

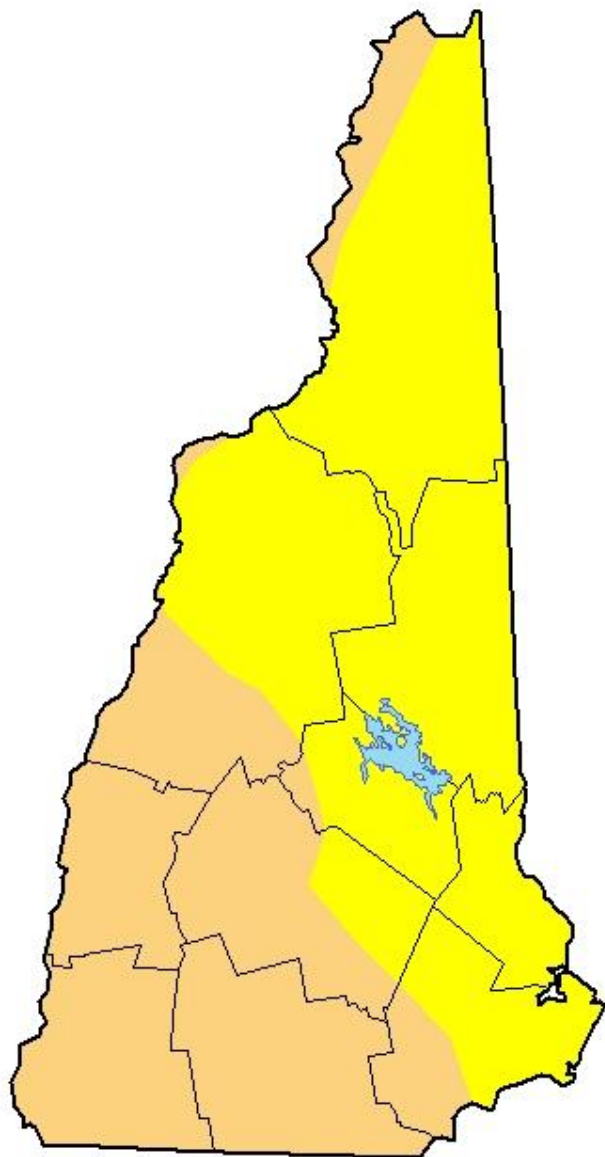
Summary of Drought Conditions in New Hampshire April 23, 2021

Brandon Kernen, PG

New Hampshire Department of Environmental Services



U.S. Drought Monitor New Hampshire



April 20, 2021

(Released Thursday, Apr. 22, 2021)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	42.54	0.00	0.00	0.00
Last Week <i>04-13-2021</i>	0.00	100.00	42.54	0.00	0.00	0.00
3 Months Ago <i>01-19-2021</i>	46.28	53.72	12.20	0.00	0.00	0.00
Start of Calendar Year <i>12-29-2020</i>	51.64	48.36	12.20	0.00	0.00	0.00
Start of Water Year <i>09-29-2020</i>	0.00	100.00	100.00	95.06	10.59	0.00
One Year Ago <i>04-21-2020</i>	100.00	0.00	0.00	0.00	0.00	0.00

Intensity:

 None	 D2 Severe Drought
 D0 Abnormally Dry	 D3 Extreme Drought
 D1 Moderate Drought	 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

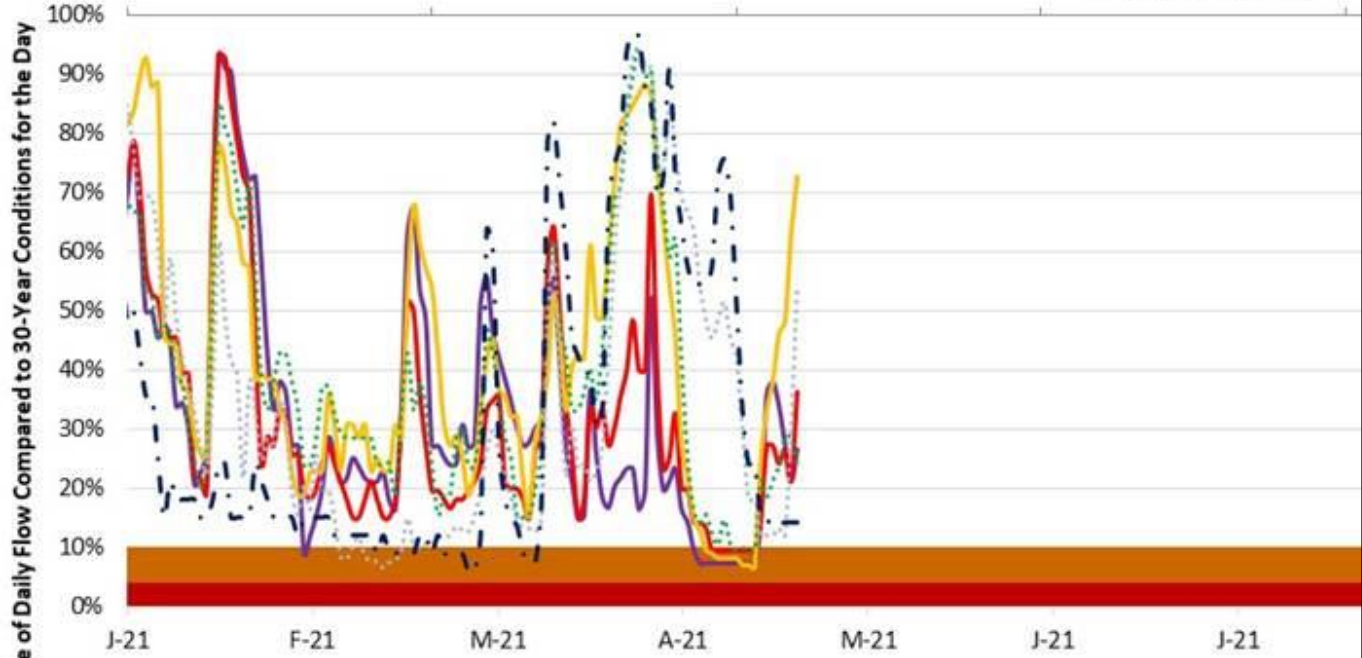
Richard Heim
NCEI/NOAA



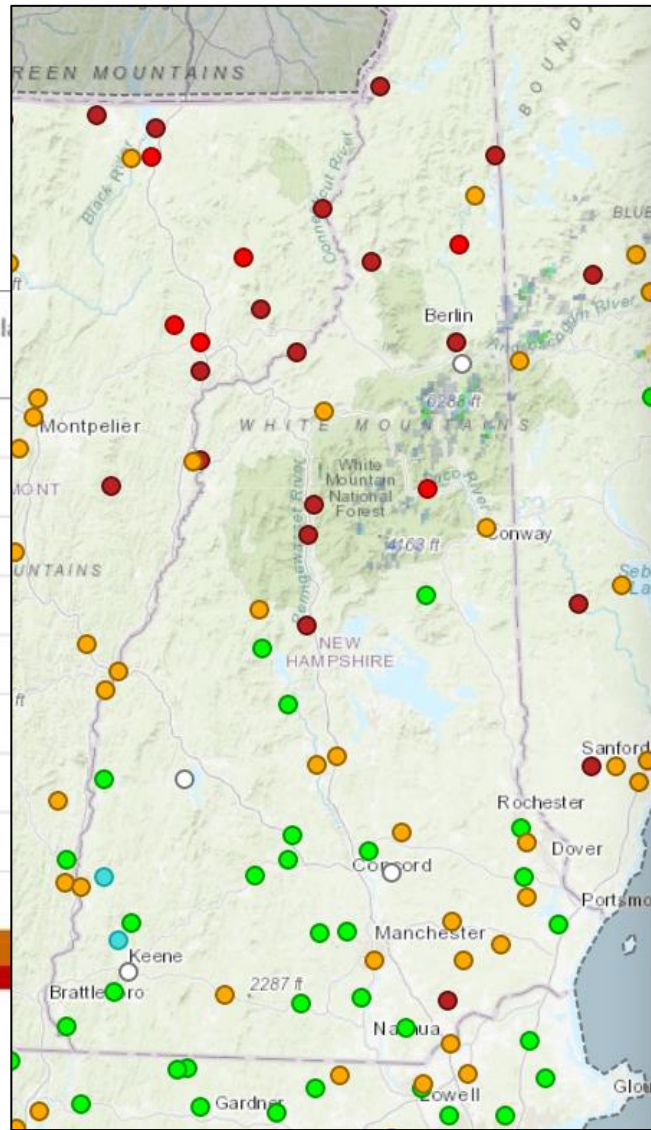
Precipitation/Departure from Normal Inches

	MONTH TO DATE	30 DAY	60 DAY	90 DAY	180 Day	Year TO DATE	365 DAY
	PCPN/DEPART	PCPN/DEPART	PCPN/DEPART	PCPN/DEPART	PCPN/DEPART	PCPN/DEPART	PCPN/DEPART
BELKNAP	2.39/ -0.23	4.07/ 0.40	5.27/ -1.80	7.40/ -2.83	18.67/ -2.40	9.38/ -2.93	36.11/ -9.14
CARROLL	2.45/ -0.68	4.36/ 0.05	5.88/ -2.22	8.36/ -3.26	20.31/ -3.88	10.57/ -3.47	41.17/ -9.66
CHESHIRE	2.52/ -0.13	3.74/ 0.01	4.83/ -2.46	7.29/ -3.35	19.83/ -1.96	9.37/ -3.58	38.75/ -8.15
COOS	1.91/ -0.61	2.98/ -0.48	4.16/ -2.35	5.72/ -3.73	13.71/ -6.81	7.29/ -4.25	37.57/ -9.82
GRAFTON	2.05/ -0.58	3.80/ 0.16	4.93/ -1.97	6.96/ -2.98	17.14/ -4.23	8.77/ -3.34	36.86/ -11.16
HILLSBOROUGH	2.23/ -0.67	3.28/ -0.77	4.48/ -3.31	7.15/ -4.08	19.65/ -3.03	9.32/ -4.20	35.78/ -11.22
MERRIMACK	2.26/ -0.51	3.72/ -0.15	4.89/ -2.51	7.32/ -3.33	18.94/ -2.85	9.31/ -3.54	35.88/ -10.37
ROCKINGHAM	2.07/ -0.87	3.44/ -0.72	4.74/ -3.34	7.20/ -4.29	19.28/ -3.56	9.15/ -4.54	33.22/ -13.37
STRAFFORD	2.01/ -0.95	3.52/ -0.65	4.87/ -3.21	7.27/ -4.19	19.81/ -3.21	9.19/ -4.43	35.62/ -11.62
SULLIVAN	2.37/ -0.19	3.79/ 0.20	4.78/ -2.16	7.33/ -2.74	18.08/ -2.57	9.14/ -3.01	36.77/ -8.64

Aggregate NH Flow Status - Median Percentile of Daily Flows (2000-2020) at 37 Minimally Regulated through 4/22/2021



- Extreme drought
- Severe drought
- Coastal Pisc. Region - Median of 6 Minimally Regulated NH Gages
- S. Conn Valley Region - Median of 7 Minimally Regulated NH Gages
- S. Merrimack Valley Region - Median of 9 Minimally Regulated NH Gages
- N. Conn. Valley Region - Median of 0 Minimally Regulated NH Gages
- N. Merrimack Valley Region - Median of 9 Minimally Regulated NH Gages
- Saco Region - Median of 3 Minimally Regulated NH Gages
- Northern Woods Region - Median of 3 Minimally Regulated NH Gages



Streams: Flow status ✕

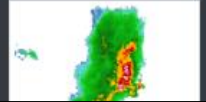
- All-Time Low for this Day 0th percentile (minimum)
- Much Below Normal <10th percentile
- Below Normal 10th – 24th percentile
- Normal 25th – 75th percentile
- Above Normal 76th – 90th percentile
- Much Above Normal >90th percentile
- All-Time High for this Day 100th percentile (maximum)
- Not Flowing 0 cubic feet per second
- Above NWS Flood Stage See Comments
- Not Ranked See Comments

Comments: Marker color indicates the current streamflow condition. Categories are based on the percentile of existing streamflow record on this day-of-the-year. A streamgage is not ranked when there is less than 20 years of record or a current streamflow measurement is unavailable. Flood stages are maintained by the National Weather Service (NWS) and are not established for all USGS streamgages.

Data Source: [USGS Water Data for the Nation](#)

TIP – Click stream stations to access real-time data, time-series graphs, and station information

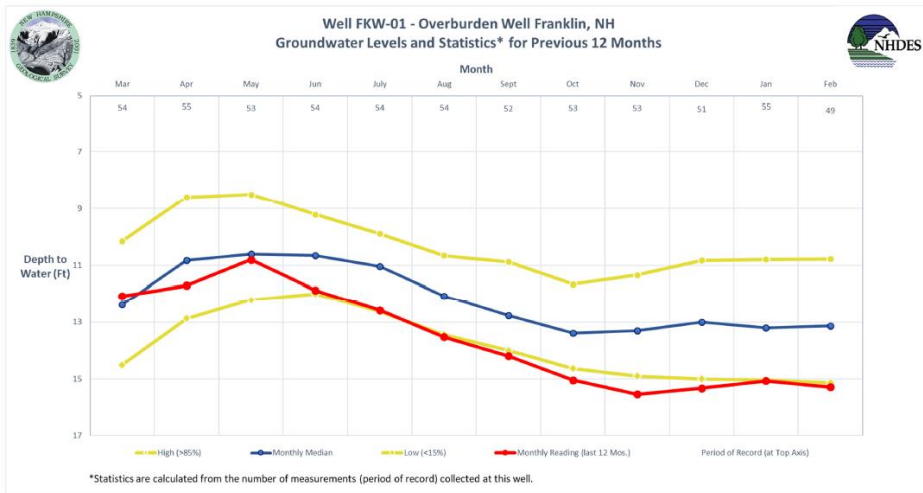
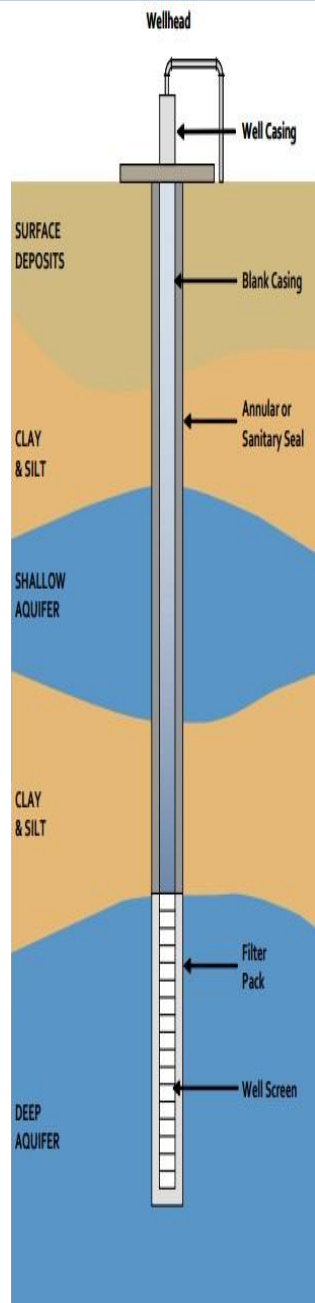
Radar: Static ✕



Drought: Groundwater

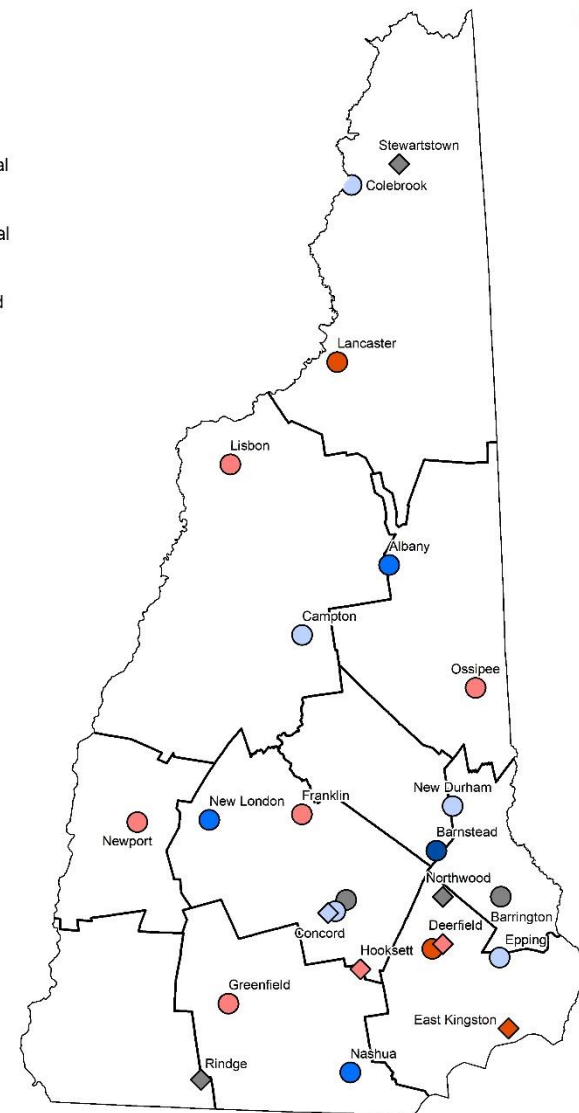
Key Points

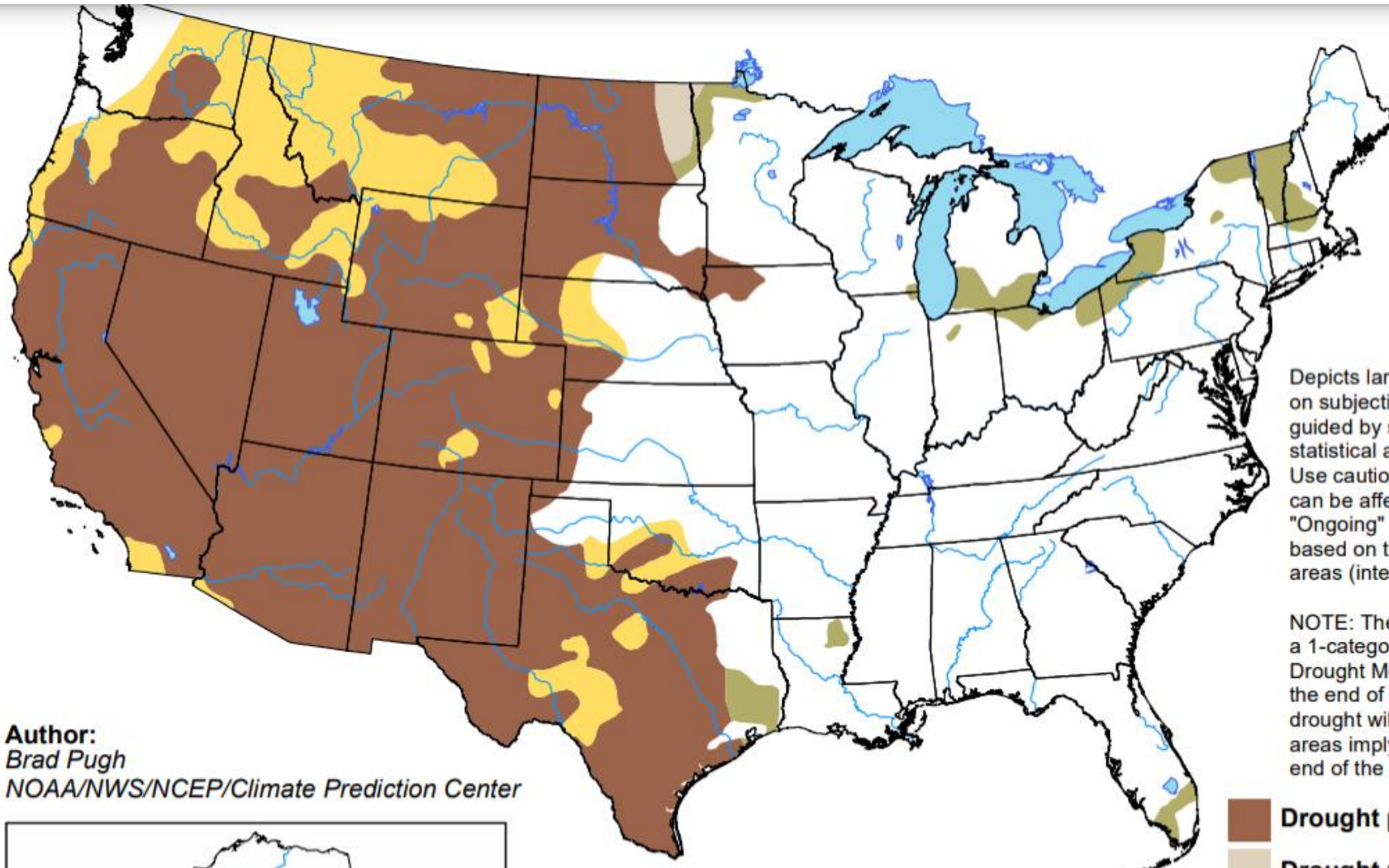
- Levels in steady decline – northern and western New Hampshire
- Mixed trends in Merrimack Valley and Seacoast regions
- Rises in groundwater where they occurred a result of recent rain and snowmelt
- March 2021 statewide average groundwater level is 0.73 feet lower than March 2020



March 2021 Groundwater Levels

- Counties
- Overburden
- ◇ Bedrock
- Monthly Status**
- High
- Above normal
- Normal
- Below Normal
- Low
- Not Analyzed



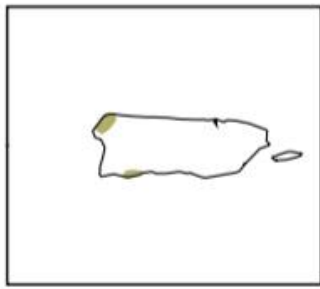
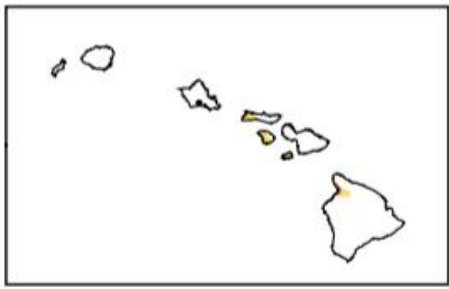
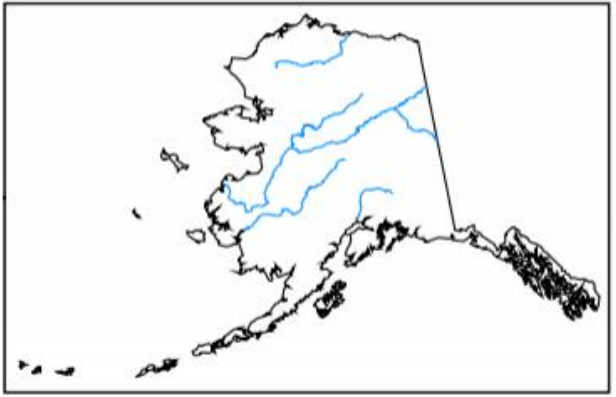


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
 Brad Pugh
 NOAA/NWS/NCEP/Climate Prediction Center

- Drought persists**
- Drought remains but improves**
- Drought removal likely**
- Drought development likely**



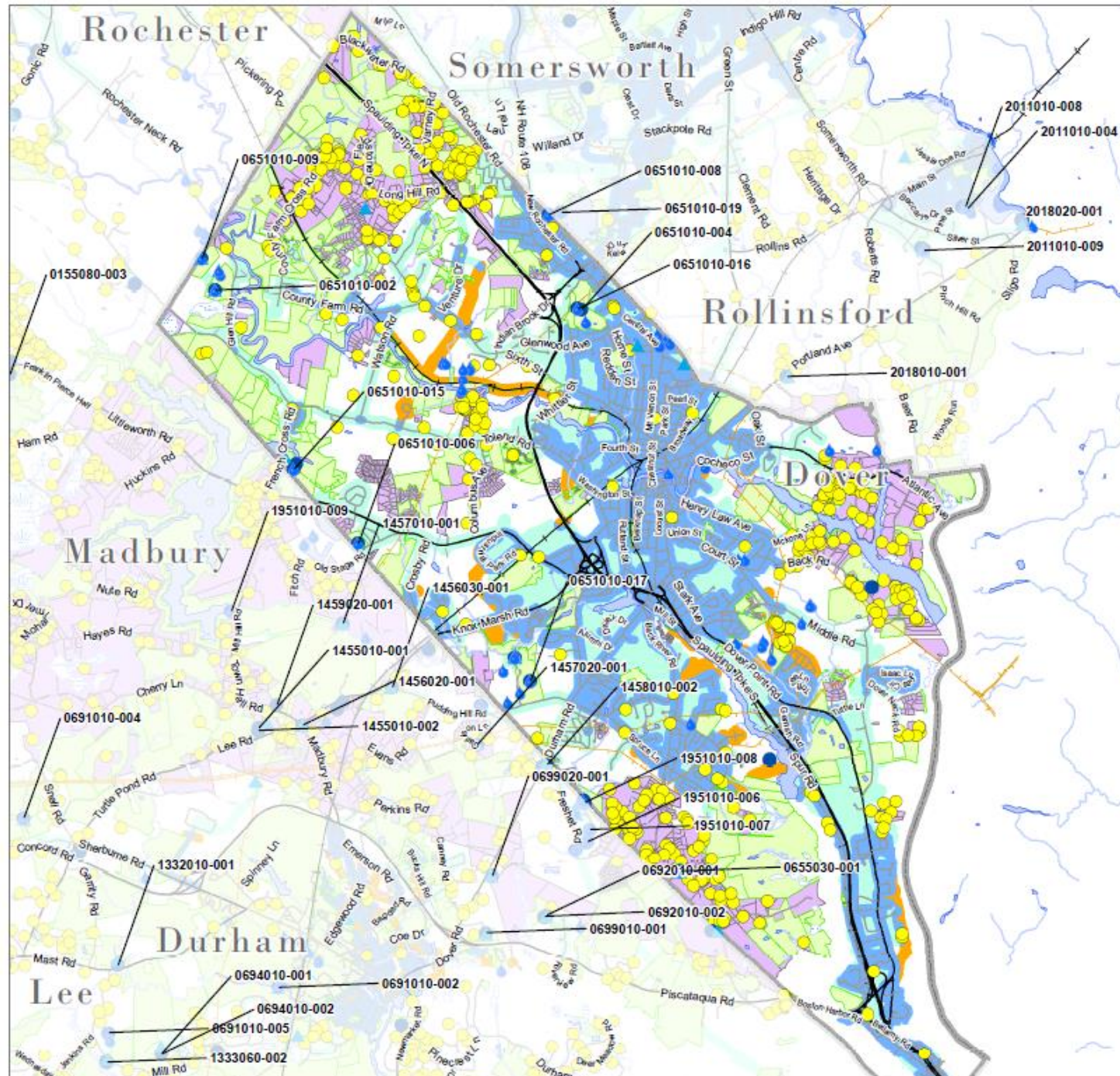
<http://go.usa.gov/3eZ73>

Summary of Water Supply Information Dover, New Hampshire

Brandon Kernen, PG

New Hampshire Department of Environmental Services





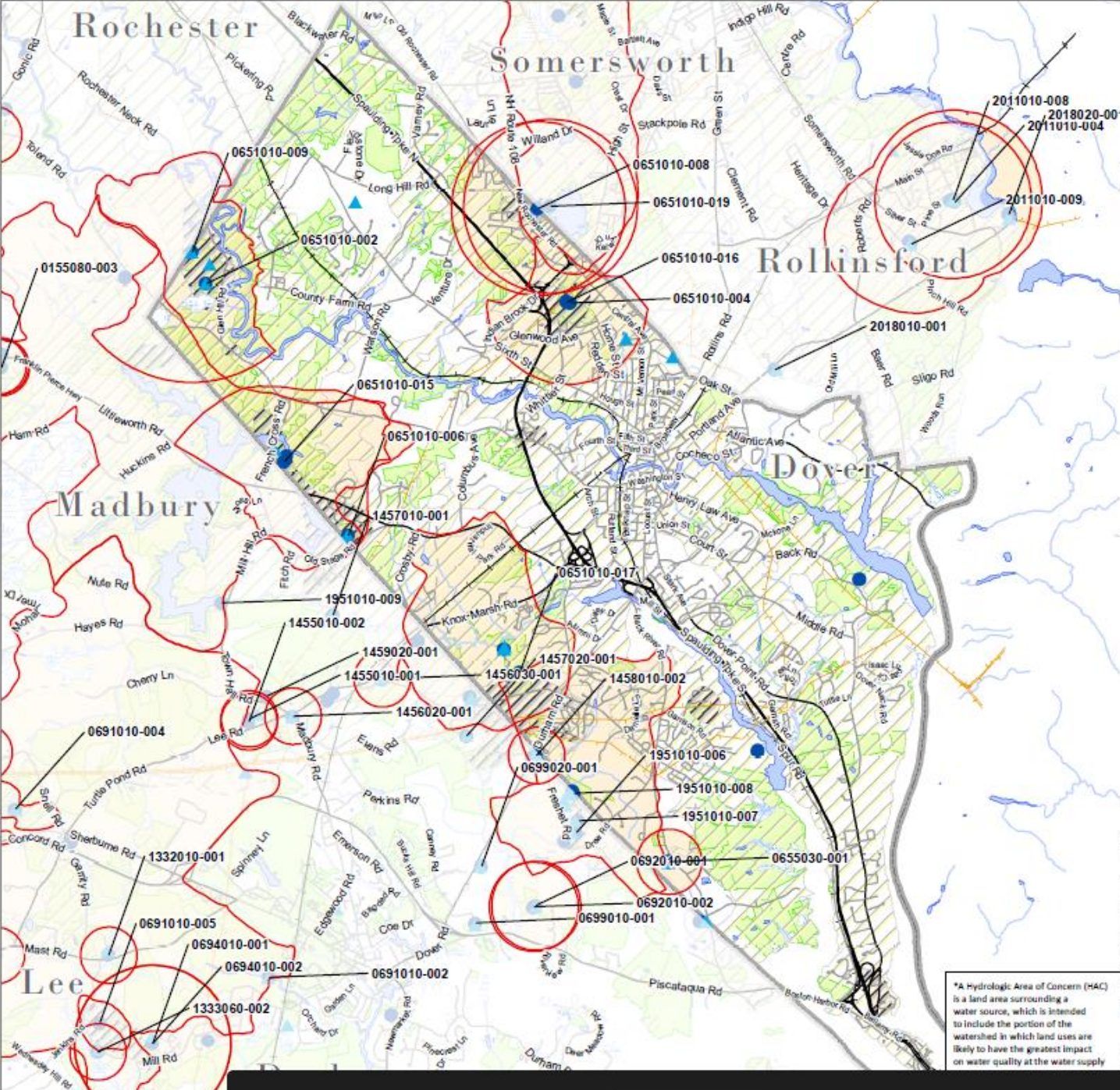
TOWN OF DOVER

WATER SUPPLY INVENTORY

- Public Water Supply Source
- ▲ PWS Facility or Pump House
- Private Water Well Inventory
- Registered Water Users
- Likely Private Water Supply Parcels
- Water & Sewer Service Area
- Sewer Service Area
- Water Service Area
- Town Boundaries
- Conservation Lands
- Primary Route
- Other road or street
- Class VI Road
- Railroad
- Transmission or Pipeline
- River or Stream
- Lake or Pond
- Swamp or Marsh

Notes:
 The data presented is under constant revision as new information is available. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. Information on this map shall be considered security sensitive. Do not circulate or publish.





TOWN OF DOVER

SOURCE WATER PROTECTION

- High Priority Water Supply Lands
- Stratified Drift Aquifers High Transmissivity ($>= 1,000$ ft²/day)
- Stratified Drift Aquifers High Transmissivity ($< 1,000$ ft²/day)
- Public Water Supply Source
- PWS Facility or Pump House
- Source Water Protection Areas (Includes Wellhead Protection Areas and Hydrologic Areas of Concern*)
- Town Boundaries
- Conservation Lands
- Primary Route
- Other road or street
- Class VI Road
- Railroad
- Transmission or Pipeline
- River or Stream
- Lake or Pond
- Swamp or Marsh

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*A Hydrologic Area of Concern (HAC) is a land area surrounding a water source, which is intended to include the portion of the watershed in which land uses are likely to have the greatest impact on water quality at the water supply

Source Water Protection for the Town of DOVER, NH Total Town Acreage = 18592.05

GIS LAYER	TOTAL AC.	DEVELOPED AC.	CONSERVED AC.	PROTECTION ZONING AC.	TOTAL PROTECTED AC.*	UNPROTECTED UNDEVELOPED AC.**
WELLHEAD PROTECTION AREAS (WHPA)	4509	1597	930	4404	4406	88
HYDROLOGIC AREAS OF CONCERN (HAC)	889	180	307	821	832	51
HIGH YIELD STRATIFIED DRIFT AQUIFERS (HYSDA)	758	330	232	625	637	49
HIGH PRIORITY WATER SUPPLY LANDS (WHPA + HAC + HYSDA)	4710	1680	953	4404	4429	187

* "Conserved Ac" and "Protection Zoning Ac" are overlapping and cannot be added together to equal "Total Protected Ac."

** "Unprotected, undeveloped" areas include lands not protected by conservation or local zoning and are not developed according to 2016 land use GIS

Land Conservation, Best Management Practice Inspections and Educational Mailings by WHPA

SYSTEM NAME	PWS ID	ADDRESS	WHPA DELINEATION AC.	CONSERVED AC.	CONSERVED %	BMPS INSPECTIONS*	PUBLIC EDUCATIONAL MAILINGS**
DOVER WATER DEPT	0651010-17	RIVER ST	1285.28	138.79	10.8	Y	Y
DOVER WATER DEPT	0651010-19	RIVER ST	1153.5	130.55	11.32	Y	Y
DOVER WATER DEPT	0651010-2, 9	RIVER ST	1297.95	387.64	29.87	N	N
DOVER WATER DEPT	0651010-4, 16	RIVER ST	711.96	74.17	10.42	Y	Y
DOVER WATER DEPT	0651010-6, 15	RIVER ST	1157.57	360.7	31.16	N	N
DOVER WATER DEPT	0651010-8	RIVER ST	1153.5	123.53	10.71	Y	Y
MISS PATTYS CHILDCARE	0655030-1	49 PISCATAQUA RD	162.21	25.85	15.94	N	Y
LITTLE TREE ED CENTER	1458010-2	316 RTE 108	121.84	3.45	2.84	N	Y
PORTSMOUTH WATER WORKS	1951010-6, 7, 8	60 FRESHET RD	1531.74	129.32	8.44	N	N

* BMP inspections are conducted by a local entity to ensure compliance with Env-Wq 401, BMPs for Groundwater Protection.

** Public educational mailings are sent to residents and/or potential contamination sources (PCSs).

Summary of Protection in DOVER Zoning

Zoning Ordinance Name	Groundwater Protection 170-28.3	
District Boundary	Wellhead Protection Areas	
Zoning Provisions	Yes/No	Type of Provision
	Yes	Refers to NHDES Best Management Practices for Groundwater Protection (Env-Wq 401)
	No	Prohibits Underground Storage Tanks (USTs) holding a regulated substance (defined under Env-Wq 401)
	Yes	Prohibits most high-risk land uses recommended by NHDES
		Requires blasting follow NHDES BMPs
	Yes	Limits impervious surface for development proposals

* Additional zoning restrictions may apply but may not be listed.

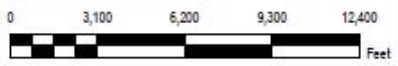


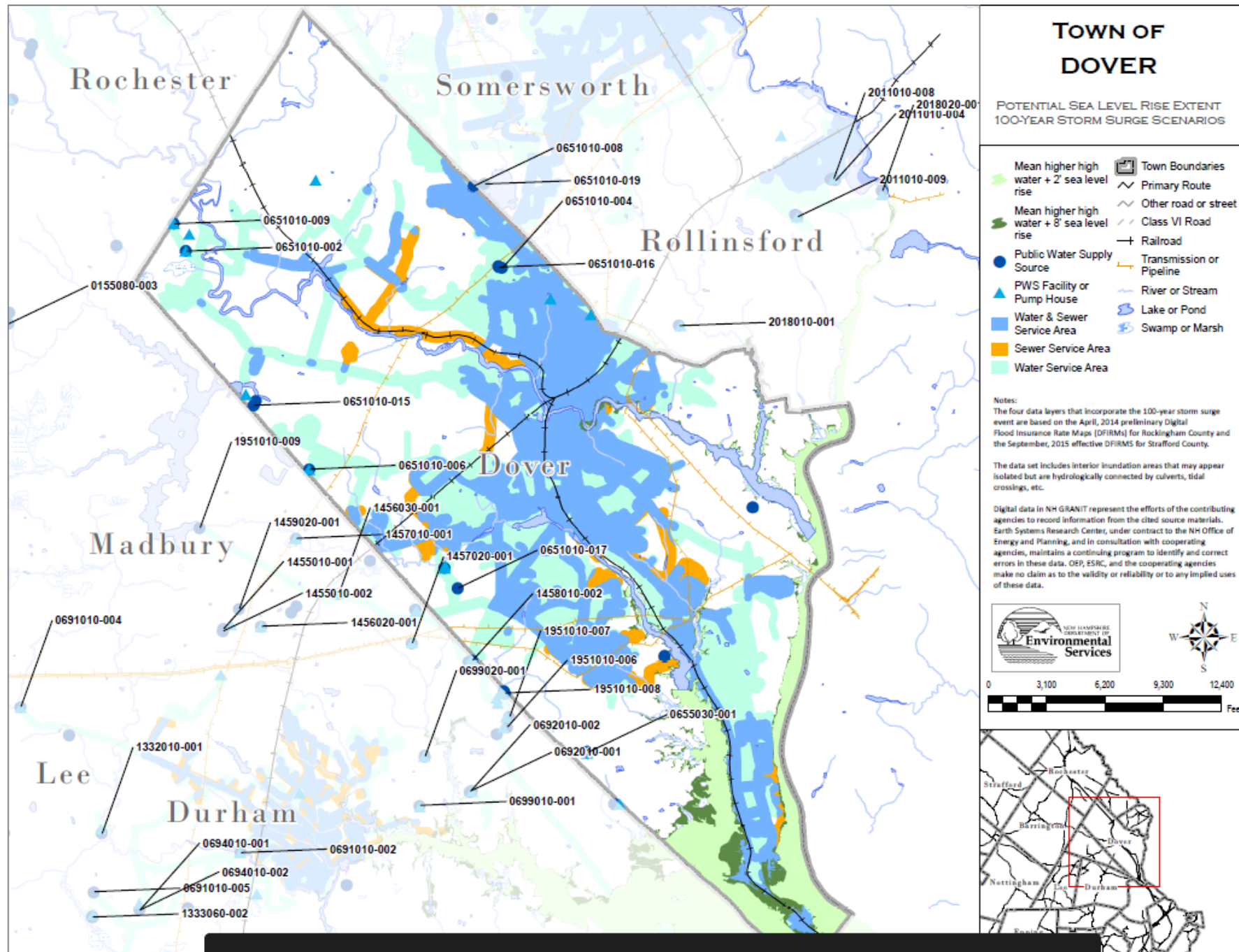
TOWN OF DOVER

PRIME WETLANDS & WETLANDS

- Town Boundaries
- Conservation Lands
- Primary Route
- Other road or street
- Class VI Road
- Railroad
- Transmission or Pipeline
- River or Stream
- Lake or Pond
- Swamp or Marsh
- Prime Wetlands

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TOWN OF DOVER

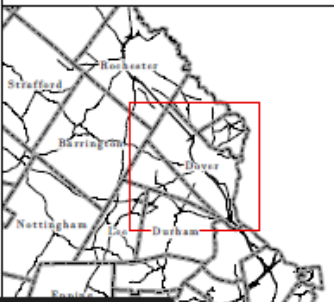
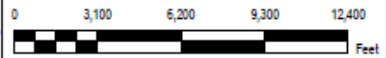
POTENTIAL SEA LEVEL RISE EXTENT
100-YEAR STORM SURGE SCENARIOS

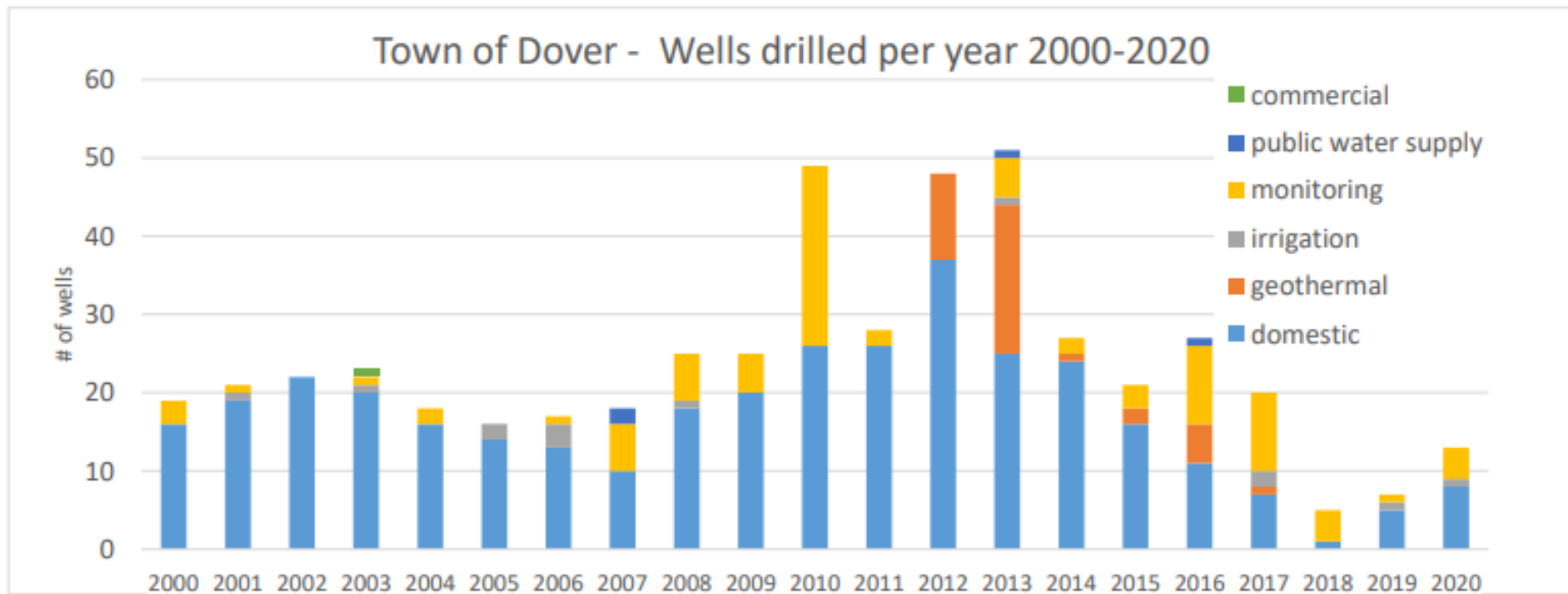
- Mean higher high water + 2' sea level rise
- Mean higher high water + 8' sea level rise
- Public Water Supply Source
- PWS Facility or Pump House
- Water & Sewer Service Area
- Sewer Service Area
- Water Service Area
- Town Boundaries
- Primary Route
- Other road or street
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Notes:
The four data layers that incorporate the 100-year storm surge event are based on the April, 2014 preliminary Digital Flood Insurance Rate Maps (DFIRMs) for Rockingham County and the September, 2015 effective DFIRMs for Strafford County.

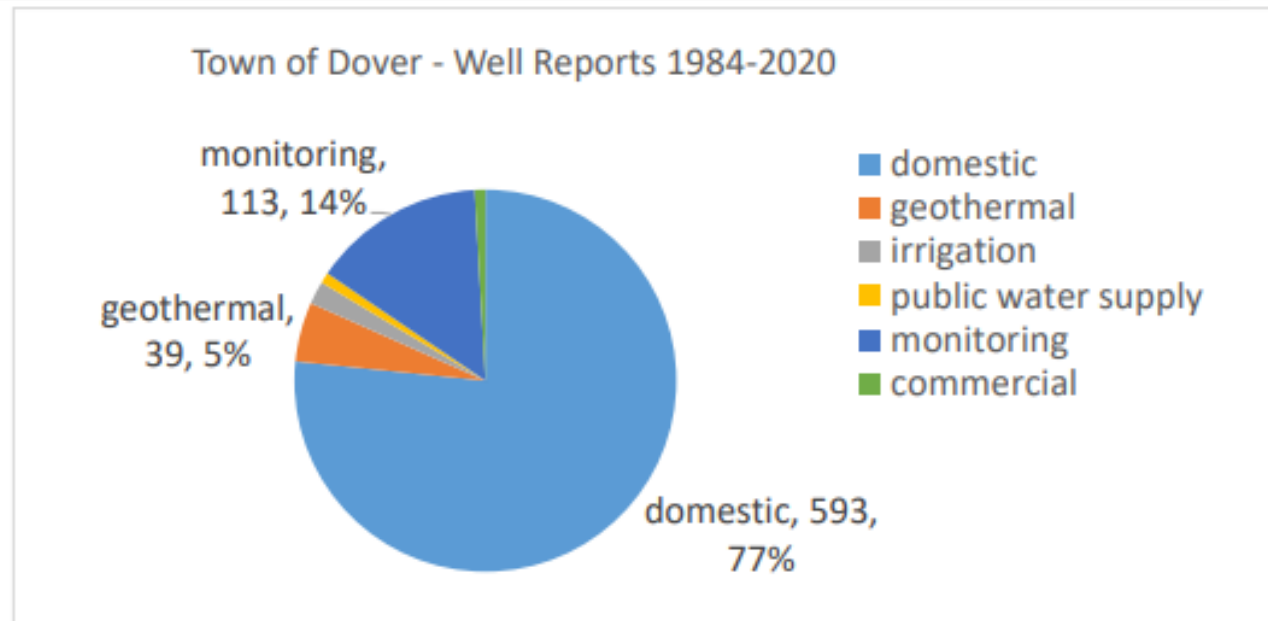
The data set includes interior inundation areas that may appear isolated but are hydrologically connected by culverts, tidal crossings, etc.

Digital data in NH GRANIT represent the efforts of the contributing agencies to record information from the cited source materials. Earth Systems Research Center, under contract to the NH Office of Energy and Planning, and in consultation with cooperating agencies, maintains a continuing program to identify and correct errors in these data. OEP, ESRC, and the cooperating agencies make no claim as to the validity or reliability or to any implied uses of these data.

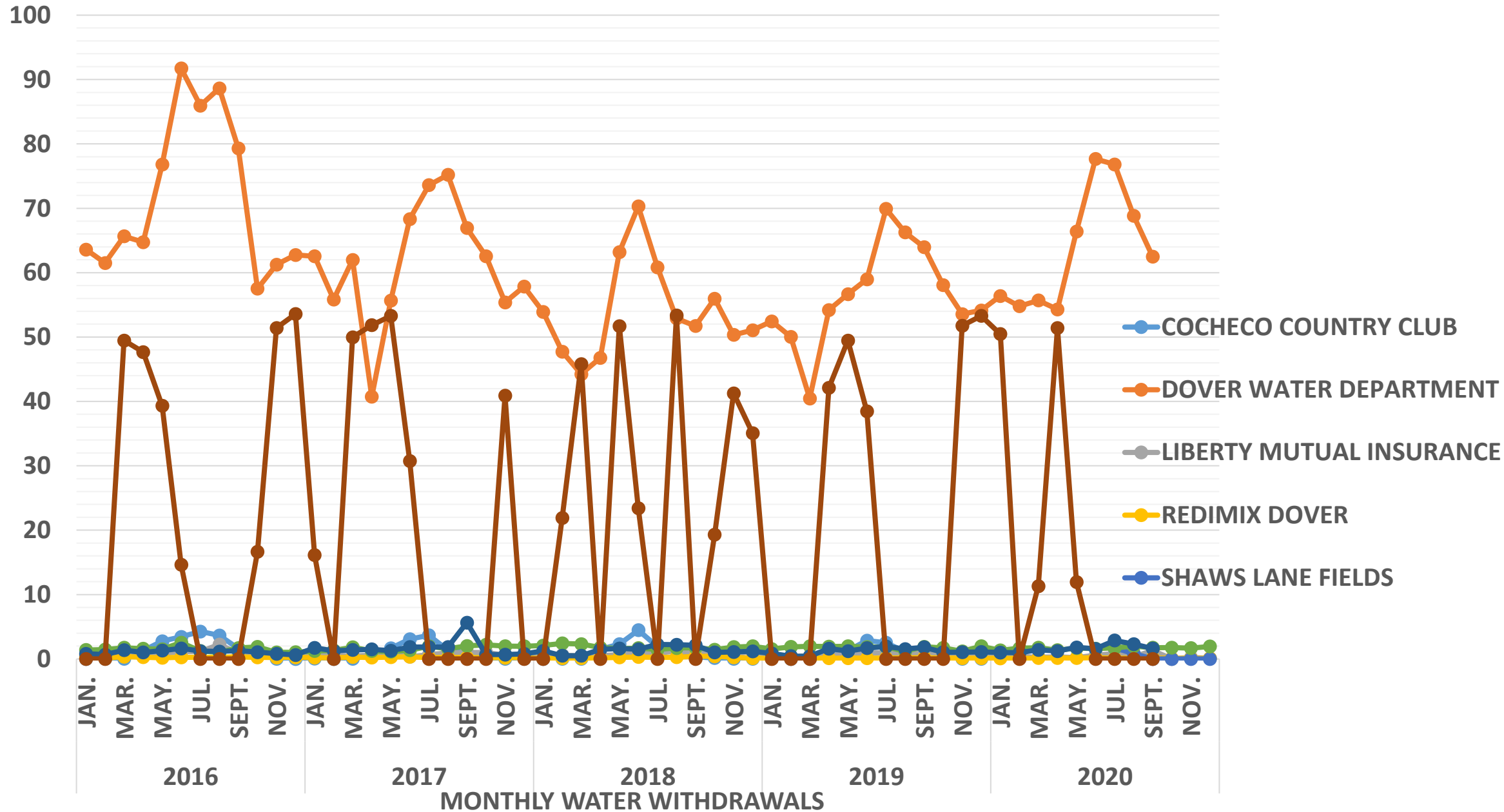




Well Type	Count
domestic	593
geothermal	39
irrigation	15
public water supply	7
monitoring	113
commercial	7
Grand Total	774



Dover Water Usage: Industrial, Commercial, Institutional & Dover Water Department 2016-2020



Dover					
	<u>Health Limit</u>	<u>Wells Tested (n)</u>	<u>Percent Exceeded by Town</u>	<u>Percent Exceeded by County</u>	<u>Percent Exceeded by State</u>
<u>Analyte</u>					
Arsenic	> 0.005 mg/L	22	45.5	39.8	25.2
Chloride	> 250 mg/L	25	4	2.55	2.76
Copper (flushed)	> 1.3 mg/L	21	0	0.23	0.787
Copper (stagnant)	> 1.3 mg/L	NA	NA	10.7	11.9
Fluoride	> 4 mg/L	26	0	0	0.822
Iron	> 0.3 mg/L	22	18.2	15.3	16.9
Lead (flushed)	> 0.015 mg/L	21	0	0.915	1.51
Lead (stagnant)	> 0.015 mg/L	NA	NA	7.14	12.8
Manganese	> 0.30 mg/L	21	4.76	7.32	5.26
Nitrate	> 10 mg/L	25	0	0.666	0.431
Nitrite	> 1 mg/L	25	0	0	0.00454
Radon	> 2000 pCi/L	NA	NA	32.7	27.2
Sodium	> 20 mg/L	22	59.1	43.9	33.4
Uranium	> 30 mg/L	22	0	1.96	4.16


Data Source: EPHT Combined NH DES/NH Public Health Laboratories Data Set. Public water systems and community wells excluded.

Years = 2006 to August of 2020. Analysis is preliminary and subject to change.

NA = Number of Tests < 20

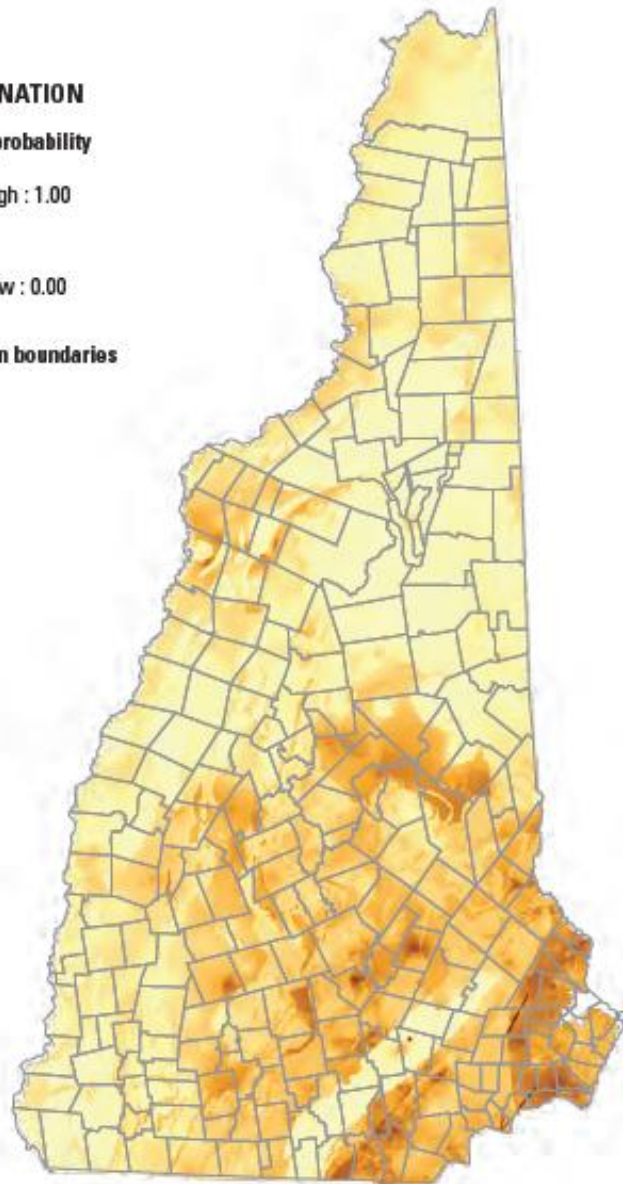
B. Arsenic $\geq 5 \mu\text{g/L}$ model

EXPLANATION
Predicted probability



High : 1.00
Low : 0.00

— Town boundaries



0 20 40 60 MILES
0 20 40 60 KILOMETERS



Elevated Radon in Homes Across NH (1988-2011; n=25,476)

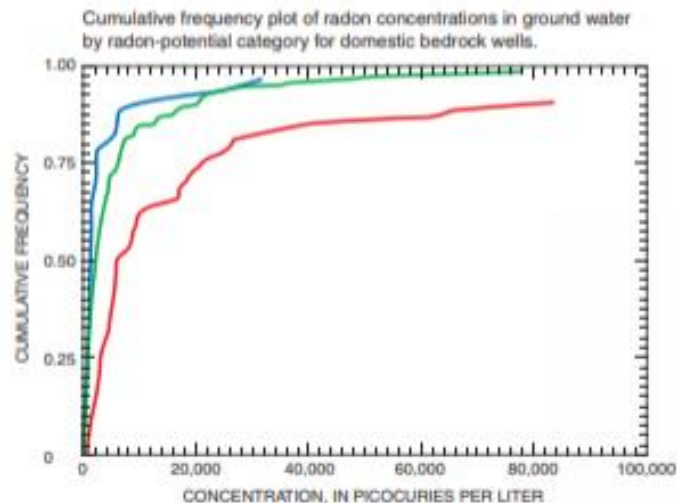
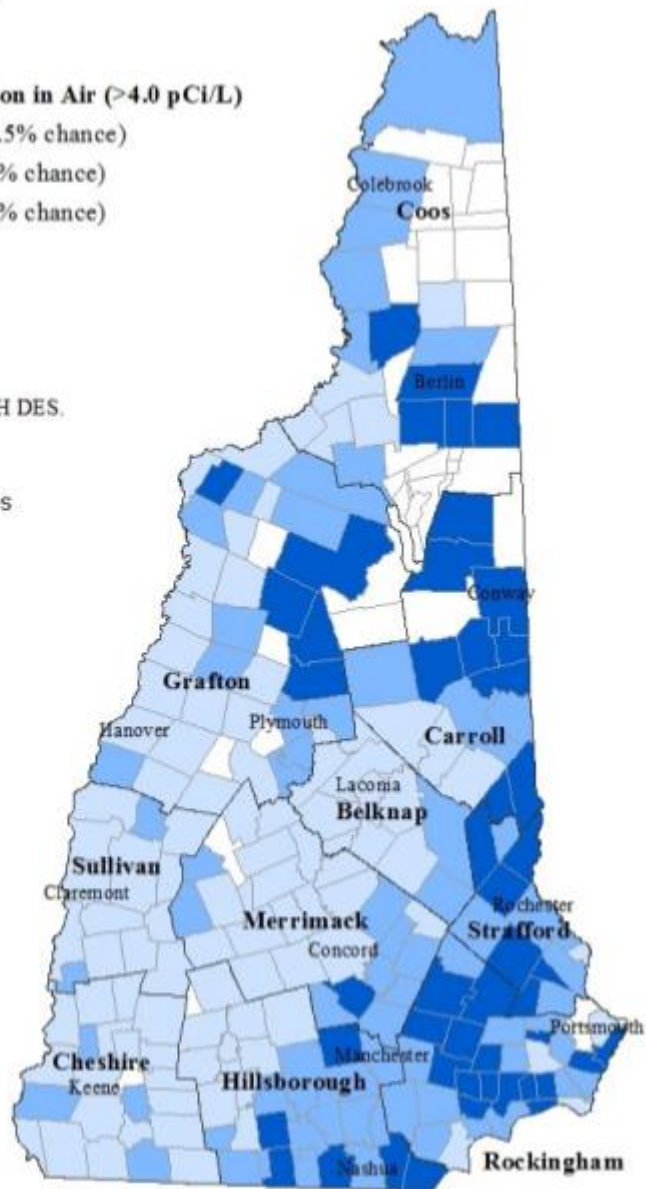
Probability of Elevated Radon in Air (>4.0 pCi/L)

- 1 in 8 homes tested (12.5% chance)
- 1 in 3 homes tested (33% chance)
- 1 in 2 homes tested (50% chance)

- No Data
- County

Source: Radon data provided by NH DES.
Map created by NH EPHT.
December 2015.

0 5 10 20 30 40 Miles



Distribution of radon in water concentrations by radon-potential category

Quantile, in percent	Radon potential		
	High ¹ _a	Medium _b	Low _b
90	65,700	19,500	6,300
50 (median)	5,900	2,250	1,350
10	1,400	620	300

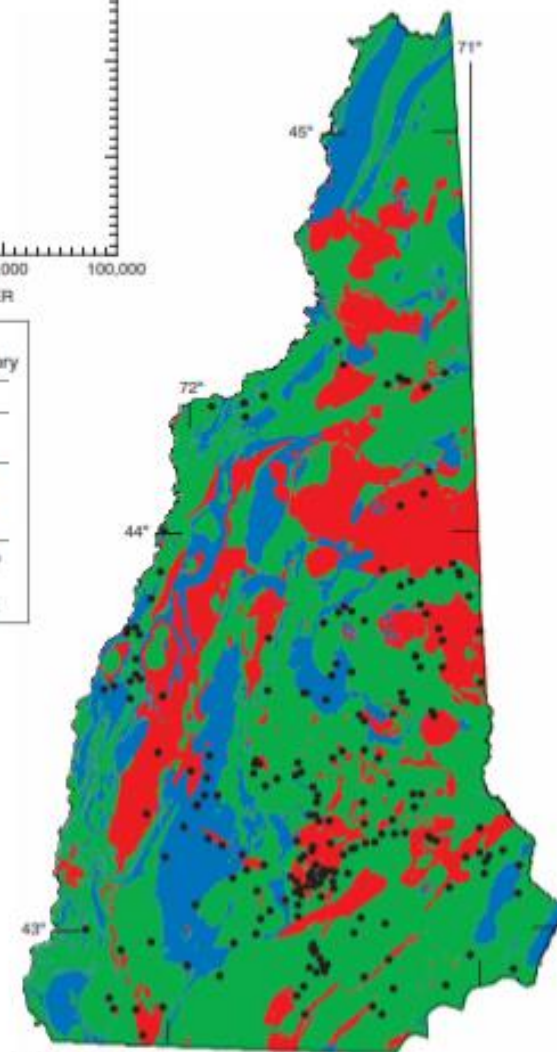
¹ Radon-potential-category populations with the same letter designation do not differ significantly at the 95-percent confidence level. Significance level attained for the multiple-comparison test is <math><0.0001</math>.

EXPLANATION

RADON-POTENTIAL CATEGORIES

- High [53]
- Medium [138]
- Low [30]
- [53] Number of samples
- Domestic well sampled for radon

Radon (Domestic wells)



New Hampshire State plane feet projection

0 25 50 MILES
0 25 50 KILOMETERS