



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

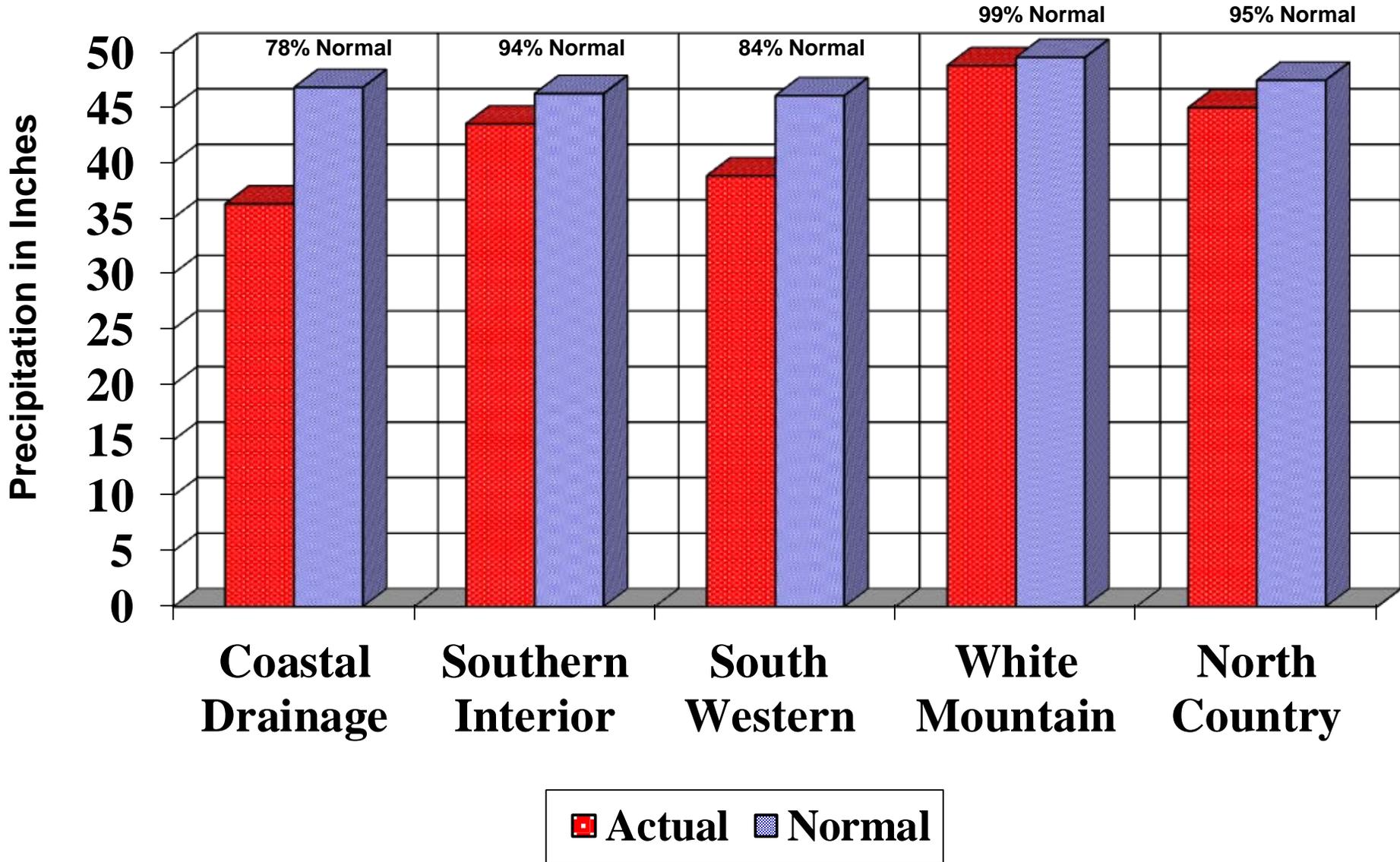
**AGGREGATED PRECIPITATION DATA for N.H.
 DROUGHT MANAGEMENT AREAS**

	Actual Rainfall (inches)	Normal Rainfall (inches)	Deviation from Normal (inches)	Percent of Normal
<u>Coastal Drainage:</u> Rockingham, Strafford counties				
four month	13.38	15.77	-2.39	85%
six month	19.37	22.76	-3.39	85%
nine month	30.03	35.27	-5.25	85%
twelve month	36.24	46.72	-6.42	78%
<u>Southern Interior:</u> Belknap, Hillsborough, Merrimack counties				
four month	12.24	14.86	-2.62	82%
six month	19.45	21.77	-2.33	89%
nine month	31.94	34.09	-2.15	94%
twelve month	43.45	46.17	-2.72	94%
<u>South Western:</u> Cheshire, Sullivan counties				
four month	11.83	14.45	-2.62	82%
six month	14.63	21.10	-2.02	69%
nine month	25.88	33.39	-3.06	78%
twelve month	38.77	45.99	-2.77	84%
<u>White Mountain:</u> Carroll, Grafton counties				
four month	12.83	15.19	-2.36	84%
six month	21.38	22.51	-1.13	95%
nine month	35.39	35.91	-0.52	99%
twelve month	48.70	49.44	-0.74	99%
<u>North Country:</u> Coos county				
four month	12.07	13.75	-1.68	88%
six month	18.80	20.42	-1.62	92%
nine month	31.51	33.18	-1.67	95%
twelve month	44.90	47.38	-2.48	95%

four month period : February 2018 - May 2018
 six month period : December 2017 - May 2018
 nine month period : September 2017 - May 2018
 twelve month period: June 2017 - May 2018

Source: Northeast River Forecast Center, NH Des Dam Bureau

TWELVE MONTH AGGREGATED PRECIPITATION DATA for N.H. DROUGHT MANAGEMENT AREAS from June 2017 through May 2018



MONTHLY PRECIPITATION DATA FOR N.H COUNTIES



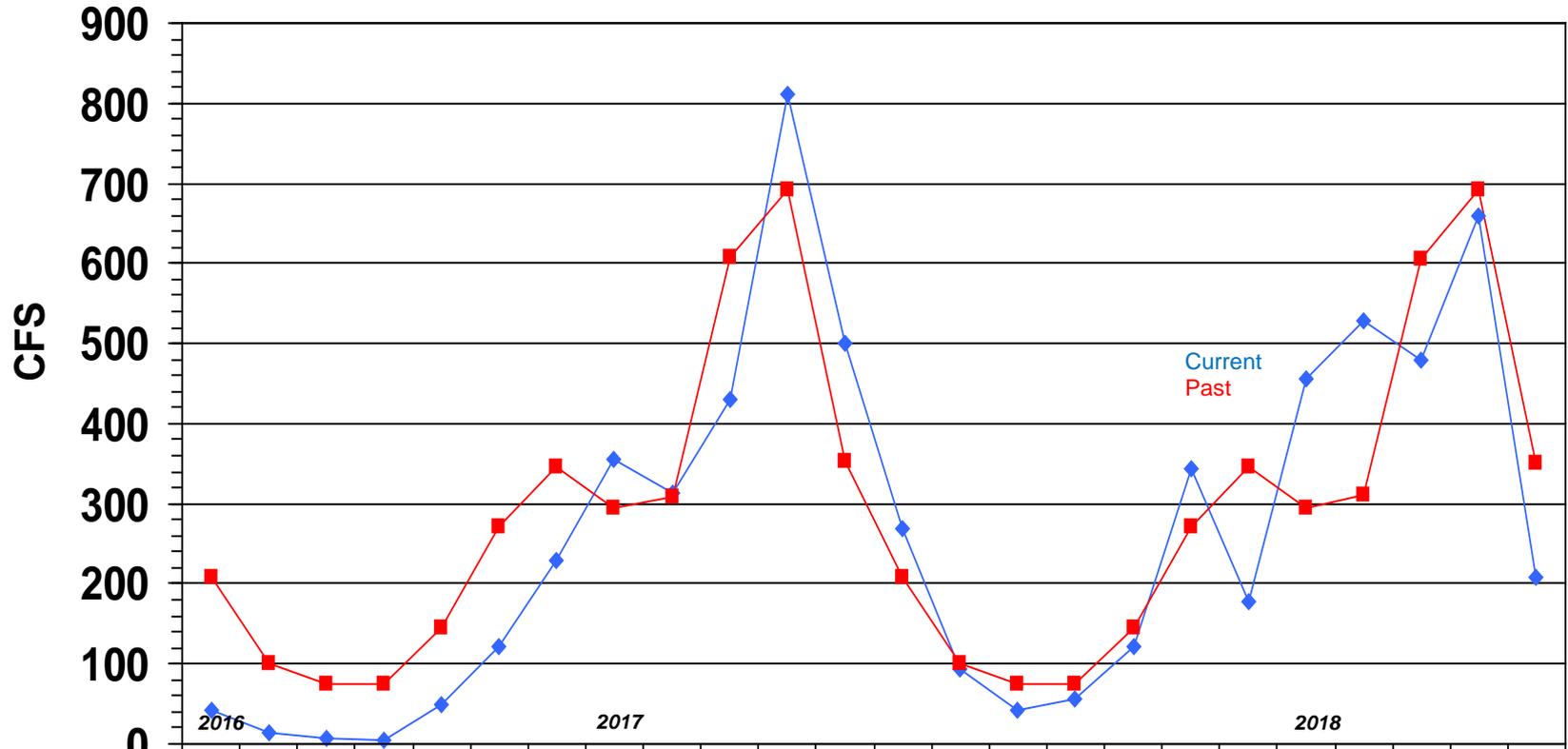
		2017							2018				
		JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY
<u>Coastal drainage</u>													
STRAFFORD	actual	3.93	1.72	3.21	2.84	6.03	1.73	3.13	3.34	3.76	3.02	5.25	1.29
	normal	4.16	3.99	3.72	3.74	4.38	4.50	3.76	3.21	3.29	4.16	4.22	4.09
	deviation	-0.23	-2.27	-0.51	-0.90	1.65	-2.77	-0.63	0.13	0.47	-1.14	1.03	-2.80
ROCKINGHAM	actual	5.12	2.42	1.00	3.43	5.73	1.56	2.56	2.94	3.72	3.23	4.99	1.50
	normal	4.10	3.77	3.16	3.77	4.35	4.29	3.73	3.27	3.30	4.19	4.19	4.10
	deviation	1.02	-1.35	1.00	-0.34	1.38	-2.73	-1.17	-0.33	0.42	-0.96	0.80	-2.60
Average	actual	4.53	2.07	-0.38	3.14	5.88	1.65	2.85	3.14	3.74	3.13	5.12	1.40
	normal	4.13	3.88	3.44	3.76	4.37	4.40	3.75	3.24	3.30	4.18	4.21	4.10
	deviation	0.40	-1.81	0.25	-0.62	1.52	-2.75	-0.90	-0.10	0.45	-1.05	0.92	-2.70
<u>Southern Interior</u>													
HILLSBOROUGH	actual	5.15	2.22	3.93	3.65	7.67	1.33	3.00	3.44	3.82	3.18	4.56	1.37
	normal	4.22	3.96	3.75	3.74	4.46	4.22	3.80	3.39	3.29	3.94	4.13	4.10
	deviation	0.93	-1.74	0.18	-0.09	3.21	-2.89	-0.80	0.05	0.53	-0.76	0.43	-2.73
MERRIMACK	actual	5.62	2.00	4.01	3.18	7.46	1.58	3.60	3.95	3.51	2.80	4.68	1.33
	normal	4.33	4.11	3.76	3.77	4.42	4.15	3.64	3.26	3.09	3.74	3.96	4.01
	deviation	1.29	-2.11	0.25	-0.59	3.04	-2.57	-0.04	0.69	0.42	-0.94	0.72	-2.68
BELKNAP	actual	5.24	2.50	3.86	3.11	7.63	1.87	3.67	3.97	3.29	2.45	4.55	1.17
	normal	4.25	4.08	3.79	3.66	4.49	4.03	3.58	3.08	3.03	3.58	3.75	3.95
	deviation	0.99	-1.58	0.07	-0.55	3.14	-2.16	0.09	0.89	0.26	-1.13	0.80	-2.78
Average	actual	5.34	2.24	3.93	3.31	7.59	1.59	3.42	3.79	3.54	2.81	4.60	1.29
	normal	4.27	4.05	3.77	3.72	4.46	4.13	3.67	3.24	3.14	3.75	3.95	4.02
	deviation	1.07	-1.81	0.17	-0.41	3.13	-2.54	-0.25	0.54	0.40	-0.94	0.65	-2.73
<u>South Western</u>													
CHESHIRE	actual	6.37	3.37	4.29	3.02	7.69	1.44	3.17	4.37	3.98	3.02	3.84	1.39
	normal	4.20	4.36	4.06	3.83	4.60	3.98	3.68	3.41	3.18	3.72	3.79	4.10
	deviation	2.17	-0.99	0.23	-0.81	3.09	-2.54	-0.51	0.96	0.80	-0.70	0.05	-2.71
SULLIVAN	actual	5.22	3.35	3.18	2.73	6.07	1.55	3.52	3.79	3.12	2.73	4.32	1.26
	normal	4.17	4.36	4.06	3.80	4.51	3.86	3.49	2.72	3.00	3.51	3.67	3.92
	deviation	1.05	-1.01	-0.88	-1.07	1.56	-2.31	0.03	0.72	0.12	-0.78	0.65	-2.66
Average	actual	5.80	3.36	3.74	2.88	6.88	1.50	3.35	-0.55	3.55	2.88	4.08	1.33
	normal	4.19	4.36	4.06	3.82	4.56	3.92	3.59	3.07	3.09	3.62	3.73	4.01
	deviation	1.61	-1.00	-0.33	-0.94	2.33	-2.43	-0.24	0.84	0.46	-0.74	0.35	-2.69
<u>White Mountain</u>													
GRAFTON	actual	5.45	5.61	3.42	2.69	7.67	2.56	3.91	3.98	2.91	2.72	5.21	1.58
	normal	4.58	4.56	4.61	4.09	4.68	4.35	3.71	3.19	2.84	3.46	3.76	4.20
	deviation	0.87	1.05	-1.19	-1.40	2.99	-1.79	0.20	0.79	0.07	-0.74	1.45	-2.62
CARROLL	actual	4.78	4.05	3.31	3.35	9.00	2.74	4.44	4.77	3.41	3.02	5.39	1.42
	normal	4.49	4.40	4.42	3.99	4.96	4.72	4.17	3.57	3.32	4.02	4.46	4.32
	deviation	0.29	-0.35	-1.11	-0.64	4.04	-1.98	0.27	1.20	0.09	-1.00	0.93	-2.90
Average	actual	5.12	4.83	3.37	3.02	8.34	2.65	4.18	4.38	3.16	2.87	5.30	1.50
	normal	4.54	4.48	4.52	4.04	4.82	4.54	3.94	3.38	3.08	3.74	4.11	4.26
	deviation	0.58	0.35	-1.15	-1.02	3.52	-1.89	0.24	1.00	0.08	-0.87	1.19	-2.76
<u>North Country</u>													
COOS	actual	5.48	3.91	4.00	2.30	7.78	2.63	3.08	3.65	2.63	2.68	4.67	2.09
	normal	4.79	4.57	4.84	4.00	4.52	4.24	3.58	3.09	2.72	3.21	3.61	4.21
	deviation	0.69	-0.66	-0.84	-1.70	3.26	-1.61	-0.50	0.56	-0.09	-0.53	1.06	-2.12

LAMPREY RIVER near NEWMARKET NH

Gage# 01073500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



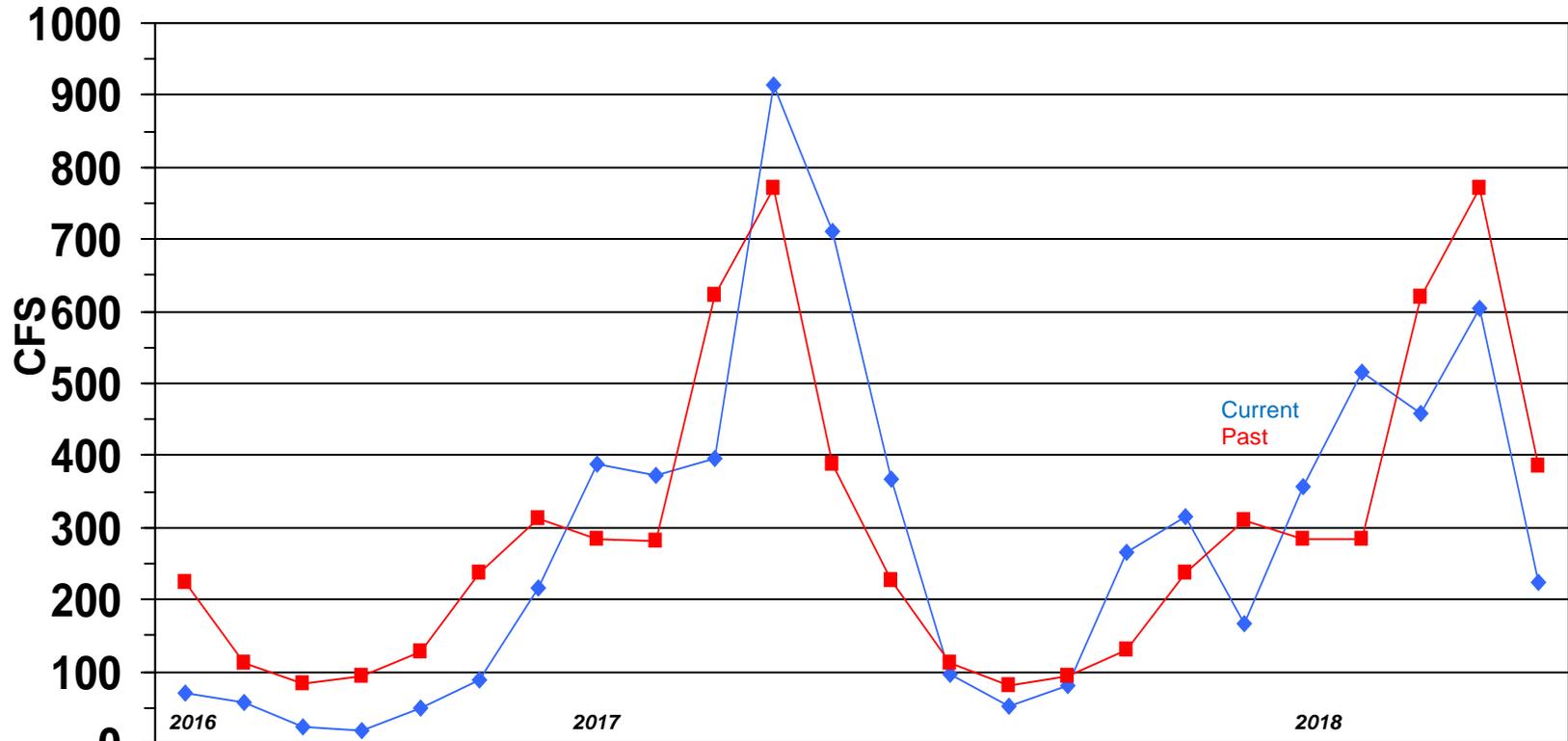
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
◆ Monthly Mean Flow	43	14	7	5	50	121	230	355	314	429	811	500	269	93	41	57	120.4	344	178	456	528	480	659	207
■ Mean of Monthly Flows	207	100	75	74	145	271	347	294	309	607	692	352	207	100	75	74	145	272	345	295	312	606	692	350
% of Normal	21%	14%	9%	7%	34%	44%	66%	121%	102%	71%	117%	142%	130%	93%	55%	78%	83%	126%	52%	155%	169%	79%	95%	59%

SOUHEGAN RIVER at MERRIMACK NH

Gage# 01094000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

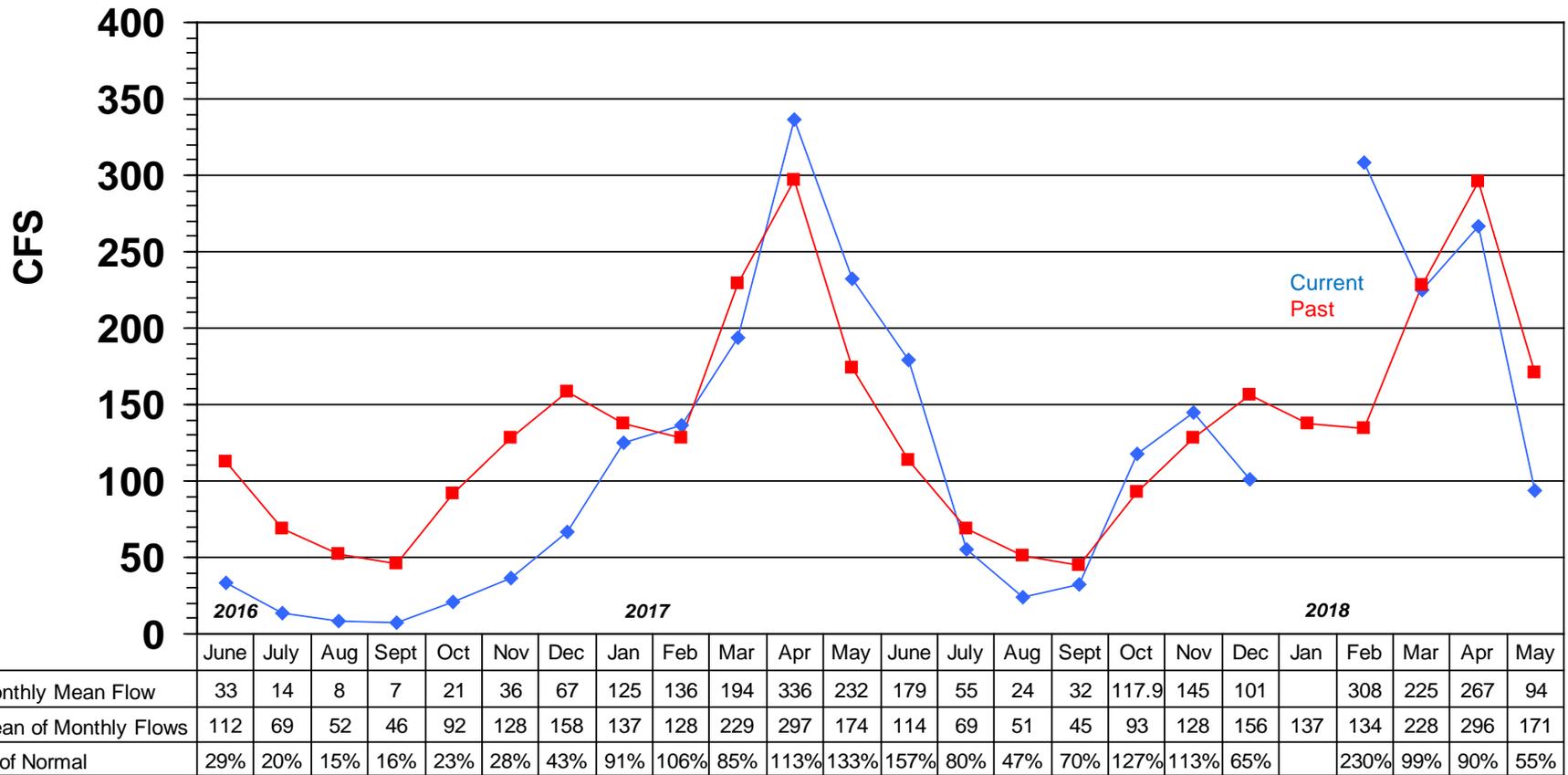


	2016	2017	2018																					
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
◆ Monthly Mean Flow	71	58	23	17	50	89	217	388	373	395	914	710	367	96	51	80	266.3	315	167	357	516	459	603	224
■ Mean of Monthly Flows	225	111	83	93	127	237	312	284	282	623	772	388	227	111	82	93	129	238	310	285	285	621	770	386
% of Normal	52%	52%	28%	18%	39%	37%	70%	137%	132%	63%	118%	183%	162%	87%	62%	86%	206%	132%	54%	125%	181%	74%	78%	58%

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



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

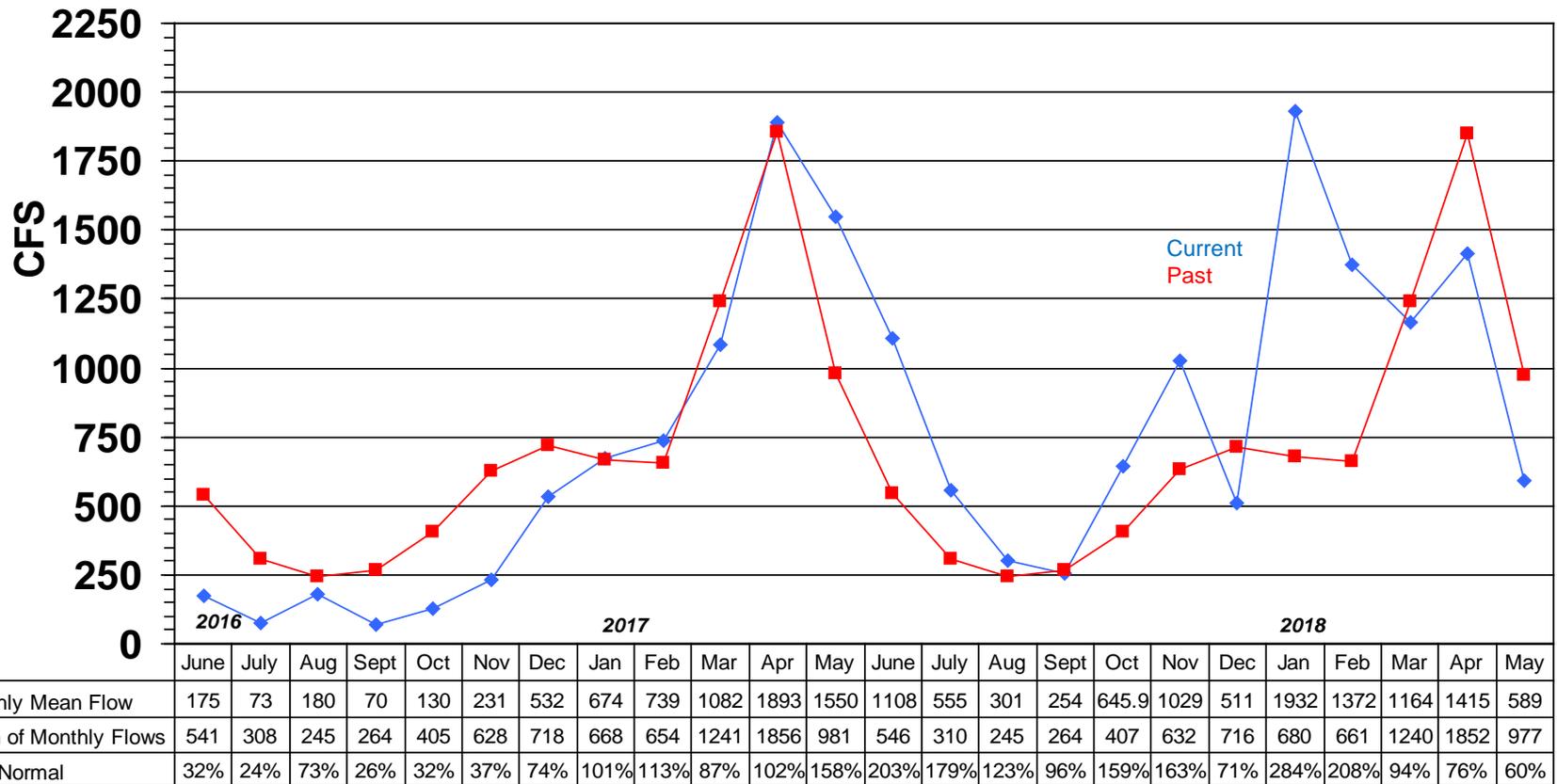


ASHUELOT RIVER at HINSDALE NH

Gage# 01161000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

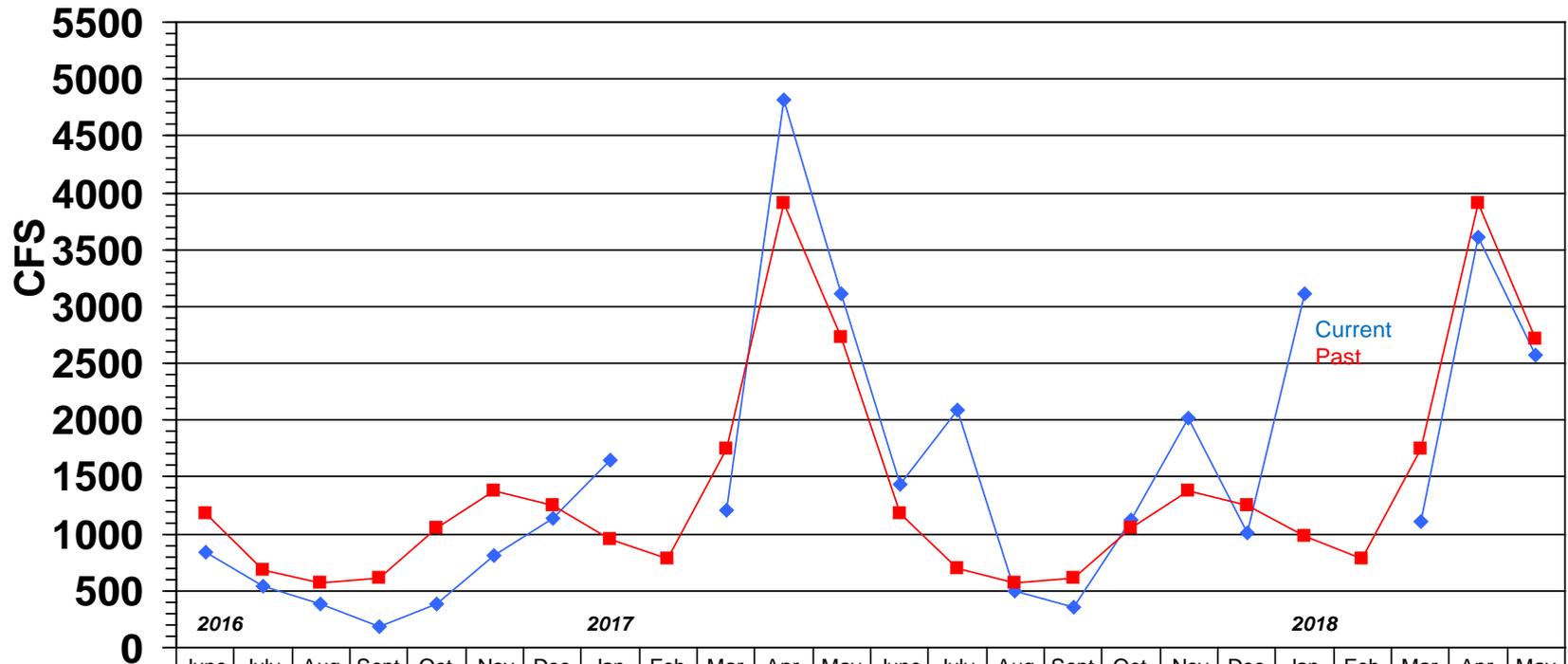


PEMIGEWASSET RIVER at PLYMOUTH NH

Gage# 01076500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



	2016	2017												2018										
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
◆ Monthly Mean Flow	845	538	384	186	390	814	1139	1651	ice	1213	4813	3106	1433	2083	502	351	1126	2012	1014	3117		1113	3608	2573
■ Mean of Monthly Flows	1175	681	565	609	1056	1376	1246	955	778	1755	3911	2722	1177	693	565	606	1056	1382	1244	974	778	1750	3908	2721
% of Normal	72%	79%	68%	30%	37%	59%	91%	173%		69%	123%	114%	122%	301%	89%	58%	107%	146%	81%	320%		64%	92%	95%

Start of record 1903

Jan – 16 days ice
Feb – all ice

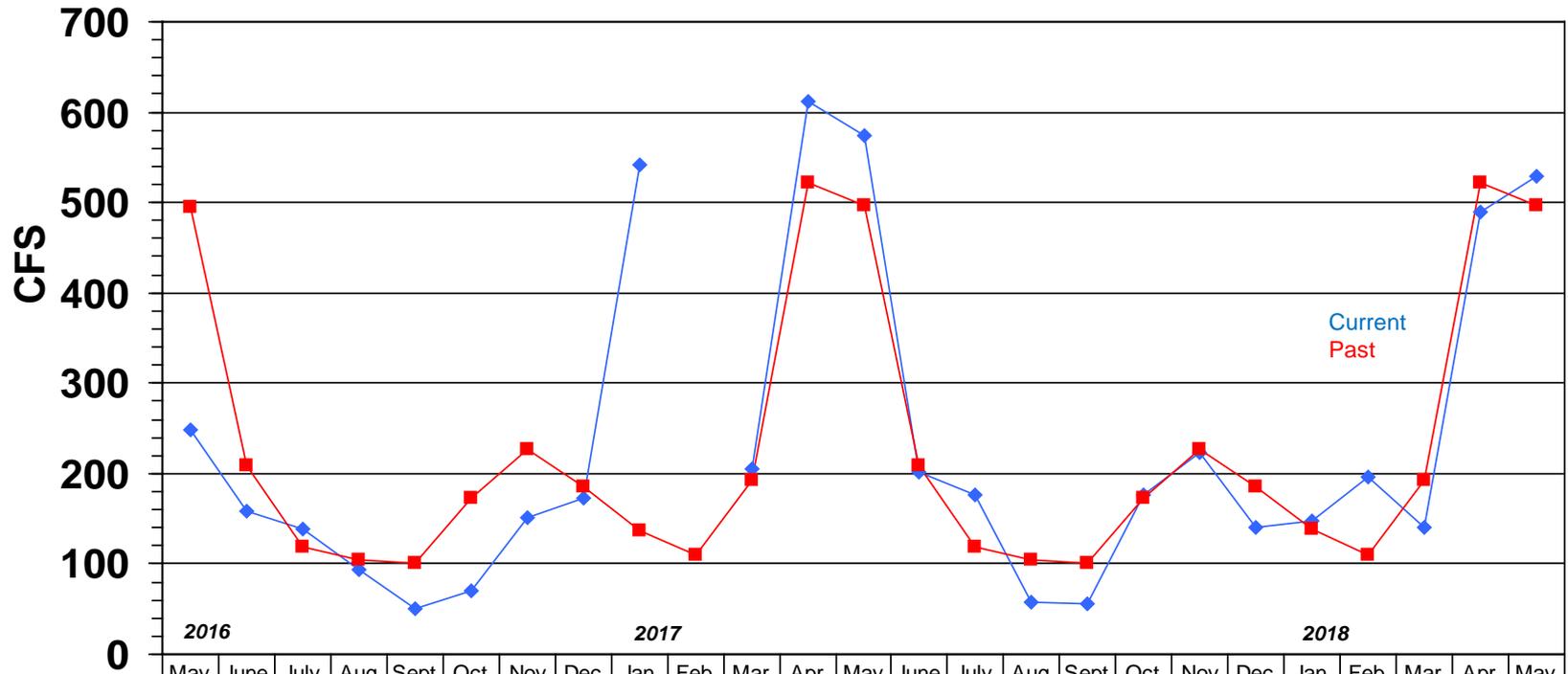
AMMONOOSUC RIVER at BETHLEHEM JUNCTION NH

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

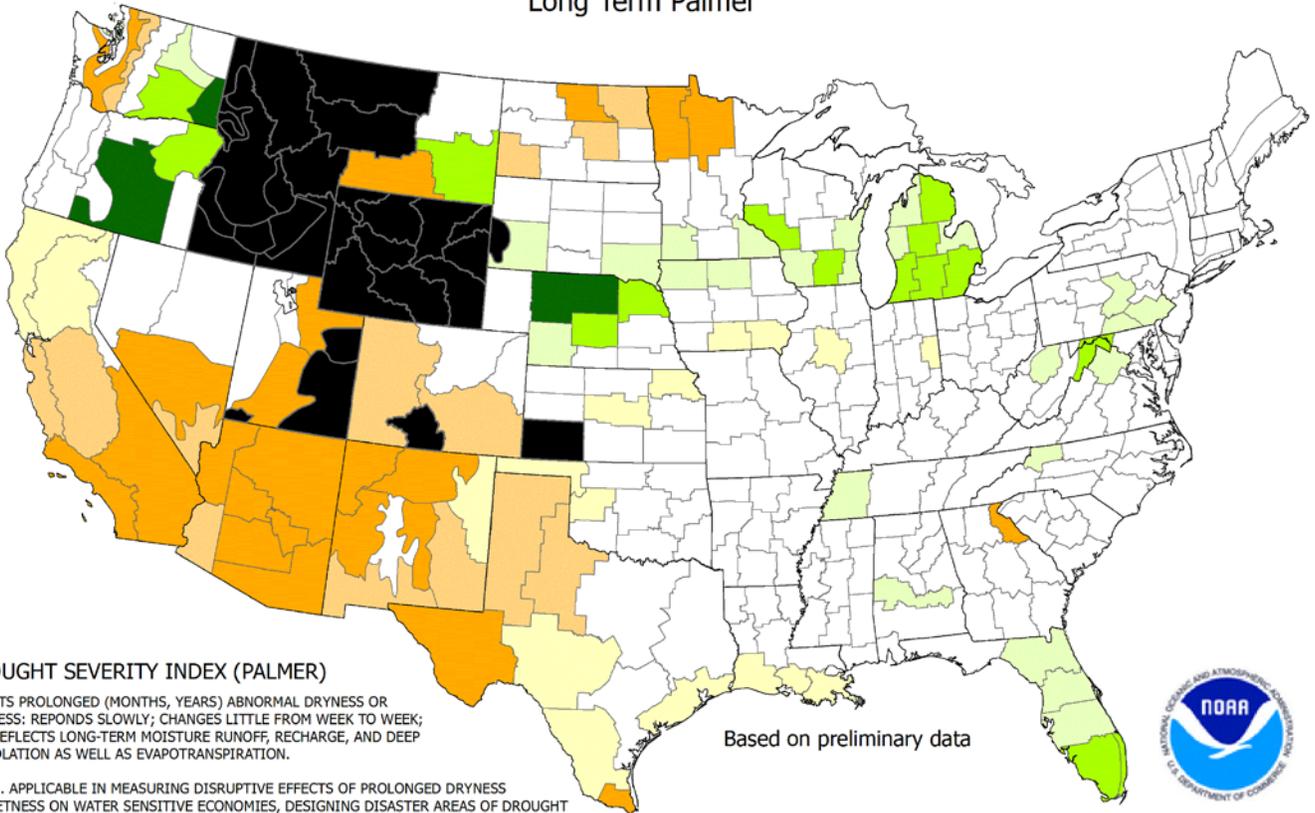


	2016					2017					2018														
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
—◆— Monthly Mean Flow	249	158	138	94	50	71	152	172	541	ice	205	611	574	201	177	58	55	177	223	140	148	196	141	490	529
—■— Mean of Monthly Flows	494	209	118	105	101	173	226	185	137	109	193	521	496	209	119	105	101	173	226	185	138	110	192	521	496
% of Normal	50%	76%	117%	89%	50%	41%	67%	93%	395%		106%	117%	116%	96%	149%	55%	55%	102%	99%	76%	107%	178%	73%	94%	107%

Start of record 1939

Dec – 19 days ice

Drought Severity Index by Division
 Weekly Value for Period Ending Jun 02, 2018
 Long Term Palmer



DROUGHT SEVERITY INDEX (PALMER)

DEPICTS PROLONGED (MONTHS, YEARS) ABNORMAL DRYNESS OR WETNESS; RESPONDS 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).

Based on preliminary data

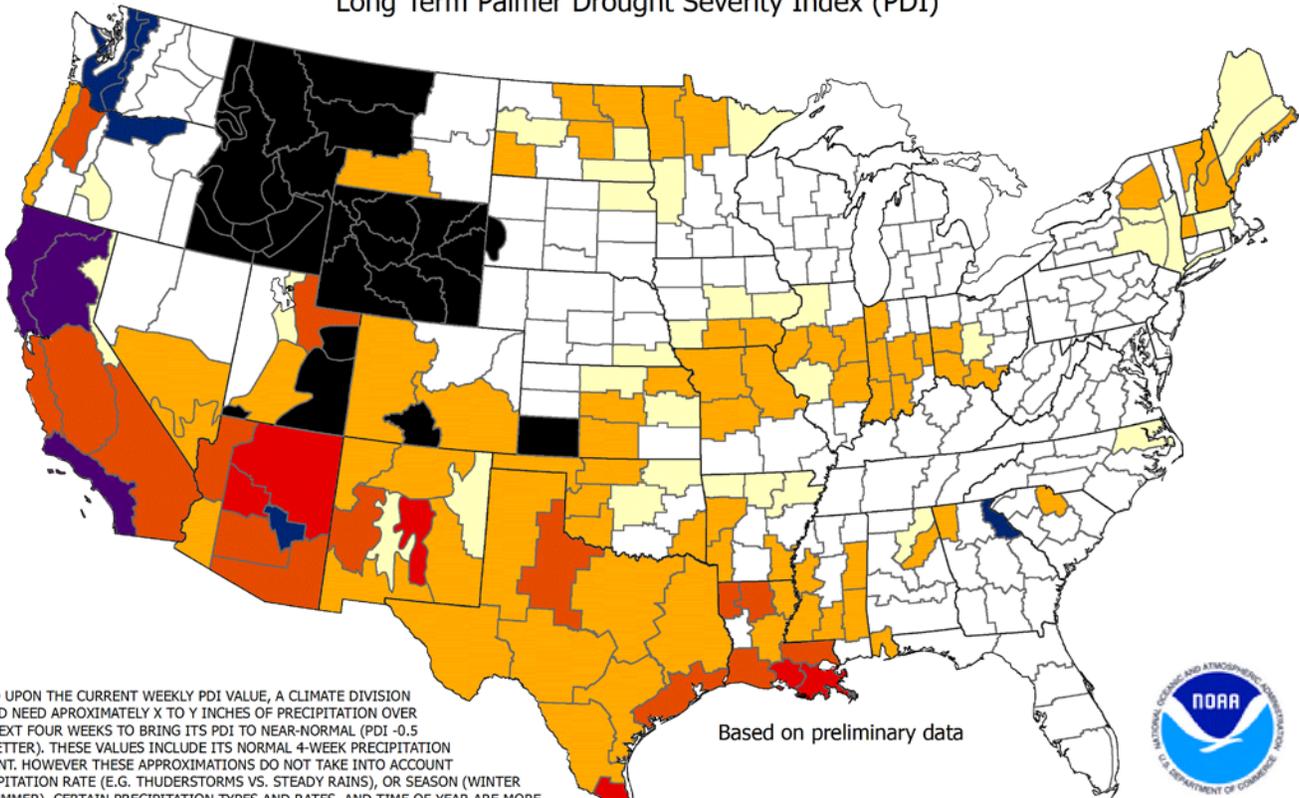


- 4.0 or less (Extreme Drought)
- 3.0 to -3.9 (Severe Drought)
- 2.0 to -2.9 (Moderate Drought)
- 1.9 to +1.9 (Near Normal)
- +2.0 to +2.9 (Unusual Moist Spell)
- +3.0 to +3.9 (Very Moist Spell)
- +4.0 and above (Extremely Moist)
- Missing/Incomplete

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 Jun 02, 2018
 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
- Trace to 3 Inches
- 3 to 6 Inches
- 6 to 9 Inches
- 9 to 12 Inches
- 12 to 15 Inches
- Over 15 Inches
- Missing/Incomplete

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