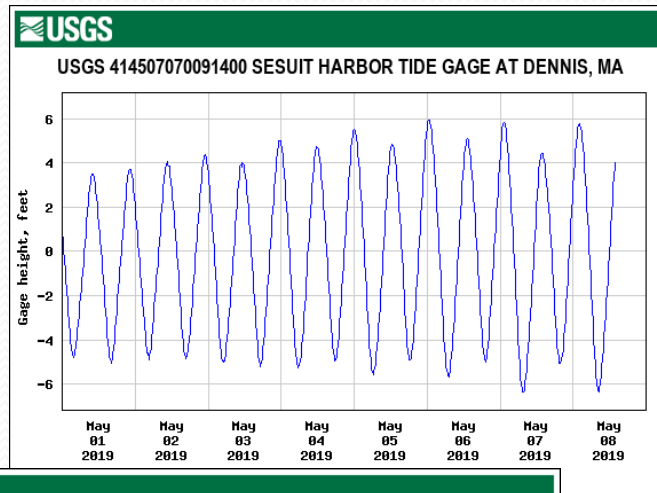
- Peabody
 - Fall River
 - Groton
 - Florida
 - Sheffield (new)
-
- \$4,800/\$5,800



Tide Gages

(\$6,800)

- Provincetown
- Dennis
- Merrimack



Landslide warning system

(\$2,500)



FY20 Hydrologic Monitoring Network Budget

- State
 - \$850,000
- USGS
 - \$290,124
- NSIP
 - \$68,900
- Total Budget
 - \$1,209,024

Program Budget FY20

- Streamgages
 - \$884,185
- Ground Water
 - \$233,750
- Precipitation/Weather
 - \$26,000
- Tide Gages
 - \$20,400
- Soil Moisture
 - \$2,500

Questions

