The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

# AGGREGATED PRECIPITATION DATA for N.H. DROUGHT MANAGEMENT AREAS

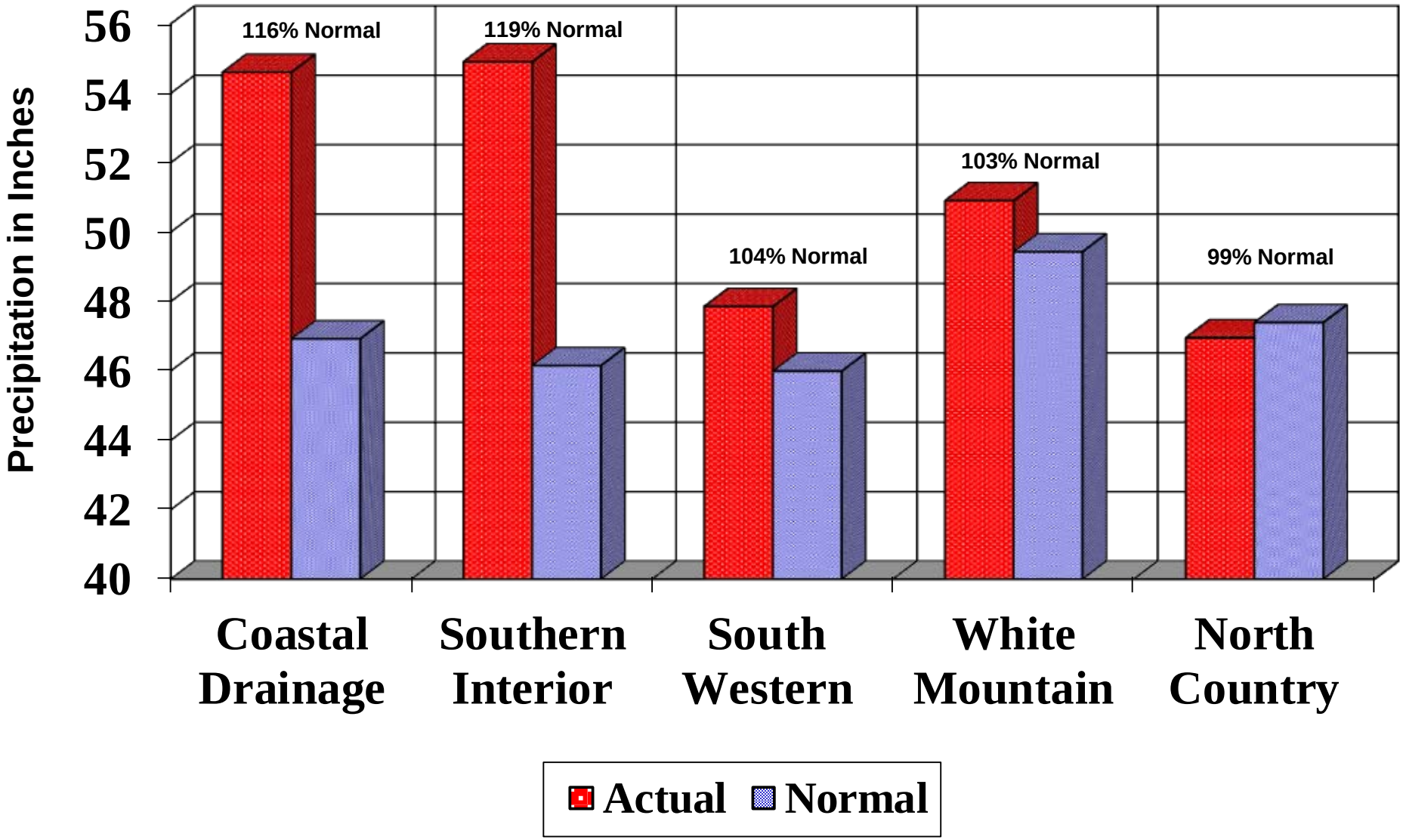
| | Actual Rainfall (inches) | Normal Rainfall (inches) | Deviation from Normal (inches) | Percent of Normal |
|---|---|---|---|---|
| Coastal Drainage: Rockingham, Strafford counties | | | | |
| four month | 19.81 | 14.68 | 5.13 | 135% |
| six month | 30.32 | 22.79 | 7.54 | 133% |
| nine month | 44.96 | 34.44 | 10.52 | 131% |
| twelve month | 54.60 | 46.92 | 7.69 | 116% |
| Southern Interior: Belknap, Hillsborough, Merrimack counties | | | | |
| four month | 19.66 | 14.18 | 5.48 | 139% |
| six month | 30.09 | 22.36 | 7.74 | 135% |
| nine month | 46.20 | 34.43 | 11.77 | 134% |
| twelve month | 54.90 | 46.15 | 8.74 | 119% |
| South Western: Cheshire, Sullivan counties | | | | |
| four month | 13.54 | 13.66 | 4.40 | 99% |
| six month | 22.37 | 22.02 | 4.86 | 102% |
| nine month | 39.57 | 34.63 | 9.45 | 114% |
| twelve month | 47.85 | 45.99 | 6.37 | 104% |
| White Mountain: Carroll, Grafton counties | | | | |
| four month | 20.51 | 14.93 | 5.59 | 137% |
| six month | 28.50 | 23.78 | 4.72 | 120% |
| nine month | 41.23 | 37.32 | 3.91 | 110% |
| twelve month | 50.90 | 49.43 | 1.47 | 103% |
| North Country: Coos county | | | | |
| four month | 15.86 | 13.63 | 2.23 | 116% |
| six month | 23.78 | 24.28 | 1.63 | 98% |
| nine month | 37.51 | 36.36 | 1.15 | 103% |
| twelve month | 46.95 | 47.39 | -0.44 | 99% |

four month period : November 2018 - February 2019
six month period : September 2018 - February 2019
nine month period : June 2018 - February 2019
twelve month period: March 2018 - February 2019

Source: Northeast River Forecast Center, NH Des Dam Bureau

www.des.nh.gov
29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
(603) 271-3503 • Fax: (603) 271-6120 • TDD Access: Relay NH 1-800-735-2964

# TWELVE MONTH AGGREGATED PRECIPITATION DATA for N.H. DROUGHT MANAGEMENT AREAS from March 2018 through February 2019




NH DES Dam Bureau, Northeast River Forecast Center

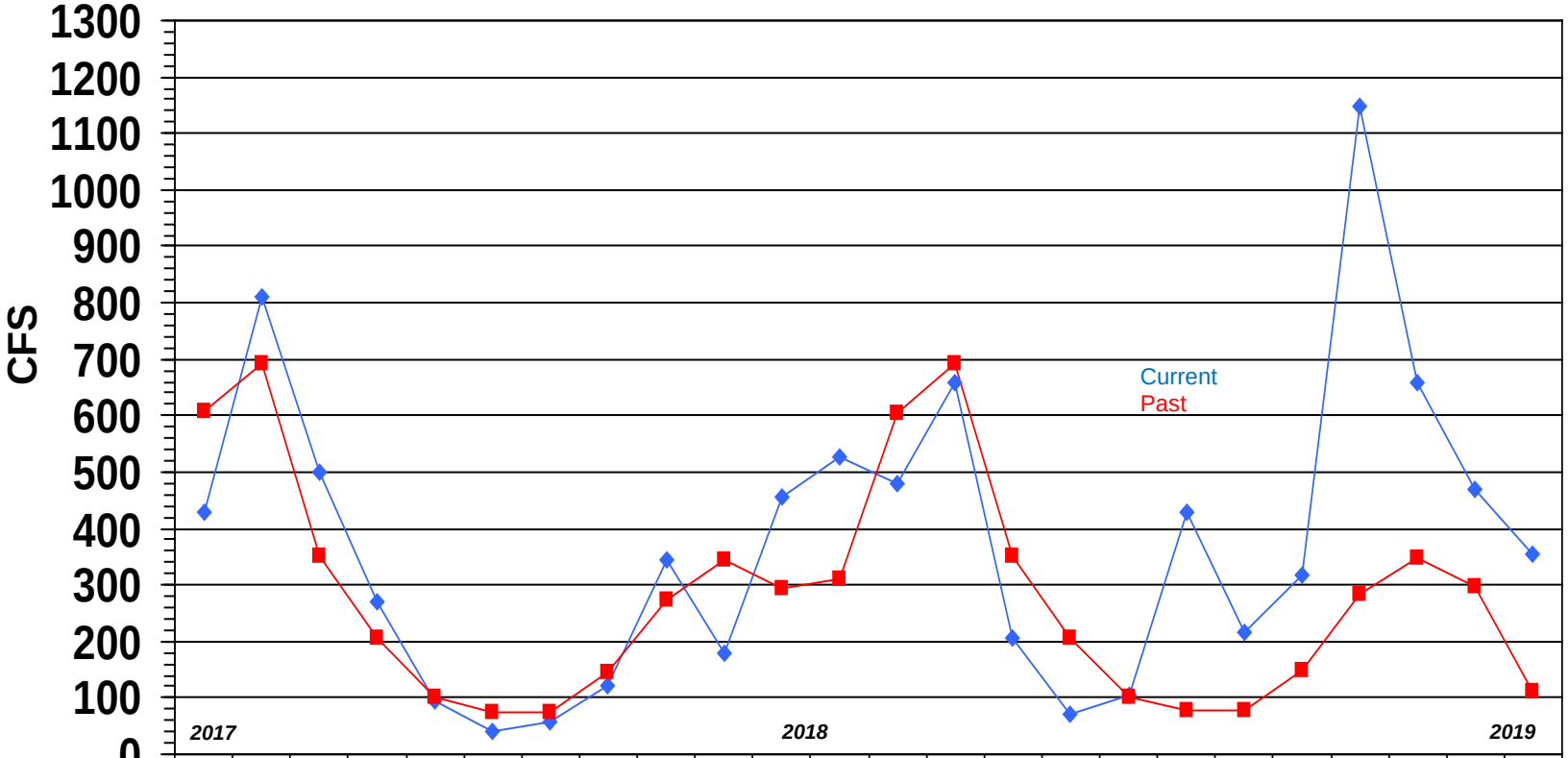
# MONTHLY PRECIPITATION DATA FOR N.H COUNTIES

| | | 2018 MARCH | APRIL | MAY | JUNE | JULY | AUG | SEPT | OCT | NOV | DEC | 2019 JAN | FEB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Coastal drainage | | | | | | | | | | | | | |
| STRAFFORD | actual | 3.02 | 5.25 | 1.29 | 3.67 | 4.47 | 6.01 | 5.99 | 4.61 | 9.08 | 4.09 | 4.16 | 3.09 |
| | normal | 4.16 | 4.22 | 4.09 | 4.16 | 3.99 | 3.73 | 3.74 | 4.38 | 4.50 | 3.76 | 3.20 | 3.29 |
| | deviation | -1.14 | 1.03 | -2.80 | -0.49 | 0.48 | 2.28 | 2.25 | 0.23 | 4.58 | 0.33 | 0.96 | -0.20 |
| ROCKINGHAM | actual | 3.23 | 4.99 | 1.50 | 4.25 | 5.04 | 5.84 | 6.36 | 4.07 | 9.41 | 3.38 | 3.62 | 2.78 |
| | normal | 4.19 | 4.19 | 4.10 | 4.10 | 3.78 | 3.55 | 3.76 | 4.34 | 4.30 | 3.74 | 3.26 | 3.30 |
| | deviation | -0.96 | 0.80 | -2.60 | 0.15 | 1.26 | 2.29 | 2.60 | -0.27 | 5.11 | -0.36 | 0.36 | -0.52 |
| Average | actual | 3.13 | 5.12 | 1.40 | 3.96 | 4.76 | 5.93 | 6.18 | 4.34 | 9.25 | 3.74 | 3.89 | 2.94 |
| | normal | 4.18 | 4.21 | 4.10 | 4.13 | 3.89 | 3.64 | 3.75 | 4.36 | 4.40 | 3.75 | 3.23 | 3.30 |
| | deviation | -1.05 | 0.92 | -2.70 | -0.17 | 0.87 | 2.29 | 2.43 | -0.02 | 4.85 | -0.02 | 0.66 | -0.36 |
| Southern Interior | | | | | | | | | | | | | |
| HILLSBOROUGH | actual | 3.18 | 4.56 | 1.37 | 4.26 | 5.89 | 7.97 | 7.40 | 4.23 | 9.23 | 3.88 | 3.80 | 2.78 |
| | normal | 3.94 | 4.13 | 4.10 | 4.21 | 3.96 | 3.75 | 3.74 | 4.46 | 4.21 | 3.79 | 3.39 | 3.28 |
| | deviation | -0.76 | 0.43 | -2.73 | 0.05 | 1.93 | 4.22 | 3.66 | -0.23 | 5.02 | 0.09 | 0.41 | -0.50 |
| MERRIMACK | actual | 2.80 | 4.68 | 1.33 | 3.09 | 4.99 | 8.54 | 5.46 | 4.93 | 8.65 | 4.06 | 4.24 | 2.87 |
| | normal | 3.74 | 3.96 | 4.01 | 4.34 | 4.11 | 3.75 | 3.76 | 4.43 | 4.15 | 3.65 | 3.26 | 3.09 |
| | deviation | -0.94 | 0.72 | -2.68 | -1.25 | 0.88 | 4.79 | 1.70 | 0.50 | 4.50 | 0.41 | 0.98 | -0.22 |
| BELKNAP | actual | 2.45 | 4.55 | 1.17 | 3.00 | 3.64 | 6.94 | 4.81 | 4.48 | 8.01 | 4.32 | 4.48 | 2.65 |
| | normal | 3.58 | 3.75 | 3.95 | 4.25 | 4.08 | 3.78 | 3.66 | 4.48 | 4.03 | 3.58 | 3.08 | 3.03 |
| | deviation | -1.13 | 0.80 | -2.78 | -1.25 | -0.44 | 3.16 | 1.15 | 0.00 | 3.98 | 0.74 | 1.40 | -0.38 |
| Average | actual | 2.81 | 4.60 | 1.29 | 3.45 | 4.84 | 7.82 | 5.89 | 4.55 | 8.63 | 4.09 | 4.17 | 2.77 |
| | normal | 3.75 | 3.95 | 4.02 | 4.27 | 4.05 | 3.76 | 3.72 | 4.46 | 4.13 | 3.67 | 3.24 | 3.13 |
| | deviation | -0.94 | 0.65 | -2.73 | -0.82 | 0.79 | 4.06 | 2.17 | 0.09 | 4.50 | 0.41 | 0.93 | -0.37 |
| South Western | | | | | | | | | | | | | |
| CHESHIRE | actual | 3.02 | 3.84 | 1.39 | 4.31 | 7.49 | 8.21 | 6.10 | 4.02 | 8.05 | 4.39 | 4.19 | 2.76 |
| | normal | 3.72 | 3.79 | 4.10 | 4.20 | 4.36 | 4.06 | 3.83 | 4.60 | 3.98 | 3.68 | 3.41 | 3.17 |
| | deviation | -0.70 | 0.05 | -2.71 | 0.11 | 3.13 | 4.15 | 2.27 | -0.58 | 4.07 | 0.71 | 0.78 | -0.41 |
| SULLIVAN | actual | 2.73 | 4.32 | 1.26 | 3.10 | 5.79 | 5.50 | 3.80 | 3.73 | 6.66 | 3.73 | 4.09 | 2.59 |
| | normal | 3.51 | 3.67 | 3.92 | 4.18 | 4.36 | 4.06 | 3.80 | 4.50 | 3.86 | 3.49 | 2.72 | 3.00 |
| | deviation | -0.78 | 0.65 | -2.66 | -1.08 | 1.43 | 1.44 | 0.00 | -0.77 | 2.80 | 0.24 | 1.01 | -0.41 |
| Average | actual | 2.88 | 4.08 | 1.33 | 3.71 | 6.64 | 6.86 | 4.95 | 3.88 | 7.36 | 4.06 | -0.55 | 2.68 |
| | normal | 3.62 | 3.73 | 4.01 | 4.19 | 4.36 | 4.06 | 3.82 | 4.55 | 3.92 | 3.59 | 3.07 | 3.09 |
| | deviation | -0.74 | 0.35 | -2.69 | -0.49 | 2.28 | 2.80 | 1.14 | -0.68 | 3.44 | 0.48 | 0.90 | -0.41 |
| White Mountain | | | | | | | | | | | | | |
| GRAFTON | actual | 2.72 | 5.21 | 1.58 | 4.26 | 4.79 | 4.24 | 3.14 | 4.03 | 6.74 | 4.65 | 5.06 | 2.41 |
| | normal | 3.46 | 3.76 | 4.20 | 4.59 | 4.56 | 4.60 | 4.09 | 4.67 | 4.35 | 3.70 | 3.19 | 2.84 |
| | deviation | -0.74 | 1.45 | -2.62 | -0.33 | 0.23 | -0.36 | -0.95 | -0.64 | 2.39 | 0.95 | 1.87 | -0.43 |
| CARROLL | actual | 3.02 | 5.39 | 1.42 | 4.06 | 3.33 | 4.79 | 4.02 | 4.78 | 8.19 | 5.10 | 5.64 | 3.23 |
| | normal | 4.02 | 4.46 | 4.32 | 4.50 | 4.41 | 4.42 | 3.99 | 4.96 | 4.72 | 4.16 | 3.57 | 3.32 |
| | deviation | -1.00 | 0.93 | -2.90 | -0.44 | -1.08 | 0.37 | 0.03 | -0.18 | 3.47 | 0.94 | 2.07 | -0.09 |
| Average | actual | 2.87 | 5.30 | 1.50 | 4.16 | 4.06 | 4.52 | 3.58 | 4.41 | 7.47 | 4.88 | 5.35 | 2.82 |
| | normal | 3.74 | 4.11 | 4.26 | 4.55 | 4.49 | 4.51 | 4.04 | 4.82 | 4.54 | 3.93 | 3.38 | 3.08 |
| | deviation | -0.87 | 1.19 | -2.76 | -0.39 | -0.43 | 0.01 | -0.46 | -0.41 | 2.93 | 0.95 | 1.97 | -0.26 |
| North Country | | | | | | | | | | | | | |
| COOS | actual | 2.68 | 4.67 | 2.09 | 4.03 | 4.66 | 5.04 | 3.73 | 4.19 | 5.99 | 3.42 | 4.05 | 2.40 |
| | normal | 3.21 | 3.61 | 4.21 | 4.79 | 4.57 | 4.85 | 4.00 | 4.52 | 4.23 | 3.58 | 3.10 | 2.72 |
| | deviation | -0.53 | 1.06 | -2.12 | -0.76 | 0.09 | 0.19 | -0.27 | -0.33 | 1.76 | -0.16 | 0.95 | -0.32 |

Source: Northeast River Forecast Center, NH DES Dam Bureau

# LAMPREY RIVER near NEWMARKET NH
# Gage# 01073500

MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



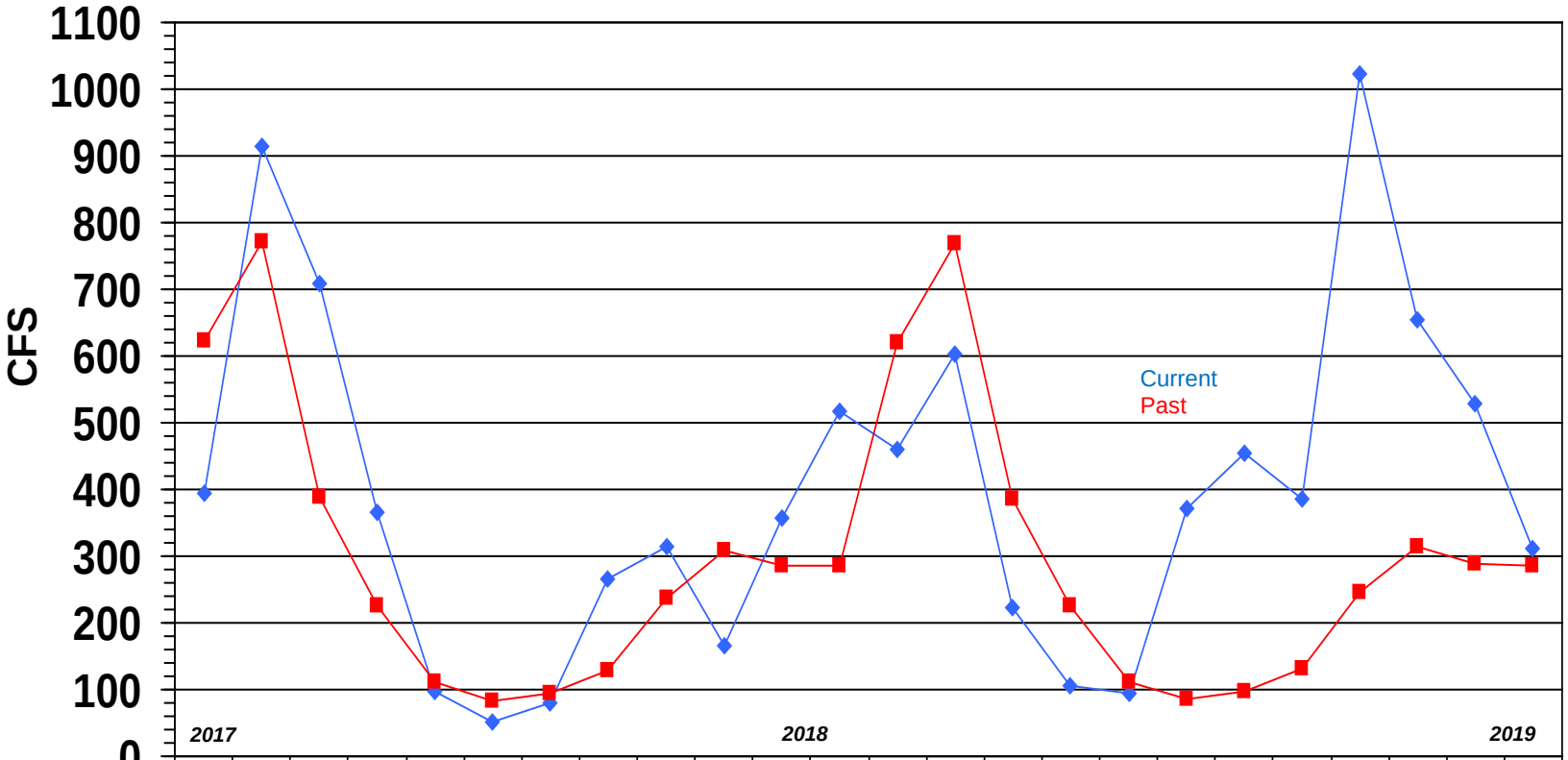

| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 429 | 811 | 500 | 269 | 93 | 41 | 57 | 120.4 | 344 | 178 | 456 | 528 | 480 | 659 | 207 | 71 | 105 | 429 | 216 | 317 | 1,148 | 660 | 471 | 353 |
| Mean of Monthly Flows | 607 | 692 | 352 | 207 | 100 | 75 | 74 | 145 | 272 | 345 | 295 | 312 | 606 | 692 | 350 | 206 | 100 | 79 | 76 | 147 | 283 | 349 | 298 | 113 |
| % of Normal | 71% | 117% | 142% | 130% | 93% | 55% | 78% | 83% | 126% | 52% | 155% | 169% | 79% | 95% | 59% | 35% | 105% | 543% | 285% | 216% | 406% | 189% | 158% | 312% |

NH DES, Dam Bureau, Source: USGS

**Start of record 1934**

# SOUHEGAN RIVER at MERRIMACK NH
# Gage# 01094000

## MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



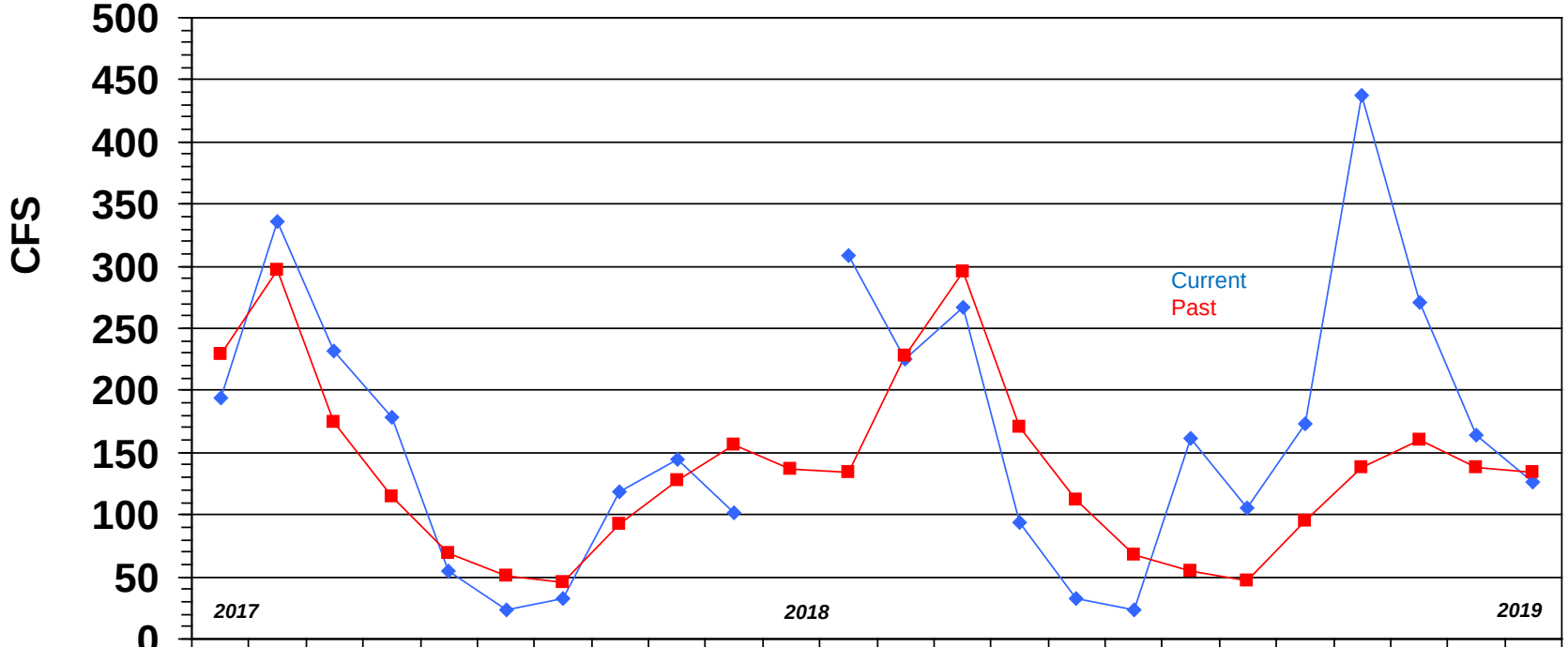

| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 395 | 914 | 710 | 367 | 96 | 51 | 80 | 266 | 315 | 167 | 357 | 516 | 459 | 603 | 224 | 106 | 95 | 372 | 453 | 386 | 1,022 | 653 | 528 | 311 |
| Mean of Monthly Flows | 623 | 772 | 388 | 227 | 111 | 82 | 93 | 129 | 238 | 310 | 285 | 285 | 621 | 770 | 386 | 226 | 111 | 86 | 97 | 132 | 247 | 314 | 288 | 285 |
| % of Normal | 63% | 118% | 183% | 162% | 87% | 62% | 86% | 206% | 132% | 54% | 125% | 181% | 74% | 78% | 58% | 47% | 85% | 432% | 467% | 292% | 414% | 208% | 183% | 109% |

NH DES, Dam Bureau, Source: USGS

**Start of record 1934**

# SOUCOOK RIVER at PEMBROKE ROAD
# near CONCORD NH, Gage# 01089100

MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



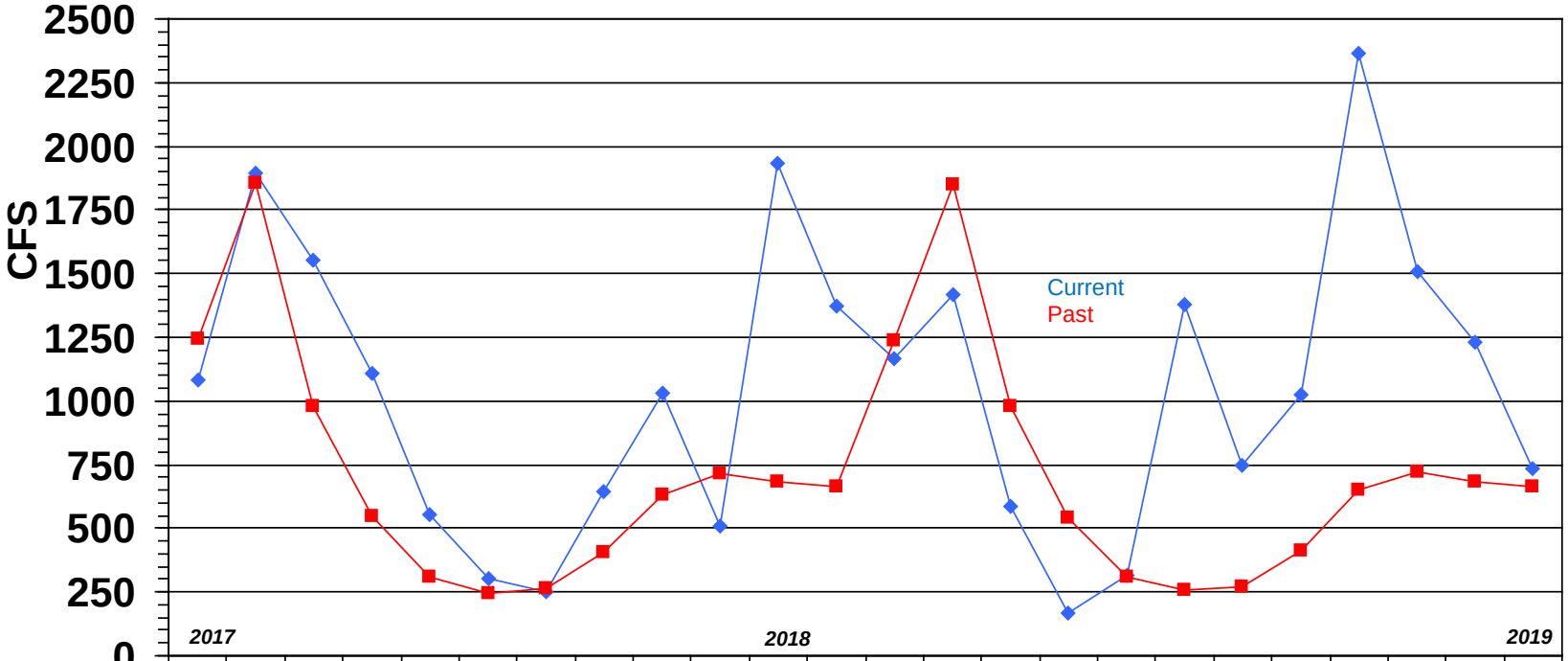

| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 194 | 336 | 232 | 179 | 55 | 24 | 32 | 117.9 | 145 | 101 | | 308 | 225 | 267 | 94 | 32 | 24 | 161 | 106 | 173 | 437 | 271 | 164 | 126 |
| Mean of Monthly Flows | 229 | 297 | 174 | 114 | 69 | 51 | 45 | 93 | 128 | 156 | 137 | 134 | 228 | 296 | 171 | 112 | 68 | 55 | 47 | 95 | 138 | 160 | 138 | 134 |
| % of Normal | 85% | 113% | 133% | 157% | 80% | 47% | 70% | 127% | 113% | 65% | | 230% | 99% | 90% | 55% | 28% | 36% | 294% | 226% | 182% | 317% | 169% | 119% | 94% |

**Start of record 1988**

NH DES, Dam Bureau, Source: USGS

# ASHUELOT RIVER at HINSDALE NH
# Gage# 01161000

MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



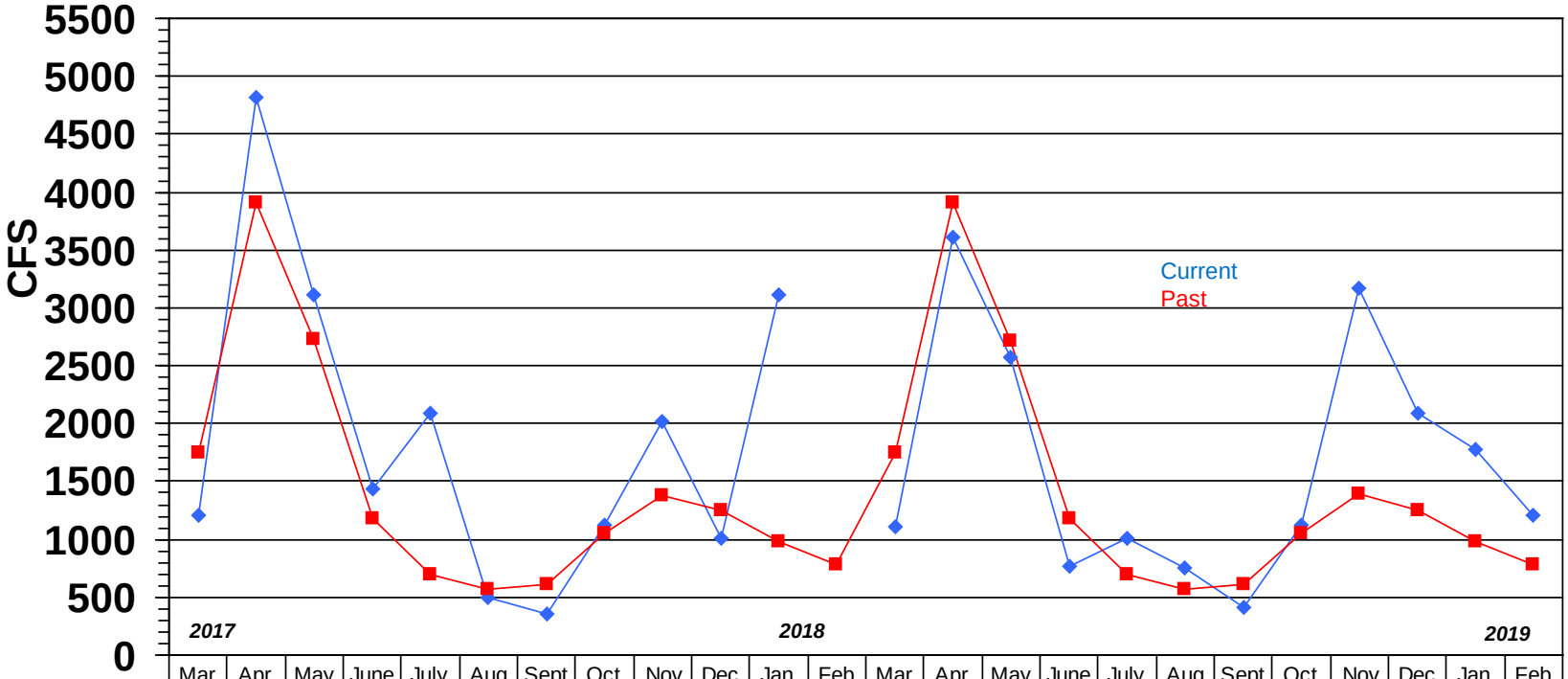

| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 1082 | 1893 | 1550 | 1108 | 555 | 301 | 254 | 645.9 | 1029 | 511 | 1932 | 1372 | 1164 | 1415 | 589 | 167 | 313 | 1381 | 748 | 1022 | 2,363 | 1506 | 1229 | 734 |
| Mean of Monthly Flows | 1241 | 1856 | 981 | 546 | 310 | 245 | 264 | 407 | 632 | 716 | 680 | 661 | 1240 | 1852 | 977 | 543 | 310 | 256 | 269 | 412 | 648 | 723 | 685 | 661 |
| % of Normal | 87% | 102% | 158% | 203% | 179% | 123% | 96% | 159% | 163% | 71% | 284% | 208% | 94% | 76% | 60% | 31% | 101% | 540% | 278% | 248% | 365% | 208% | 179% | 111% |

**Start of record 1907**

NH DES, Dam Bureau, Source: USGS

# PEMIGEWASSET RIVER at PLYMOUTH NH
# Gage# 01076500

MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS




| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 1213 | 4813 | 3106 | 1433 | 2083 | 502 | 351 | 1126 | 2012 | 1014 | 3117 | | 1113 | 3608 | 2573 | 764 | 1011 | 747 | 413 | 1118 | 3,167 | 2084 | 1777 | 1209 |
| Mean of Monthly Flows | 1755 | 3911 | 2722 | 1177 | 693 | 565 | 606 | 1056 | 1382 | 1244 | 974 | 778 | 1750 | 3908 | 2721 | 1174 | 696 | 566 | 605 | 1057 | 1,397 | 1251 | 981 | 782 |
| % of Normal | 69% | 123% | 114% | 122% | 301% | 89% | 58% | 107% | 146% | 81% | 320% | | 64% | 92% | 95% | 65% | 145% | 132% | 68% | 106% | 227% | 167% | 181% | 155% |

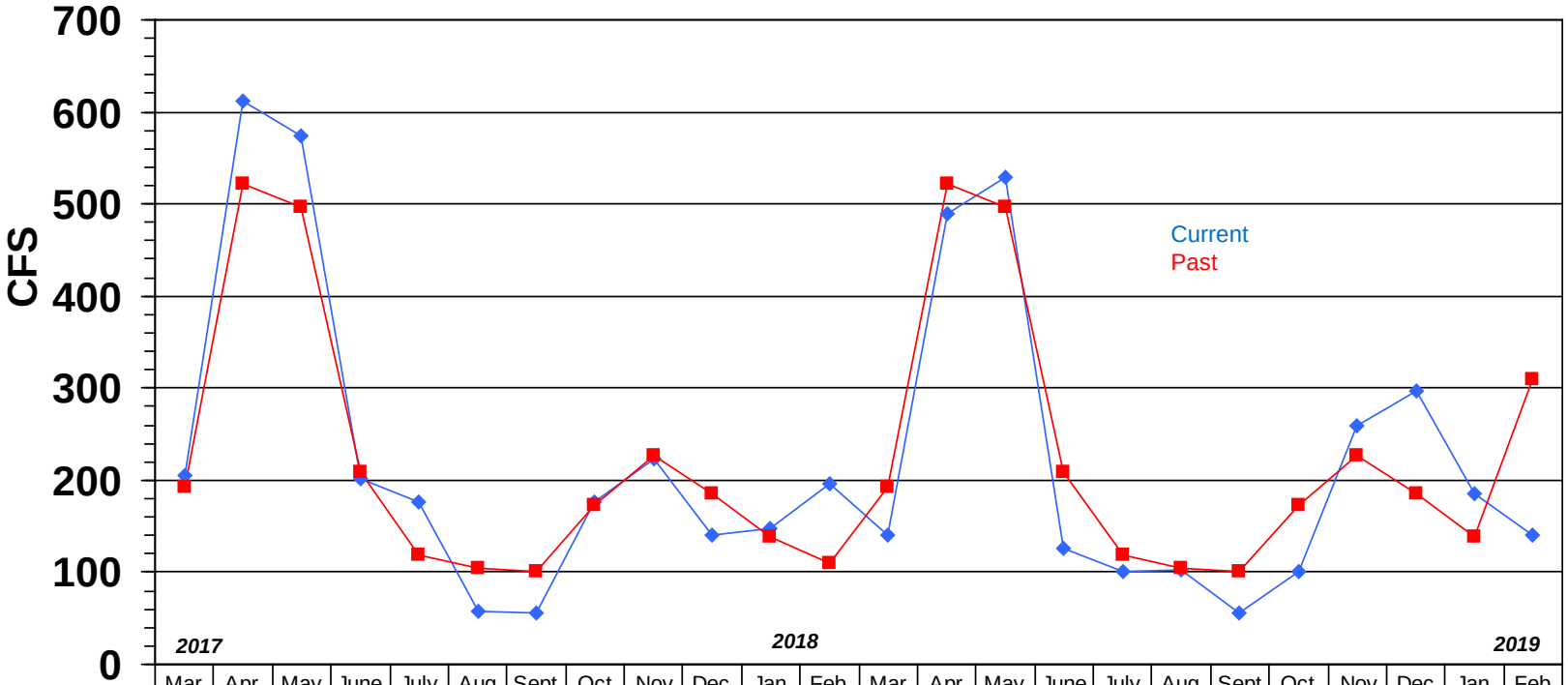
**Start of record 1903**

NH DES, Dam Bureau, Source: USGS

# AMMONOOSUC RIVER at BETHLEHEM JUNCTION NH
# Gage# 01137500

## MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

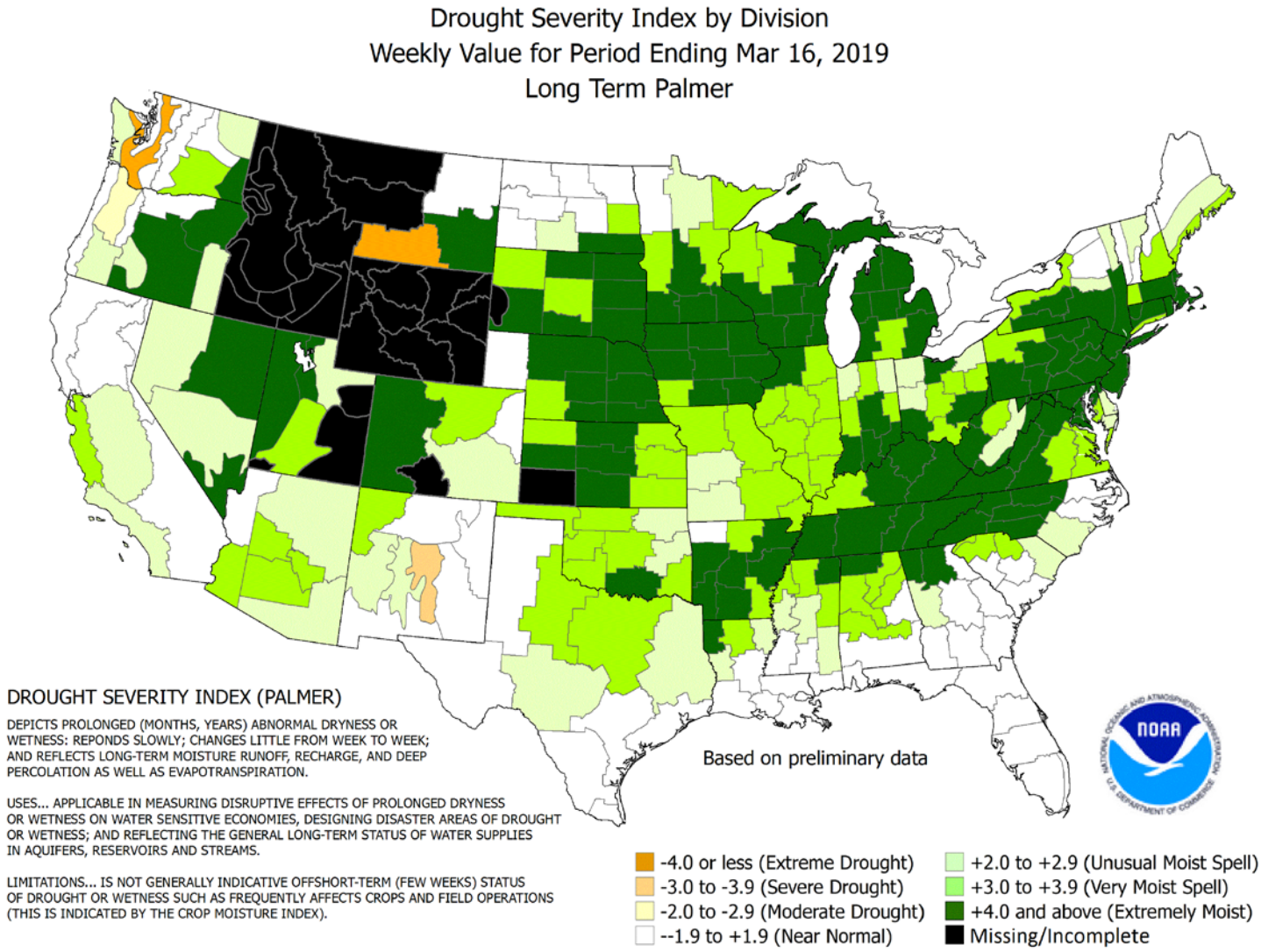
**This station replaces gage# 01137000 which was discontinued by DES at the end of Sept 2004**




| | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec | Jan | Feb |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Monthly Mean Flow | 205 | 611 | 574 | 201 | 177 | 58 | 55 | 176.9 | 223 | 140 | 148 | 196 | 141 | 490 | 529 | 126 | 100 | 103 | 56 | 101 | 259 | 297 | 185 | 141 |
| Mean of Monthly Flows | 193 | 521 | 496 | 209 | 119 | 105 | 101 | 173 | 226 | 185 | 138 | 110 | 192 | 521 | 496 | 208 | 118 | 105 | 100 | 172 | 226 | 186 | 138 | 310 |
| % of Normal | 106% | 117% | 116% | 96% | 149% | 55% | 55% | 102% | 99% | 76% | 107% | 178% | 73% | 94% | 107% | 61% | 84% | 98% | 56% | 59% | 115% | 160% | 134% | 45% |

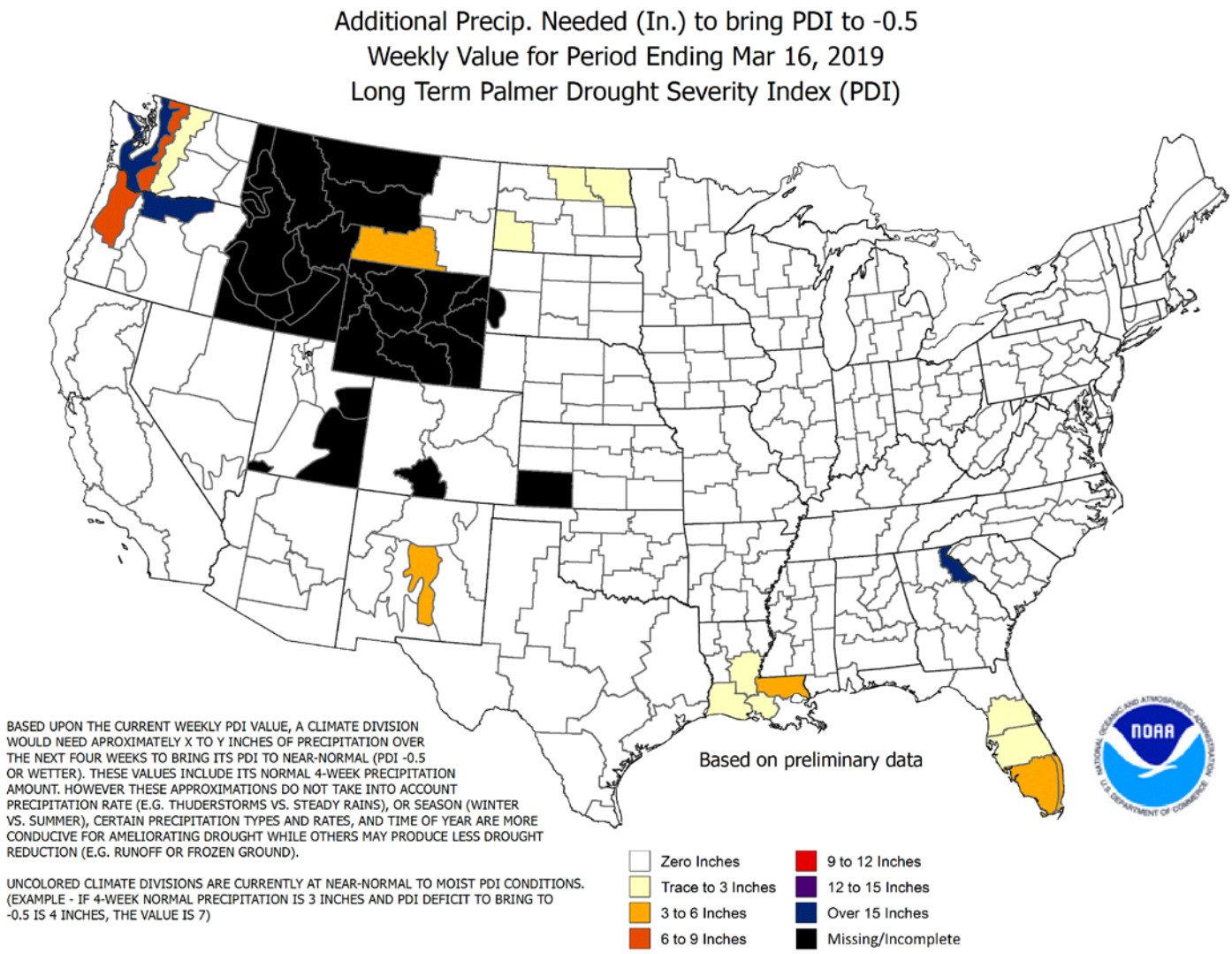
**Start of record 1939**

NH DES, Dam Bureau, Source: USGS




THE PALMER DROUGHT SEVERITY INDEX

The Palmer Index uses temperature and rainfall information in a formula to determine dryness. The advantage of the Palmer Index is that it is standardized to local climate.




This is the amount of rainfall required in a week's time to bring the index back to zero inches required.