



The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

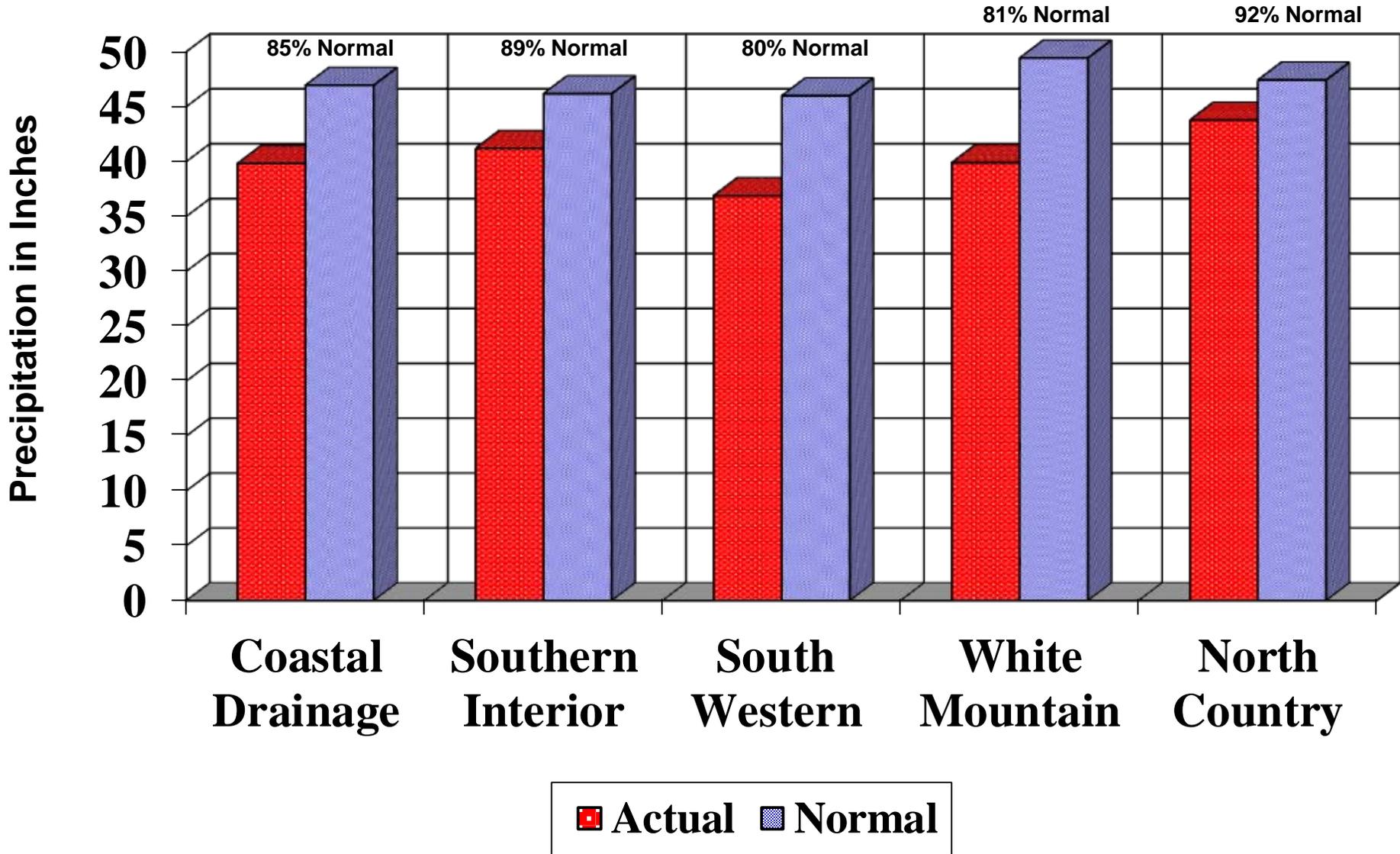
**AGGREGATED PRECIPITATION DATA for N.H.
 DROUGHT MANAGEMENT AREAS**

	Actual Rainfall (inches)	Normal Rainfall (inches)	Deviation from Normal (inches)	Percent of Normal
<u>Coastal Drainage:</u> Rockingham, Strafford counties				
four month	13.91	16.62	-2.71	84%
six month	20.03	23.15	-3.12	87%
nine month	32.61	35.66	-3.05	91%
twelve month	39.81	46.93	-7.12	85%
<u>Southern Interior:</u> Belknap, Hillsborough, Merrimack counties				
four month	15.17	15.99	-0.82	95%
six month	20.89	22.37	-1.48	93%
nine month	32.81	34.64	-1.83	95%
twelve month	41.18	46.17	-4.99	89%
<u>South Western:</u> Cheshire, Sullivan counties				
four month	15.16	15.54	-0.38	98%
six month	17.38	21.69	-1.53	80%
nine month	26.95	33.74	-4.02	80%
twelve month	36.88	45.97	-6.31	80%
<u>White Mountain:</u> Carroll, Grafton counties				
four month	15.42	16.64	-1.23	93%
six month	21.88	23.10	-1.22	95%
nine month	34.44	36.38	-1.94	95%
twelve month	39.89	49.42	-5.06	81%
<u>North Country:</u> Coos county				
four month	15.00	15.83	-0.83	95%
six month	20.89	21.64	-0.75	97%
nine month	31.86	33.99	-2.13	94%
twelve month	43.77	47.41	-3.64	92%

four month period : March 2017 - June 2017
 six month period : January 2017 - June 2017
 nine month period : October 2016 - June 2017
 twelve month period: July 2016 - June 2017

Source: Northeast River Forecast Center, NH Des Dam Bureau

TWELVE MONTH AGGREGATED PRECIPITATION DATA for N.H. DROUGHT MANAGEMENT AREAS from July 2016 through June 2017



MONTHLY PRECIPITATION DATA FOR N.H COUNTIES



		2016						2017					
		JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
Coastal drainage													
STRAFFORD	actual	3.06	2.04	1.92	5.47	3.36	3.35	2.65	3.42	3.74	3.62	1.65	3.93
	normal	3.99	3.73	3.74	4.38	4.50	3.77	3.20	3.30	4.17	4.22	4.10	4.16
	deviation	-0.93	-1.69	-1.82	1.09	-1.14	-0.42	-0.55	0.12	-0.43	-0.60	-2.45	-0.23
ROCKINGHAM	actual	2.38	2.36	2.63	6.25	3.62	3.11	2.96	3.21	3.99	4.01	1.76	5.12
	normal	3.77	3.54	3.76	4.34	4.30	3.73	3.27	3.30	4.19	4.19	4.10	4.10
	deviation	-1.39	-1.18	-1.13	1.91	-0.68	-0.62	-0.31	-0.09	-0.20	-0.18	-2.34	1.02
Average	actual	2.72	2.20	2.28	5.86	3.49	3.23	2.81	3.32	3.87	3.82	1.71	4.53
	normal	3.88	3.64	3.75	4.36	4.40	3.75	3.24	3.30	4.18	4.21	4.10	4.13
	deviation	-1.16	-1.44	-1.48	1.50	-0.91	-0.52	-0.43	0.02	-0.32	-0.39	-2.40	0.40
Southern Interior													
HILLSBOROUGH	actual	2.16	3.12	3.27	4.79	3.78	3.06	3.06	2.83	4.63	3.74	1.98	5.15
	normal	3.96	3.76	3.74	4.46	4.22	3.80	3.39	3.29	3.95	4.14	4.10	4.22
	deviation	-1.80	-0.64	-0.47	0.33	-0.44	-0.74	-0.33	-0.46	0.68	-0.40	-2.12	0.93
MERRIMACK	actual	3.29	2.57	2.51	4.99	3.84	3.17	2.56	3.08	3.76	3.84	2.50	5.62
	normal	4.11	3.75	3.77	4.43	4.15	3.65	3.26	3.09	3.73	3.96	4.01	4.33
	deviation	-0.82	-1.18	-1.26	0.56	-0.31	-0.48	-0.70	-0.01	0.03	-0.12	-1.51	1.29
BELKNAP	actual	3.47	2.93	1.78	4.81	4.07	3.25	2.43	3.21	3.20	3.53	2.32	5.24
	normal	4.08	3.78	3.65	4.49	4.03	3.58	3.08	3.03	3.58	3.75	3.95	4.25
	deviation	-0.61	-0.85	-1.87	0.32	0.04	-0.33	-0.65	0.18	-0.38	-0.22	-1.63	0.99
Average	actual	2.97	2.87	2.52	4.86	3.90	3.16	2.68	3.04	3.86	3.70	2.27	5.34
	normal	4.05	3.76	3.72	4.46	4.13	3.68	3.24	3.14	3.75	3.95	4.02	4.27
	deviation	-1.08	-0.89	-1.20	0.40	-0.24	-0.52	-0.56	-0.10	0.11	-0.25	-1.75	1.07
South Western													
CHESHIRE	actual	2.69	5.07	2.81	3.05	3.45	2.83	2.64	2.81	4.04	3.10	2.38	6.37
	normal	4.36	4.05	3.83	4.60	3.97	3.68	3.42	3.17	3.73	3.79	4.10	4.20
	deviation	-1.67	1.02	-1.02	-1.55	-0.52	-0.85	-0.78	-0.36	0.31	-0.69	-1.72	2.17
SULLIVAN	actual	3.59	3.68	2.03	3.65	3.40	2.75	2.18	2.73	3.23	3.48	2.50	5.22
	normal	4.36	4.05	3.80	4.51	3.85	3.49	2.72	3.00	3.51	3.66	3.91	4.17
	deviation	-0.77	-0.37	-1.77	-0.86	-0.45	-0.74	-0.90	-0.27	-0.28	-0.18	-1.41	1.05
Average	actual	3.14	4.38	2.42	3.35	3.43	2.79	-0.55	2.77	3.64	3.29	2.44	5.80
	normal	4.36	4.05	3.82	4.56	3.91	3.59	3.07	3.09	3.62	3.73	4.01	4.19
	deviation	-1.22	0.33	-1.40	-1.21	-0.49	-0.80	-0.84	-0.32	0.02	-0.44	-1.57	1.61
White Mountain													
GRAFTON	actual	4.39	4.52	1.86	4.08	3.93	3.54	2.53	3.28	3.58	3.53	3.13	5.45
	normal	4.56	4.61	4.10	4.67	4.35	3.70	3.19	2.84	3.45	3.76	4.20	4.58
	deviation	-0.17	-0.09	-2.24	-0.59	-0.42	-0.16	-0.66	0.44	0.13	-0.23	-1.07	0.87
CARROLL	actual	4.55	3.09	1.44	5.04	4.56	3.97	3.33	3.78	3.59	4.42	2.35	4.78
	normal	4.41	4.42	3.98	4.96	4.72	4.16	3.57	3.31	4.02	4.46	4.32	4.49
	deviation	0.14	-1.33	-2.54	0.08	-0.16	-0.19	-0.24	0.47	-0.43	-0.04	-1.97	0.29
Average	actual	4.47	3.81	1.65	4.56	4.25	3.76	2.93	3.53	3.59	3.98	2.74	5.12
	normal	4.49	4.52	4.04	4.82	4.54	3.93	3.38	3.08	3.74	4.11	4.26	4.54
	deviation	-0.02	-0.71	-2.39	-0.26	-0.29	-0.18	-0.45	0.46	-0.15	-0.14	-1.52	0.58
North Country													
COOS	actual	4.22	5.62	2.07	3.56	3.57	3.84	3.05	2.84	3.09	3.51	2.92	5.48
	normal	4.57	4.85	4.00	4.53	4.24	3.58	3.09	2.72	3.21	3.62	4.21	4.79
	deviation	-0.35	0.77	-1.93	-0.97	-0.67	0.26	-0.04	0.12	-0.12	-0.11	-1.29	0.69

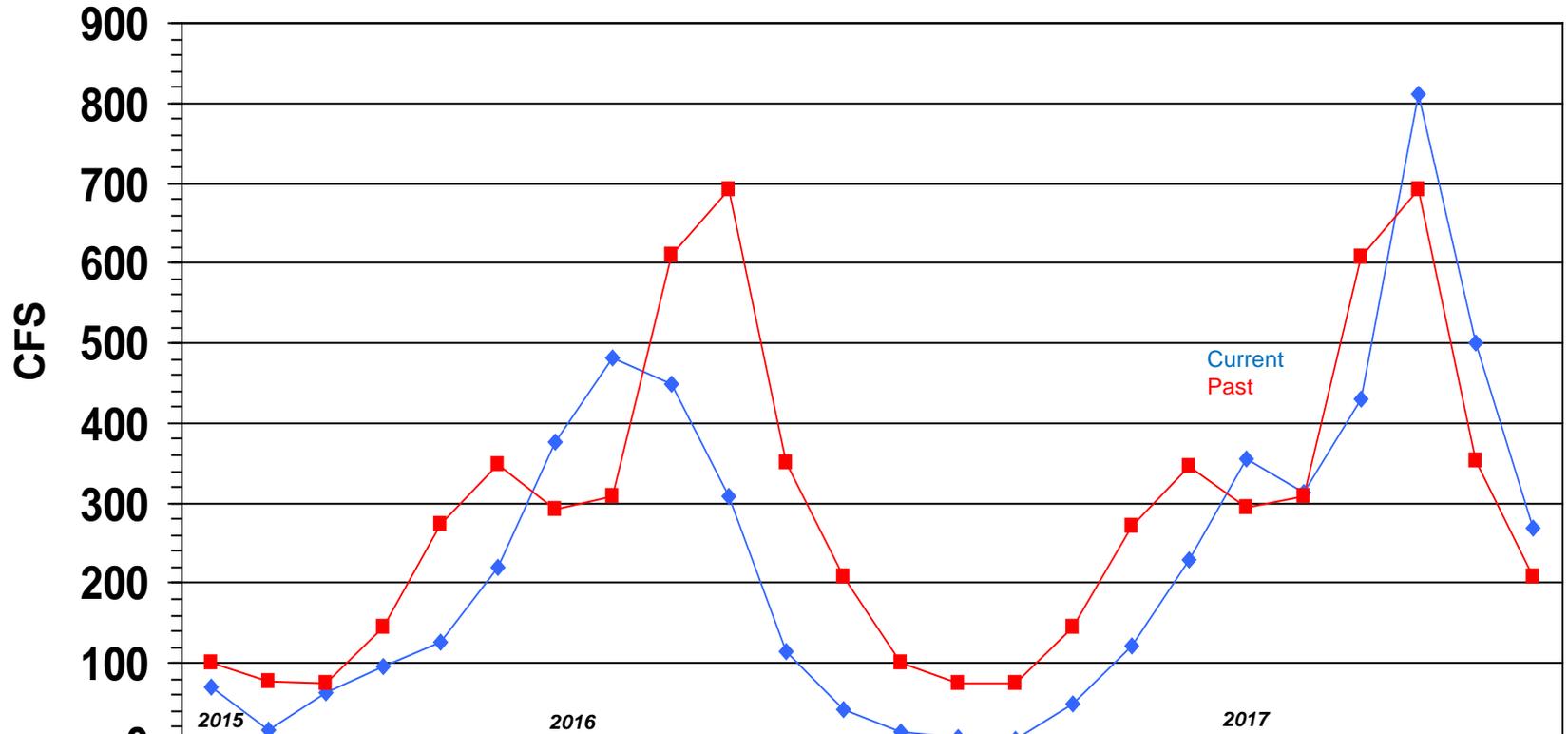
Source: Northeast River Forecast Center, NH DES Dam Bureau

LAMPREY RIVER near NEWMARKET NH

Gage# 01073500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



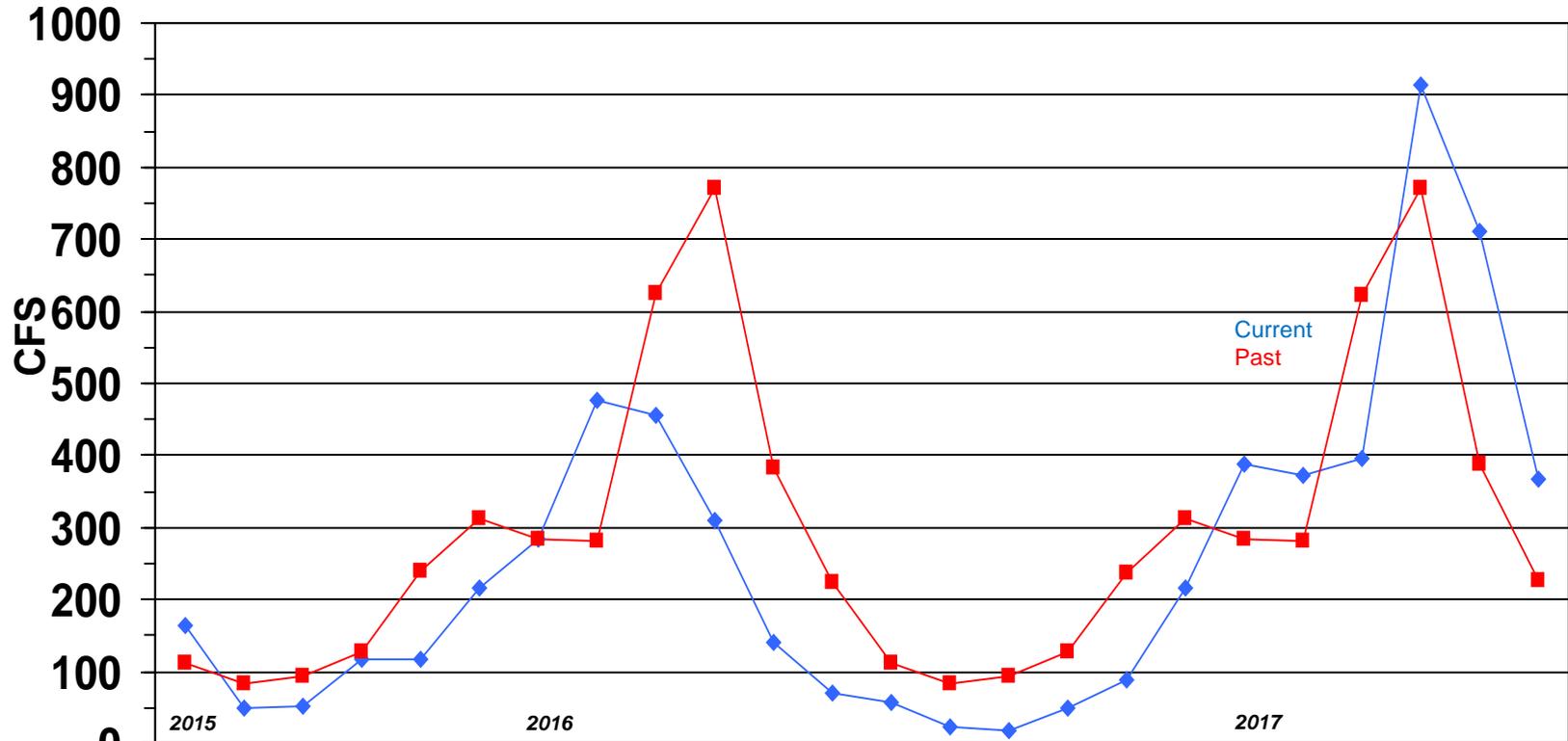
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
◆ Monthly Mean Flow	70	17	63	95	127	219	376	481	450	308	115	43	14	7	5	50	121	230	355	314	429	811	500	269
■ Mean of Monthly Flows	101	76	75	146	273	349	293	309	609	691	350	207	100	75	74	145	271	347	294	309	607	692	352	207
% of Normal	70%	23%	84%	65%	46%	63%	128%	156%	74%	45%	33%	21%	14%	9%	7%	34%	44%	66%	121%	102%	71%	117%	142%	130%

SOUHEGAN RIVER at MERRIMACK NH

Gage# 01094000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

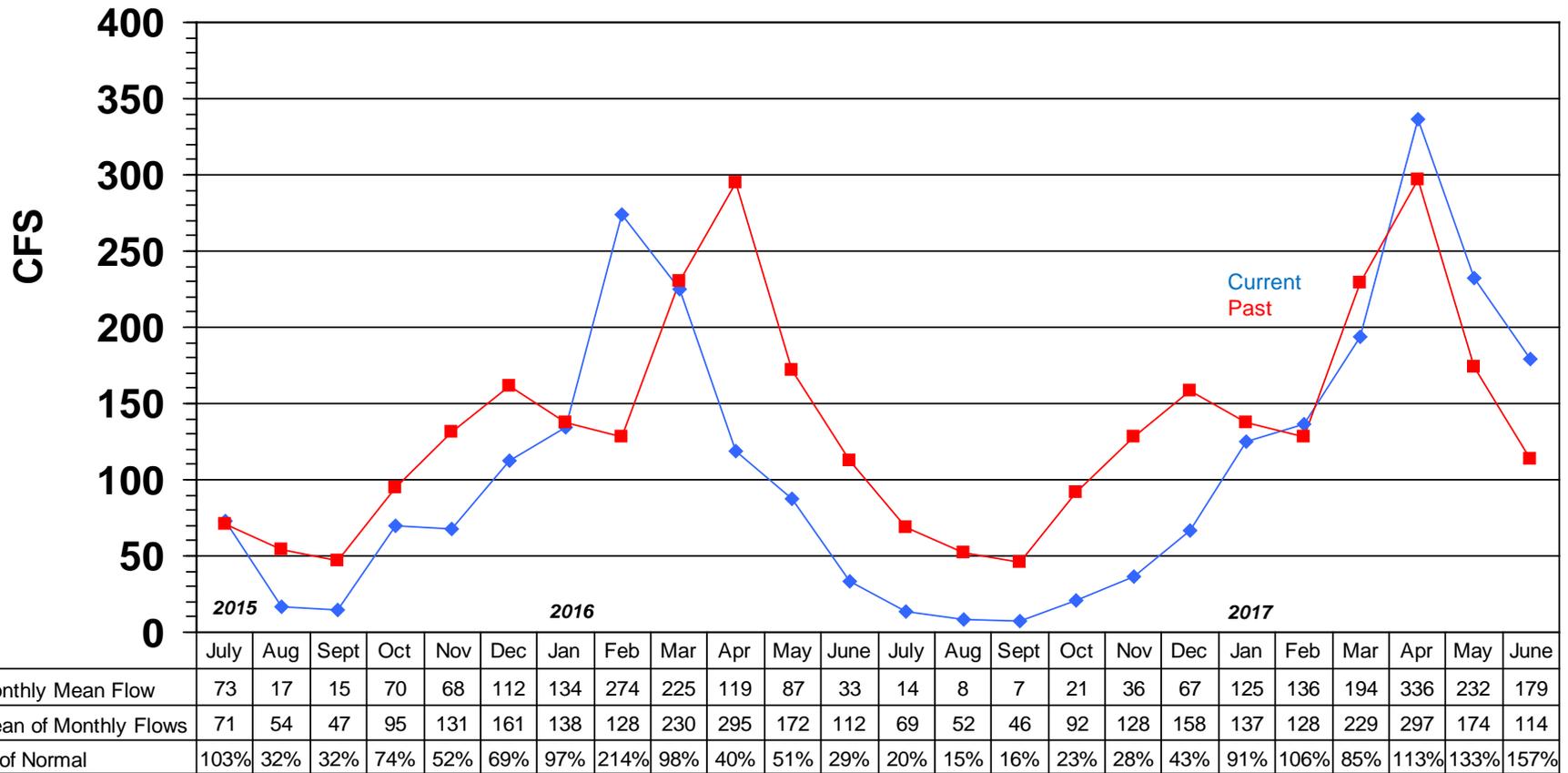


	2015	2016	2017																					
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
◆ Monthly Mean Flow	165	50	52	116	118	216	285	476	457	309	141	71	58	23	17	50	89	217	388	373	395	914	710	367
■ Mean of Monthly Flows	112	83	94	128	239	313	283	281	626	770	384	225	111	83	93	127	237	312	284	282	623	772	388	227
% of Normal	147%	61%	55%	91%	49%	69%	101%	169%	73%	40%	37%	52%	52%	28%	18%	39%	37%	70%	137%	132%	63%	118%	183%	162%

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



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

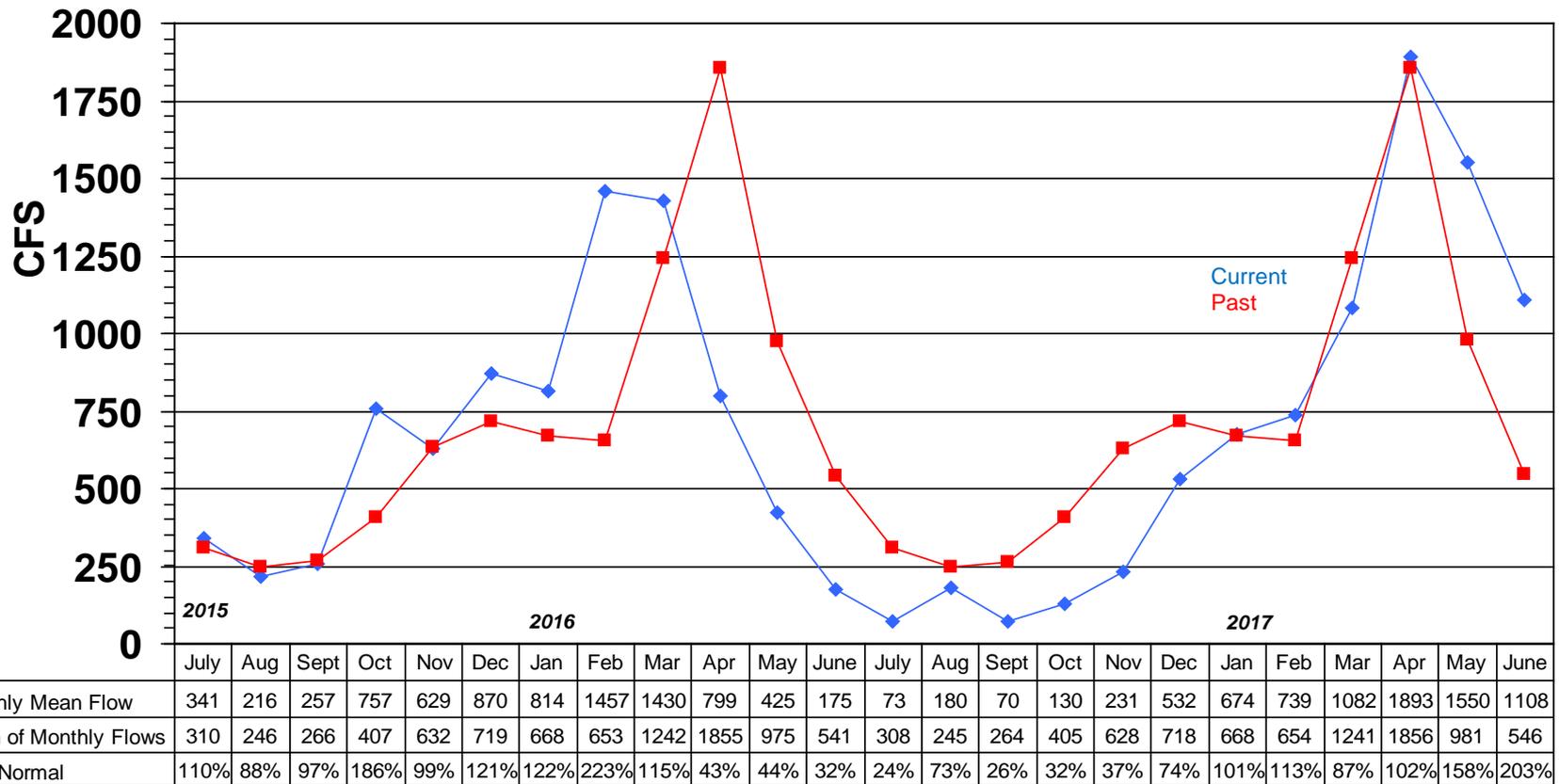


ASHUELOT RIVER at HINSDALE NH

Gage# 01161000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

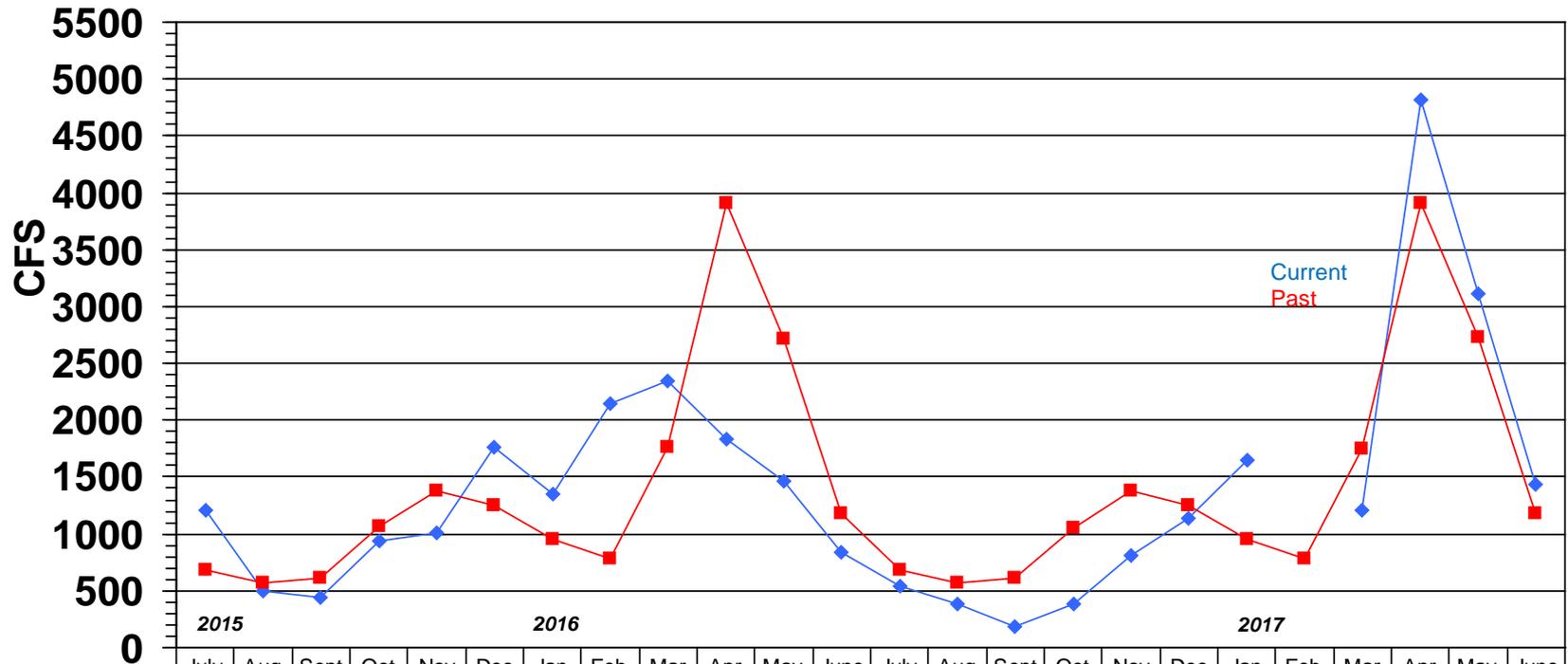


PEMIGEWASSET RIVER at PLYMOUTH NH

Gage# 01076500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



	2015	2016						2017																
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
◆ Monthly Mean Flow	1201	491	443	943	1016	1759	1357	2142	2348	1830	1461	845	538	384	186	390	814	1139	1651	ice	1213	4813	3106	1433
■ Mean of Monthly Flows	682	567	612	1062	1381	1247	949	778	1760	3903	2719	1175	681	565	609	1056	1376	1246	955	778	1755	3911	2722	1177
% of Normal	176%	87%	72%	89%	74%	141%	143%	275%	133%	47%	54%	72%	79%	68%	30%	37%	59%	91%	173%		69%	123%	114%	122%

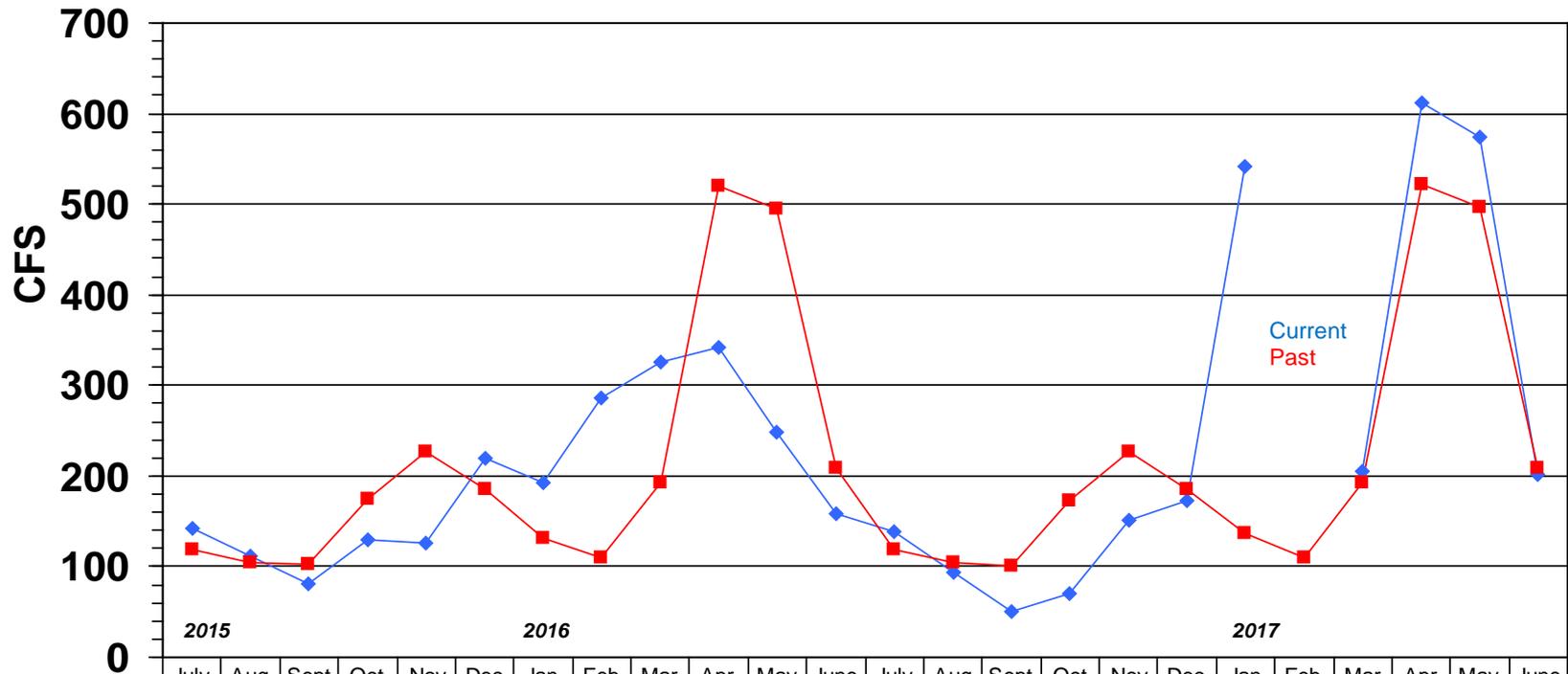
AMMONOOSUC RIVER at BETHLEHEM JUNCTION NH

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



	2015			2016									2017											
	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
Monthly Mean Flow	142	112	81	129	126	219	193	287	325	342	249	158	138	94	50	71	152	172	541	ice	205	611	574	201
Mean of Monthly Flows	118	105	102	174	227	185	132	109	192	520	494	209	118	105	101	173	226	185	137	109	193	521	496	209
% of Normal	120%	107%	79%	74%	55%	118%	146%	263%	169%	66%	50%	76%	117%	89%	50%	41%	67%	93%	395%		106%	117%	116%	96%

Streamflow data for selected NH stations as of July 11, 2017

Station number	Station name	Est Mean flow (ft3/s)	Long term median flow (ft3/s)	99% flow (ft3/s)	7Q10 flow (ft3/s)	Lowest Period of Record daily flow(ft3/s)	% of Median flow	Below 0.99 Flow?	Below 7Q10 Flow?	Below Record Flow?
Androscoggin River Basin										
01052500	Diamond River near Wentworth Location, NH	120	117	22	16	6.8	103%			
01053500	Androscoggin River at Errol, NH	2370	1710	500	451	0	139%	FALSE	FALSE	FALSE
01054000	Androscoggin River near Gorham, NH	2430	1920	1300	1310	795	127%	FALSE	FALSE	FALSE
Saco River Basin										
01064500	Saco River near Conway, NH	620	338	105	97	66	183%	FALSE	FALSE	FALSE
01064801	BEARCAMP RIVER AT SOUTH TAMWORTH, NH	51.4	40	6	4.8	4.5	129%	FALSE	FALSE	FALSE
Piscataqua River Basin										
01072800	COCHECO RIVER NEAR ROCHESTER, NH	29.9	36	--	--	2.2	83%			FALSE
01073500	LAMPREY RIVER NEAR NEWMARKET, NH	121	70	7	5	--	173%	FALSE	FALSE	
Merrimack River Basin										
01074520	EAST BRANCH PEMIGEWASSET RIVER AT LINCOLN, NH	201	184		49	46	109%		FALSE	FALSE
01075000	PEMIGEWASSET RIVER AT WOODSTOCK, NH	338	202		56	--	167%		FALSE	
01076000	BAKER RIVER NEAR RUMNEY, NH	151	67		15	--	225%		FALSE	
01076500	PEMIGEWASSET RIVER AT PLYMOUTH, NH	978	434		118	45	225%		FALSE	FALSE
01078000	SMITH RIVER NEAR BRISTOL, NH	39.8	36		6.2	2.7	111%		FALSE	FALSE
01081000	WINNIPESAUKEE RIVER AT TILTON, NH	484	326		136	48	148%		FALSE	FALSE
01081500	MERRIMACK RIVER AT FRANKLIN JUNCTION, NH	1960	1290		551	--	152%		FALSE	
01082000	CONTOOCOOK RIVER AT PETERBOROUGH, NH	33.1	27		6.3	--	123%		FALSE	
01085000	CONTOOCOOK RIVER NEAR HENNIKER, NH	210	104		37	--	202%		FALSE	
01085500	CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH	286	159		39	--	180%		FALSE	
01086000	WARNER RIVER AT DAVISVILLE, NH	70.5	44		5.3	--	160%		FALSE	
01092000	MERRIMACK R NR GOFFS FALLS, BELOW MANCHESTER, NH	3140	1930		644	98*	163%		FALSE	
01094000	SOUHEGAN RIVER AT MERRIMACK, NH	80.1	67		12.9	--	120%		FALSE	
Connecticut River Basin										
01129200	CONNECTICUT R BELOW INDIAN STREAM NR PITTSBURG, NH	441	426		42	30	104%		FALSE	FALSE
01129500	CONNECTICUT RIVER AT NORTH STRATFORD, NH	796	825		176	108	96%		FALSE	FALSE
01131500	CONNECTICUT RIVER NEAR DALTON, NH	1700	1400		389	115	121%		FALSE	FALSE
01137500	AMMONOOSUC RIVER AT BETHLEHEM JUNCTION, NH	123	91		28	21	135%		FALSE	FALSE
01138500	CONNECTICUT RIVER AT WELLS RIVER, VT	2250	2650		690	152*	85%		FALSE	
01144500	CONNECTICUT RIVER AT WEST LEBANON, NH	4570	3410	380*	902	82*	134%		FALSE	
01152500	SUGAR RIVER AT WEST CLAREMONT, NH	170	113	40	38	14	150%	FALSE	FALSE	FALSE
01154500	CONNECTICUT RIVER AT NORTH WALPOLE, NH	7150	4420	260*	1058	115*	162%		FALSE	
01158000	ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH	84.2	35	4.5	2.7	0.4	241%	FALSE	FALSE	FALSE
01160350	ASHUELOT RIVER AT WEST SWANZEY, NH	288	210	32	--	--	137%	FALSE		

*Flow duration and record low mean daily flow significantly affected by reservoir operations

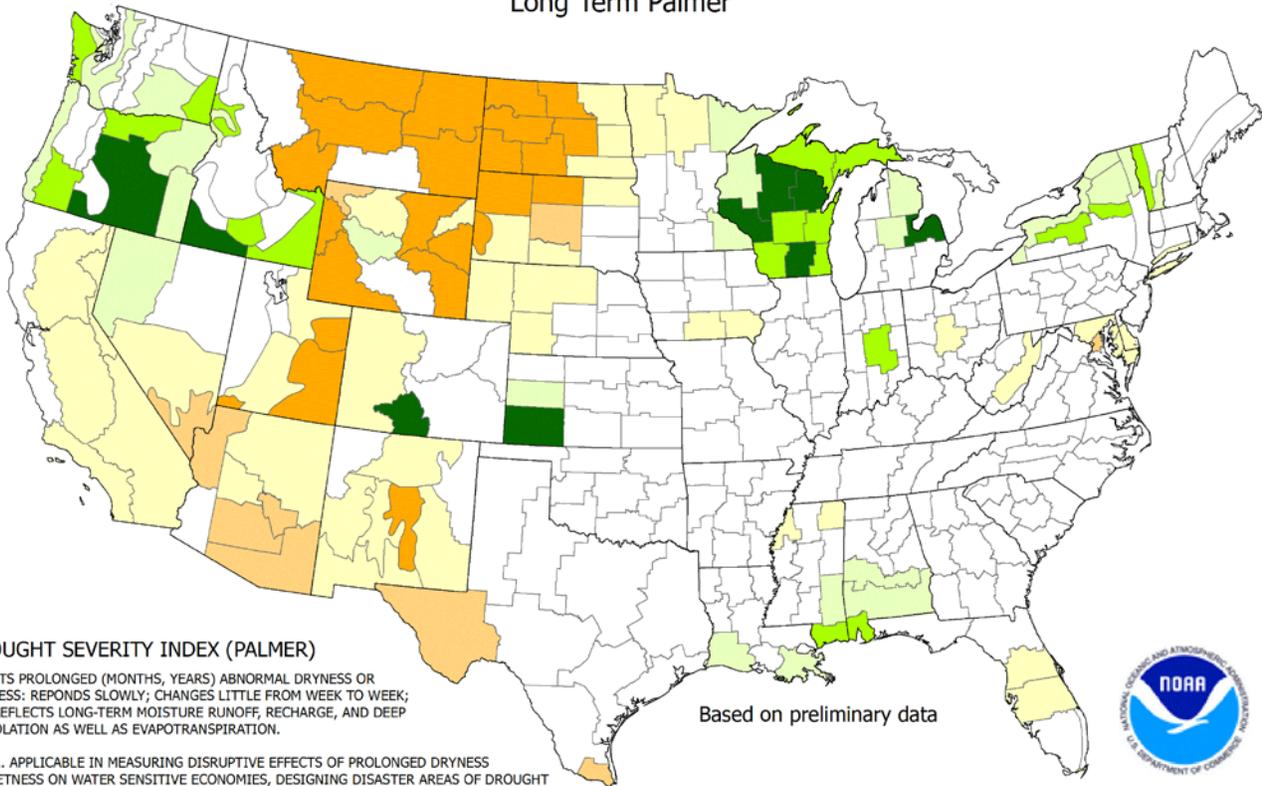
**Estimated

Average % of median for all basins

146%

SUMMARY			
	Below 0.99 Flow?	Below 7Q10 Flow?	Below Record Flow?
FALSE =	8	27	15
TRUE =	0	0	0

Drought Severity Index by Division
Weekly Value for Period Ending Jul 08, 2017
Long Term Palmer



Based on preliminary data

DROUGHT SEVERITY INDEX (PALMER)

DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS; REPONS SLOWLY; CHANGES LITTLE FROM WEEK TO WEEK; AND REFLECTS LONG-TERM MOISTURE RUNOFF, RECHARGE, AND DEEP PERCOLATION AS WELL AS EVAPOTRANSPIRATION.

USES... APPLICABLE IN MEASURING DISRUPTIVE EFFECTS OF PROLONGED DRYNESS OR WETNESS ON WATER SENSITIVE ECONOMIES, DESIGNING DISASTER AREAS OF DROUGHT OR WETNESS; AND REFLECTING THE GENERAL LONG-TERM STATUS OF WATER SUPPLIES IN AQUIFERS, RESERVOIRS AND STREAMS.

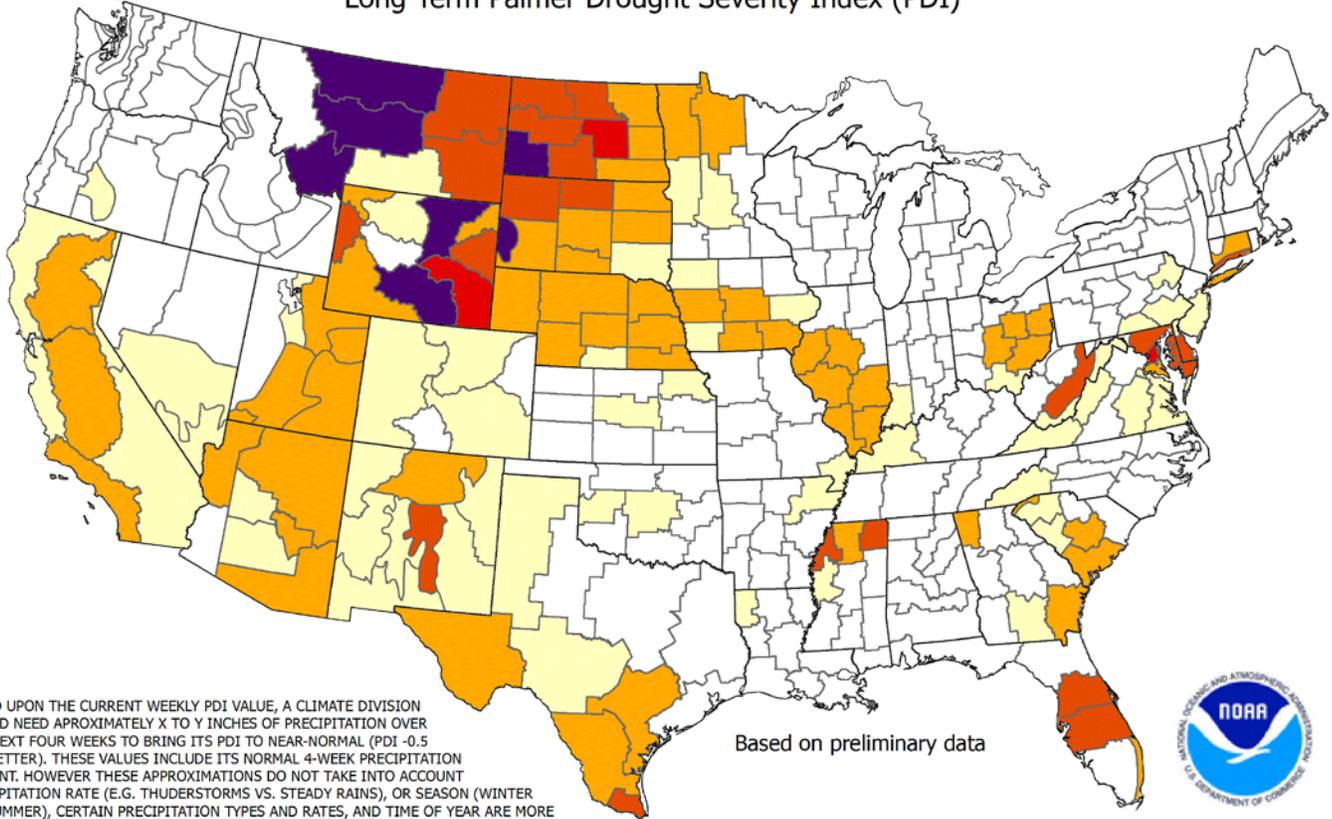
LIMITATIONS... IS NOT GENERALLY INDICATIVE OFFSHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).

- 4.0 or less (Extreme Drought)
- 3.0 to -3.9 (Severe Drought)
- 2.0 to -2.9 (Moderate Drought)
- 1.9 to +1.9 (Near Normal)
- +2.0 to +2.9 (Unusual Moist Spell)
- +3.0 to +3.9 (Very Moist Spell)
- +4.0 and above (Extremely Moist)

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.

Additional Precip. Needed (In.) to bring PDI to -0.5
 Weekly Value for Period Ending Jul 08, 2017
 Long Term Palmer Drought Severity Index (PDI)



BASED UPON THE CURRENT WEEKLY PDI VALUE, A CLIMATE DIVISION WOULD NEED APPROXIMATELY X TO Y INCHES OF PRECIPITATION OVER THE NEXT FOUR WEEKS TO BRING ITS PDI TO NEAR-NORMAL (PDI -0.5 OR WETTER). THESE VALUES INCLUDE ITS NORMAL 4-WEEK PRECIPITATION AMOUNT. HOWEVER THESE APPROXIMATIONS DO NOT TAKE INTO ACCOUNT PRECIPITATION RATE (E.G. THUNDERSTORMS VS. STEADY RAINS), OR SEASON (WINTER VS. SUMMER), CERTAIN PRECIPITATION TYPES AND RATES, AND TIME OF YEAR ARE MORE CONDUCTIVE FOR AMELIORATING DROUGHT WHILE OTHERS MAY PRODUCE LESS DROUGHT REDUCTION (E.G. RUNOFF OR FROZEN GROUND).

UNCOLORED CLIMATE DIVISIONS ARE CURRENTLY AT NEAR-NORMAL TO MOIST PDI CONDITIONS. (EXAMPLE - IF 4-WEEK NORMAL PRECIPITATION IS 3 INCHES AND PDI DEFICIT TO BRING TO -0.5 IS 4 INCHES, THE VALUE IS 7)

Based on preliminary data



- | | |
|-------------------|-----------------|
| Zero Inches | 9 to 12 Inches |
| Trace to 3 Inches | 12 to 15 Inches |
| 3 to 6 Inches | Over 15 Inches |
| 6 to 9 Inches | |

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