

Streamflow and Groundwater Conditions in Rhode Island May 2024 – November 2024

Chris Bruet
November 26, 2024
U.S. Geological Survey
New England Water Science Center



Table 2, Rhode Island Drought Indices and Phases

Drought Phase	Palmer Drought Index +	Crop Moisture Index	Precipitation +	Ground Water** +	Stream flow +	Reservoirs**
Normal	-1.0 to -1.99	0.0 to -1.0	Slightly Dry	1 month below normal 1 month below normal	2 consecutive months below normal	Reservoir levels at or near normal for the time of year
Advisory	-2.0 to -2.99	-1.0 to -1.9 Abnormally Dry	2 month cumulative below 65% of normal	At least 2 out of 3 months below normal	3 consecutive months below normal	Small index Reservoirs below normal
Watch	-3.0 to -3.99	-2.0 to -2.9 Excessively Dry	1 of the following criteria met: 3 month cum. <65% or 6 month cum. <70% or 12 month cum. <70%	4-5 consecutive months below normal	At least 4 out of 5 consecutive months below normal	Medium index Reservoirs below normal
Warning	-4.0 and below	> -2.9 Severely Dry	2 out of 3 of the above criteria met: 3 month cum. <65% and 6 month cum. <65% or 6 month cum. <65% and 12 month cum. <65% or 3 month cum. <65% and 12 month cum. <65%	6-7 consecutive months below normal observation wells recording monthly record lows	At least 6 out of 7 consecutive months below normal	Large index reservoirs below normal
Emergency	-4.0 and below	> -2.9 Severely dry	Same criteria as Warning and Previous month was Warning or Emergency	>7 months below normal Observation wells recording monthly record lows	>7 months below normal	Continuation of previous month's conditions

+ Major Hydrologic Indicators.

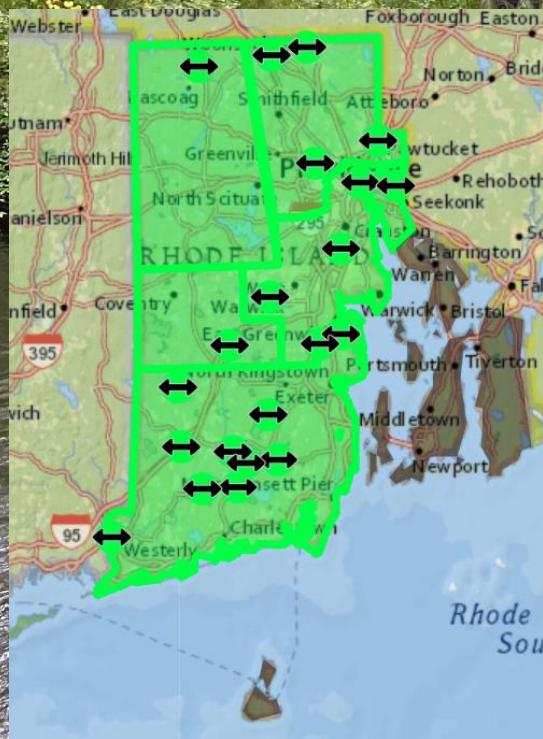
** Local triggers from the water system supply management plans will also be considered in assessing drought phases on a regional basis. The WRB staff will review local plans and work with suppliers to coordinate regarding drought phases and to collect, review and report surface reservoir and ground water data.

"Normal" is defined as the statistical average of the data for the period of record. Percentages for precipitation are relative to normal.

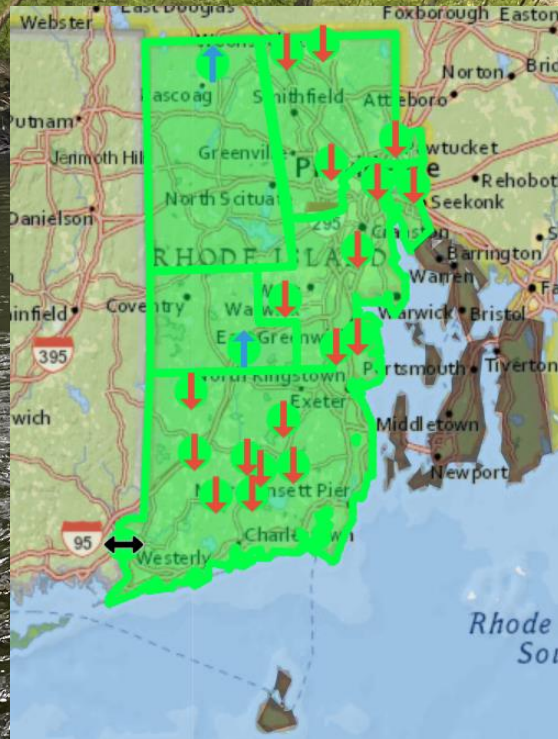


Average Monthly Streamflow Conditions May – July

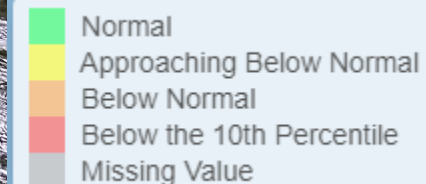
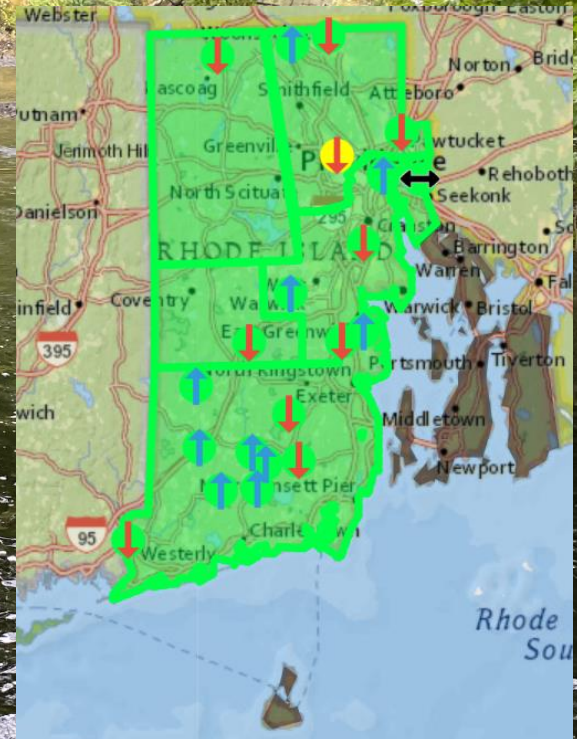
May



June

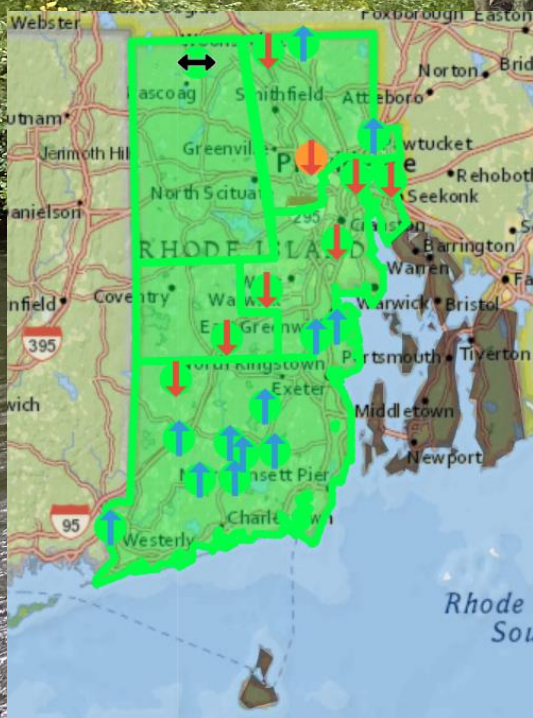


July

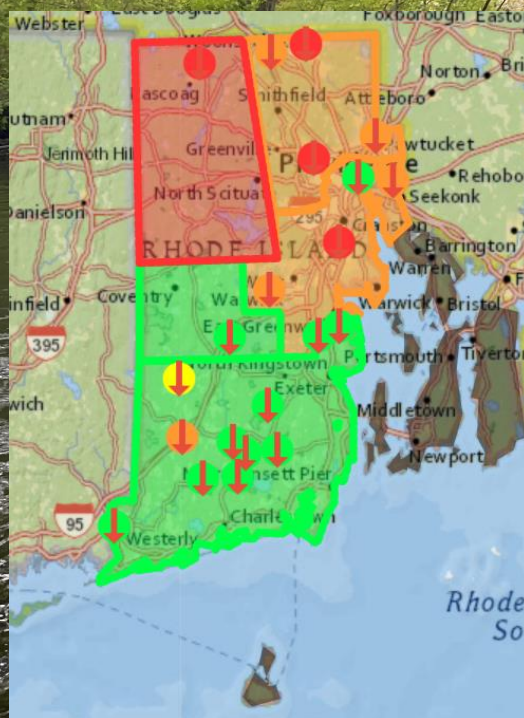


Average Monthly Streamflow Conditions August – October

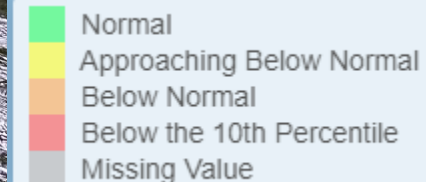
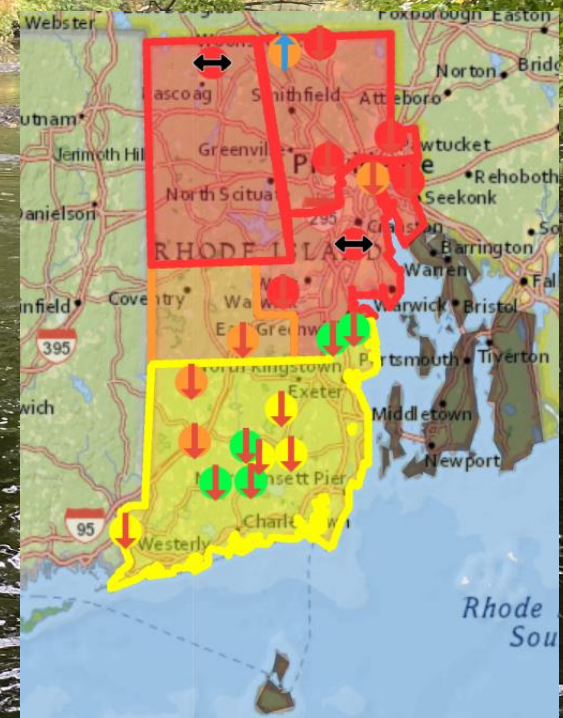
August



September



October



Average Monthly Streamflow Conditions May – October

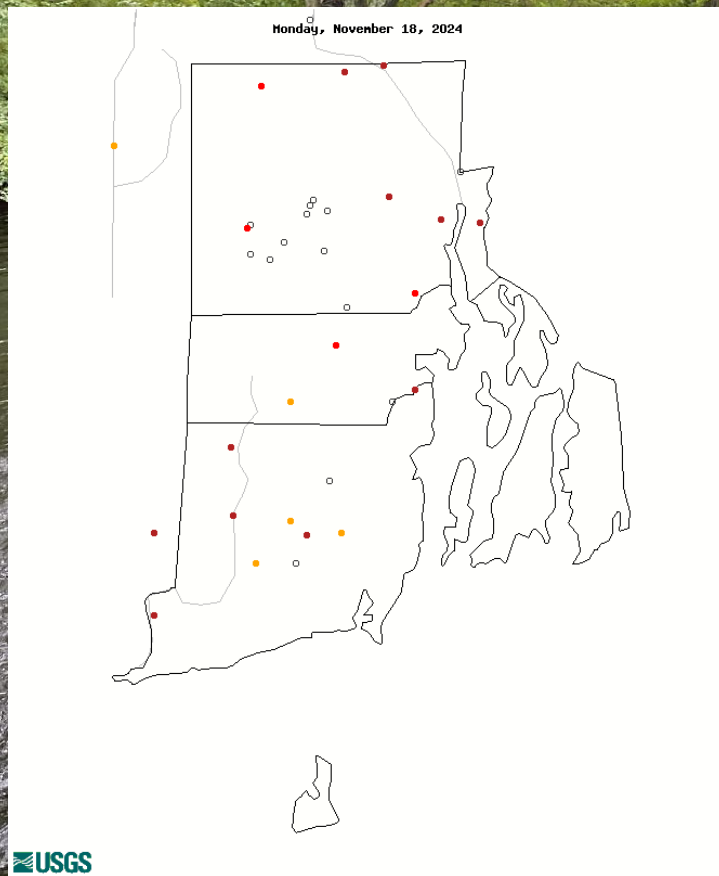
Region & Num of Gages	Q 5/2024	Q 6/2024	Q 7/2024	Q 8/2024	Q 9/2024	Q 10/2024	Q 11/2024
Northwest (1)	52	62	47	42	5	5	4
Northeast (4)	73	60	47	41	14	10	28
Central West (1)	78	86	84	81	38	19	29
Central East (4)	85	66	74	58	19	9	28
Eastern (0)	-----						
Southern (11)	83	76	76	85	52	31	25
New Shoreham (0)	-----						
Statewide (21)	80	71	69	69	36	21	23

Streamflow = Advisory (Three consecutive months below normal)

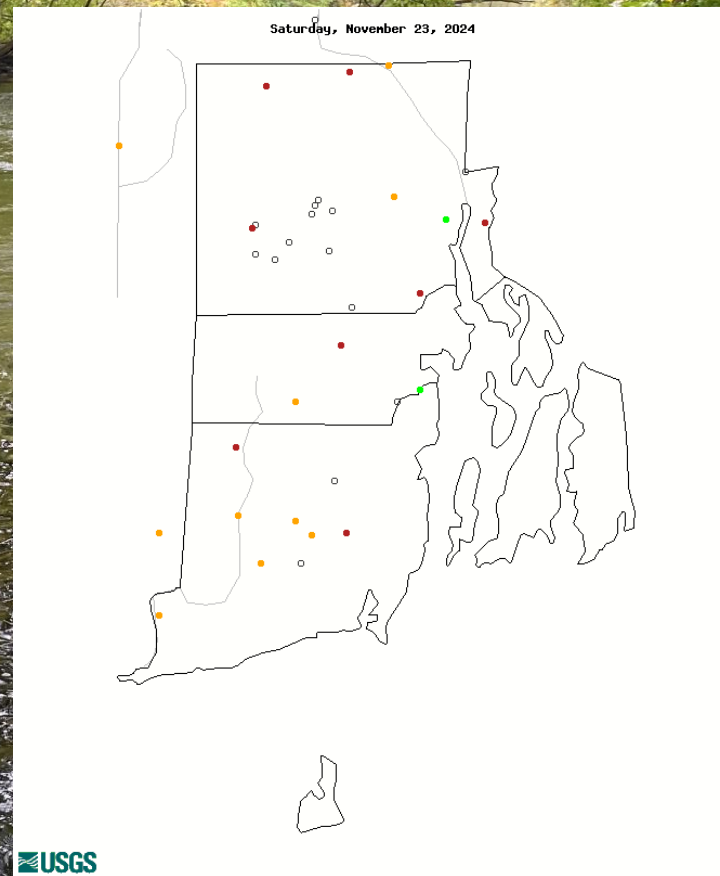


7 - Day Maps

November 18, 2024

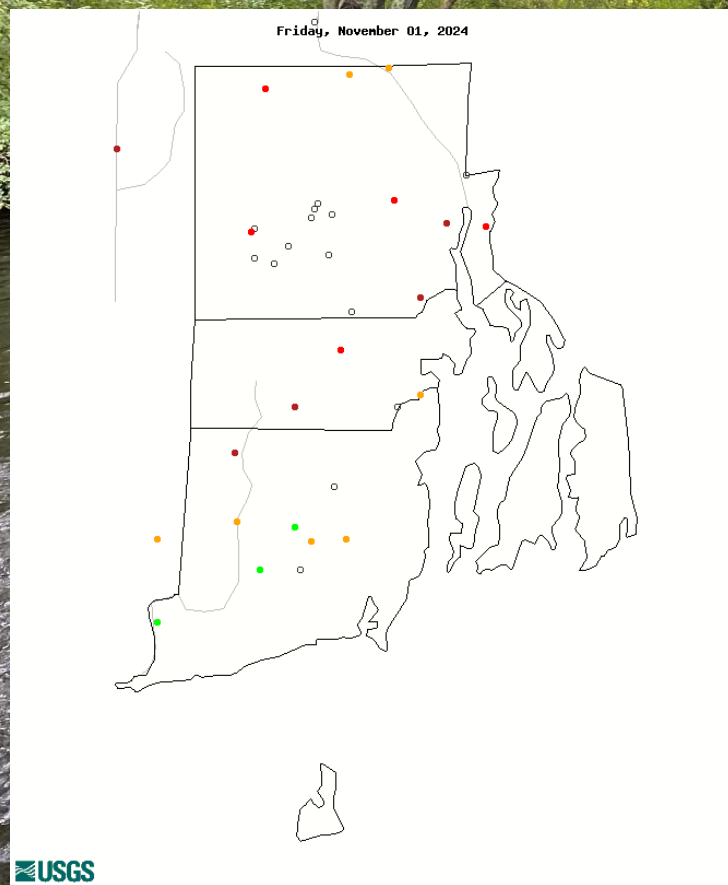


November 23, 2024

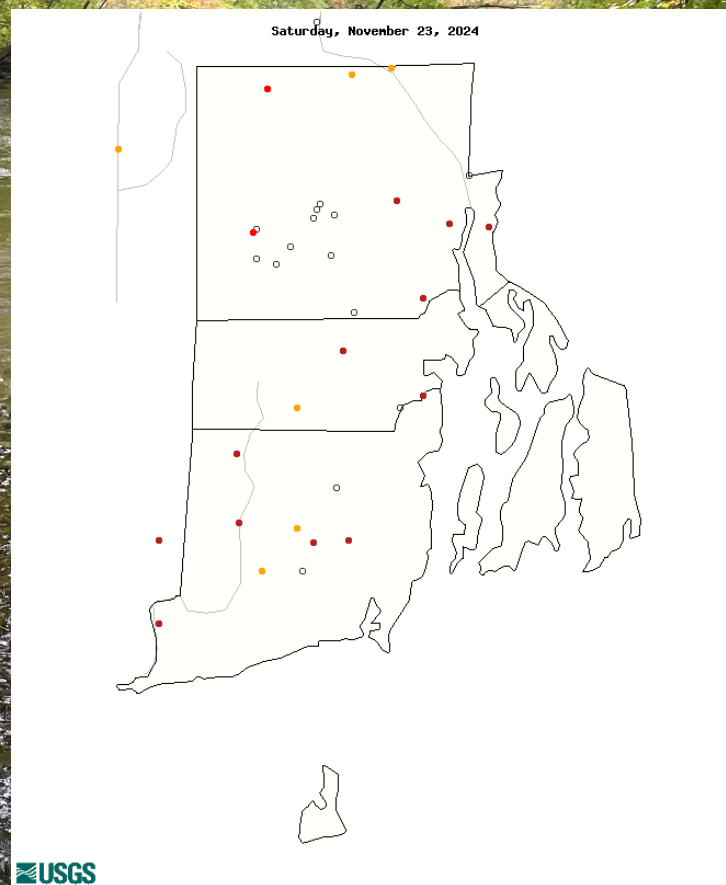


28 - Day Maps

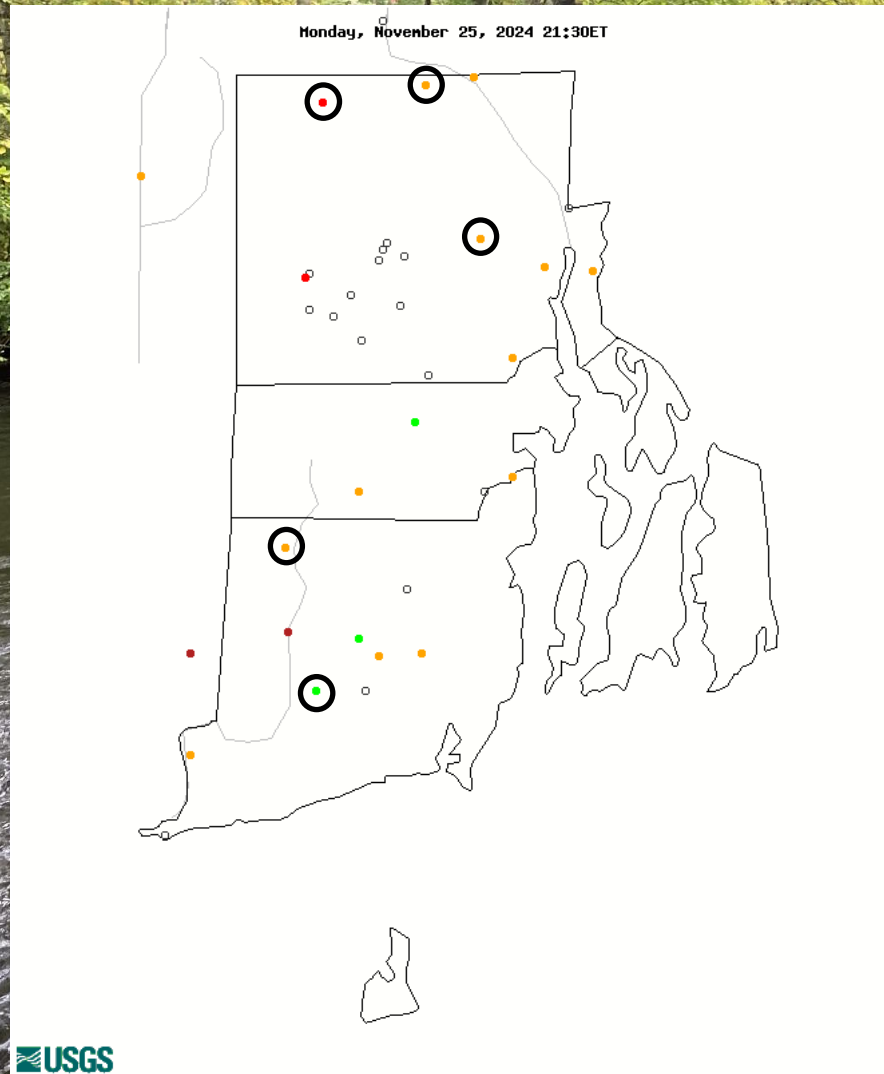
November 01, 2024



November 23, 2024



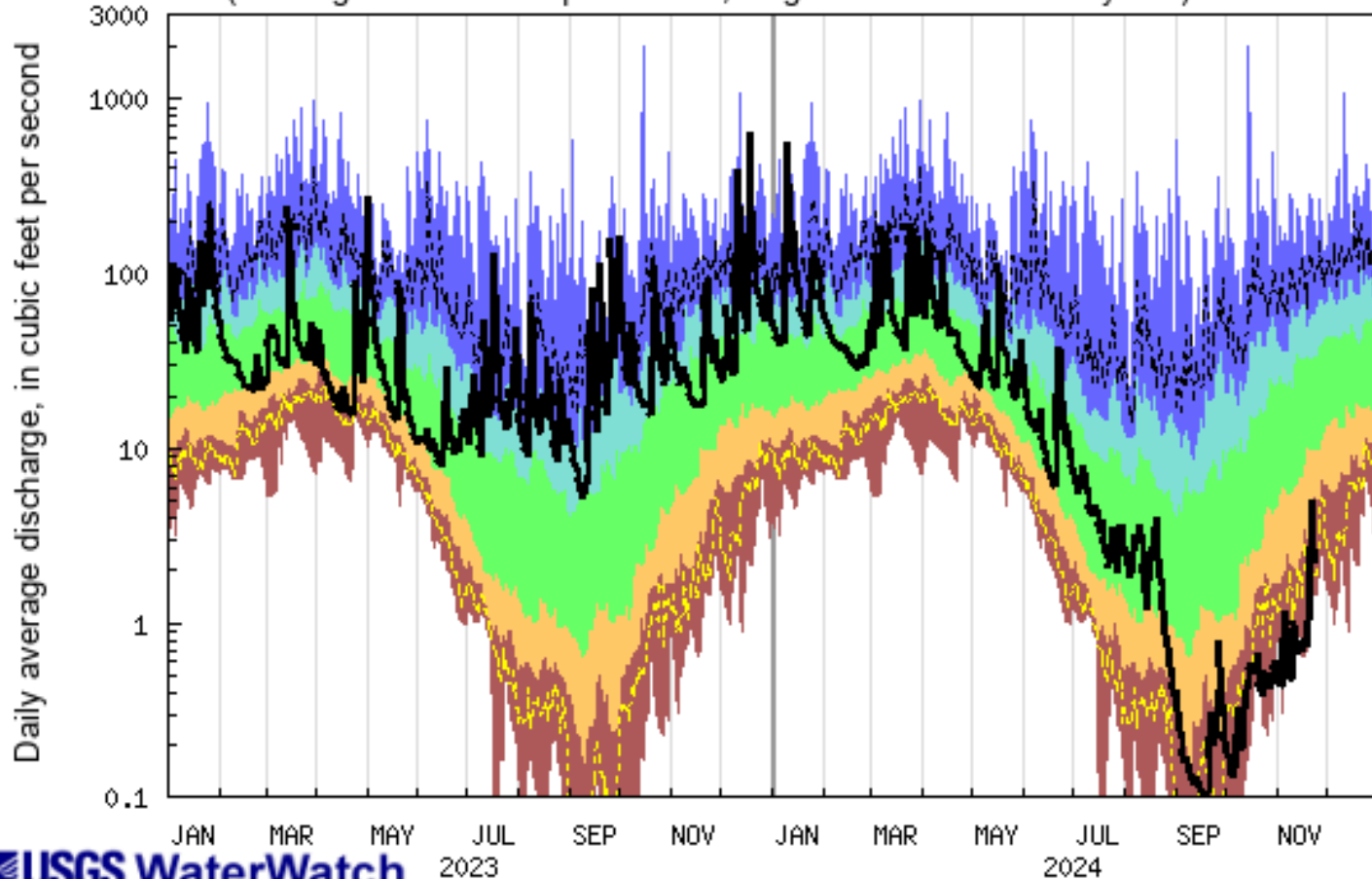
Current Streamflow Conditions – November 25, 2024





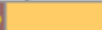
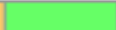
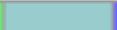


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Northwest

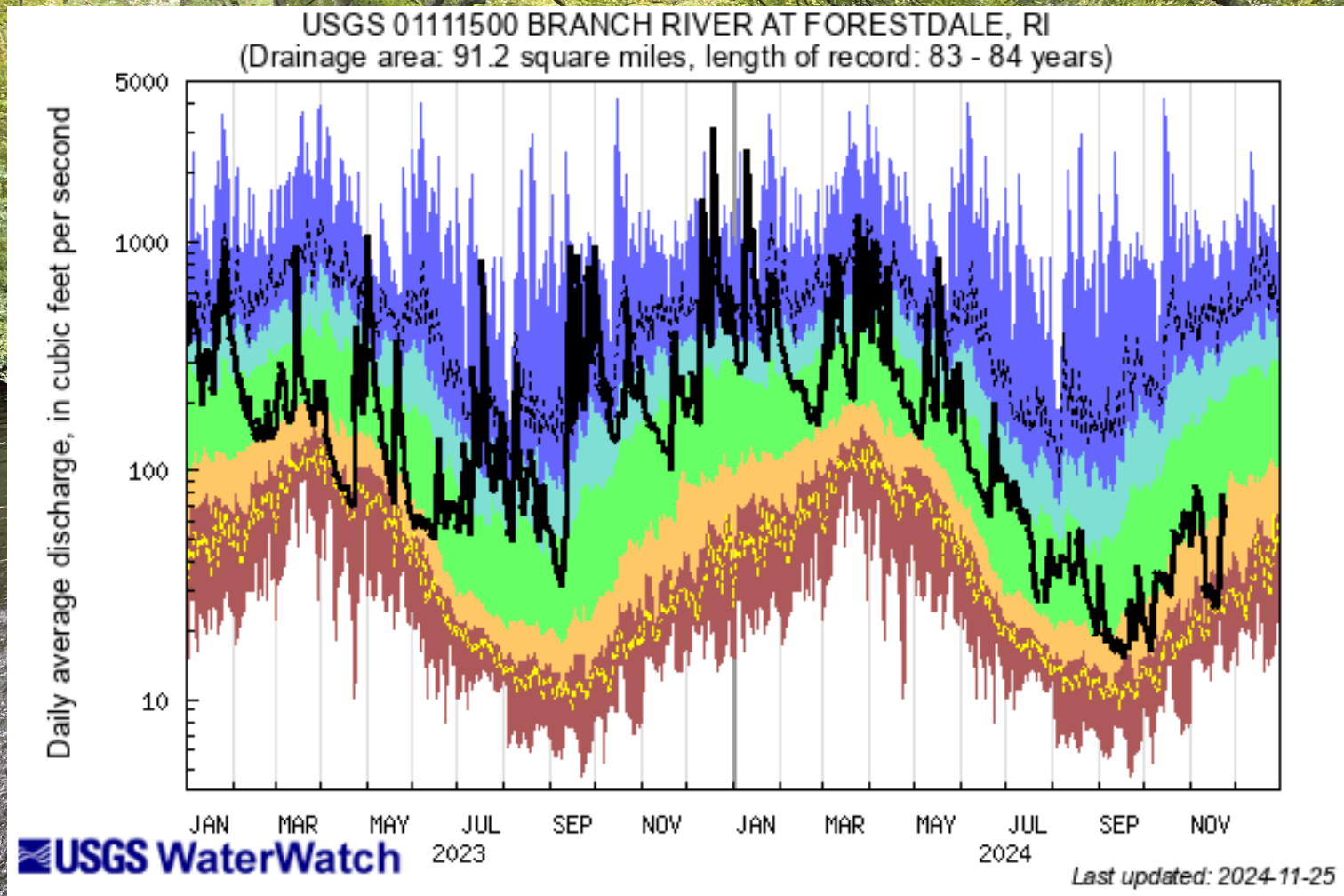
USGS 01111300 NIPMUC RIVER NEAR HARRISVILLE, RI
(Drainage area: 16.0 square miles, length of record: 57 - 58 years)










Last updated: 2024-11-25

Explanation - Percentile classes							Flow
							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	
Much below Normal		Below normal	Normal	Above normal		Much above normal	

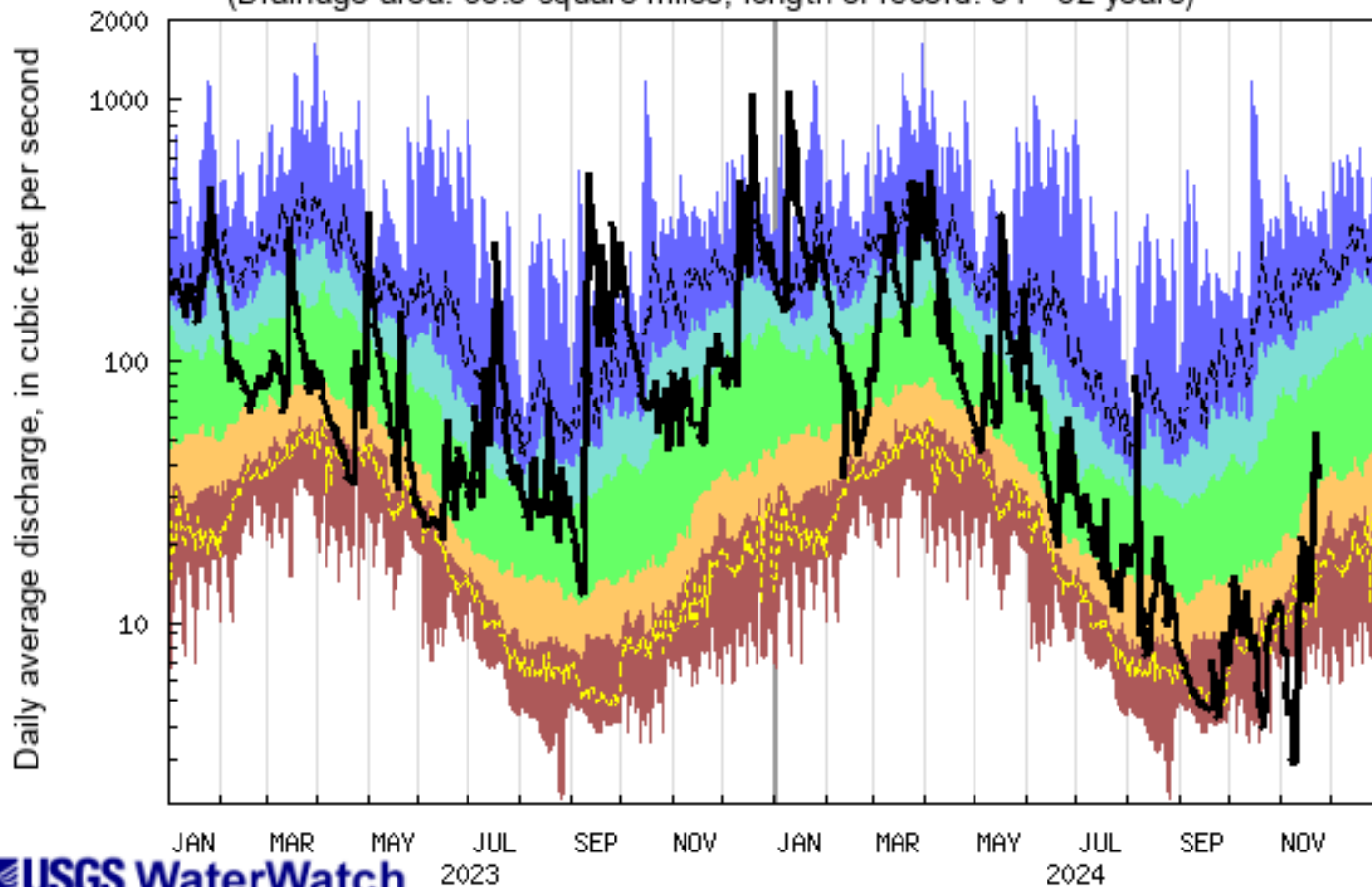
Northeast



Explanation - Percentile classes							Flow
							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest	
Much below Normal		Below normal	Normal	Above normal	Much above normal		

Northeast

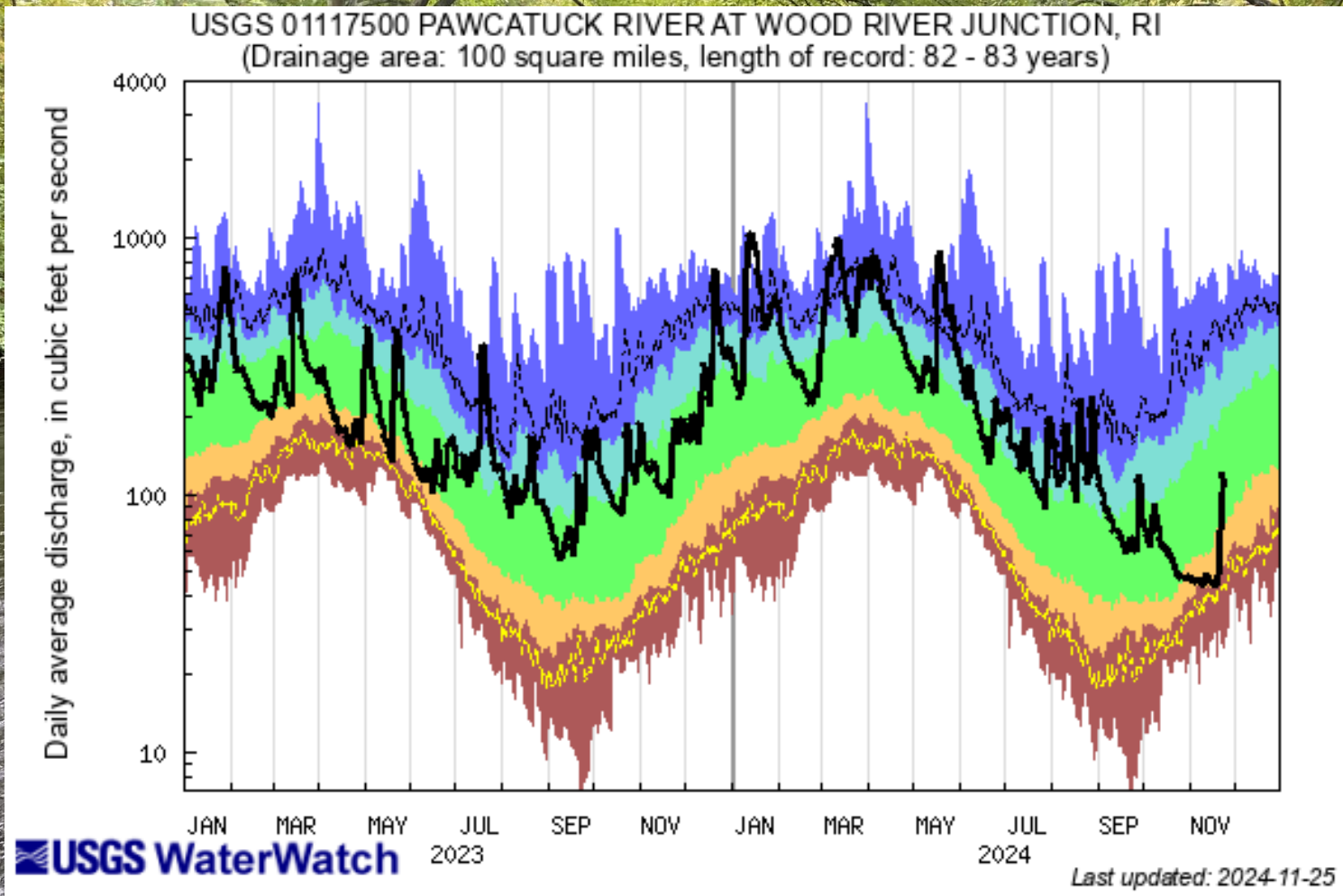
USGS 01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI
(Drainage area: 38.3 square miles, length of record: 81 - 82 years)



Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal		Much above normal	

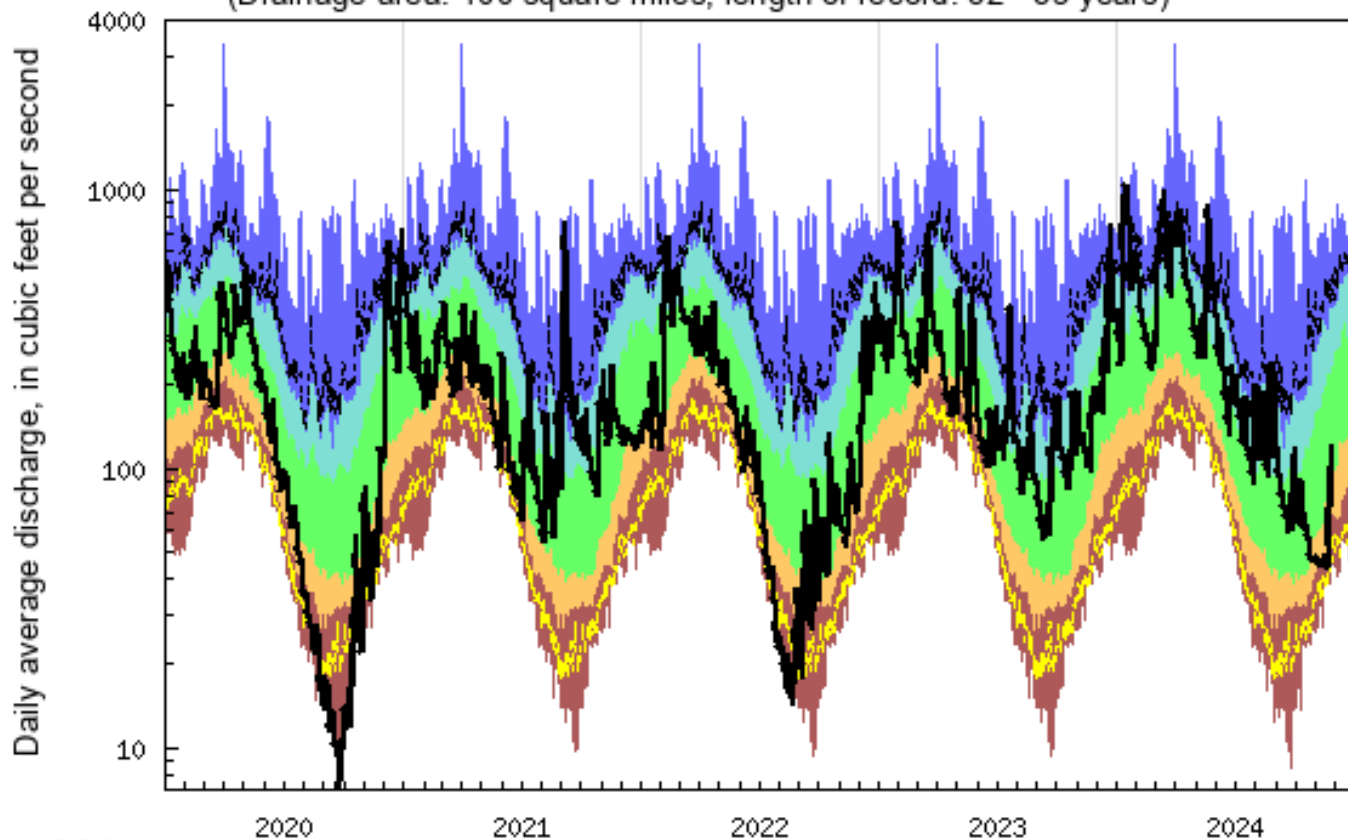
Southern



Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal	Below normal	Normal	Above normal	Much above normal		Flow

Southern

USGS 01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI
(Drainage area: 100 square miles, length of record: 82 - 83 years)



USGS WaterWatch

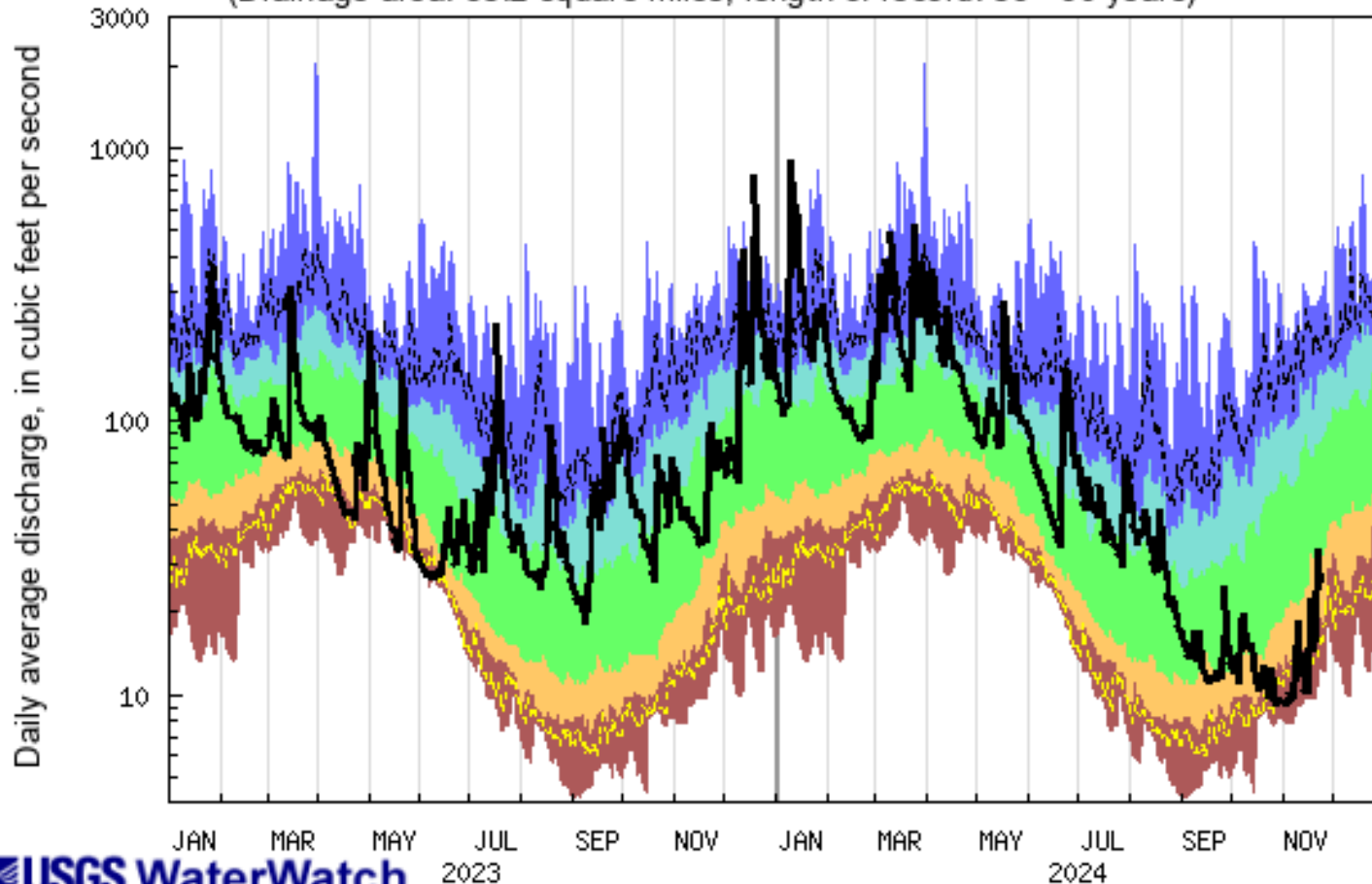
Last updated: 2024-11-25

Explanation - Percentile classes




lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal		Below normal	Normal	Above normal		Much above normal	

Southern

USGS 01117800 WOOD RIVER NEAR ARCADIA, RI
(Drainage area: 35.2 square miles, length of record: 59 - 60 years)



Explanation - Percentile classes

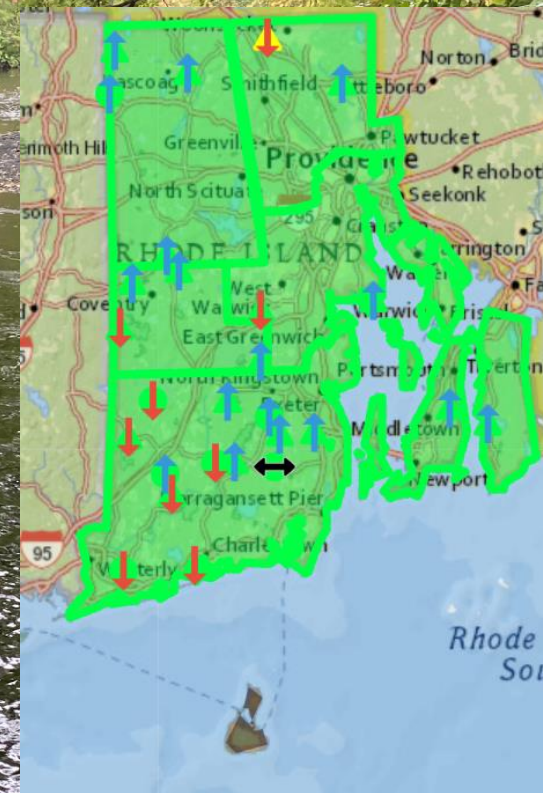
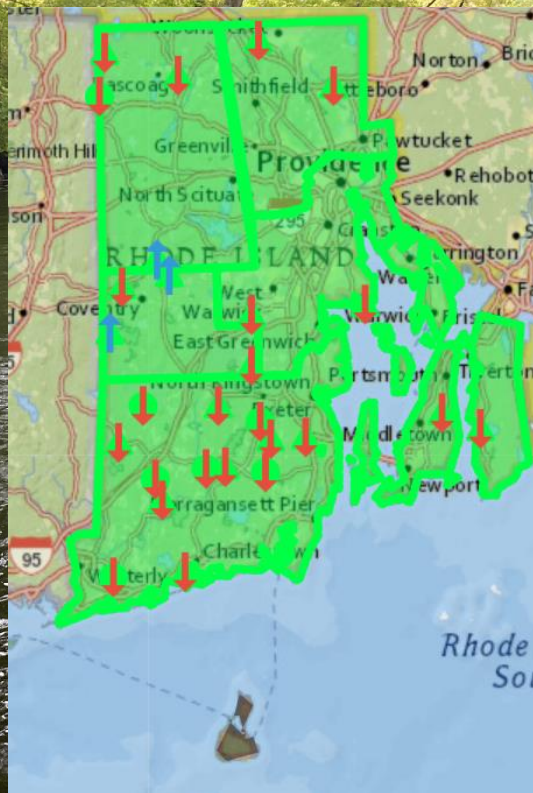
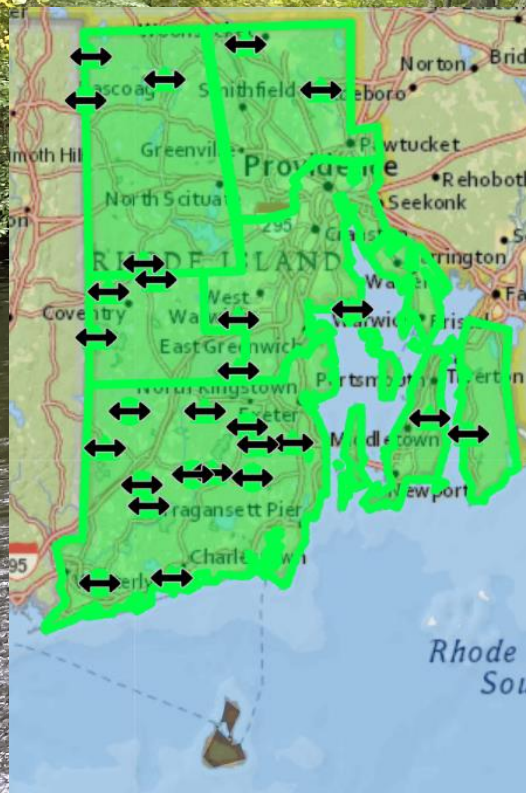
							Flow
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	
Much below Normal	Below normal	Normal	Above normal	Much above normal			

Groundwater Conditions

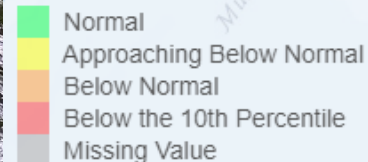
May 2024

June 2024

July 2024

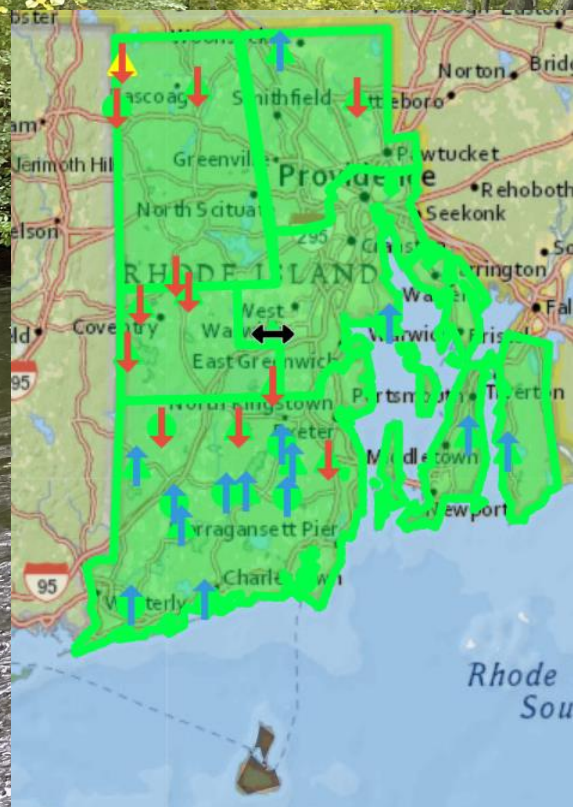


Normal is 25th to 75th percentile

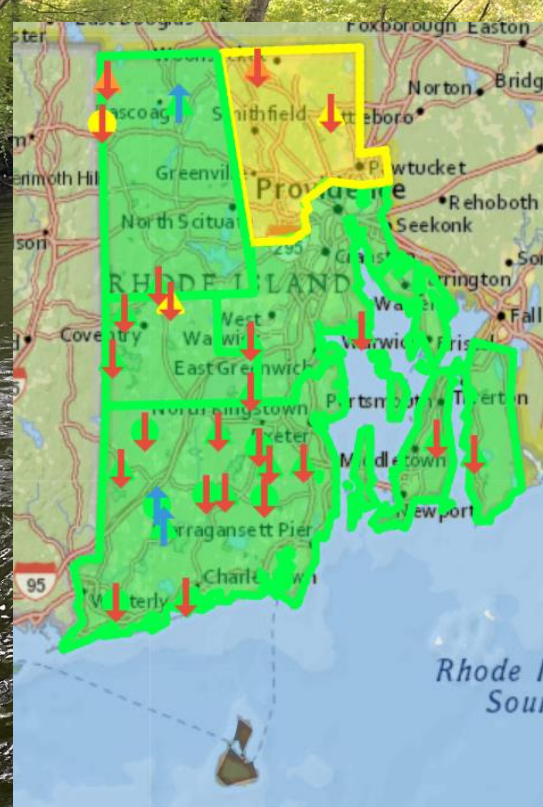


Groundwater Conditions

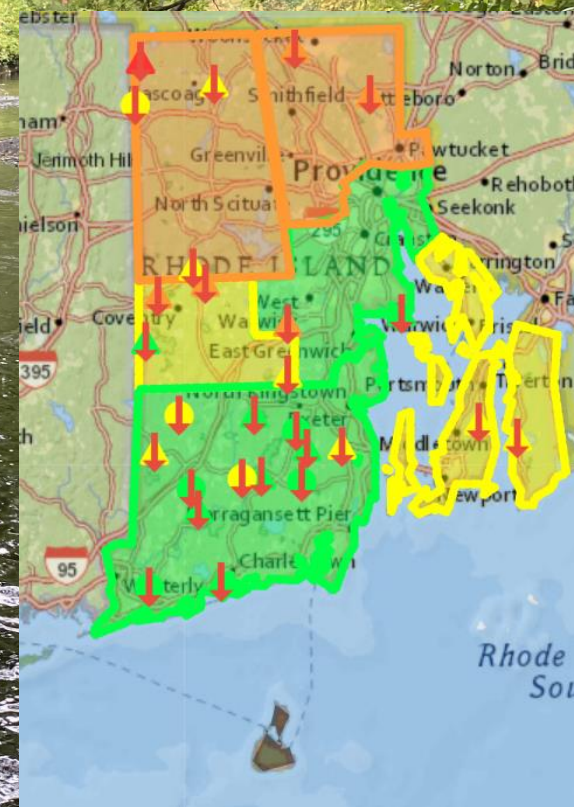
August 2024



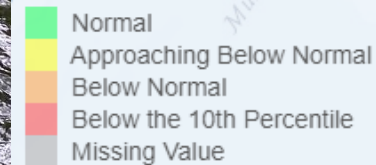
September 2024



October 2024



Normal is 25th to 75th percentile



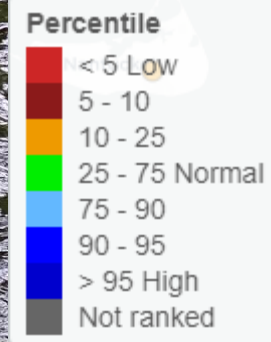
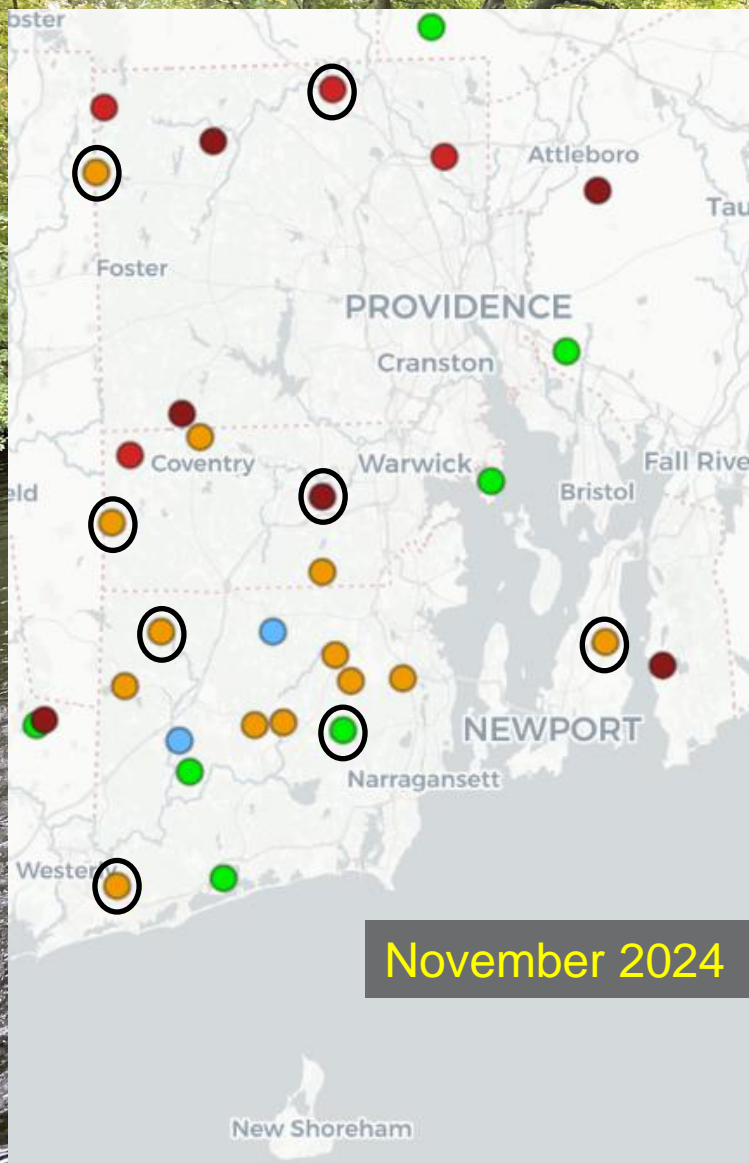
Average Monthly Groundwater Conditions May – October

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Eastern (2)	77	55	69	73	53	30	12
Southern (13)	91	74	74	81	68	51	36
New Shoreham (0)							
Statewide (27)	85	70	69	73	56	38	15

Groundwater = Advisory (Two out of three months below normal)



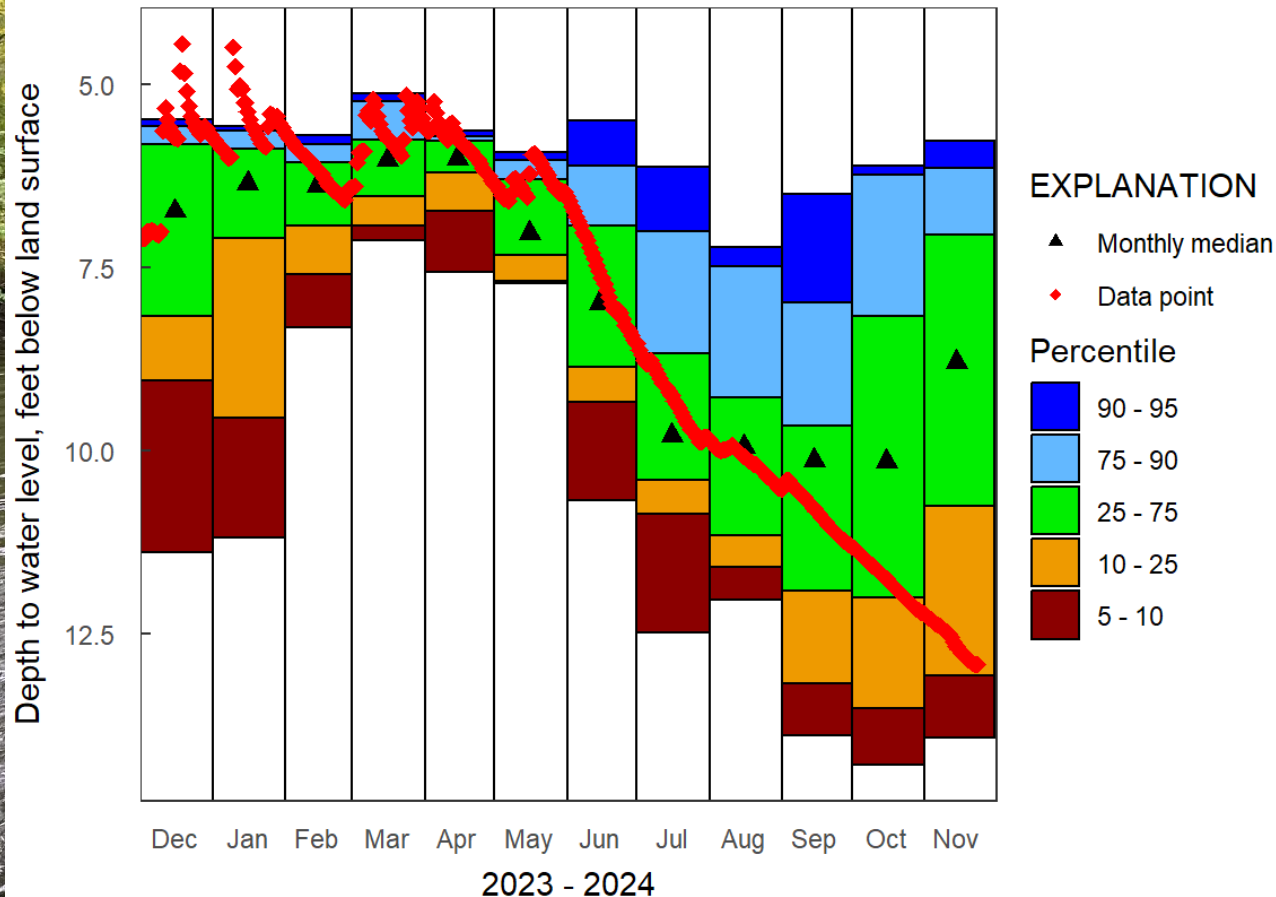
Current Groundwater Conditions



Northwest

415546071474701 RI-BUW 395 BURRILLVILLE, RI

U.S. Geological Survey

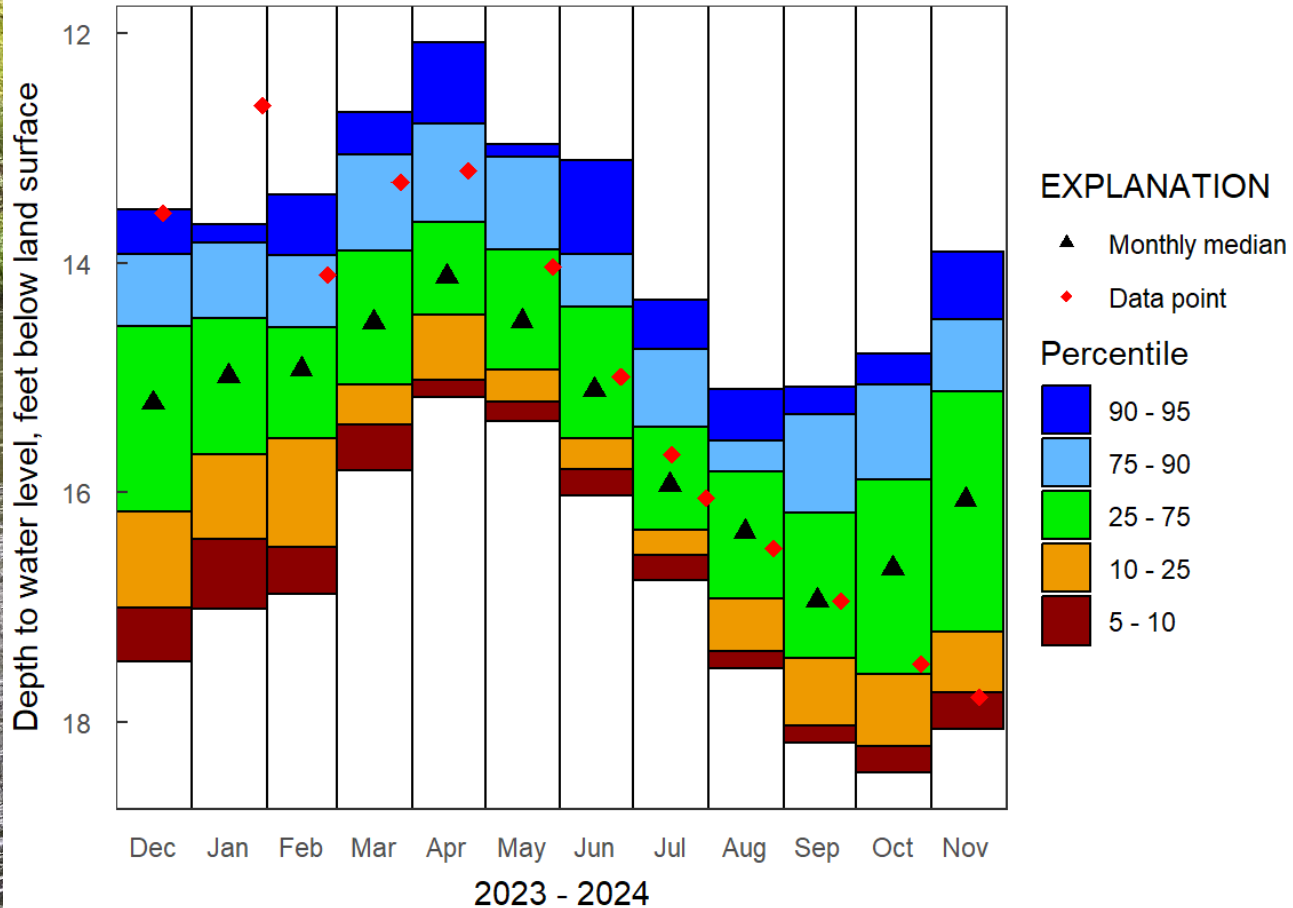


Plot created: 2024-11-25

Northwest

415710071402201 RI-BUW 187

U.S. Geological Survey

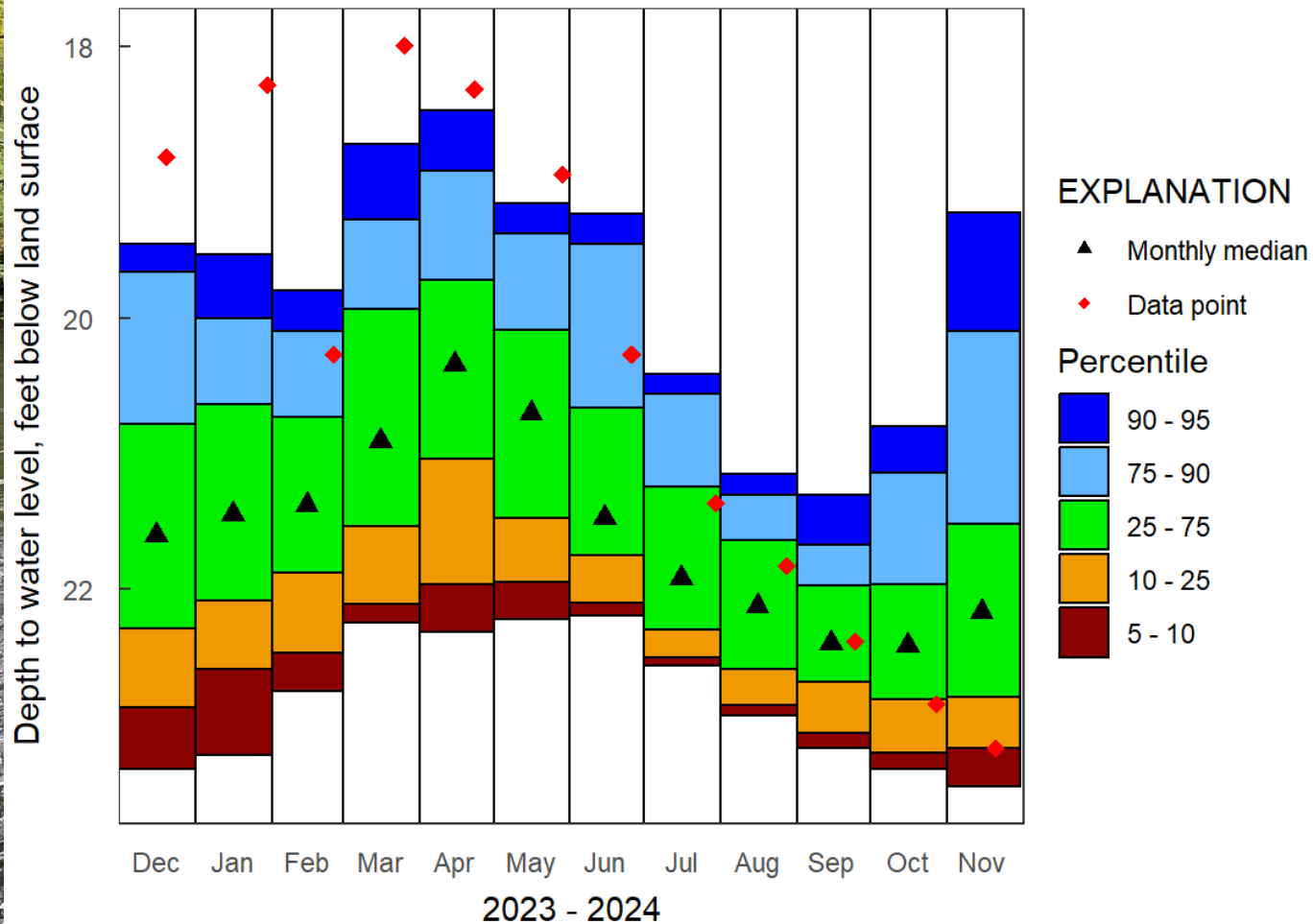


Plot created: 2024-11-25

Central East

414022071332801 RI-COW 411

U.S. Geological Survey

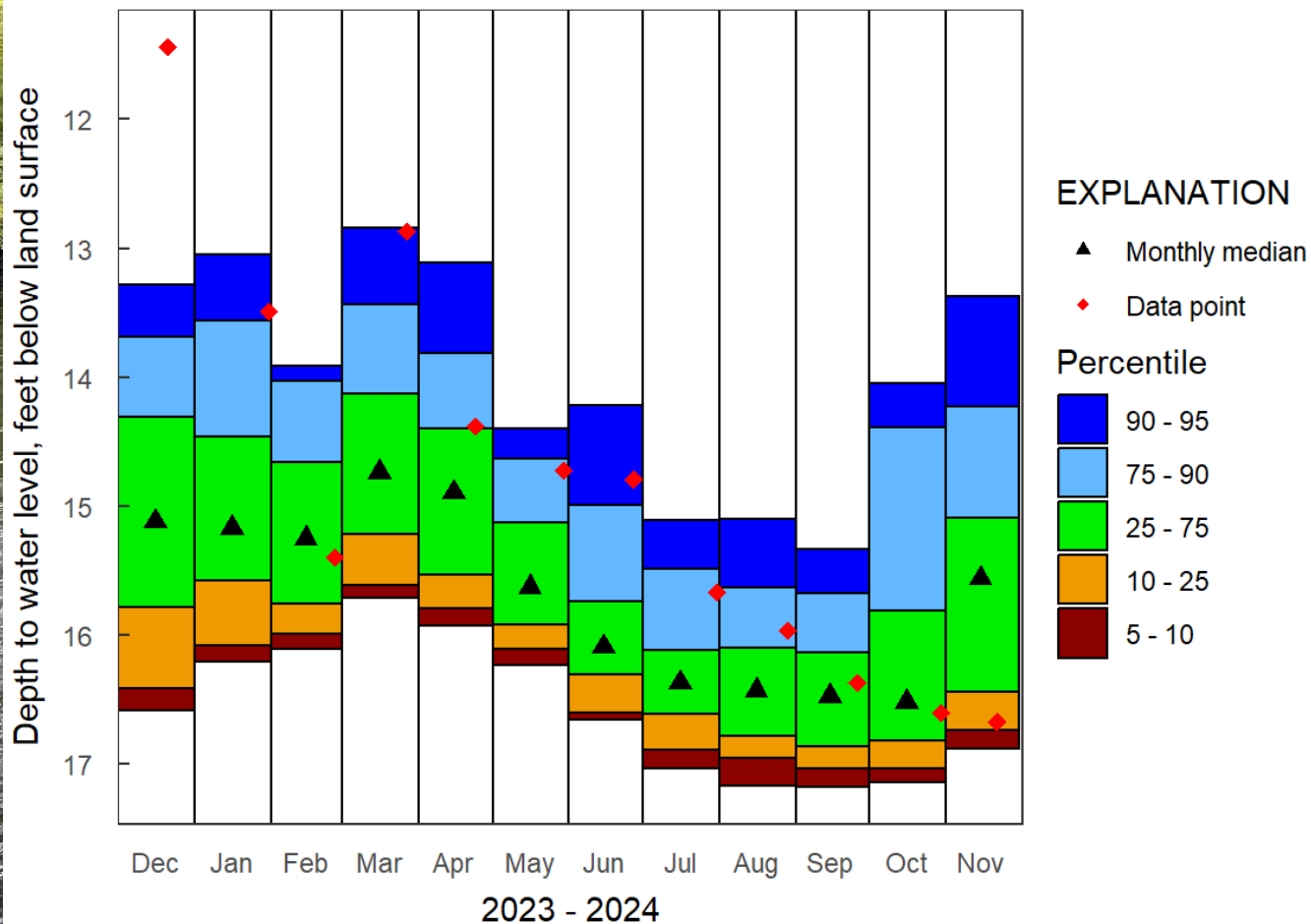


Plot created: 2024-11-25

Central West

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U.S. Geological Survey

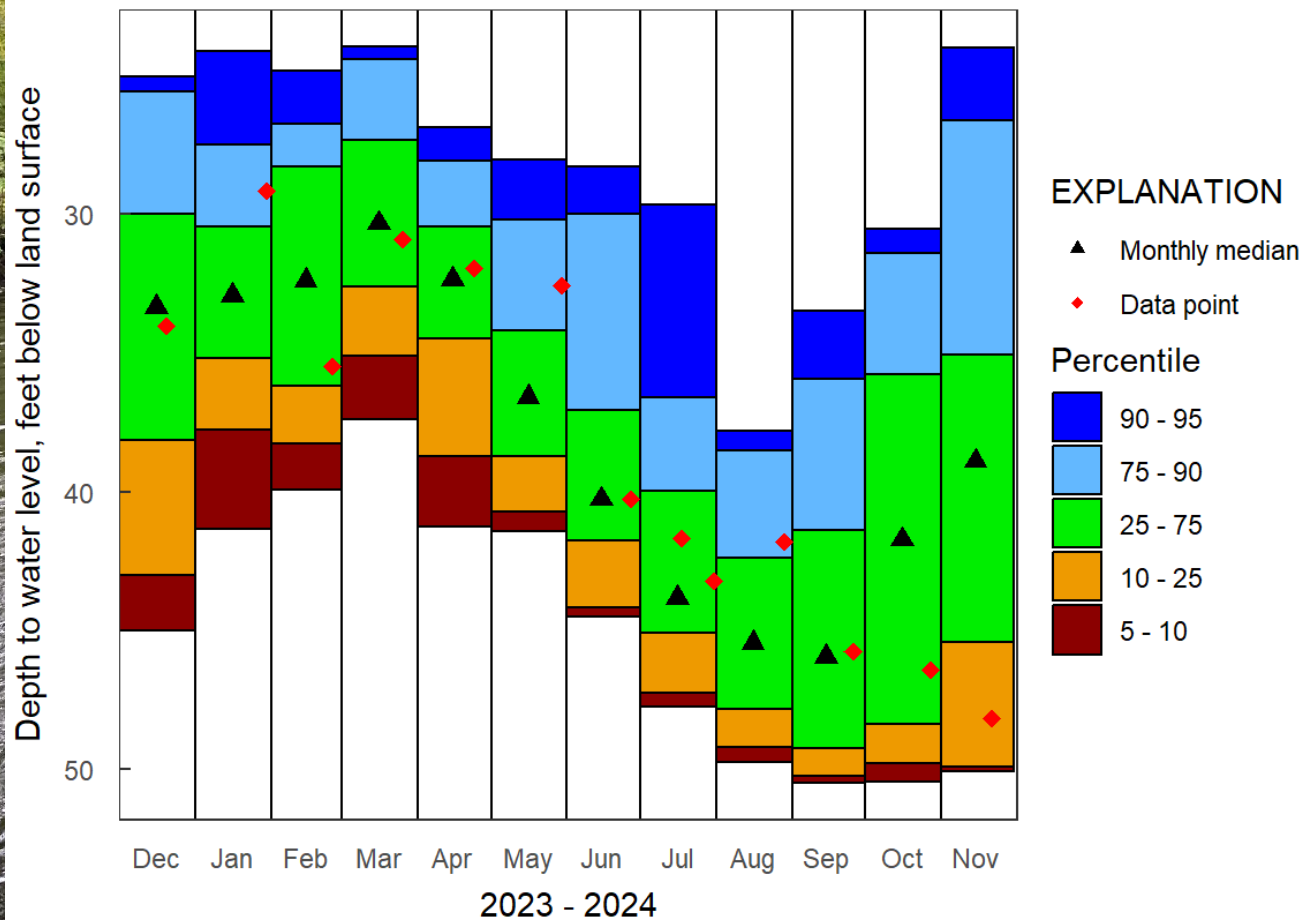


Plot created: 2024-11-25

Eastern

413325071152401 RI-POW 551

U.S. Geological Survey

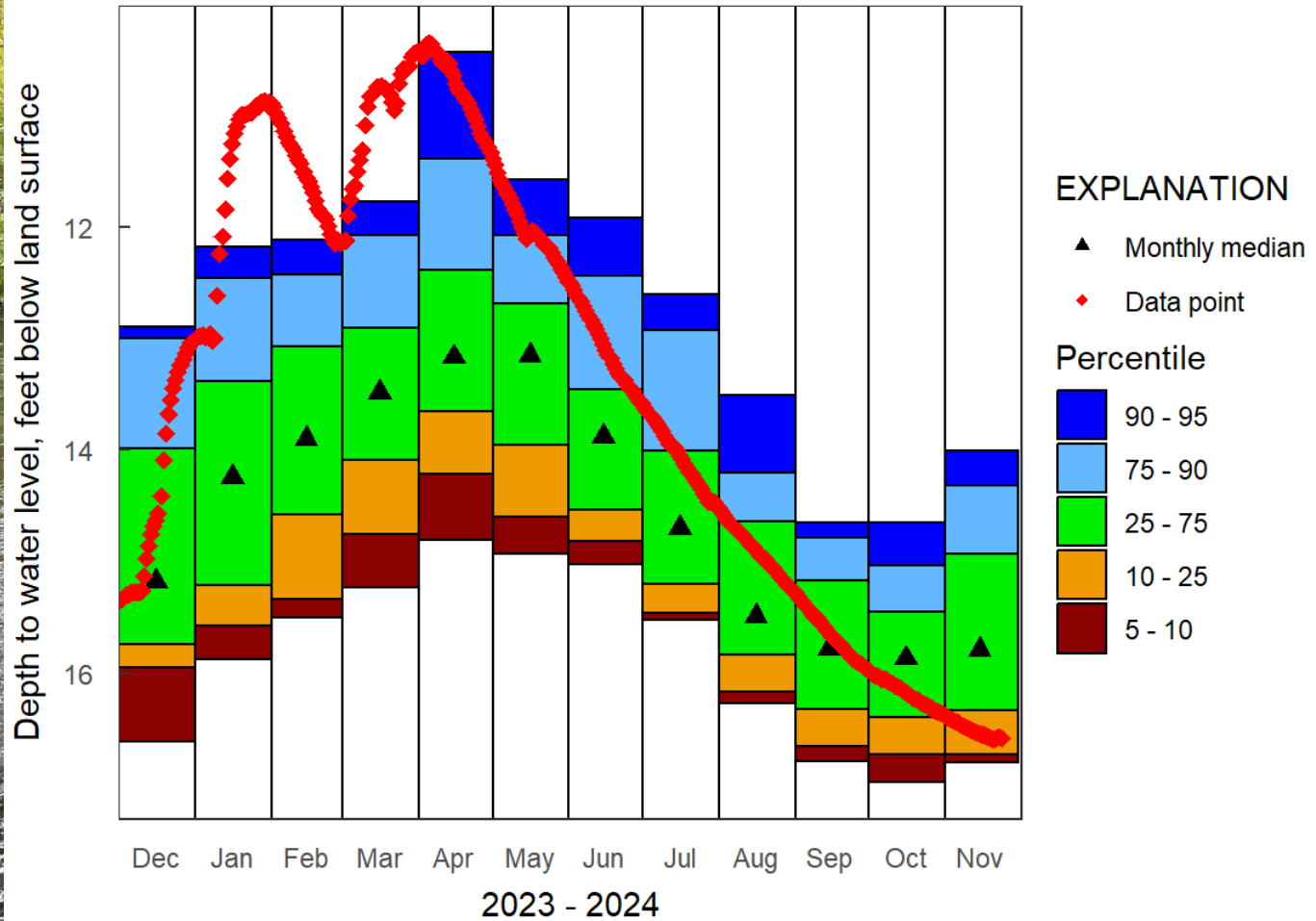


Plot created: 2024-11-25

Southern

413358071433801 RI-EXW 475 EXETER, RI

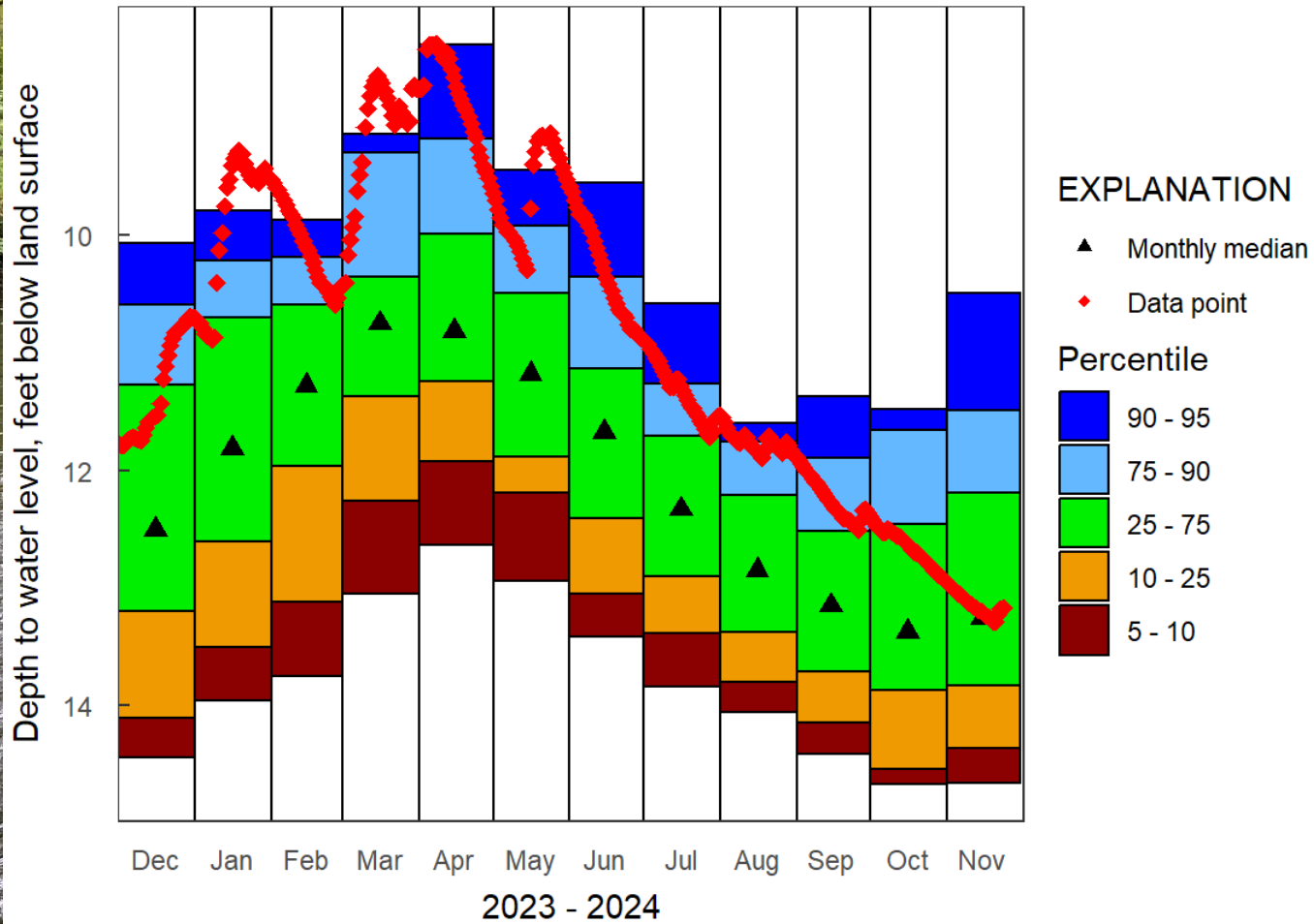
U.S. Geological Survey



Southern

412918071321001 RI-SNW 6 SOUTH KINGSTOWN, RI

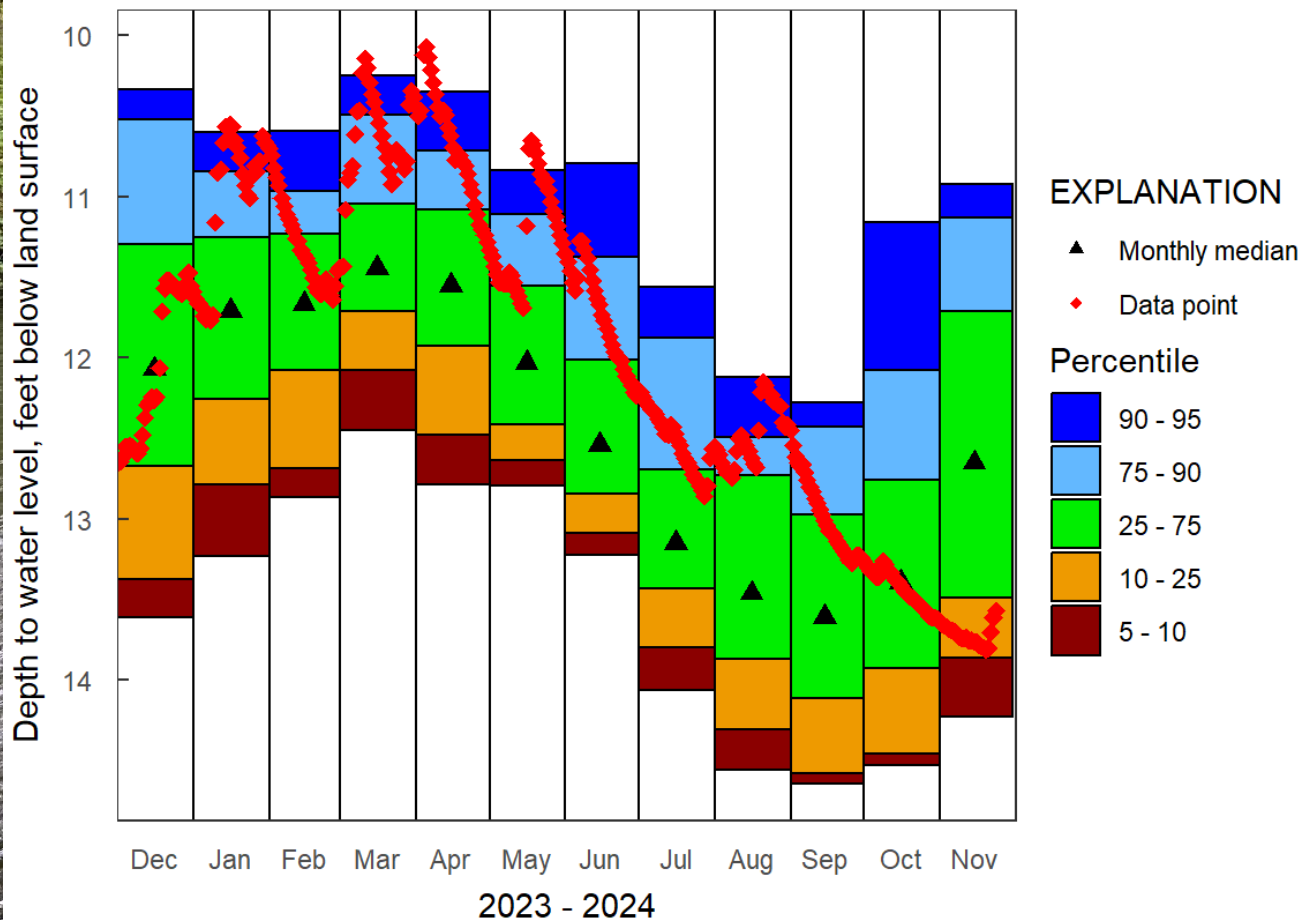
U.S. Geological Survey



Southern

412154071462901 RI-WEW 522 WESTERLY, RI

U.S. Geological Survey



Plot created: 2024-11-25

Table 2, Rhode Island Drought Indices and Phases

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Statewide Summary: Streamflow - Recap

- Based on the State Guide Plan 721
 - Advisory - 3 consecutive months below normal (less than 25%)
 - 2 months below normal
 - August 69%
 - September 36%
 - October 21%
 - November* 23%

Statewide Summary: Groundwater - Recap

- Advisory based on State Guide Plan
 - 2 out of 3 months at or below normal statewide (less than 25%)
 - August 73%
 - September 56%
 - October 38%
 - November** 15%
 - Conditions will continue to deteriorate without precipitation
 - Statewide does not trigger drought criteria

Regional Summary

- Advisory based on State Guide Plan
 - Ground Water - 2 out of 3 months at or below normal statewide (less than 25%)
 - Northern Regions
 - August 49%
 - September 33%
 - October 18%
 - November* 16%
 - Southern Regions
 - August 81%
 - September 68%
 - October 51%
 - November* 25%
 - Surface Water – 3 consecutive months below normal (less than 25%)
 - Northern Regions
 - August 42%
 - September 10%
 - October 8%
 - November** 6%
 - Southern Regions
 - August 85%
 - September 52%
 - October 31%
 - November** 36%



Questions?