



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

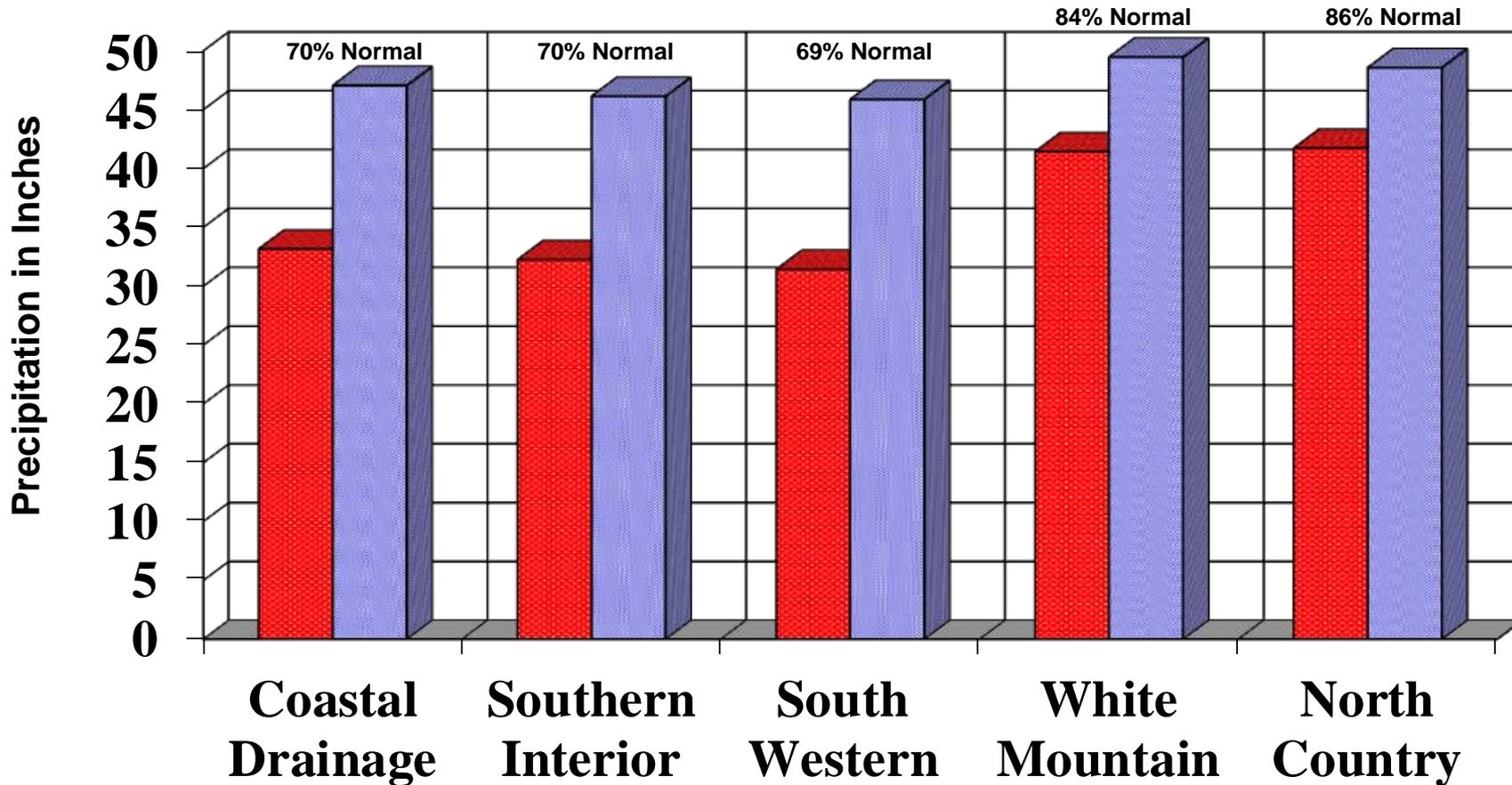
**AGGREGATED PRECIPITATION DATA for N.H.
 DROUGHT MANAGEMENT AREAS**

	Actual Rainfall (inches)	Normal Rainfall (inches)	Deviation from Normal (inches)	Percent of Normal
<u>Coastal Drainage:</u> Rockingham, Strafford counties				
four month	8.89	15.75	-6.86	56%
six month	13.57	24.13	-10.57	56%
nine month	23.91	34.53	-10.62	69%
twelve month	33.16	47.05	-13.90	70%
<u>Southern Interior:</u> Belknap, Hillsborough, Merrimack counties				
four month	10.50	16.10	-5.60	65%
six month	14.65	23.80	-9.15	62%
nine month	24.05	33.96	-9.92	71%
twelve month	32.25	46.13	-13.89	70%
<u>South Western:</u> Cheshire, Sullivan counties				
four month	12.26	16.61	-4.35	74%
six month	16.13	23.95	-7.82	67%
nine month	23.13	33.80	-9.10	68%
twelve month	31.43	45.87	-12.87	69%
<u>White Mountain:</u> Carroll, Grafton counties				
four month	14.90	17.80	-2.90	84%
six month	20.00	25.64	-5.65	78%
nine month	31.05	36.14	-5.09	86%
twelve month	41.43	49.46	-8.04	84%
<u>North Country:</u> Coos county				
four month	16.15	18.42	-2.27	88%
six month	21.30	25.25	-3.95	84%
nine month	31.23	35.55	-4.32	88%
twelve month	41.73	48.57	-6.84	86%

four month period : May 2016 - August 2016
 six month period : March 2016 - August 2016
 nine month period : December 2015 - August 2016
 twelve month period: September 2015 - August 2016

Source: Northeast River Forecast Center, NH Des Dam Bureau

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



■ Actual
 ■ Normal

MONTHLY PRECIPITATION DATA FOR N.H COUNTIES



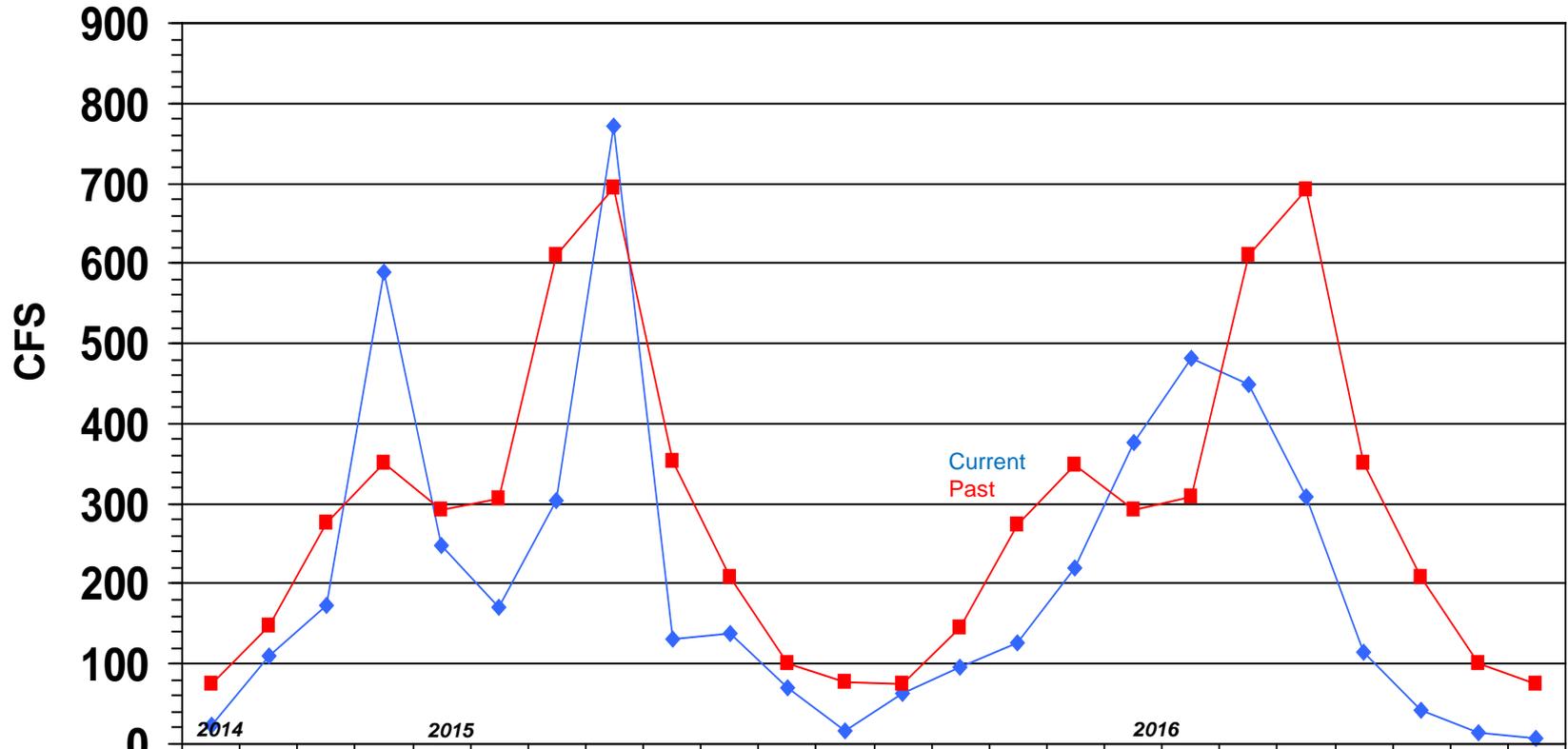
		2015				2016							
		SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG
Coastal drainage													
STRAFFORD	actual	5.23	2.47	2.18	4.42	1.68	4.51	2.72	2.09	1.65	2.58	3.06	2.04
	normal	3.76	4.38	4.50	3.76	3.21	3.41	4.16	4.22	4.10	4.16	3.99	3.73
	deviation	1.47	-1.91	-2.32	0.66	-1.53	1.10	-1.44	-2.13	-2.45	-1.58	-0.93	-1.69
ROCKINGHAM	actual	4.30	2.16	2.15	4.39	1.71	3.98	2.45	2.10	1.76	1.94	2.38	2.36
	normal	3.76	4.35	4.30	3.73	3.27	3.41	4.19	4.20	4.10	4.10	3.77	3.54
	deviation	0.54	-2.19	-2.15	0.66	-1.56	0.57	-1.74	-2.10	-2.34	-2.16	-1.39	-1.18
Average	actual	4.77	2.32	2.17	4.41	1.70	4.25	2.59	2.10	1.71	2.26	2.72	2.20
	normal	3.76	4.37	4.40	3.75	3.24	3.41	4.18	4.21	4.10	4.13	3.88	3.64
	deviation	1.01	-2.05	-2.24	0.66	-1.55	0.84	-1.59	-2.12	-2.40	-1.87	-1.16	-1.44
Southern Interior													
HILLSBOROUGH	actual	4.35	2.11	1.75	4.10	1.39	3.75	2.39	1.91	1.98	1.80	2.16	3.12
	normal	3.67	4.46	4.22	3.80	3.38	3.40	3.95	4.14	4.10	4.22	3.96	3.76
	deviation	0.68	-2.35	-2.47	0.30	-1.99	0.35	-1.56	-2.23	-2.12	-2.42	-1.80	-0.64
MERRIMACK	actual	4.02	2.12	1.80	4.14	1.27	4.05	2.31	1.78	2.50	2.42	3.29	2.57
	normal	3.52	4.43	4.15	3.65	3.26	3.20	3.73	3.95	4.01	4.34	4.11	3.75
	deviation	0.50	-2.31	-2.35	0.49	-1.99	0.85	-1.42	-2.17	-1.51	-1.92	-0.82	-1.18
BELKNAP	actual	4.60	2.11	1.74	4.20	1.41	3.87	2.25	1.81	2.32	2.95	3.47	2.93
	normal	3.55	4.48	4.03	3.58	3.07	3.14	3.58	3.75	3.95	4.25	4.08	3.78
	deviation	1.05	-2.37	-2.29	0.62	-1.66	0.73	-1.33	-1.94	-1.63	-1.30	-0.61	-0.85
Average	actual	4.32	2.11	1.76	4.15	1.36	3.89	2.32	1.83	2.27	2.39	2.97	2.87
	normal	3.58	4.46	4.13	3.68	3.24	3.25	3.75	3.95	4.02	4.27	4.05	3.76
	deviation	0.74	-2.34	-2.37	0.47	-1.88	0.64	-1.44	-2.11	-1.75	-1.88	-1.08	-0.89
South Western													
CHESHIRE	actual	4.65	2.10	1.42	3.86	1.23	3.62	2.21	1.83	2.38	2.06	2.69	5.07
	normal	3.57	4.61	3.97	3.68	3.42	3.28	3.73	3.78	4.10	4.20	4.36	4.05
	deviation	1.08	-2.51	-2.55	0.18	-2.19	0.34	-1.52	-1.95	-1.72	-2.14	-1.67	1.02
SULLIVAN	actual	5.01	2.08	1.34	3.68	1.17	3.93	2.07	1.64	2.50	2.54	3.59	3.68
	normal	3.63	4.51	3.85	3.49	2.72	3.11	3.51	3.67	3.91	4.18	4.36	4.05
	deviation	1.38	-2.43	-2.51	0.19	-1.90	0.82	-1.44	-2.03	-1.41	-1.64	-0.77	-0.37
Average	actual	4.83	2.09	1.38	3.77	-0.55	3.78	2.14	1.74	2.44	2.30	3.14	4.38
	normal	3.60	4.56	3.91	3.59	3.07	3.20	3.62	3.73	4.01	4.19	4.36	4.05
	deviation	1.23	-2.47	-2.53	0.19	-2.05	0.58	-1.48	-1.99	-1.57	-1.89	-1.22	0.33
White Mountain													
GRAFTON	actual	5.83	2.30	1.68	4.75	1.50	4.34	2.45	2.34	3.13	3.85	4.39	4.52
	normal	4.05	4.68	4.36	3.70	3.19	2.94	3.45	3.76	4.20	4.58	4.56	4.61
	deviation	1.78	-2.38	-2.68	1.05	-1.69	1.40	-1.00	-1.42	-1.07	-0.73	-0.17	-0.09
CARROLL	actual	6.47	2.42	2.06	5.08	1.78	4.65	3.00	2.40	2.35	3.92	4.55	3.09
	normal	3.88	4.96	4.72	4.16	3.57	3.43	4.02	4.46	4.32	4.49	4.41	4.42
	deviation	2.59	-2.54	-2.66	0.92	-1.79	1.22	-1.02	-2.06	-1.97	-0.57	0.14	-1.33
Average	actual	6.15	2.36	1.87	4.92	1.64	4.50	2.73	2.37	2.74	3.89	4.47	3.81
	normal	3.97	4.82	4.54	3.93	3.38	3.19	3.74	4.11	4.26	4.54	4.49	4.52
	deviation	2.19	-2.46	-2.67	0.99	-1.74	1.31	-1.01	-1.74	-1.52	-0.65	-0.02	-0.71
North Country													
COOS	actual	6.54	2.16	1.80	4.39	1.56	3.98	2.38	2.77	2.92	3.39	4.22	5.62
	normal	4.25	4.53	4.24	4.38	3.10	2.82	3.21	3.62	4.21	4.79	4.57	4.85
	deviation	2.29	-2.37	-2.44	0.01	-1.54	1.16	-0.83	-0.85	-1.29	-1.40	-0.35	0.77

LAMPREY RIVER near NEWMARKET NH

Gage# 01073500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



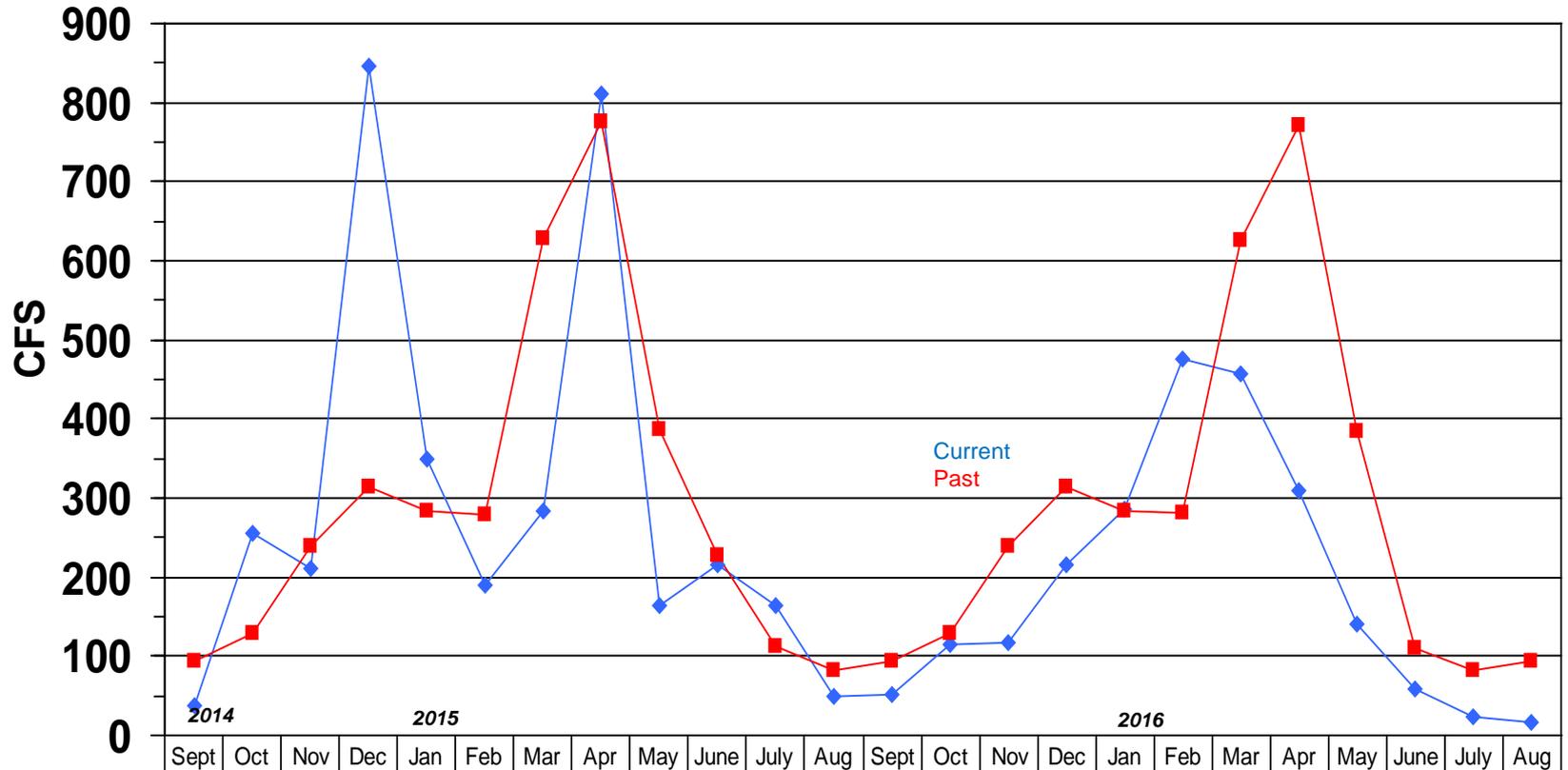
	2014	2015								2016														
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
◆ Monthly Mean Flow	24	111	173	590	248	170	305	771	132	137	70	17	63	95	127	219	376	481	450	308	115	43	14	7
■ Mean of Monthly Flows	75	147	275	351	292	307	611	695	353	209	101	76	75	146	273	349	293	309	609	691	350	207	100	75
% of Normal	31%	75%	63%	168%	85%	55%	50%	111%	37%	66%	70%	23%	84%	65%	46%	63%	128%	156%	74%	45%	33%	21%	14%	9%

SOUHEGAN RIVER at MERRIMACK NH

Gage# 01094000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

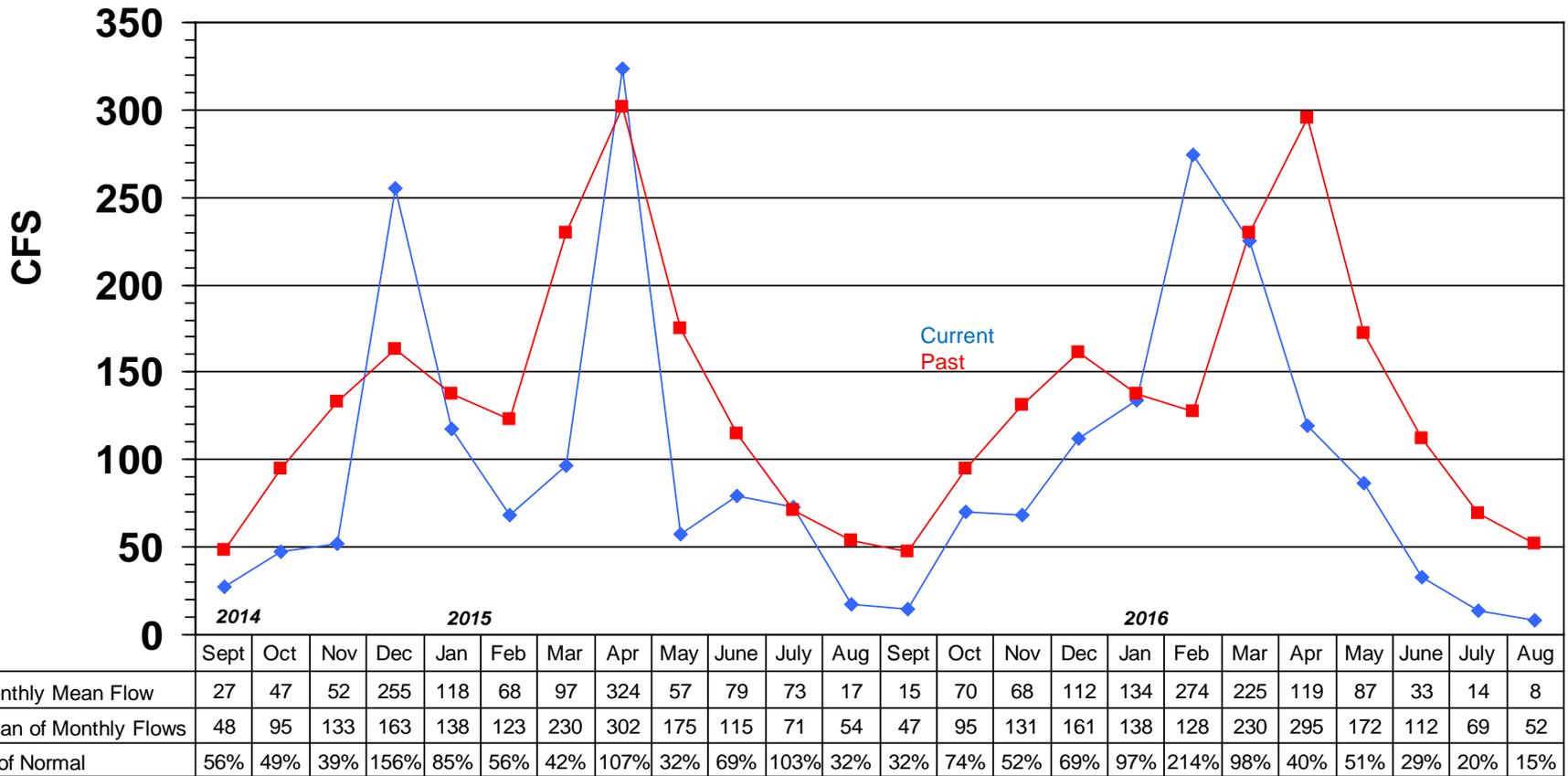


	2014	2015	2016																					
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
◆ Monthly Mean Flow	38	255	210	847	350	189	283	811	164	216	165	50	52	116	118	216	285	476	457	309	141	58	23	17
■ Mean of Monthly Flows	94	128	240	315	283	278	628	776	387	227	112	83	94	128	239	313	283	281	626	770	384	111	83	93
% of Normal	41%	199%	87%	269%	124%	68%	45%	104%	42%	95%	147%	61%	55%	91%	49%	69%	101%	169%	73%	40%	37%	52%	28%	18%

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



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

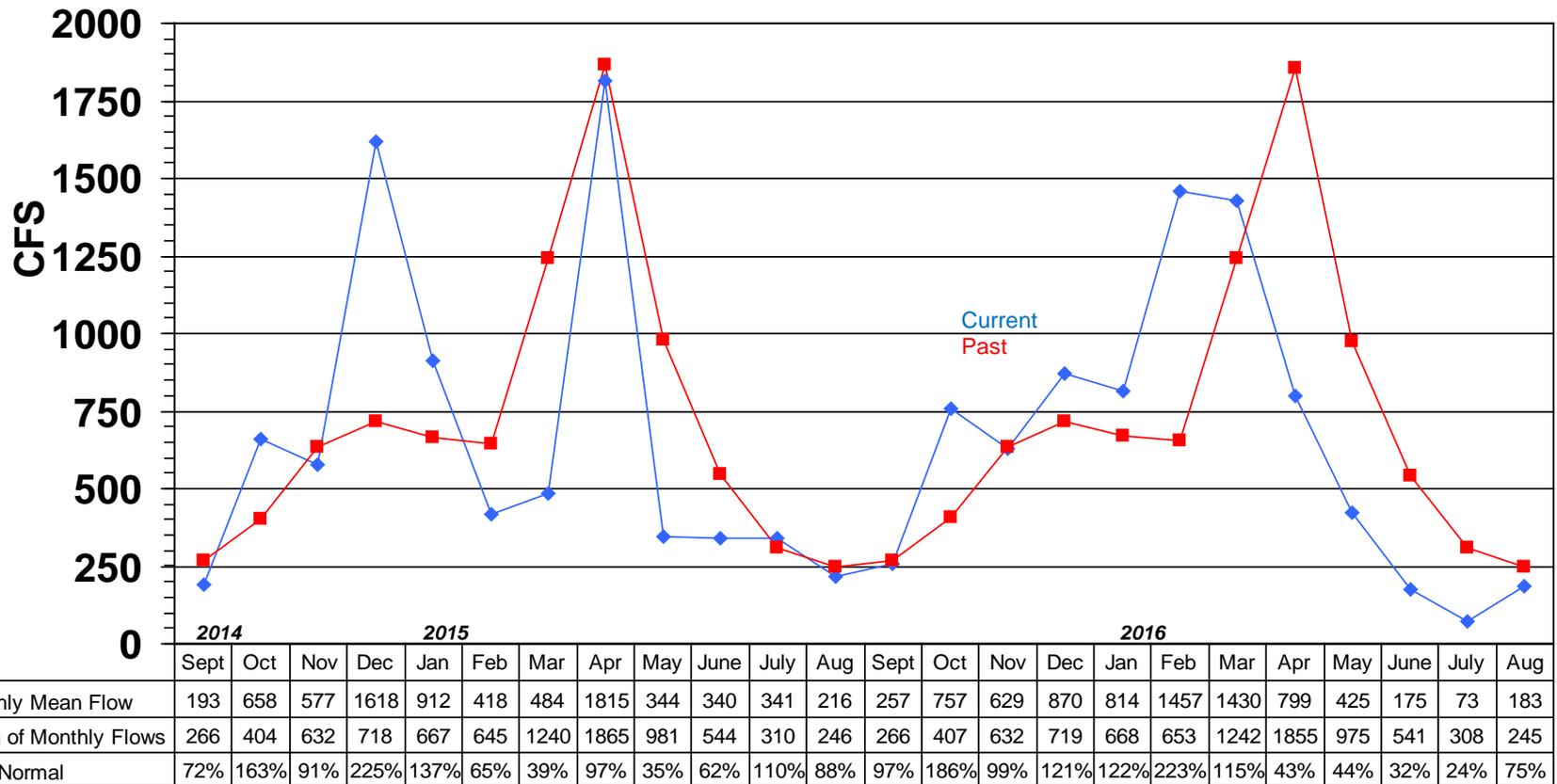


ASHUELOT RIVER at HINSDALE NH

Gage# 01161000



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS

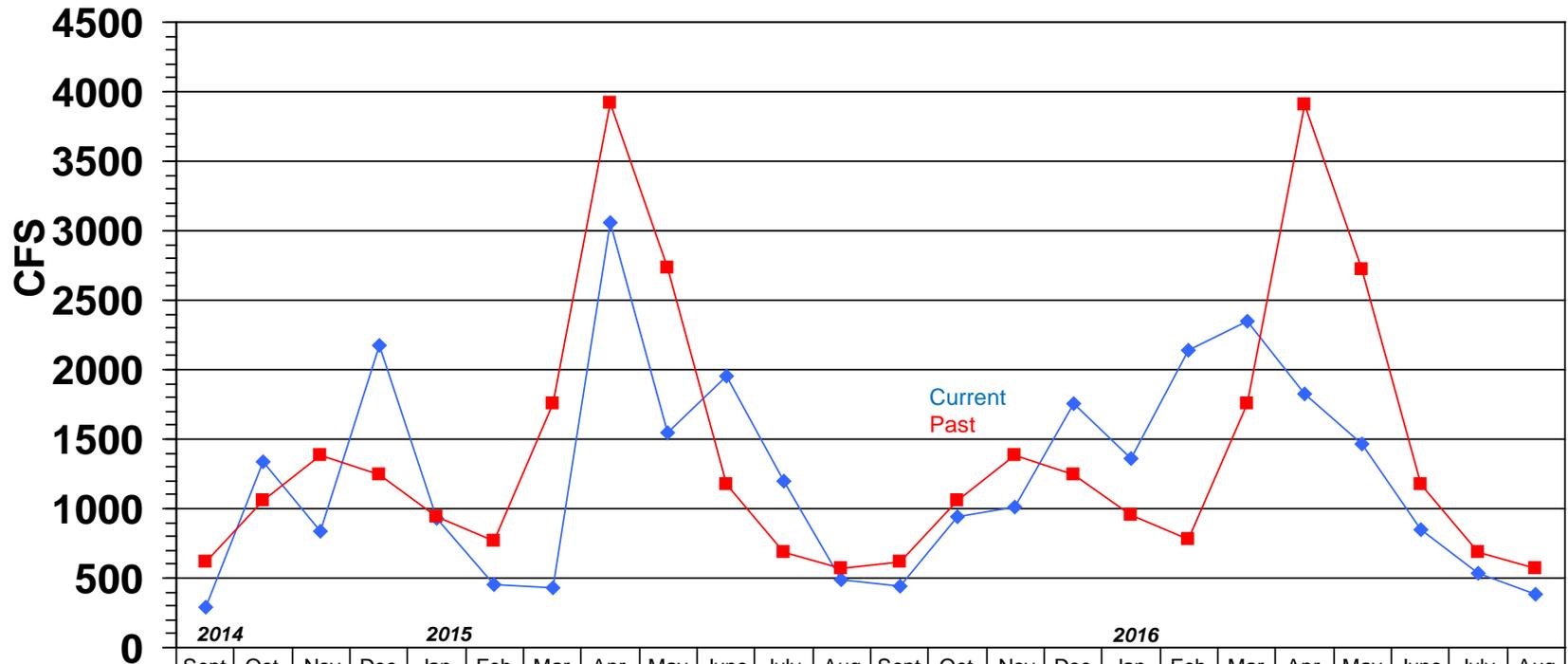


PEMIGEWASSET RIVER at PLYMOUTH NH

Gage# 01076500



MONTHLY MEAN FLOW COMPARED TO MEAN OF MONTHLY FLOWS



	2014				2015								2016											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
◆ Monthly Mean Flow	290	1343	839	2169	934	456	431	3059	1543	1952	1201	491	443	943	1016	1759	1357	2142	2348	1830	1461	845	538	389
■ Mean of Monthly Flows	614	1063	1384	1242	946	766	1755	3921	2730	1178	682	567	612	1062	1381	1247	949	778	1760	3903	2719	1175	681	565
% of Normal	47%	126%	61%	175%	99%	54%	25%	78%	56%	166%	176%	87%	72%	89%	74%	141%	143%	275%	133%	47%	54%	72%	79%	69%

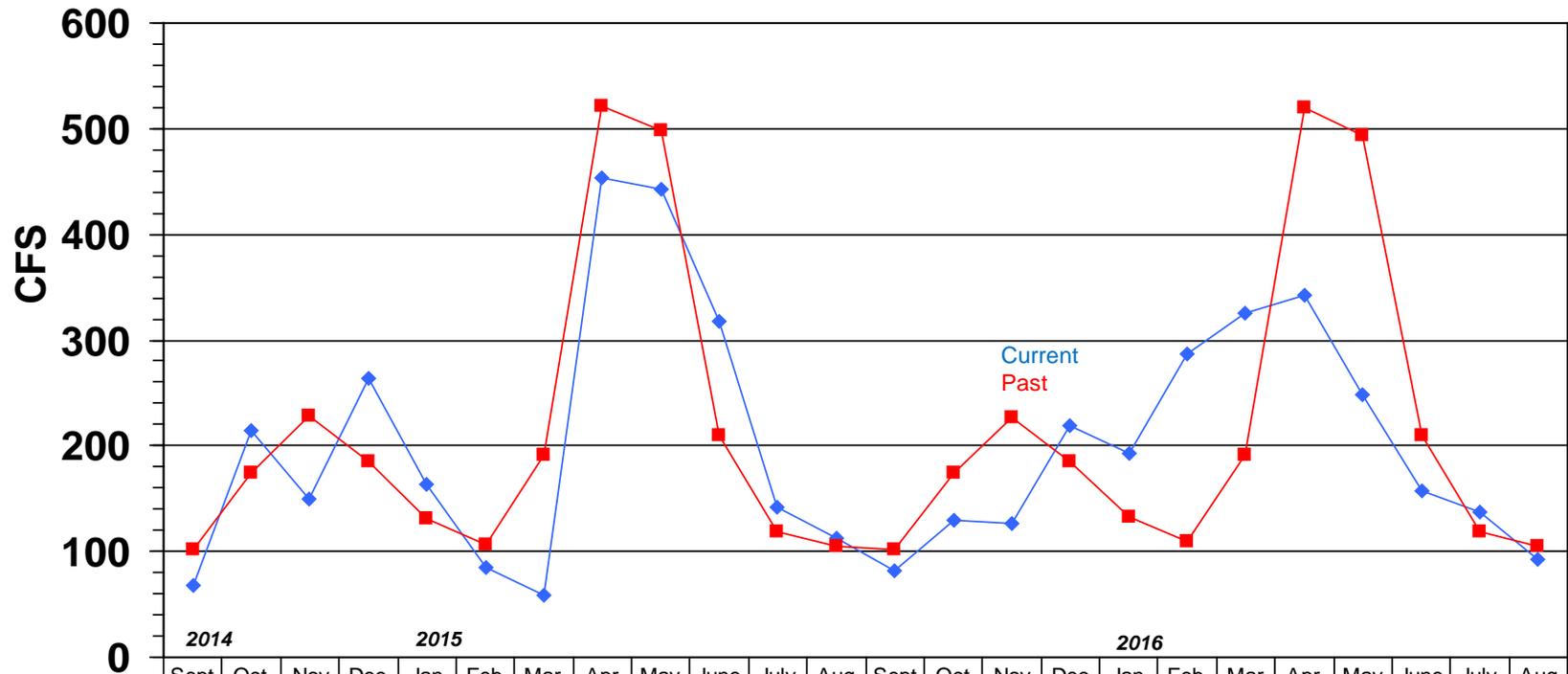
AMMONOOSUC RIVER at BETHLEHEM JUNCTION NH

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											
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
Monthly Mean Flow	68	215	150	263	163	85	59	453	443	317	142	112	81	129	126	219	193	287	325	342	249	157	137	93
Mean of Monthly Flows	102	175	228	185	131	106	191	522	498	210	118	105	102	174	227	185	132	109	192	520	494	209	118	105
% of Normal	67%	123%	66%	142%	124%	80%	31%	87%	89%	151%	120%	107%	79%	74%	55%	118%	146%	263%	169%	66%	50%	75%	116%	89%

Streamflow data for selected NH stations as of August 31, 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	154	79	22	16	6.8	195%			
01053500	Androscoggin River at Errol, NH	1530	1680	500	451	0	91%	FALSE	FALSE	FALSE
01054000	Androscoggin River near Gorham, NH	1650	1840	1300	1310	795	90%	FALSE	FALSE	FALSE
Saco River Basin										
01064500	Saco River near Conway, NH	141	223	105	97	66	63%	FALSE	FALSE	FALSE
01064801	BEARCAMP RIVER AT SOUTH TAMWORTH, NH	9.9	18	6	4.8	4.5	55%	FALSE	FALSE	FALSE
Piscataqua River Basin										
01072800	COCHECO RIVER NEAR ROCHESTER, NH	3.4	17	--	--	2.2	20%			FALSE
01073500	LAMPREY RIVER NEAR NEWMARKET, NH	3.3	26	7	5	--	13%	TRUE	TRUE	
Merrimack River Basin										
01074520	EAST BRANCH PEMIGEWASSET RIVER AT LINCOLN, NH	66	92		49	46	72%	FALSE	FALSE	FALSE
01075000	PEMIGEWASSET RIVER AT WOODSTOCK, NH	106	140		56	--	76%	FALSE	FALSE	
01076000	BAKER RIVER NEAR RUMNEY, NH	32	46		15	--	70%	FALSE	FALSE	
01076500	PEMIGEWASSET RIVER AT PLYMOUTH, NH	229	297		118	45	77%	FALSE	FALSE	FALSE
01078000	SMITH RIVER NEAR BRISTOL, NH	8.9	18		6.2	2.7	49%	FALSE	FALSE	FALSE
01081000	WINNIPESAUKEE RIVER AT TILTON, NH	260	317		136	48	82%	FALSE	FALSE	FALSE
01081500	MERRIMACK RIVER AT FRANKLIN JUNCTION, NH	606	1110		551	--	55%		FALSE	
01082000	CONTOOCOOK RIVER AT PETERBOROUGH, NH	5.4	24		6.3	--	23%	FALSE	TRUE	
01085000	CONTOOCOOK RIVER NEAR HENNIKER, NH	54			37	--		FALSE	FALSE	
01085500	CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH	55	133		39	--	41%	FALSE	FALSE	
01086000	WARNER RIVER AT DAVISVILLE, NH	4.6	21		5.3	--	22%	FALSE	TRUE	
01087000	BLACKWATER RIVER NEAR WEBSTER, NH	13			13.7	--		FALSE	TRUE	
01090800	PISCATAQUOG RIVER BL EVERETT DAM, NR E WEARE, NH	NA			1.2	--				
01091500	PISCATAQUOG RIVER NEAR GOFFSTOWN, NH	9.9			8.8	--		FALSE	FALSE	
01092000	MERRIMACK R NR GOFFS FALLS, BELOW MANCHESTER, NH	995	1580		644	98*	63%		FALSE	
01094000	SOUHEGAN RIVER AT MERRIMACK, NH	9.2	40		12.9	--	23%	FALSE	TRUE	
Connecticut River Basin										
01129200	CONNECTICUT R BELOW INDIAN STREAM NR PITTSBURG, NH	411	395		42	30	104%		FALSE	FALSE
01129500	CONNECTICUT RIVER AT NORTH STRATFORD, NH	965	631		176	108	153%		FALSE	FALSE
01131500	CONNECTICUT RIVER NEAR DALTON, NH	1880	1070		389	115	176%		FALSE	FALSE
01137500	AMMONOOSUC RIVER AT BETHLEHEM JUNCTION, NH	60	62		28	21	97%	FALSE	FALSE	FALSE
01138500	CONNECTICUT RIVER AT WELLS RIVER, VT	1490	2190		690	152*	68%	FALSE	FALSE	
01144500	CONNECTICUT RIVER AT WEST LEBANON, NH	4290	2610	380*	902	82*	164%		FALSE	
01152500	SUGAR RIVER AT WEST CLAREMONT, NH	26	79	40	38	14	33%	TRUE	TRUE	FALSE
01154500	CONNECTICUT RIVER AT NORTH WALPOLE, NH	1650	3439	260*	1058	115*	48%		FALSE	
01158000	ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH	14	18	4.5	2.7	0.4	78%	FALSE	FALSE	FALSE
01158600	OTTER BROOK BELOW OTTER BROOK DAM, NEAR KEENE, NH	4.3	8.7	1.6	1.1	0.3	49%	FALSE	FALSE	FALSE
01160350	ASHUELOT RIVER AT WEST SWANZEY, NH	40	93	32	--	--	43%	FALSE		

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

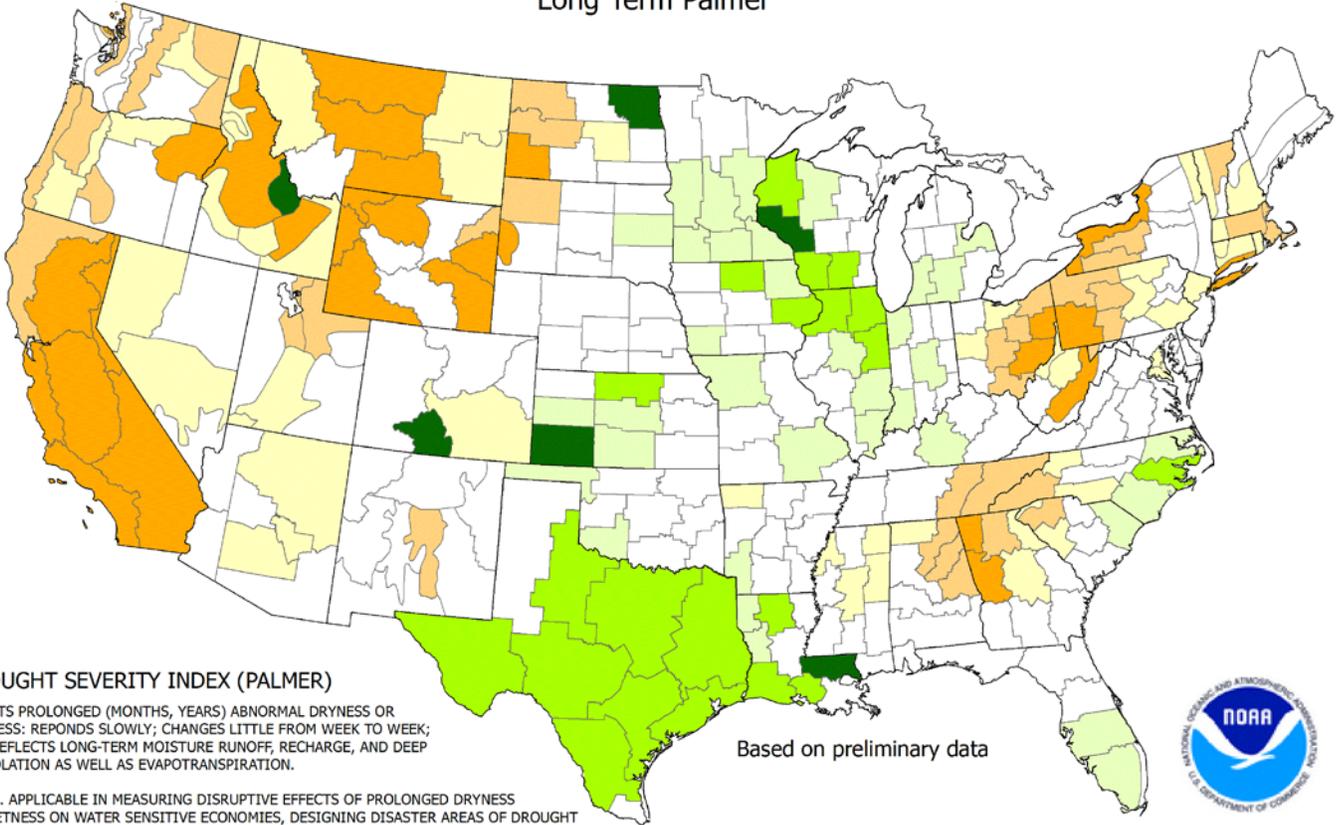
**Estimated

Average % of median for all basins

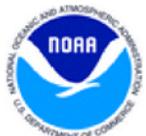
73%

SUMMARY			
	Below 0.99 Flow?	Below 7Q10 Flow?	Below Record Flow?
FALSE =	22	24	16
TRUE =	2	6	0

Drought Severity Index by Division
 Weekly Value for Period Ending Sep 03, 2016
 Long Term Palmer



Based on preliminary data



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.

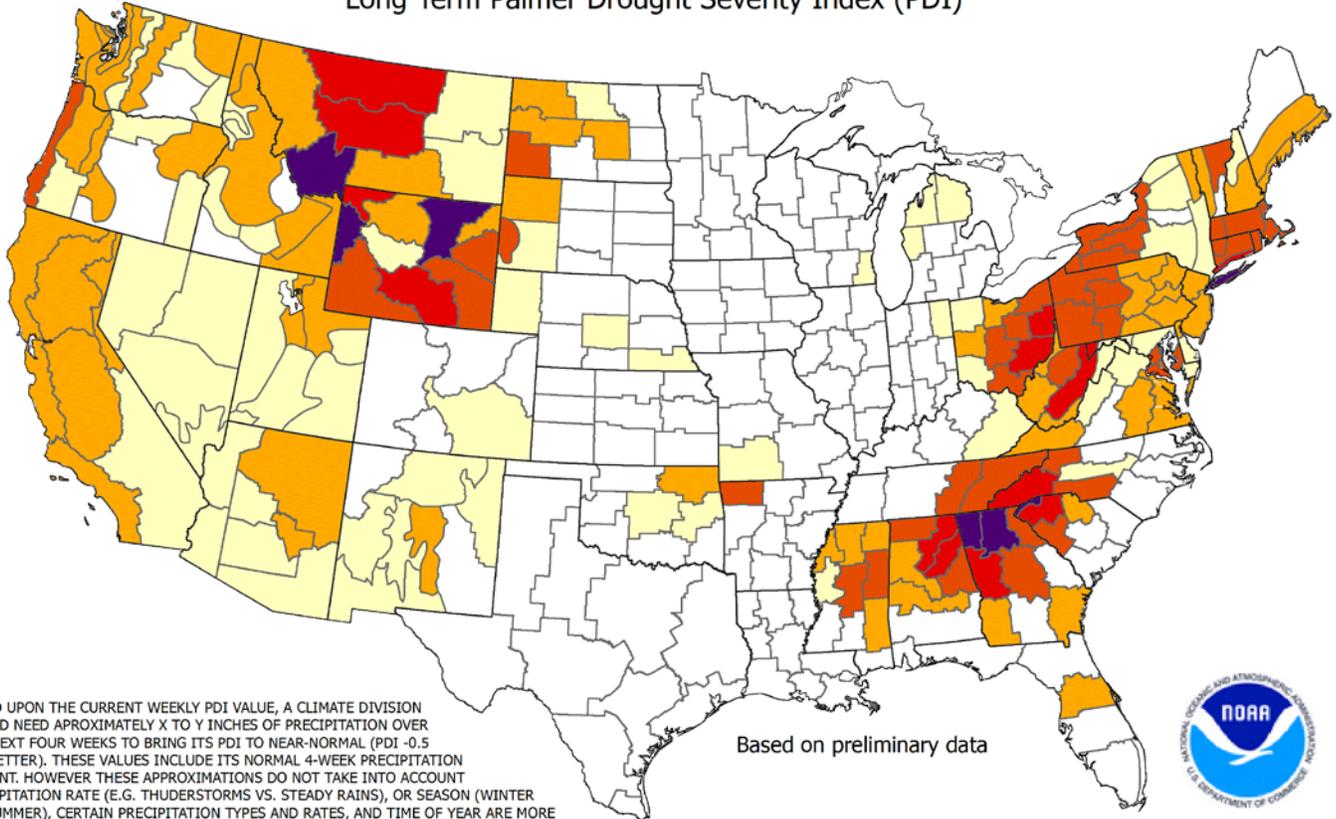
LIMITATIONS... IS NOT GENERALLY INDICATIVE OFFSHORT-TERM (FEW WEEKS) STATUS OF DROUGHT OR WETNESS SUCH AS FREQUENTLY AFFECTS CROPS AND FIELD OPERATIONS (THIS IS INDICATED BY THE CROP MOISTURE INDEX).

- -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 Sep 03, 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.