



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

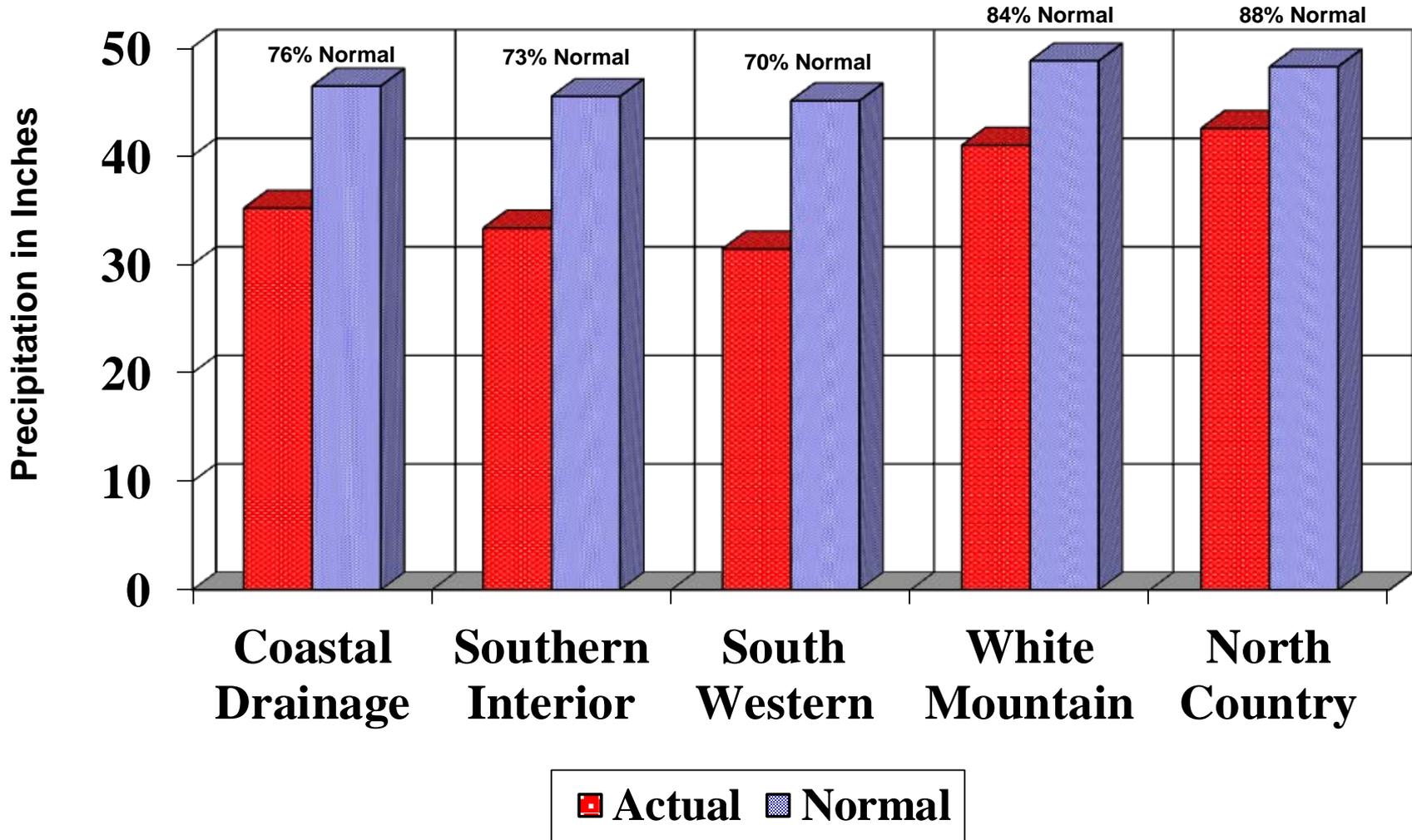
**AGGREGATED PRECIPITATION DATA for N.H.
 DROUGHT MANAGEMENT AREAS**

	Actual Rainfall (inches)	Normal Rainfall (inches)	Deviation from Normal (inches)	Percent of Normal
<u>Coastal Drainage:</u> Rockingham, Strafford counties				
four month	10.63	15.90	-5.27	67%
six month	16.73	22.88	-6.15	73%
nine month	25.98	35.41	-9.43	73%
twelve month	35.18	46.42	-11.25	76%
<u>Southern Interior:</u> Belknap, Hillsborough, Merrimack counties				
four month	10.31	14.97	-4.66	69%
six month	15.81	21.88	-6.07	72%
nine month	24.01	34.05	-10.04	71%
twelve month	33.34	45.46	-12.12	73%
<u>South Western:</u> Cheshire, Sullivan counties				
four month	10.09	14.55	-4.46	69%
six month	13.31	21.20	-6.32	63%
nine month	21.61	33.27	-10.09	65%
twelve month	31.42	45.06	-12.07	70%
<u>White Mountain:</u> Carroll, Grafton counties				
four month	12.33	15.29	-2.96	81%
six month	18.89	22.60	-3.72	84%
nine month	29.27	35.93	-6.66	81%
twelve month	40.96	48.74	-7.78	84%
<u>North Country:</u> Coos county				
four month	12.05	13.86	-1.81	87%
six month	18.00	21.34	-3.34	84%
nine month	28.50	34.36	-5.86	83%
twelve month	42.53	48.20	-5.67	88%

four month period : February 2016 - May 2016
 six month period : December 2015 - May 2016
 nine month period : September 2015 - May 2016
 twelve month period: June 2015 - May 2016

Source: Northeast River Forecast Center, NH Des Dam Bureau

TWELVE MONTH AGGREGATED PRECIPITATION DATA for N.H. DROUGHT MANAGEMENT AREAS from June 2015 through May 2016



MONTHLY PRECIPITATION DATA FOR N.H COUNTIES



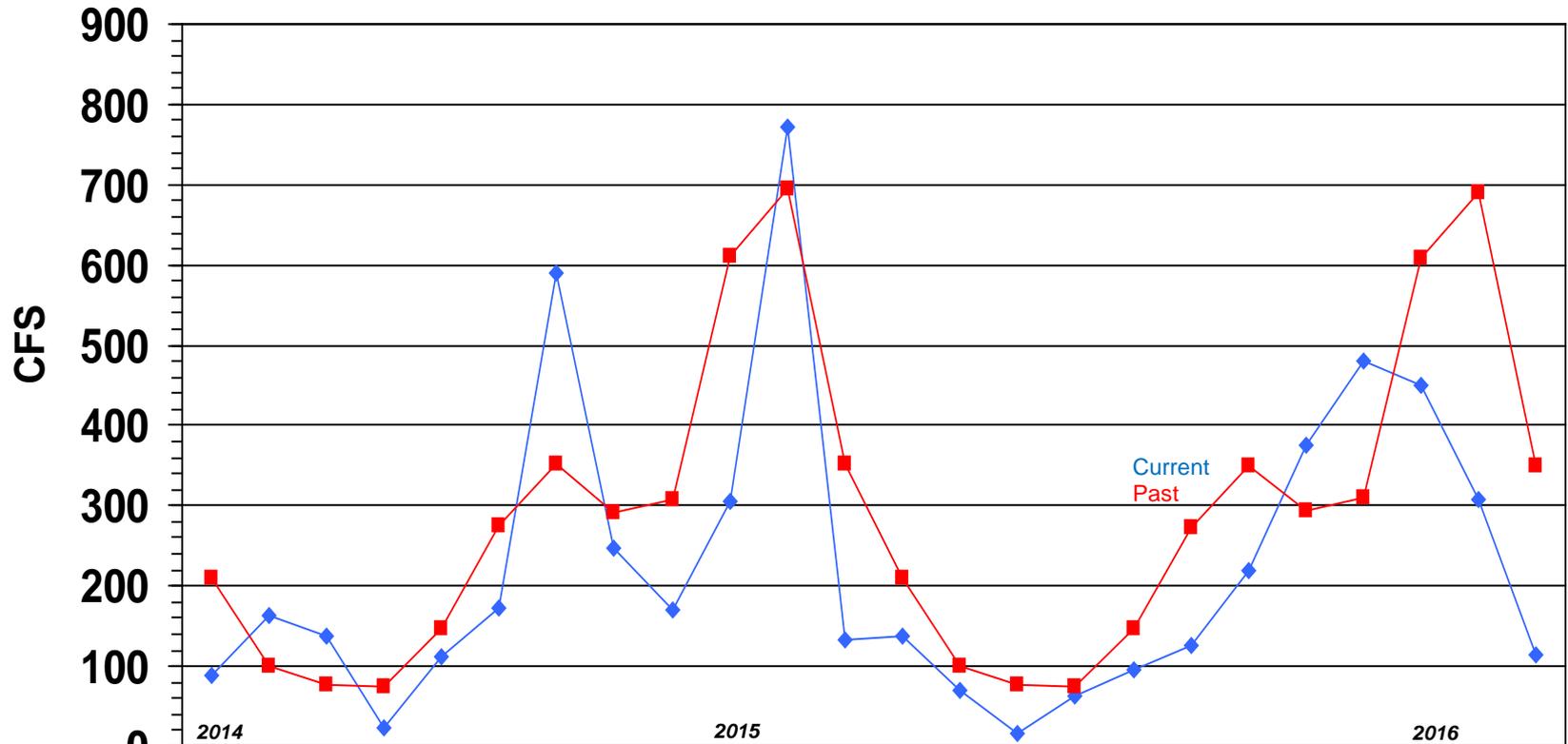
		2015						2016					
		JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY
<u>Coastal drainage</u>													
STRAFFORD	actual	4.79	1.97	2.69	5.23	2.47	2.18	4.42	1.68	4.51	2.72	2.09	1.65
	normal	3.77	3.75	3.69	3.76	4.38	4.50	3.76	3.21	3.41	4.16	4.22	4.10
	deviation	1.02	-1.78	-1.00	1.47	-1.91	-2.32	0.66	-1.53	1.10	-1.44	-2.13	-2.45
ROCKINGHAM	actual	5.09	1.77	2.09	4.30	2.16	2.15	4.39	1.71	3.98	2.45	2.10	1.76
	normal	3.68	3.59	3.55	3.76	4.35	4.30	3.73	3.27	3.41	4.19	4.20	4.10
	deviation	1.41	-1.82	-1.46	0.54	-2.19	-2.15	0.66	-1.56	0.57	-1.74	-2.10	-2.34
Average	actual	4.94	1.87	2.39	4.77	2.32	2.17	4.41	1.70	4.25	2.59	2.10	1.71
	normal	3.73	3.67	3.62	3.76	4.37	4.40	3.75	3.24	3.41	4.18	4.21	4.10
	deviation	1.22	-1.80	-1.23	1.01	-2.05	-2.24	0.66	-1.55	0.84	-1.59	-2.12	-2.40
<u>Southern Interior</u>													
HILLSBOROUGH	actual	4.93	2.33	1.97	4.35	2.11	1.75	4.10	1.39	3.75	2.39	1.91	1.98
	normal	3.74	3.75	3.78	3.67	4.46	4.22	3.80	3.38	3.40	3.95	4.14	4.10
	deviation	1.19	-1.42	-1.81	0.68	-2.35	-2.47	0.30	-1.99	0.35	-1.56	-2.23	-2.12
MERRIMACK	actual	4.57	2.31	2.52	4.02	2.12	1.80	4.14	1.27	4.05	2.31	1.78	2.50
	normal	3.66	3.81	3.78	3.52	4.43	4.15	3.65	3.26	3.20	3.73	3.95	4.01
	deviation	0.91	-1.50	-1.26	0.50	-2.31	-2.35	0.49	-1.99	0.85	-1.42	-2.17	-1.51
BELKNAP	actual	4.50	2.29	2.57	4.60	2.11	1.74	4.20	1.41	3.87	2.25	1.81	2.32
	normal	3.79	4.08	3.84	3.55	4.48	4.03	3.58	3.07	3.14	3.58	3.75	3.95
	deviation	0.71	-1.79	-1.27	1.05	-2.37	-2.29	0.62	-1.66	0.73	-1.33	-1.94	-1.63
Average	actual	4.67	2.31	2.35	4.32	2.11	1.76	4.15	1.36	3.89	2.32	1.83	2.27
	normal	3.73	3.88	3.80	3.58	4.46	4.13	3.68	3.24	3.25	3.75	3.95	4.02
	deviation	0.94	-1.57	-1.45	0.74	-2.34	-2.37	0.47	-1.88	0.64	-1.44	-2.11	-1.75
<u>South Western</u>													
CHESHIRE	actual	5.17	2.52	2.21	4.65	2.10	1.42	3.86	1.23	3.62	2.21	1.83	2.38
	normal	3.81	4.03	4.05	3.57	4.61	3.97	3.68	3.42	3.28	3.73	3.78	4.10
	deviation	1.36	-1.51	-1.84	1.08	-2.51	-2.55	0.18	-2.19	0.34	-1.52	-1.95	-1.72
SULLIVAN	actual	5.18	1.93	2.60	5.01	2.08	1.34	3.68	1.17	3.93	2.07	1.64	2.50
	normal	3.75	4.00	3.93	3.63	4.51	3.85	3.49	2.72	3.11	3.51	3.67	3.91
	deviation	1.43	-2.07	-1.33	1.38	-2.43	-2.51	0.19	-1.90	0.82	-1.44	-2.03	-1.41
Average	actual	5.18	2.23	2.41	4.83	2.09	1.38	3.77	-0.55	3.78	2.14	1.74	2.44
	normal	3.78	4.02	3.99	3.60	4.56	3.91	3.59	3.07	3.20	3.62	3.73	4.01
	deviation	1.40	-1.79	-1.59	1.23	-2.47	-2.53	0.19	-2.05	0.58	-1.48	-1.99	-1.57
<u>White Mountain</u>													
GRAFTON	actual	5.98	2.87	2.84	5.83	2.30	1.68	4.75	1.50	4.34	2.45	2.34	3.13
	normal	4.26	4.34	4.42	4.05	4.68	4.36	3.70	3.19	2.94	3.45	3.76	4.20
	deviation	1.72	-1.47	-1.58	1.78	-2.38	-2.68	1.05	-1.69	1.40	-1.00	-1.42	-1.07
CARROLL	actual	5.87	2.82	3.01	6.47	2.42	2.06	5.08	1.78	4.65	3.00	2.40	2.35
	normal	4.14	4.25	4.21	3.88	4.96	4.72	4.16	3.57	3.43	4.02	4.46	4.32
	deviation	1.73	-1.43	-1.20	2.59	-2.54	-2.66	0.92	-1.79	1.22	-1.02	-2.06	-1.97
Average	actual	5.93	2.85	2.93	6.15	2.36	1.87	4.92	1.64	4.50	2.73	2.37	2.74
	normal	4.20	4.30	4.32	3.97	4.82	4.54	3.93	3.38	3.19	3.74	4.11	4.26
	deviation	1.73	-1.45	-1.39	2.19	-2.46	-2.67	0.99	-1.74	1.31	-1.01	-1.74	-1.52
<u>North Country</u>													
COOS	actual	7.35	3.27	3.41	6.54	2.16	1.80	4.39	1.56	3.98	2.38	2.77	2.92
	normal	4.61	4.53	4.70	4.25	4.53	4.24	4.38	3.10	2.82	3.21	3.62	4.21
	deviation	2.74	-1.26	-1.29	2.29	-2.37	-2.44	0.01	-1.54	1.16	-0.83	-0.85	-1.29

LAMPREY RIVER near NEWMARKET NH

Gage# 01073500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



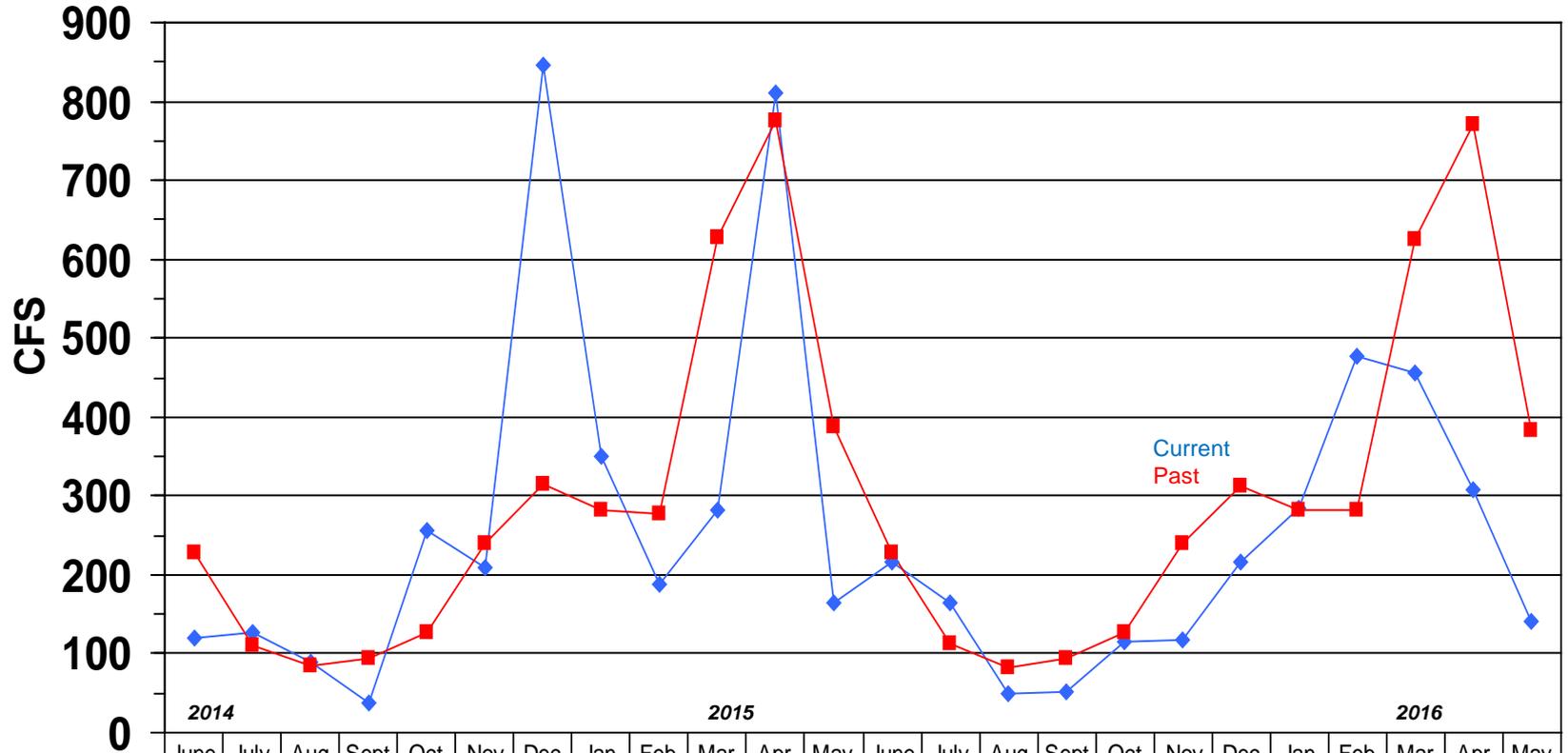
	2014			2015												2016								
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
◆ Monthly Mean Flow	88	163	138	24	111	173	590	248	170	305	771	132	137	70	17	63	95	127	219	376	481	450	308	115
■ Mean of Monthly Flows	210	101	77	75	147	275	351	292	307	611	695	353	209	101	76	75	146	273	349	293	309	609	691	350
% of Normal	42%	161%	179%	31%	75%	63%	168%	85%	55%	50%	111%	37%	66%	70%	23%	84%	65%	46%	63%	128%	156%	74%	45%	33%

SOUHEGAN RIVER at MERRIMACK NH

Gage# 01094000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

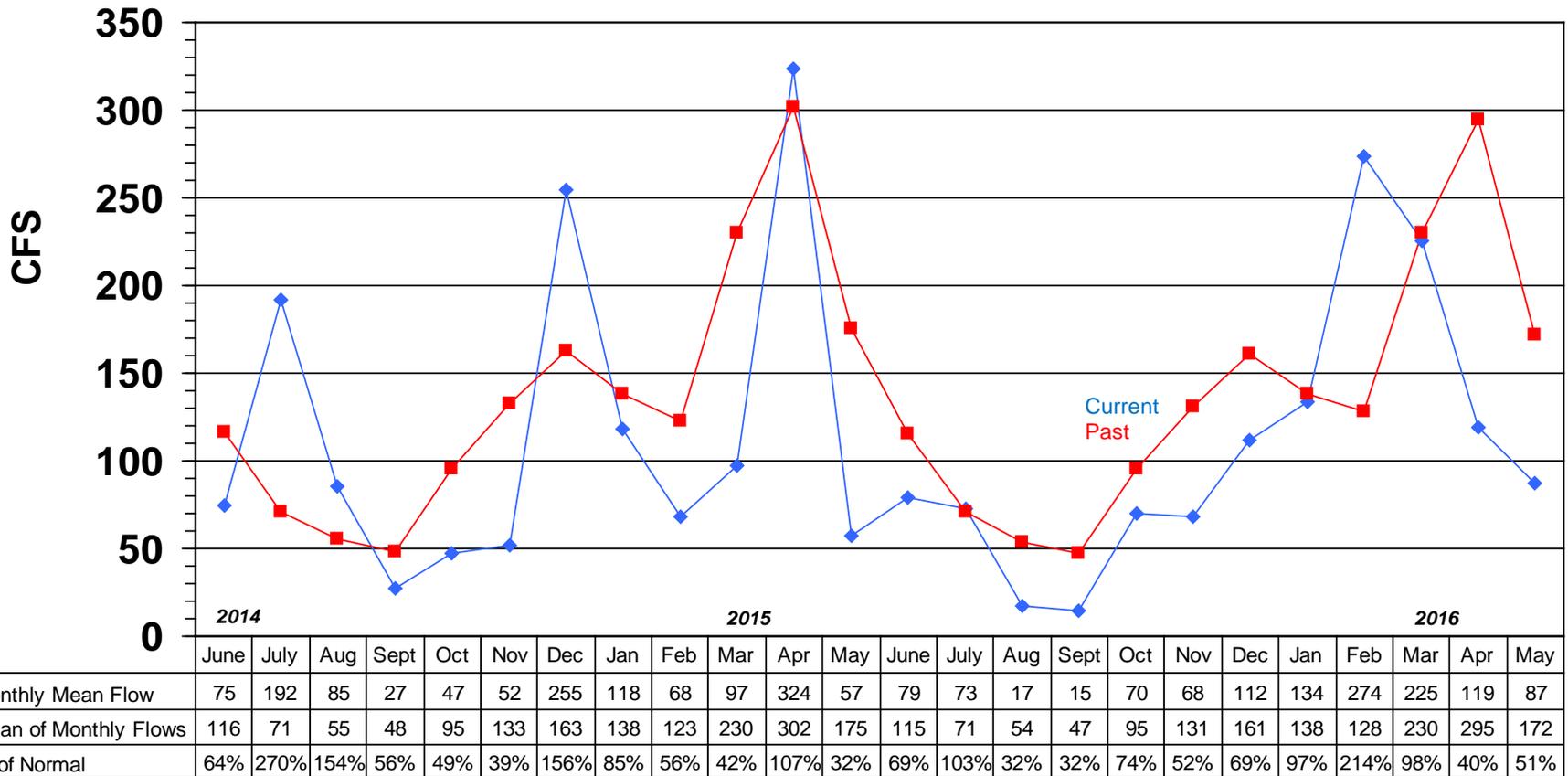


	2014			2015								2016												
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
◆ Monthly Mean Flow	121	127	89	38	255	210	847	350	189	283	811	164	216	165	50	52	116	118	216	285	476	457	309	141
■ Mean of Monthly Flows	227	111	84	94	128	240	315	283	278	628	776	387	227	112	83	94	128	239	313	283	281	626	770	384
% of Normal	53%	114%	105%	41%	199%	87%	269%	124%	68%	45%	104%	42%	95%	147%	61%	55%	91%	49%	69%	101%	169%	73%	40%	37%

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



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

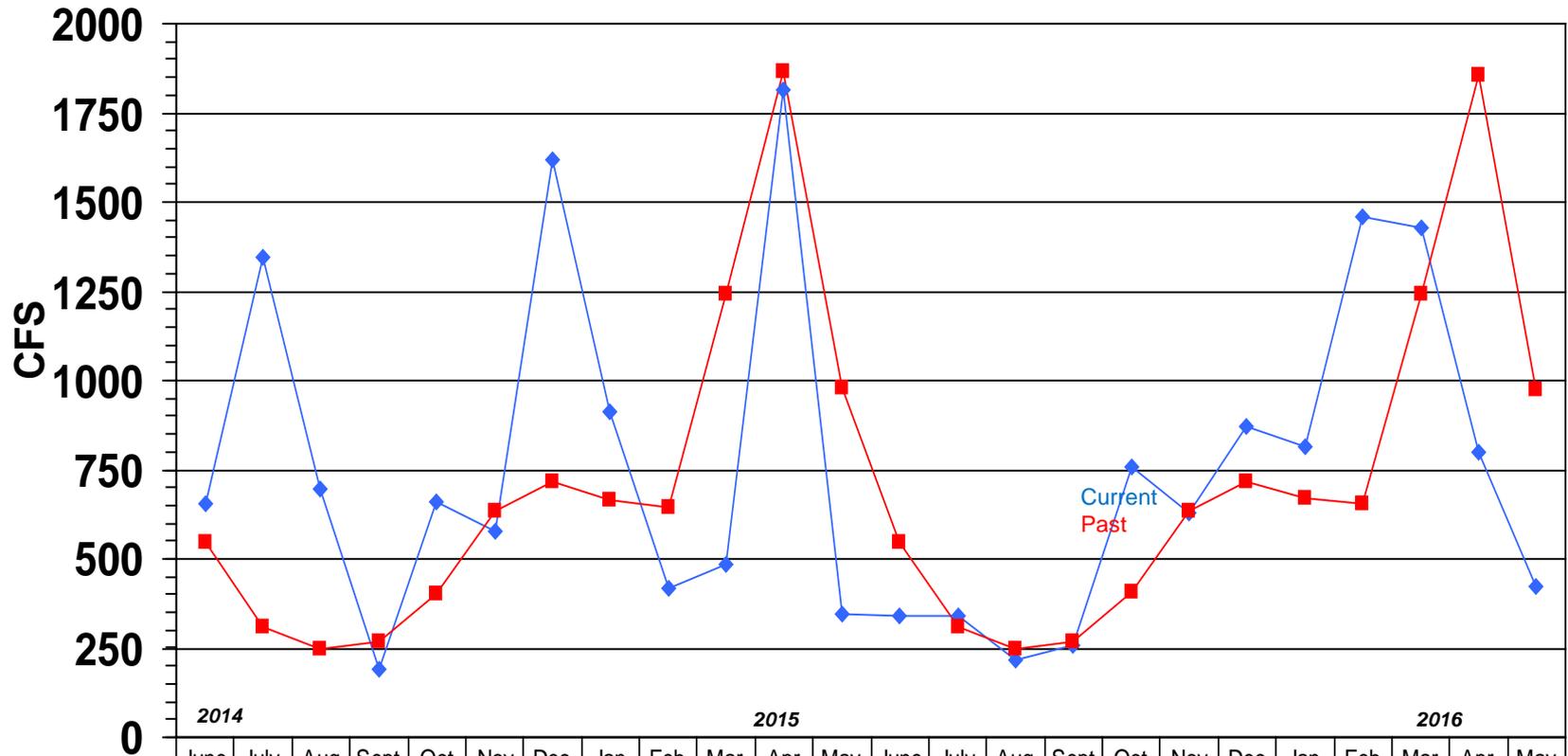


ASHUELOT RIVER at HINSDALE NH

Gage# 01161000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



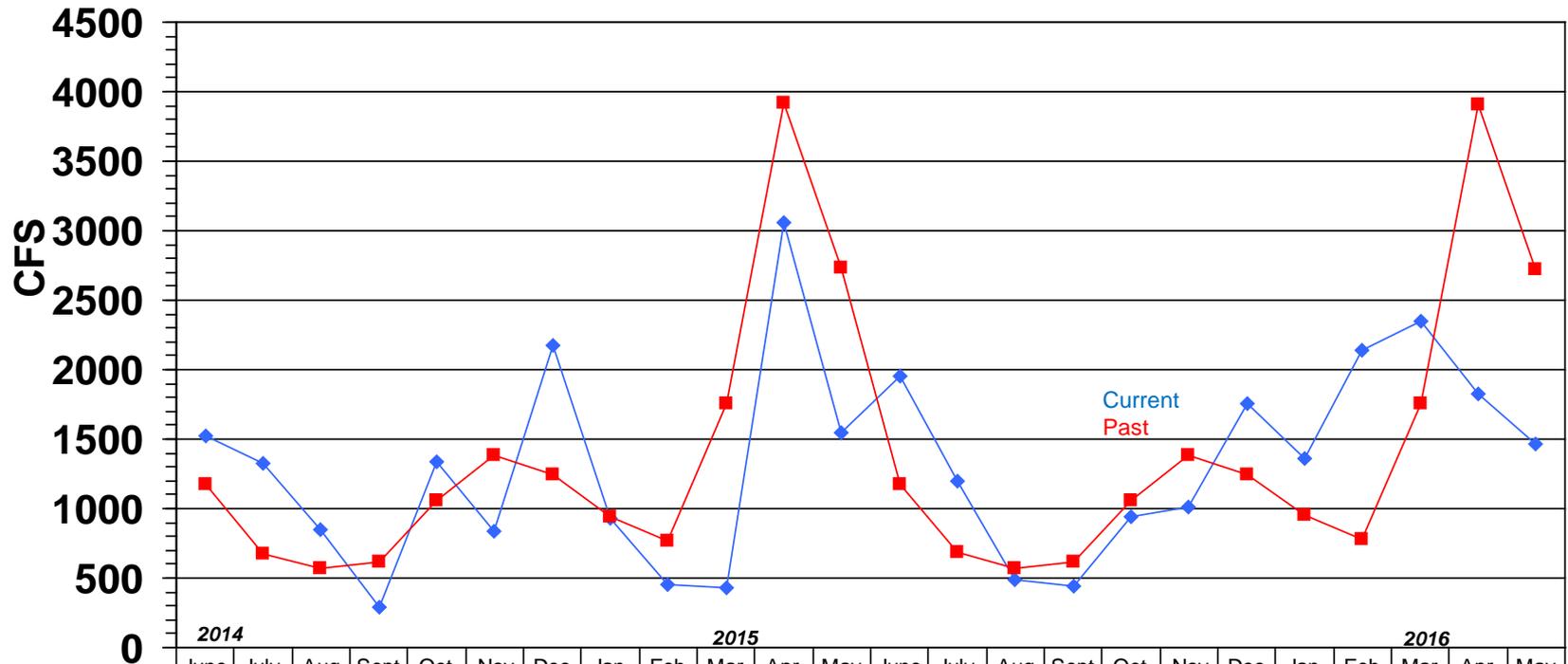
	2014			2015									2016											
	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Monthly Mean Flow	657	1345	696	193	658	577	1618	912	418	484	1815	344	340	341	216	257	757	629	870	814	1457	1430	799	425
Mean of Monthly Flows	546	310	246	266	404	632	718	667	645	1240	1865	981	544	310	246	266	407	632	719	668	653	1242	1855	975
% of Normal	120%	434%	282%	72%	163%	91%	225%	137%	65%	39%	97%	35%	62%	110%	88%	97%	186%	99%	121%	122%	223%	115%	43%	44%

PEMIGEWASSET RIVER at PLYMOUTH NH

Gage# 01076500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



	2014			2015									2016											
	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	1519	1330	850	290	1343	839	2169	934	456	431	3059	1543	1952	1201	491	443	943	1016	1759	1357	2142	2348	1831	1463
■ Mean of Monthly Flows	1171	677	568	614	1063	1384	1242	946	766	1755	3921	2730	1178	682	567	612	1062	1381	1247	949	778	1760	3903	2719
% of Normal	130%	196%	150%	47%	126%	61%	175%	99%	54%	25%	78%	56%	166%	176%	87%	72%	89%	74%	141%	143%	275%	133%	47%	54%

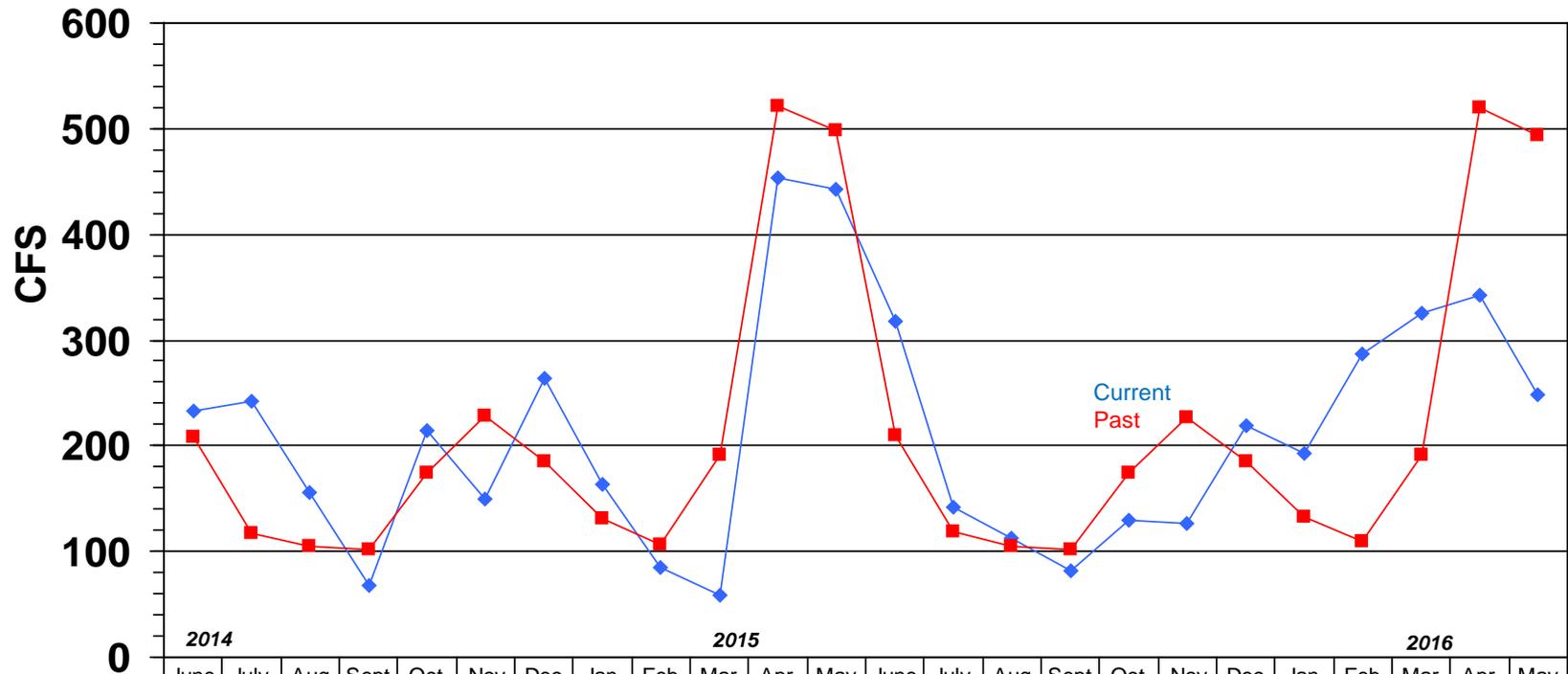
AMMONOOSUC RIVER at BETHLEHEM JUNCTION NH

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



	2014				2015								2016											
	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	233	242	156	68	215	150	263	163	85	59	453	443	317	142	112	81	129	126	219	193	287	325	342	249
Mean of Monthly Flows	208	117	105	102	175	228	185	131	106	191	522	498	210	118	105	102	174	227	185	132	109	192	520	494
% of Normal	112%	207%	149%	67%	123%	66%	142%	124%	80%	31%	87%	89%	151%	120%	107%	79%	74%	55%	118%	146%	263%	169%	66%	50%

Streamflow data for selected NH stations as of June 3, 2016

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	92	301	22	16	6.8	31%			
01053500	Androscoggin River at Errol, NH	1250	1870	500	451	0	67%	FALSE	FALSE	FALSE
01054000	Androscoggin River near Gorham, NH	1420	2420	1300	1310	795	59%	FALSE	FALSE	FALSE
Saco River Basin										
01064500	Saco River near Conway, NH	359	887	105	97	66	40%	FALSE	FALSE	FALSE
01064801	BEARCAMP RIVER AT SOUTH TAMWORTH, NH	23	77	6	4.8	4.5	30%	FALSE	FALSE	FALSE
Piscataqua River Basin										
01072800	COCHECO RIVER NEAR ROCHESTER, NH	26	78	--	--	2.2	33%			FALSE
01073500	LAMPREY RIVER NEAR NEWMARKET, NH	36	181	7	5	--	20%	FALSE	FALSE	
Merrimack River Basin										
01074520	EAST BRANCH PEMIGEWASSET RIVER AT LINCOLN, NH	165	315		49	46	52%	FALSE	FALSE	FALSE
01075000	PEMIGEWASSET RIVER AT WOODSTOCK, NH	227	522		56	--	43%	FALSE	FALSE	
01076000	BAKER RIVER NEAR RUMNEY, NH	78	179		15	--	44%	FALSE	FALSE	
01076500	PEMIGEWASSET RIVER AT PLYMOUTH, NH	533	1130		118	45	47%	FALSE	FALSE	FALSE
01078000	SMITH RIVER NEAR BRISTOL, NH	28	87		6.2	2.7	32%	FALSE	FALSE	FALSE
01081000	WINNIPESAUKEE RIVER AT TILTON, NH	266	704		136	48	38%	FALSE	FALSE	FALSE
01081500	MERRIMACK RIVER AT FRANKLIN JUNCTION, NH	872	2550		551	--	34%		FALSE	
01082000	CONTOOCOOK RIVER AT PETERBOROUGH, NH	31	122		6.3	--	25%	FALSE	FALSE	
01085000	CONTOOCOOK RIVER NEAR HENNIKER, NH	145			37	--		FALSE	FALSE	
01085500	CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH	223	480		39	--	46%	FALSE	FALSE	
01086000	WARNER RIVER AT DAVISVILLE, NH	41	227		5.3	--	18%	FALSE	FALSE	
01087000	BLACKWATER RIVER NEAR WEBSTER, NH	59			13.7	--		FALSE	FALSE	
01090800	PISCATAQUOG RIVER BL EVERETT DAM, NR E WEARE, NH	24			1.2	--		FALSE	FALSE	
01091500	PISCATAQUOG RIVER NEAR GOFFSTOWN, NH	70			8.8	--		FALSE	FALSE	
01092000	MERRIMACK R NR GOFFS FALLS, BELOW MANCHESTER, NH	1700	4590		644	98*	37%		FALSE	
01094000	SOUHEGAN RIVER AT MERRIMACK, NH	70	168		12.9	--	42%	FALSE	FALSE	
Connecticut River Basin										
01129200	CONNECTICUT R BELOW INDIAN STREAM NR PITTSBURG, NH	364	395		42	30	92%		FALSE	FALSE
01129500	CONNECTICUT RIVER AT NORTH STRATFORD, NH	762	1220		176	108	62%		FALSE	FALSE
01131500	CONNECTICUT RIVER NEAR DALTON, NH	1280	2819		389	115	45%		FALSE	FALSE
01137500	AMMONOOSUC RIVER AT BETHLEHEM JUNCTION, NH	97	212		28	21	46%	FALSE	FALSE	FALSE
01138500	CONNECTICUT RIVER AT WELLS RIVER, VT	1490	5360		690	152*	28%	FALSE	FALSE	
01144500	CONNECTICUT RIVER AT WEST LEBANON, NH	1230	6730	380*	902	82*	18%		FALSE	
01152500	SUGAR RIVER AT WEST CLAREMONT, NH	81	303	40	38	14	27%	FALSE	FALSE	FALSE
01154500	CONNECTICUT RIVER AT NORTH WALPOLE, NH	2630	9840	260*	1058	115*	27%		FALSE	
01158000	ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH	35	113	4.5	2.7	0.4	31%	FALSE	FALSE	FALSE
01158600	OTTER BROOK BELOW OTTER BROOK DAM, NEAR KEENE, NH	16	53	1.6	1.1	0.3	30%	FALSE	FALSE	FALSE
01160350	ASHUELOT RIVER AT WEST SWANZEY, NH	108	447	32	--	--	24%	FALSE		

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

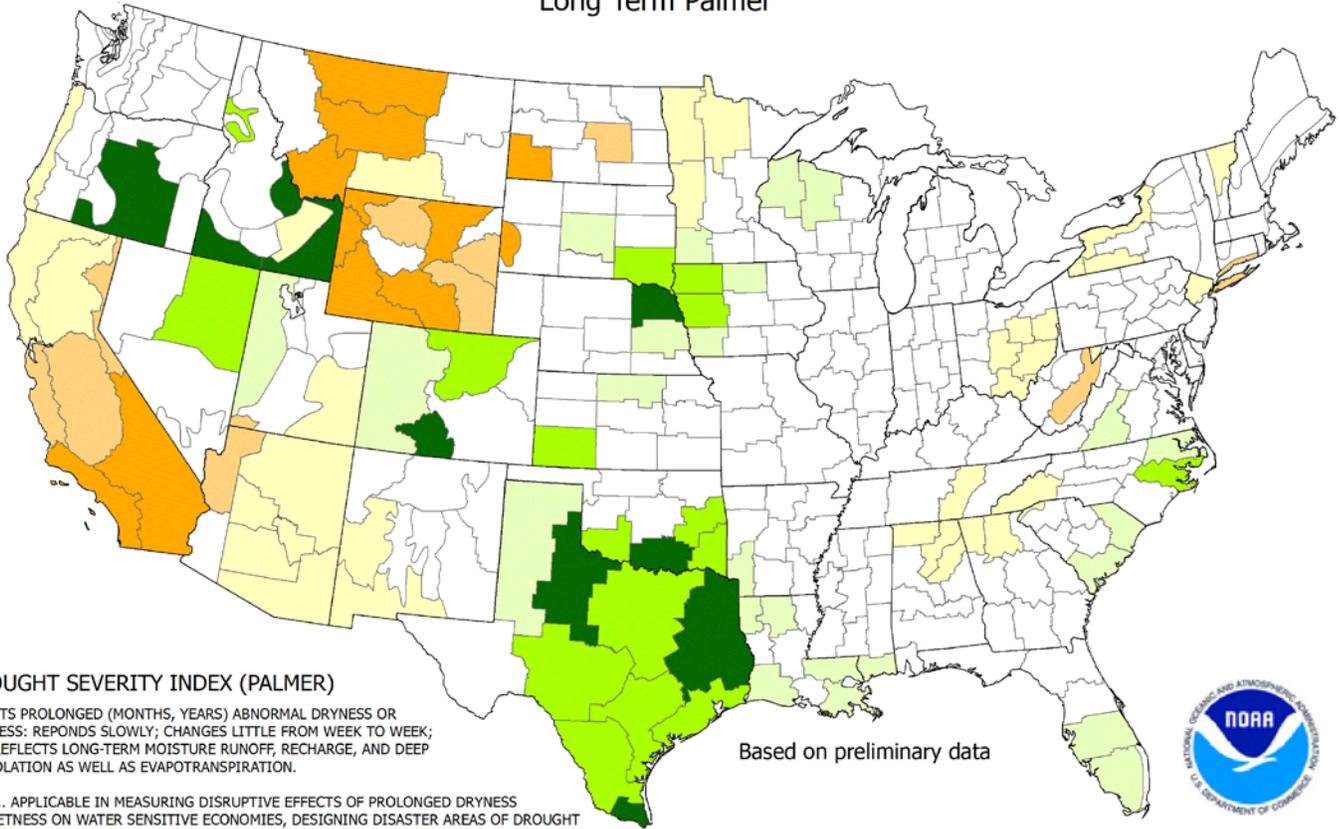
**Estimated

Average % of median for all basins

39%

SUMMARY			
	Below 0.99 Flow?	Below 7Q10 Flow?	Below Record Flow?
FALSE =	25	31	16
TRUE =	0	0	0

Drought Severity Index by Division
Weekly Value for Period Ending Jun 11, 2016
Long Term Palmer



DROUGHT SEVERITY INDEX (PALMER)

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

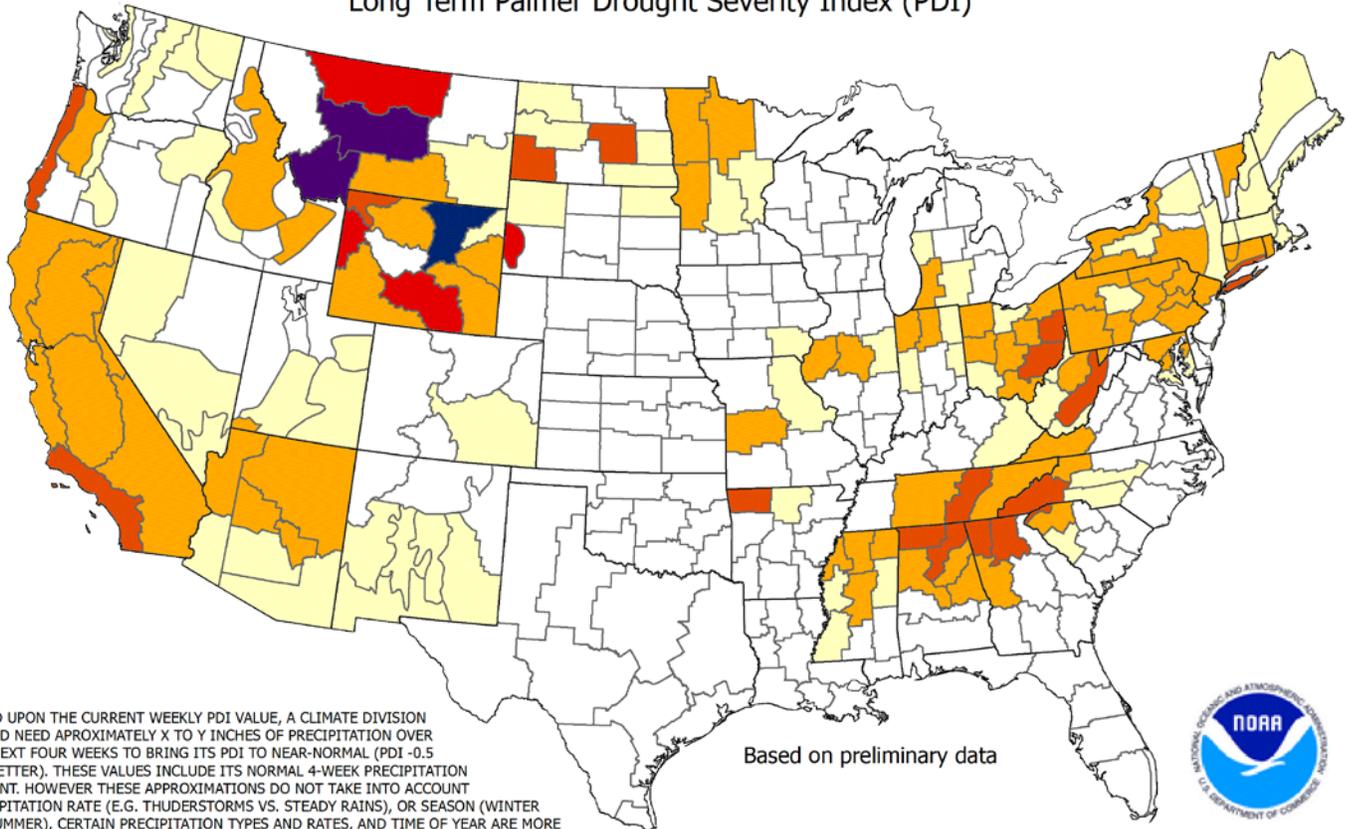


- | | |
|-----------------------------------|--------------------------------------|
| ■ -4.0 or less (Extreme Drought) | ■ +2.0 to +2.9 (Unusual Moist Spell) |
| ■ -3.0 to -3.9 (Severe Drought) | ■ +3.0 to +3.9 (Very Moist Spell) |
| ■ -2.0 to -2.9 (Moderate Drought) | ■ +4.0 and above (Extremely Moist)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

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 11, 2016
 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

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