

**Archive of Data and Analyses for the Report:**

**Climatic Fluctuations and Forecasting of Streamflow in the  
Lower Colorado River Basin**

by

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Supplementary data for:

- 1) Tables 1, 3, 4, 5, 6, 7, 8, and 9 (archive tables A, B, C, D, E, F, G, H, and I)
- 2) Figures 2, 10, and 11 (archive tables K, L, and M)
- 3) Analysis of the importance of AMO to the regression analysis (archive table J).
- 4) Analysis of the effects of autocorrelation and persistence of AMO and PDO on the statistical analyses among AMO, PDO, and streamflow (archive table N).

Thomas, B.E., 2007. Climatic fluctuations and forecasting of streamflow in the Lower Colorado River Basin. *Journal of the American Water Resources Association* 43(1), 1-20. doi:10.1111/j.1752-1688.2007.00127.x

Table A1. Supplementary data for table 1 (characteristics of streamflow-gaging stations used in study)

Map no. <sup>1</sup>	U.S. Geological Survey station identification number	Stream	Period of record	Years of record	Drainage area (square kilometers)
1	09418500	Meadow Valley Wash near Caliente, Nevada	1952-2003	45	4,320
2	10242000	Coal Creek near Cedar City, Utah	1936-2003	67	210
3	10174500	Sevier River at Hatch, Utah	1915-2003	78	881
4	09337000	Pine Creek near Escalante, Utah	1951-2003	51	176
5	09406000	Virgin River at Virgin, Utah	1910-2003	87	2,480
6	09382000	Paria River at Lees Ferry, Ariz.	1924-2003	80	3,650
7	09504500	Oak Creek near Cornville, Ariz.	1941-2003	60	919
8	09512500	Agua Fria River near Mayer, Ariz.	1940-2003	64	1,520
9	09508500	Verde River below Tangle Creek above Horseshoe Dam, Ariz.	1946-2003	58	15,200
10	09499000	Tonto Creek above Gun Creek near Roosevelt, Arizona	1941-2003	63	1,750
11	09496500	Carrizo Creek near Show Low, Ariz.	1952-2003	41	1,140
12	09390500	Show Low Creek near Lakeside, Ariz.	1954-2003	50	178
13	09384000	Little Colorado River above Lyman Lake, near St. Johns, Arizona	1941-2003	63	1,830
14	09498500	Salt River near Roosevelt, Ariz.	1914-2003	90	11,200
15	09490500	Black River near Fort Apache, Ariz.	1958-2003	46	3,190
16	09494000	White River near Fort Apache, Ariz.	1958-2003	46	1,640
17	09468500	San Carlos River near Peridot, Ariz.	1930-2003	74	2,660
18	09444500	San Francisco River at Clifton, Ariz.	1928-2003	74	7,160
19	09430500	Gila River near Gila, New Mexico	1928-2003	76	4,830
20	09480500	Santa Cruz River near Nogales, Ariz.	1930-2003	71	1,380
21	09471000	San Pedro River at Charleston, Ariz.	1913-2003	87	3,200

Table A2. Supplementary data for table 1 -- continued

Map no. <sup>1</sup>	Stream	Mean basin elevation (meters)	Mean annual precipitation <sup>2</sup> (millimeters)	Mean annual flow <sup>3</sup> (cubic meters per second)	Percent of annual flow <sup>3</sup>		
					Winter- spring	Summer	Fall
1	Meadow Valley Wash	1,884	191	0.30	88	8	4
2	Coal Creek	2,633	732	0.94	67	25	8
3	Sevier River	2,585	572	3.36	58	30	12
4	Pine Creek	2,710	577	0.14	61	27	12
5	Virgin River	1,951	485	5.60	71	17	12
6	Paria River	1,875	305	0.80	53	25	22
7	Oak Creek	1,890	574	2.44	79	11	10
8	Agua Fria River	1,524	424	0.63	55	31	14
9	Verde River	1,667	467	15.92	75	13	12
10	Tonto Creek	1,530	607	4.39	77	12	11
11	Carrizo Creek	1,926	559	1.35	75	14	11
12	Show Low Creek	2,231	602	0.39	71	19	10
13	Little Colorado River	2,365	508	0.61	76	16	8
14	Salt River	1,887	559	25.12	73	16	11
15	Black River	2,195	594	10.91	76	12	12
16	White River	2,256	645	5.63	73	15	12
17	San Carlos River	1,366	437	1.69	69	19	12
18	San Francisco River	2,097	460	5.92	64	20	16
19	Gila River	2,469	457	4.37	66	18	16
20	Santa Cruz River	1,478	475	0.76	37	48	15
21	San Pedro River	1,475	419	1.53	31	53	16

<sup>1</sup>See figure 1.<sup>2</sup>Mean annual precipitation is from several sources, but generally is for 1930-60.<sup>3</sup>Mean annual flow and seasonal percentages are for period of record.

Table B1. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin)

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in annual flow for periods of AMO <sup>3</sup>					
		1926-63			1964-94		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	8			27	neg	0.113
2	Coal Creek	27	neg	0.045	31	neg	0.574
3	Sevier River	27	neg	0.008	31	neg	0.785
4	Pine Creek	11			31	pos	0.507
5	Virgin River	38	neg	0.015	24	neg	0.275
6	Paria River	38	neg	0.006	31	neg	0.540
7	Oak Creek	20			31	neg	0.658
8	Agua Fria River	24			31	pos	0.892
9	Verde River	18			31	pos	0.772
10	Tonto Creek	23			31	pos	0.405
11	Carrizo Creek	9			25	pos	0.889
12	Show Low Creek	10			31	pos	0.332
13	Little Colorado River	23	neg	0.383	31	pos	0.973
14	Salt River	38	neg	0.080	31	pos	0.300
15	Black River	6			31	pos	0.308
16	White River	6			31	pos	0.292
17	San Carlos River	34	neg	0.073	31	pos	0.069
18	San Francisco River	34	neg	0.432	31	pos	0.234
19	Gila River	36	neg	0.200	31	pos	0.139
20	Santa Cruz River	31	neg	0.905	31	neg	1.000
21	San Pedro River	34	neg	0.002	31	neg	0.168




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in winter-spring flow for periods of AMO <sup>3</sup>					
		1926-63			1964-94		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	8			27	neg	0.453
2	Coal Creek	27	neg	0.055	31	neg	0.986
3	Sevier River	27	neg	0.004	31	pos	0.865
4	Pine Creek	11			31	pos	0.377
5	Virgin River	38	neg	0.016	24	neg	0.358
6	Paria River	38	neg	0.190	31	pos	0.772
7	Oak Creek	20			31	neg	0.905
8	Agua Fria River	24			31	pos	0.454
9	Verde River	18			31	pos	0.760
10	Tonto Creek	23			31	pos	0.262
11	Carrizo Creek	9			25	pos	1.000
12	Show Low Creek	10			31	pos	0.454
13	Little Colorado River	23	neg	0.328	31	pos	0.721
14	Salt River	38	neg	0.125	31	pos	0.262
15	Black River	6			31	pos	0.300
16	White River	6			31	pos	0.227
17	San Carlos River	34	neg	0.155	31	pos	0.074
18	San Francisco River	34	neg	0.207	31	pos	0.110
19	Gila River	36	neg	0.445	31	pos	0.122
20	Santa Cruz River	31	neg	0.316	31	pos	0.734
21	San Pedro River	34	neg	0.001	31	pos	0.610




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in summer flow for periods of AMO <sup>3</sup>					
		1926-63			1964-94		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	8			27	neg	0.001
2	Coal Creek	27	neg	0.233	31	neg	0.208
3	Sevier River	27	neg	0.026	31	neg	0.434
4	Pine Creek	11			31	pos	0.825
5	Virgin River	38	neg	0.076	24	neg	0.025
6	Paria River	38	neg	0.589	31	neg	0.227
7	Oak Creek	20			31	neg	0.004
8	Agua Fria River	24			31	neg	0.485
9	Verde River	18			31	neg	0.670
10	Tonto Creek	23			31	pos	0.799
11	Carrizo Creek	9			25	pos	0.743
12	Show Low Creek	10			31	pos	0.038
13	Little Colorado River	23	neg	0.154	31	neg	0.658
14	Salt River	38	neg	0.025	31	pos	0.622
15	Black River	6			31	pos	0.959
16	White River	6			31	neg	1.000
17	San Carlos River	34	neg	0.052	31	pos	0.248
18	San Francisco River	34	neg	0.159	31	neg	0.838
19	Gila River	36	neg	0.055	31	pos	0.153
20	Santa Cruz River	31	neg	0.434	31	neg	0.185
21	San Pedro River	34	neg	0.543	31	neg	0.006




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in fall flow for periods of AMO <sup>3</sup>					
		1926-63			1964-94		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	8			27	neg	0.001
2	Coal Creek	27	neg	0.095	31	neg	0.598
3	Sevier River	27	neg	0.002	31	neg	0.671
4	Pine Creek	11			31	pos	0.646
5	Virgin River	38	neg	0.443	24	neg	0.149
6	Paria River	38	neg	0.687	31	pos	0.395
7	Oak Creek	20			31	neg	0.057
8	Agua Fria River	24			31	neg	0.811
9	Verde River	18			31	neg	0.551
10	Tonto Creek	23			31	neg	0.838
11	Carrizo Creek	9			25	neg	0.870
12	Show Low Creek	10			31	pos	0.799
13	Little Colorado River	23	neg	0.205	31	pos	0.773
14	Salt River	38	neg	0.024	31	neg	0.932
15	Black River	6			31	neg	0.905
16	White River	6			31	neg	0.959
17	San Carlos River	34	neg	0.415	31	pos	0.552
18	San Francisco River	34	neg	0.789	31	pos	0.683
19	Gila River	36	neg	0.099	31	pos	0.683
20	Santa Cruz River	31	neg	0.255	31	neg	0.786
21	San Pedro River	34	neg	0.001	31	neg	0.683




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in annual flow for periods of PDO <sup>3</sup>								
		1925-46			1947-76			1977-98		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				19	neg	0.006	20	neg	0.206
2	Coal Creek	10	neg	0.472	30	pos	0.668	22	neg	0.516
3	Sevier River	11	pos	0.815	30	pos	0.929	22	neg	0.446
4	Pine Creek				24	pos	0.206	22	pos	0.672
5	Virgin River	22	pos	0.462	25	pos	0.262	20	neg	0.153
6	Paria River	22	neg	0.284	30	pos	0.957	22	neg	0.611
7	Oak Creek				28	pos	0.707	22	neg	0.297
8	Agua Fria River				30	pos	0.269	22	neg	0.225
9	Verde River				30	pos	0.486	22	neg	0.480
10	Tonto Creek				30	pos	0.721	22	neg	0.247
11	Carrizo Creek				17	pos	0.592	21	neg	0.097
12	Show Low Creek				23	pos	0.086	22	neg	0.382
13	Little Colorado River				30	pos	0.401	22	neg	0.230
14	Salt River	22	neg	0.778	30	pos	0.326	22	neg	0.397
15	Black River				19	neg	0.484	22	neg	0.481
16	White River				19	pos	0.752	22	neg	0.429
17	San Carlos River	17	neg	0.149	30	pos	0.443	22	neg	0.430
18	San Francisco River	17	neg	0.216	30	pos	0.246	22	pos	0.977
19	Gila River	19	neg	0.529	30	pos	0.260	22	pos	0.592
20	Santa Cruz River	14	neg	0.048	30	pos	0.080	22	neg	0.236
21	San Pedro River	18	neg	0.045	30	neg	0.253	22	neg	0.034




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10



Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in winter-spring flow for periods of PDO <sup>3</sup>								
		1925-46			1947-76			1977-98		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				19	neg	0.002	20	neg	0.284
2	Coal Creek	10	neg	0.653	30	pos	1.000	22	neg	0.631
3	Sevier River	11	neg	0.876	30	neg	0.802	22	neg	0.480
4	Pine Creek				24	pos	0.358	22	pos	0.572
5	Virgin River	22	pos	0.296	25	pos	0.590	20	neg	0.153
6	Paria River	22	pos	0.225	30	pos	0.390	22	neg	0.271
7	Oak Creek				28	pos	0.649	22	neg	0.446
8	Agua Fria River				30	pos	0.143	22	neg	0.397
9	Verde River				30	pos	0.411	22	neg	0.430
10	Tonto Creek				30	pos	0.630	22	neg	0.297
11	Carrizo Creek				17	pos	0.711	21	neg	0.097
12	Show Low Creek				23	pos	0.161	22	neg	0.446
13	Little Colorado River				30	pos	0.335	22	neg	0.498
14	Salt River	22	pos	1.000	30	pos	0.412	22	neg	0.382
15	Black River				19	neg	0.753	22	neg	0.413
16	White River				19	pos	0.624	22	neg	0.350
17	San Carlos River	17	neg	0.303	30	pos	0.498	22	neg	0.631
18	San Francisco River	17	neg	0.509	30	pos	0.232	22	pos	0.843
19	Gila River	19	pos	0.916	30	pos	0.580	22	pos	0.977
20	Santa Cruz River	14	neg	0.001	30	neg	0.580	22	neg	0.652
21	San Pedro River	18	pos	0.196	30	pos	0.761	22	neg	0.247




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in summer flow for periods of PDO <sup>3</sup>								
		1925-46			1947-76			1977-98		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				19	neg	0.780	20	neg	0.163
2	Coal Creek	10	neg	0.788	30	pos	0.464	22	neg	0.413
3	Sevier River	11	pos	1.000	30	pos	0.915	22	neg	0.397
4	Pine Creek				24	pos	0.033	22	pos	0.910
5	Virgin River	22	neg	0.283	25	pos	0.039	20	neg	0.119
6	Paria River	22	neg	0.204	30	neg	0.292	22	neg	0.714
7	Oak Creek				28	neg	0.171	22	neg	0.591
8	Agua Fria River				30	neg	0.292	22	neg	0.271
9	Verde River				30	neg	0.308	22	neg	0.204
10	Tonto Creek				30	neg	0.362	22	neg	0.158
11	Carrizo Creek				17	neg	0.680	21	neg	0.027
12	Show Low Creek				23	pos	0.397	22	neg	0.127
13	Little Colorado River				30	pos	0.915	22	neg	0.045
14	Salt River	22	neg	0.014	30	pos	0.986	22	neg	0.259
15	Black River				19	neg	0.600	22	neg	0.204
16	White River				19	pos	0.363	22	neg	0.283
17	San Carlos River	17	neg	0.039	30	neg	0.301	22	neg	0.259
18	San Francisco River	17	neg	0.013	30	pos	0.748	22	neg	0.572
19	Gila River	19	neg	0.099	30	pos	0.268	22	pos	0.735
20	Santa Cruz River	14	neg	0.298	30	neg	0.901	22	neg	0.296
21	San Pedro River	18	pos	1.000	30	neg	0.080	22	neg	0.108




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in fall flow for periods of PDO <sup>3</sup>								
		1925-46			1947-76			1977-98		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				19	pos	0.625	20	neg	0.327
2	Coal Creek	10	neg	0.592	30	pos	0.031	22	pos	0.843
3	Sevier River	11	pos	0.754	30	pos	0.816	22	pos	1.000
4	Pine Creek				24	pos	0.297	22	pos	0.516
5	Virgin River	22	neg	0.323	25	pos	0.261	20	neg	0.537
6	Paria River	22	pos	0.910	30	pos	0.943	22	pos	0.535
7	Oak Creek				28	pos	0.607	22	neg	0.478
8	Agua Fria River				30	pos	0.669	22	pos	0.955
9	Verde River				30	pos	0.401	22	neg	0.396
10	Tonto Creek				30	pos	0.097	22	neg	0.235
11	Carrizo Creek				17	pos	0.117	21	neg	0.319
12	Show Low Creek				23	pos	0.017	22	neg	0.185
13	Little Colorado River				30	pos	0.026	22	neg	0.693
14	Salt River	22	neg	0.463	30	pos	0.047	22	neg	0.821
15	Black River				19	neg	0.889	22	neg	0.910
16	White River				19	pos	0.441	22	neg	0.714
17	San Carlos River	17	pos	0.322	30	pos	0.020	22	neg	0.382
18	San Francisco River	17	neg	0.934	30	pos	0.010	22	neg	0.693
19	Gila River	19	neg	0.726	30	pos	0.025	22	pos	0.337
20	Santa Cruz River	14	neg	0.063	30	pos	0.412	22	neg	0.055
21	San Pedro River	18	neg	0.053	30	pos	0.586	22	neg	0.167




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in annual flow for periods of AMO-PDO <sup>3</sup>								
		1926-46			1947-63			1964-76		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				9	neg	0.076	11	neg	0.161
2	Coal Creek	10	neg	0.472	17	neg	0.303	13	neg	0.360
3	Sevier River	10	pos	0.928	17	neg	0.091	13	neg	0.295
4	Pine Creek				11	pos	0.533	13	pos	1.000
5	Virgin River	21	pos	0.650	17	neg	0.343	8	pos	0.901
6	Paria River	21	neg	0.381	17	pos	0.592	13	neg	1.000
7	Oak Creek				16	neg	0.478	13	neg	0.428
8	Agua Fria River				17	pos	0.458	13	neg	0.200
9	Verde River				17	neg	0.592	13	neg	0.360
10	Tonto Creek				17	pos	0.934	13	neg	0.951
11	Carrizo Creek				9	neg	0.602	10	pos	1.000
12	Show Low Creek				10	pos	0.474	13	pos	0.668
13	Little Colorado River				17	neg	0.934	13	neg	0.328
14	Salt River	21	neg	0.414	17	pos	0.680	13	neg	0.760
15	Black River				6			13	neg	0.502
16	White River				6			13	neg	0.625
17	San Carlos River	17	neg	0.149	17	pos	0.592	13	neg	0.669
18	San Francisco River	17	neg	0.216	17	pos	0.174	13	neg	0.583
19	Gila River	19	neg	0.529	17	pos	0.836	13	pos	0.951
20	Santa Cruz River	14	neg	0.048	17	pos	0.231	13	neg	1.000
21	San Pedro River	17	neg	0.013	17	neg	0.386	13	neg	0.903




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in winter-spring flow for periods of AMO-PDO <sup>3</sup>								
		1926-46			1947-63			1964-76		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				9	neg	0.118	11	neg	0.161
2	Coal Creek	10	neg	0.653	17	neg	0.216	13	neg	0.179
3	Sevier River	10	neg	0.471	17	neg	0.107	13	neg	0.540
4	Pine Creek				11	pos	0.436	13	pos	0.625
5	Virgin River	21	pos	0.486	17	neg	0.126	8	pos	1.000
6	Paria River	21	pos	0.432	17	neg	0.300	13	pos	0.854
7	Oak Creek				16	neg	0.478	13	neg	0.541
8	Agua Fria River				17	neg	0.434	13	neg	0.428
9	Verde River				17	neg	0.409	13	neg	0.502
10	Tonto Creek				17	neg	0.564	13	neg	1.000
11	Carrizo Creek				9	neg	0.754	10	pos	1.000
12	Show Low Creek				10	pos	0.283	13	pos	1.000
13	Little Colorado River				17	neg	0.902	13	neg	0.541
14	Salt River	21	pos	0.651	17	pos	0.837	13	neg	1.000
15	Black River				6			13	neg	0.951
16	White River				6			13	pos	1.000
17	San Carlos River	17	neg	0.303	17	pos	0.509	13	neg	1.000
18	San Francisco River	17	neg	0.509	17	pos	0.433	13	neg	0.959
19	Gila River	19	pos	0.916	17	pos	0.869	13	pos	0.669
20	Santa Cruz River	14	neg	0.001	17	pos	0.458	13	neg	0.392
21	San Pedro River	17	pos	0.035	17	pos	0.772	13	neg	0.807




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in summer flow for periods of AMO-PDO <sup>3</sup>								
		1926-46			1947-63			1964-76		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				9	neg	0.118	11	pos	1.000
2	Coal Creek	10	neg	0.788	17	neg	0.364	13	neg	0.360
3	Sevier River	10	pos	1.000	17	neg	0.070	13	neg	0.360
4	Pine Creek				11	pos	0.876	13	neg	0.951
5	Virgin River	21	neg	0.449	17	neg	0.509	8	pos	0.445
6	Paria River	21	neg	0.319	17	neg	0.773	13	neg	0.428
7	Oak Creek				16	pos	0.718	13	neg	0.324
8	Agua Fria River				17	neg	0.537	13	neg	0.854
9	Verde River				17	neg	0.536	13	neg	0.074
10	Tonto Creek				17	neg	0.458	13	neg	0.360
11	Carrizo Creek				9	neg	0.529	10	pos	0.592
12	Show Low Creek				10	neg	0.786	13	pos	0.087
13	Little Colorado River				17	neg	0.564	13	neg	0.502
14	Salt River	21	neg	0.009	17	neg	0.967	13	neg	0.200
15	Black River				6			13	neg	0.112
16	White River				6			13	neg	0.583
17	San Carlos River	17	neg	0.039	17	neg	0.387	13	pos	0.360
18	San Francisco River	17	neg	0.013	17	pos	0.564	13	neg	0.141
19	Gila River	19	neg	0.099	17	pos	0.901	13	neg	0.903
20	Santa Cruz River	14	neg	0.298	17	neg	0.592	13	neg	0.903
21	San Pedro River	17	pos	0.967	17	neg	0.232	13	neg	0.855




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in fall flow for periods of AMO-PDO <sup>3</sup>								
		1926-46			1947-63			1964-76		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>	N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash				9	neg	0.029	11	pos	0.436
2	Coal Creek	10	neg	0.592	17	pos	0.265	13	neg	1.000
3	Sevier River	10	pos	0.788	17	neg	0.302	13	neg	0.300
4	Pine Creek				11	pos	0.161	13	pos	0.669
5	Virgin River	21	neg	0.506	17	pos	0.248	8	pos	0.711
6	Paria River	21	pos	0.650	17	pos	0.161	13	pos	0.951
7	Oak Creek				16	neg	0.752	13	neg	0.583
8	Agua Fria River				17	pos	0.343	13	neg	0.669
9	Verde River				17	pos	0.457	13	pos	0.711
10	Tonto Creek				17	pos	0.044	13	pos	0.806
11	Carrizo Creek				9	pos	0.834	10	pos	1.000
12	Show Low Creek				10	pos	0.788	13	pos	0.463
13	Little Colorado River				17	pos	0.967	13	neg	0.854
14	Salt River	21	neg	0.717	17	pos	0.343	13	neg	0.583
15	Black River				6			13	neg	0.582
16	White River				6			13	neg	0.541
17	San Carlos River	17	pos	0.322	17	pos	0.161	13	pos	1.000
18	San Francisco River	17	neg	0.934	17	pos	0.006	13	pos	1.000
19	Gila River	19	neg	0.726	17	pos	0.117	13	pos	0.583
20	Santa Cruz River	14	neg	0.063	17	pos	0.710	13	neg	0.246
21	San Pedro River	17	neg	0.008	17	pos	0.902	13	neg	0.714




		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in annual flow for periods of AMO-PDO <sup>3</sup>		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	16	neg	0.260
2	Coal Creek	18	neg	0.197
3	Sevier River	18	neg	0.225
4	Pine Creek	18	pos	0.519
5	Virgin River	16	neg	0.038
6	Paria River	18	neg	0.254
7	Oak Creek	18	neg	0.343
8	Agua Fria River	18	neg	0.495
9	Verde River	18	neg	0.677
10	Tonto Creek	18	neg	0.544
11	Carrizo Creek	17	neg	0.303
12	Show Low Creek	18	neg	0.850
13	Little Colorado River	18	neg	0.880
14	Salt River	18	neg	0.791
15	Black River	18	neg	0.909
16	White River	18	neg	0.879
17	San Carlos River	18	pos	0.880
18	San Francisco River	18	pos	0.705
19	Gila River	18	pos	0.519
20	Santa Cruz River	18	neg	0.909
21	San Pedro River	18	neg	0.103


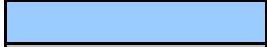

		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10



Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in winter-spring flow for periods of AMO-PDO <sup>3</sup>		
		1977-94		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	16	neg	0.392
2	Coal Creek	18	neg	0.471
3	Sevier River	18	neg	0.305
4	Pine Creek	18	pos	0.733
5	Virgin River	16	neg	0.043
6	Paria River	18	neg	0.225
7	Oak Creek	18	neg	0.519
8	Agua Fria River	18	neg	0.704
9	Verde River	18	neg	0.545
10	Tonto Creek	18	neg	0.544
11	Carrizo Creek	17	neg	0.266
12	Show Low Creek	18	neg	0.791
13	Little Colorado River	18	neg	1.000
14	Salt River	18	neg	0.705
15	Black River	18	neg	0.762
16	White River	18	neg	0.622
17	San Carlos River	18	pos	0.880
18	San Francisco River	18	pos	0.570
19	Gila River	18	pos	0.909
20	Santa Cruz River	18	pos	0.940
21	San Pedro River	18	neg	0.519


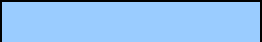

		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in summer flow for periods of AMO-PDO <sup>3</sup>		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	16	neg	0.079
2	Coal Creek	18	neg	0.139
3	Sevier River	18	neg	0.185
4	Pine Creek	18	pos	0.820
5	Virgin River	16	neg	0.017
6	Paria River	18	pos	0.970
7	Oak Creek	18	neg	0.224
8	Agua Fria River	18	neg	0.343
9	Verde River	18	pos	0.970
10	Tonto Creek	18	pos	0.909
11	Carrizo Creek	17	neg	0.090
12	Show Low Creek	18	neg	0.909
13	Little Colorado River	18	neg	0.676
14	Salt River	18	neg	0.791
15	Black River	18	neg	0.940
16	White River	18	neg	0.791
17	San Carlos River	18	pos	0.850
18	San Francisco River	18	pos	0.791
19	Gila River	18	pos	0.404
20	Santa Cruz River	18	neg	0.791
21	San Pedro River	18	neg	0.240


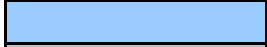

		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B. Supplementary data for table 3 (Stationarity of seasonal streamflows within positive or negative climatic periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Trend in fall flow for periods of AMO-PDO <sup>3</sup>		
		N <sup>4</sup>	Slope <sup>5</sup>	p-value <sup>6</sup>
1	Meadow Valley Wash	16	neg	0.092
2	Coal Creek	18	neg	0.363
3	Sevier River	18	neg	0.272
4	Pine Creek	18	neg	0.762
5	Virgin River	16	neg	0.033
6	Paria River	18	pos	0.820
7	Oak Creek	18	neg	1.000
8	Agua Fria River	18	neg	0.940
9	Verde River	18	neg	0.761
10	Tonto Creek	18	neg	0.790
11	Carrizo Creek	17	neg	0.773
12	Show Low Creek	18	neg	0.879
13	Little Colorado River	18	pos	0.596
14	Salt River	18	pos	0.254
15	Black River	18	pos	0.185
16	White River	18	pos	0.519
17	San Carlos River	18	pos	0.880
18	San Francisco River	18	pos	0.120
19	Gila River	18	pos	0.305
20	Santa Cruz River	18	neg	0.596
21	San Pedro River	18	neg	0.519

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>Trend in flow within climatic period was determined using a Kendall's tau significance test for monotonic trends.

<sup>4</sup>Number of years of flow within climatic period.

<sup>5</sup>Positive (pos) or negative (neg) slope of monotonic trend

<sup>6</sup>p-value for test of significance of monotonic trend.


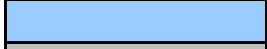




		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

Table B2. Supplementary data for table 3 (Stationarity of seasonal streamflows ...). Tests for monotonic trends in annual and seasonal streamflow for the full records and for 1941 - 2003 for streamflow ga stations in the Lower Colorado River Basin.




A. Annual streamflow (full record)

Map no. <sup>1</sup>	Stream	Slope of trend <sup>2</sup>	Period of record	N <sup>3</sup>
1	Meadow Valley Wash	neg	1952-03	45
2	Coal Creek	neg	1936-03	67
3	Sevier River	neg	1915-03	78
4	Pine Creek	pos	1951-03	51
5	Virgin River	neg	1910-03	87
6	Paria River	neg	1924-03	80
7	Oak Creek	neg	1941-03	60
8	Agua Fria River	pos	1940-64	64
9	Verde River	pos	1946-03	58
10	Tonto Creek	neg	1941-03	63
11	Carrizo Creek	neg	1952-03	43
12	Show Low Creek	pos	1954-03	50
13	Little Colorado River	neg	1941-03	63
14	Salt River	neg	1914-03	90
15	Black River	neg	1958-03	46
16	White River	neg	1958-03	46
17	San Carlos River	pos	1930-03	74
18	San Francisco River	pos	1928-03	74
19	Gila River	pos	1928-03	76
20	Santa Cruz River	neg	1930-03	71
21	San Pedro River	neg	1913-03	87

	p-value
	Significant monotonic trend < 0.05
	Nearly significant monotonic trend 0.05 - 0.10
	Non-significant monotonic trend > 0.10




B. Winter-spring streamflow (full record)

Map no.	Stream	Slope of trend	Period of record	N
1	Meadow Valley Wash	neg	1952-03	45
2	Coal Creek	neg	1936-03	67
3	Sevier River	neg	1915-03	78
4	Pine Creek	pos	1951-03	51
5	Virgin River	neg	1910-03	87
6	Paria River	pos	1924-03	80
7	Oak Creek	neg	1941-03	60
8	Agua Fria River	pos	1940-64	64
9	Verde River	pos	1946-03	58
10	Tonto Creek	pos	1941-03	63
11	Carrizo Creek	neg	1952-03	43
12	Show Low Creek	pos	1954-03	50
13	Little Colorado River	pos	1941-03	63
14	Salt River	neg	1914-03	90
15	Black River	neg	1958-03	46
16	White River	neg	1958-03	46
17	San Carlos River	pos	1930-03	74
18	San Francisco River	pos	1928-03	74
19	Gila River	pos	1928-03	76
20	Santa Cruz River	neg	1930-03	71
21	San Pedro River	neg	1913-03	87

		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10




C. Summer streamflow (full record)

Map no.	Stream	Slope of trend	Period of record	N
1	Meadow Valley Wash	neg	1952-03	45
2	Coal Creek	neg	1936-03	67
3	Sevier River	neg	1915-03	78
4	Pine Creek	pos	1951-03	51
5	Virgin River	neg	1910-03	87
6	Paria River	neg	1924-03	80
7	Oak Creek	neg	1941-03	60
8	Agua Fria River	neg	1940-64	64
9	Verde River	neg	1946-03	58
10	Tonto Creek	neg	1941-03	63
11	Carrizo Creek	neg	1952-03	43
12	Show Low Creek	neg	1954-03	50
13	Little Colorado River	neg	1941-03	63
14	Salt River	neg	1914-03	90
15	Black River	neg	1958-03	46
16	White River	neg	1958-03	46
17	San Carlos River	neg	1930-03	74
18	San Francisco River	neg	1928-03	74
19	Gila River	pos	1928-03	76
20	Santa Cruz River	neg	1930-03	71
21	San Pedro River	neg	1913-03	87

		<u>p-value</u>
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10




D. Fall streamflow (full record)

Map no.	Stream	Slope of trend	Period of record	N
1	Meadow Valley Wash	neg	1952-03	45
2	Coal Creek	pos	1936-03	67
3	Sevier River	neg	1915-03	78
4	Pine Creek	pos	1951-03	51
5	Virgin River	neg	1910-03	87
6	Paria River	neg	1924-03	80
7	Oak Creek	pos	1941-03	60
8	Agua Fria River	pos	1940-64	64
9	Verde River	pos	1946-03	58
10	Tonto Creek	neg	1941-03	63
11	Carrizo Creek	pos	1952-03	43
12	Show Low Creek	neg	1954-03	50
13	Little Colorado River	pos	1941-03	63
14	Salt River	neg	1914-03	90
15	Black River	neg	1958-03	46
16	White River	neg	1958-03	46
17	San Carlos River	pos	1930-03	74
18	San Francisco River	pos	1928-03	74
19	Gila River	pos	1928-03	76
20	Santa Cruz River	neg	1930-03	71
21	San Pedro River	neg	1913-03	87

		p-value
	Significant monotonic trend	< 0.05
	Nearly significant monotonic trend	0.05 - 0.10
	Non-significant monotonic trend	> 0.10

A. Annual streamflow (1941 - 2003)




Map no. <sup>1</sup>	Stream	Slope of trend <sup>2</sup>	N <sup>3</sup>
2	Coal Creek	negative	63
3	Sevier River	negative	63
5	Virgin River	negative	56
6	Paria River	negative	63
7	Oak Creek	negative	60
8	Agua Fria River	positive	63
10	Tonto Creek	negative	63
13	Little Colorado River	negative	63
14	Salt River	positive	63
17	San Carlos River	positive	63
18	San Francisco River	positive	63
19	Gila River	positive	63
20	Santa Cruz River	positive	71
21	San Pedro River	negative	87

	p-value
	Significant monotonic trend < 0.05
	Nearly significant monotonic trend 0.05 - 0.10
	Non-significant monotonic trend > 0.10






B. Winter-spring streamflow (1941 - 2003)

Map no. <sup>1</sup>	Stream	Slope of trend <sup>2</sup>	N <sup>3</sup>
2	Coal Creek	positive	63
3	Sevier River	negative	63
5	Virgin River	negative	56
6	Paria River	negative	63
7	Oak Creek	negative	60
8	Agua Fria River	positive	63
10	Tonto Creek	positive	63
13	Little Colorado River	positive	63
14	Salt River	positive	63
17	San Carlos River	positive	63
18	San Francisco River	positive	63
19	Gila River	positive	63
20	Santa Cruz River	positive	71
21	San Pedro River	negative	87

	p-value
	Significant monotonic trend < 0.05
	Nearly significant monotonic trend 0.05 - 0.10
	Non-significant monotonic trend > 0.10




C. Summer streamflow (1941 - 2003)

Map no. <sup>1</sup>	Stream	Slope of trend <sup>2</sup>	N <sup>3</sup>
2	Coal Creek	negative	63
3	Sevier River	negative	63
5	Virgin River	negative	56
6	Paria River	negative	63
7	Oak Creek	negative	60
8	Agua Fria River	negative	63
10	Tonto Creek	negative	63
13	Little Colorado River	negative	63
14	Salt River	negative	63
17	San Carlos River	negative	63
18	San Francisco River	negative	63
19	Gila River	positive	63
20	Santa Cruz River	negative	71
21	San Pedro River	negative	87

	p-value
	Significant monotonic trend < 0.05
	Nearly significant monotonic trend 0.05 - 0.10
	Non-significant monotonic trend > 0.10

D. Fall streamflow (1941 - 2003)

Map no. <sup>1</sup>	Stream	Slope of trend <sup>2</sup>	N <sup>3</sup>
2	Coal Creek	positive	63
3	Sevier River	negative	63
5	Virgin River	negative	56
6	Paria River	negative	63
7	Oak Creek	positive	60
8	Agua Fria River	positive	63
10	Tonto Creek	negative	63
13	Little Colorado River	positive	63
14	Salt River	positive	63
17	San Carlos River	positive	63
18	San Francisco River	positive	63
19	Gila River	positive	63
20	Santa Cruz River	positive	71
21	San Pedro River	negative	87

	p-value
	Significant monotonic trend < 0.05
	Nearly significant monotonic trend 0.05 - 0.10
	Non-significant monotonic trend > 0.10

<sup>1</sup>See figure 1.

<sup>2</sup>Slope of trend, neg is negative, pos is positive

<sup>3</sup>N, number of years of record

<sup>4</sup>Kendall's tau test for monotonic trend

ging

---

Kendall's  
tau  
p-value<sup>4</sup>

---

<0.001

0.901

0.003

0.097

<0.001

0.003

0.403

0.480

0.564

0.953

0.691

0.645

0.713

0.265

0.663

0.940

0.588

0.251

0.227

0.754

<0.001

---

---

Kendall  
tau  
p-value

---

0.001

1.000

0.001

0.196

0.002

0.930

0.601

0.072

0.405

0.662

0.606

0.586

0.920

0.443

0.609

1.000

0.547

0.261

0.402

0.532

0.085

---

---

Kendall  
tau  
p-value

---

<.001

0.782

0.020

0.073

0.001

0.002

0.011

0.002

0.010

0.095

0.761

0.967

0.049

0.004

0.383

0.677

0.119

0.223

0.760

0.001

0.001

---

---

Kendall  
tau  
p-value

---

<0.001

0.901

0.002

0.030

0.001

0.128

0.873

0.635

0.164

0.877

0.385

0.498

0.602

0.395

0.842

0.719

0.133

0.383

0.294

0.637

0.001

---

---

Kendall's  
tau  
p-value<sup>4</sup>

---

0.920

0.448

0.425

0.196

0.403

0.518

0.953

0.713

0.652

0.213

0.112

0.126

0.862

<0.001

---



---

Kendall's  
tau  
p-value<sup>4</sup>

---

0.995

0.427

0.425

0.695

0.597

0.085

0.635

0.929

0.695

0.238

0.099

0.325

0.954

0.249

---

---

Kendall's  
tau  
p-value<sup>4</sup>

---

0.557

0.393

0.261

0.005

0.012

0.003

0.094

0.044

0.859

0.799

0.854

0.313

0.010

<0.001

---

---

Kendall's  
tau  
p-value<sup>4</sup>

---

0.380  
0.530  
0.312  
0.767

0.909  
0.437  
0.868  
0.602  
0.355  
0.250  
0.132

0.043

0.543  
0.188

---

Table C. Supplementary data for table 4 (Significance tests for differences in seasonal mean streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin)

A. Annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean annual streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.918	0.142	0.153
2	Coal Creek	67	0.184	0.123	0.270
3	Sevier River	78	0.030	0.642	0.140
4	Pine Creek	51	0.267	0.073	0.134
5	Virgin River	87	0.003	1.000	0.040
6	Paria River	80	0.350	0.064	0.042
7	Oak Creek	60	0.151	0.249	0.377
8	Agua Fria River	64	0.011	0.120	0.088
9	Verde River	58	0.007	0.088	0.099
10	Tonto Creek	63	0.045	0.079	0.199
11	Carrizo Creek	43	0.010	0.150	0.148
12	Show Low Creek	50	0.003	0.064	0.034
13	Little Colorado River	63	0.015	0.266	0.219
14	Salt River	90	0.001	0.232	0.039
15	Black River	46	0.087	0.129	0.216
16	White River	46	0.022	0.061	0.086
17	San Carlos River	74	0.029	0.002	0.005
18	San Francisco River	74	0.049	0.069	0.098
19	Gila River	76	0.024	0.025	0.031
20	Santa Cruz River	71	0.024	0.657	0.426
21	San Pedro River	87	0.561	0.676	0.011




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for table 4 (Significance tests for differences in seasonal mean streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

B. Winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean winter-spring streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.774	0.383	0.086
2	Coal Creek	67	0.274	0.074	0.276
3	Sevier River	78	0.071	0.670	0.094
4	Pine Creek	51	0.423	0.144	0.305
5	Virgin River	87	0.006	0.749	0.049
6	Paria River	80	0.115	0.193	0.209
7	Oak Creek	60	0.151	0.162	0.304
8	Agua Fria River	64	0.011	0.002	0.001
9	Verde River	58	0.004	0.049	0.049
10	Tonto Creek	63	0.016	0.025	0.061
11	Carrizo Creek	43	0.006	0.091	0.096
12	Show Low Creek	50	0.007	0.044	0.048
13	Little Colorado River	63	0.013	0.150	0.162
14	Salt River	90	0.025	0.170	0.054
15	Black River	46	0.092	0.154	0.264
16	White River	46	0.035	0.061	0.105
17	San Carlos River	74	0.097	0.004	0.019
18	San Francisco River	74	0.060	0.019	0.047
19	Gila River	76	0.083	0.057	0.100
20	Santa Cruz River	71	0.120	0.549	0.685
21	San Pedro River	87	0.812	0.051	0.028




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for table 4 (Significance tests for differences in seasonal mean streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

C. Summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean summer streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.292	0.001	0.005
2	Coal Creek	67	0.119	0.522	0.356
3	Sevier River	78	0.021	0.522	0.343
4	Pine Creek	51	0.052	0.075	0.029
5	Virgin River	87	0.001	0.212	0.086
6	Paria River	80	0.269	0.398	0.148
7	Oak Creek	60	0.725	0.001	0.003
8	Agua Fria River	64	0.327	0.111	0.159
9	Verde River	58	0.337	0.547	0.843
10	Tonto Creek	63	0.159	0.680	0.874
11	Carrizo Creek	43	0.384	0.496	0.542
12	Show Low Creek	50	0.006	0.102	0.049
13	Little Colorado River	63	0.332	0.809	0.410
14	Salt River	90	0.017	0.850	0.410
15	Black River	46	0.038	0.565	0.514
16	White River	46	0.003	0.360	0.060
17	San Carlos River	74	0.518	0.143	0.297
18	San Francisco River	74	0.336	0.370	0.709
19	Gila River	76	0.137	0.036	0.145
20	Santa Cruz River	71	0.982	0.138	0.255
21	San Pedro River	87	0.107	0.010	0.001




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for table 4 (Significance tests for differences in seasonal mean streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

D. Fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean fall streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.479	0.013	0.032
2	Coal Creek	67	0.305	0.042	0.057
3	Sevier River	78	0.048	0.352	0.042
4	Pine Creek	51	0.870	0.068	0.264
5	Virgin River	87	0.053	0.419	0.340
6	Paria River	80	0.149	0.140	0.125
7	Oak Creek	60	0.702	0.052	0.148
8	Agua Fria River	64	0.707	0.313	0.782
9	Verde River	58	0.702	0.164	0.680
10	Tonto Creek	63	0.087	0.919	0.726
11	Carrizo Creek	43	0.059	0.178	0.106
12	Show Low Creek	50	0.001	0.460	0.040
13	Little Colorado River	63	0.007	0.276	0.026
14	Salt River	90	0.041	0.242	0.028
15	Black River	46	0.342	0.565	0.833
16	White River	46	0.030	0.958	0.341
17	San Carlos River	74	0.014	0.060	0.020
18	San Francisco River	74	0.224	0.380	0.255
19	Gila River	76	0.222	0.039	0.048
20	Santa Cruz River	71	0.058	0.743	0.446
21	San Pedro River	87	0.876	0.178	0.001




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for differences in seasonal mean streamflow among positive and negative periods of SOI, AMO AND SOI, and PDO and SOI, individual sites in Lower Colorado River Basin)

A. Annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean annual streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO AND SOI p-value	PDO AND SOI p-value
1	Meadow Valley Wash	45	0.168	0.560	0.063
2	Coal Creek	67	0.045	0.141	0.065
3	Sevier River	78	0.404	0.122	0.713
4	Pine Creek	51	0.599	0.697	0.249
5	Virgin River	87	0.559	0.031	0.938
6	Paria River	80	0.029	0.114	0.031
7	Oak Creek	60	0.003	0.020	0.033
8	Agua Fria River	64	0.071	0.020	0.190
9	Verde River	58	0.010	0.005	0.062
10	Tonto Creek	63	0.058	0.058	0.174
11	Carrizo Creek	43	0.052	0.021	0.384
12	Show Low Creek	50	0.144	0.013	0.263
13	Little Colorado River	63	0.217	0.072	0.480
14	Salt River	90	0.021	0.004	0.129
15	Black River	46	0.033	0.067	0.182
16	White River	46	0.030	0.025	0.117
17	San Carlos River	74	0.053	0.007	0.013
18	San Francisco River	74	0.118	0.105	0.143
19	Gila River	76	0.125	0.063	0.092
20	Santa Cruz River	71	0.349	0.052	0.237
21	San Pedro River	87	0.234	0.327	0.528




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10



Table C. Supplementary data for differences in seasonal mean streamflow among positive and negative periods of SOI, AMO AND SOI, and PDO and SOI, individual sites in Lower Colorado River Basin) -- continued

A. Winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean winter-spring streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO AND SOI p-value	PDO AND SOI p-value
1	Meadow Valley Wash	45	0.100	0.337	0.099
2	Coal Creek	67	0.067	0.246	0.049
3	Sevier River	78	0.381	0.344	0.627
4	Pine Creek	51	0.906	0.883	0.230
5	Virgin River	87	0.600	0.022	0.505
6	Paria River	80	0.097	0.169	0.242
7	Oak Creek	60	0.013	0.054	0.072
8	Agua Fria River	64	0.012	0.002	0.006
9	Verde River	58	0.010	0.003	0.052
10	Tonto Creek	63	0.038	0.027	0.068
11	Carrizo Creek	43	0.104	0.022	0.305
12	Show Low Creek	50	0.172	0.040	0.221
13	Little Colorado River	63	0.053	0.029	0.186
14	Salt River	90	0.005	0.004	0.042
15	Black River	46	0.065	0.130	0.283
16	White River	46	0.084	0.085	0.180
17	San Carlos River	74	0.043	0.072	0.016
18	San Francisco River	74	0.043	0.062	0.036
19	Gila River	76	0.028	0.067	0.048
20	Santa Cruz River	71	0.160	0.180	0.303
21	San Pedro River	87	0.215	0.374	0.202




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for differences in seasonal mean streamflow among positive and negative periods of SOI, AMO AND SOI, and PDO and SOI, individual sites in Lower Colorado River Basin) -- continued

A. Summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean summer streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO AND SOI p-value	PDO AND SOI p-value
1	Meadow Valley Wash	45	0.747	0.008	0.003
2	Coal Creek	67	0.233	0.225	0.771
3	Sevier River	78	0.233	0.225	0.771
4	Pine Creek	51	0.456	0.061	0.278
5	Virgin River	87	0.488	0.016	0.739
6	Paria River	80	0.401	0.528	0.106
7	Oak Creek	60	0.150	0.522	0.003
8	Agua Fria River	64	0.250	0.451	0.288
9	Verde River	58	0.882	0.530	0.650
10	Tonto Creek	63	0.360	0.223	0.979
11	Carrizo Creek	43	0.944	0.843	0.415
12	Show Low Creek	50	0.308	0.016	0.219
13	Little Colorado River	63	0.815	0.736	0.750
14	Salt River	90	0.443	0.105	0.449
15	Black River	46	0.724	0.198	0.778
16	White River	46	0.612	0.006	0.681
17	San Carlos River	74	0.896	0.640	0.196
18	San Francisco River	74	0.786	0.611	0.882
19	Gila River	76	0.451	0.267	0.188
20	Santa Cruz River	71	0.090	0.320	0.250
21	San Pedro River	87	0.216	0.144	0.093







	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table C. Supplementary data for differences in seasonal mean streamflow among positive and negative periods of SOI, AMO AND SOI, and PDO and SOI, individual sites in Lower Colorado River Basin) -- continued

A. Fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between mean fall streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO AND SOI p-value	PDO AND SOI p-value
1	Meadow Valley Wash	45	0.896	0.564	0.076
2	Coal Creek	67	0.046	0.195	0.037
3	Sevier River	78	0.632	0.332	0.418
4	Pine Creek	51	0.711	0.958	0.201
5	Virgin River	87	0.376	0.318	0.577
6	Paria River	80	0.963	0.521	0.574
7	Oak Creek	60	0.826	0.929	0.255
8	Agua Fria River	64	0.240	0.600	0.253
9	Verde River	58	0.691	0.829	0.309
10	Tonto Creek	63	0.917	0.388	0.825
11	Carrizo Creek	43	0.602	0.171	0.432
12	Show Low Creek	50	0.921	0.001	0.869
13	Little Colorado River	63	0.295	0.028	0.559
14	Salt River	90	0.989	0.224	0.598
15	Black River	46	0.393	0.368	0.851
16	White River	46	1.000	0.125	0.964
17	San Carlos River	74	0.541	0.066	0.167
18	San Francisco River	74	0.574	0.261	0.865
19	Gila River	76	0.516	0.266	0.199
20	Santa Cruz River	71	0.345	0.093	0.952
21	San Pedro River	87	0.661	0.876	0.263

	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>A Wilcoxon rank test was used to test for differences in mean streamflow for positive and negative periods of AMO and PDO. A Kruskal-Wallis test was used to test for differences in mean streamflow for 4 periods of AMO and PDO.

Table D1. Supplementary data for table 5 (Significance tests for differences in the variance of streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin)

A. Annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of annual streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.702	0.017	0.018
2	Coal Creek	67	0.956	0.661	0.800
3	Sevier River	78	0.272	0.282	0.281
4	Pine Creek	51	0.259	0.971	0.142
5	Virgin River	87	0.097	0.446	0.197
6	Paria River	80	0.950	0.156	0.586
7	Oak Creek	60	0.294	0.144	0.194
8	Agua Fria River	64	0.028	0.250	0.334
9	Verde River	58	0.066	0.028	0.136
10	Tonto Creek	63	0.212	0.118	0.234
11	Carrizo Creek	43	0.599	0.672	0.841
12	Show Low Creek	50	0.685	0.731	0.459
13	Little Colorado River	63	0.889	0.388	0.700
14	Salt River	90	0.144	0.664	0.224
15	Black River	46	0.964	0.668	0.913
16	White River	46	0.384	0.879	0.822
17	San Carlos River	74	0.126	0.136	0.462
18	San Francisco River	74	0.034	0.828	0.117
19	Gila River	76	0.023	0.601	0.040
20	Santa Cruz River	71	0.674	0.022	0.004
21	San Pedro River	87	0.544	0.256	0.044




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D1. Supplementary data for table 5 (Significance tests for differences in the variance of streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

B. Winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of winter-spring streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.886	0.037	0.014
2	Coal Creek	67	0.923	0.950	0.735
3	Sevier River	78	0.180	0.018	0.180
4	Pine Creek	51	0.826	0.817	0.723
5	Virgin River	87	0.118	0.332	0.467
6	Paria River	80	0.593	0.276	0.257
7	Oak Creek	60	0.397	0.236	0.179
8	Agua Fria River	64	0.377	0.641	0.951
9	Verde River	58	0.186	0.101	0.278
10	Tonto Creek	63	0.677	0.800	0.942
11	Carrizo Creek	43	0.967	0.354	0.643
12	Show Low Creek	50	0.977	0.423	0.360
13	Little Colorado River	63	0.519	0.125	0.464
14	Salt River	90	0.362	0.370	0.300
15	Black River	46	0.282	0.651	0.858
16	White River	46	0.095	0.394	0.438
17	San Carlos River	74	0.131	0.517	0.432
18	San Francisco River	74	0.079	0.591	0.313
19	Gila River	76	0.027	0.835	0.124
20	Santa Cruz River	71	0.056	0.036	0.002
21	San Pedro River	87	0.006	0.149	<0.001




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D1. Supplementary data for table 5 (Significance tests for differences in the variance of streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

C. Summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of summer streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.008	0.028	0.021
2	Coal Creek	67	0.527	0.289	0.678
3	Sevier River	78	0.678	0.816	0.730
4	Pine Creek	51	0.018	0.306	0.234
5	Virgin River	87	0.931	0.271	0.113
6	Paria River	80	0.114	0.663	0.482
7	Oak Creek	60	0.375	0.923	0.998
8	Agua Fria River	64	0.609	0.394	0.599
9	Verde River	58	0.054	0.448	0.040
10	Tonto Creek	63	0.088	0.346	0.066
11	Carrizo Creek	43	0.306	0.614	0.104
12	Show Low Creek	50	0.159	0.083	0.388
13	Little Colorado River	63	0.119	0.221	0.243
14	Salt River	90	0.769	0.072	0.286
15	Black River	46	0.778	0.509	0.596
16	White River	46	0.748	0.526	0.589
17	San Carlos River	74	0.648	0.375	0.743
18	San Francisco River	74	0.087	0.064	0.073
19	Gila River	76	0.754	0.904	0.716
20	Santa Cruz River	71	0.371	0.917	0.222
21	San Pedro River	87	0.264	0.021	0.596







	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D1. Supplementary data for table 5 (Significance tests for differences in the variance of streamflow among positive and negative periods of AMO and PDO, individual sites in Lower Colorado River Basin) -- continued

D. Fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of fall streamflow for positive and negative climatic periods <sup>3</sup>		
			AMO p-value	PDO p-value	AMO and PDO p-value
1	Meadow Valley Wash	45	0.150	0.842	0.354
2	Coal Creek	67	0.951	0.411	0.652
3	Sevier River	78	0.293	0.171	0.096
4	Pine Creek	51	0.392	0.646	0.425
5	Virgin River	87	0.468	0.132	0.414
6	Paria River	80	0.568	0.779	0.812
7	Oak Creek	60	0.094	0.084	0.041
8	Agua Fria River	64	0.167	0.235	0.575
9	Verde River	58	0.806	0.119	0.189
10	Tonto Creek	63	0.647	0.408	0.793
11	Carrizo Creek	43	0.448	0.368	0.096
12	Show Low Creek	50	0.514	0.328	0.360
13	Little Colorado River	63	0.445	0.091	0.213
14	Salt River	90	0.180	0.052	0.707
15	Black River	46	0.484	0.370	0.863
16	White River	46	0.431	0.987	0.949
17	San Carlos River	74	0.130	0.067	0.285
18	San Francisco River	74	0.595	0.067	0.096
19	Gila River	76	0.042	0.301	0.016
20	Santa Cruz River	71	0.932	0.624	0.940
21	San Pedro River	87	0.212	0.493	0.126

	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.



<sup>3</sup>A squared ranks test was used to test for differences in the variance of streamflow for positive and negative periods of AMO and PDO and for 4 periods of AMO and PDO.

Table D2. Supplementary data for differences in the variance of streamflow among positive and negative periods of SOI, AMO and SOI, and PDO and SOI, individual sites in Lower Colorado River Basin

A. Annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of annual streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO and SOI p-value	PDO and SOI p-value
1	Meadow Valley Wash	45	0.016	0.020	0.009
2	Coal Creek	67	0.118	0.416	0.504
3	Sevier River	78	0.510	0.210	0.071
4	Pine Creek	51	0.120	0.106	0.305
5	Virgin River	87	0.327	0.056	0.048
6	Paria River	80	0.605	0.793	0.764
7	Oak Creek	60	0.031	0.098	0.180
8	Agua Fria River	64	0.417	0.178	0.494
9	Verde River	58	0.009	0.024	0.018
10	Tonto Creek	63	0.290	0.728	0.394
11	Carrizo Creek	43	0.768	0.594	0.699
12	Show Low Creek	50	0.712	0.943	0.696
13	Little Colorado River	63	0.881	0.943	0.774
14	Salt River	90	0.325	0.706	0.394
15	Black River	46	0.854	0.947	0.856
16	White River	46	0.984	0.378	0.797
17	San Carlos River	74	0.046	0.417	0.265
18	San Francisco River	74	0.160	0.078	0.179
19	Gila River	76	0.098	0.032	0.336
20	Santa Cruz River	71	0.442	0.369	0.088
21	San Pedro River	87	0.074	0.473	0.115




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D2. Supplementary data for differences in the variance of streamflow among positive and negative periods of SOI, AMO and SOI, and PDO and SOI, individual sites in Lower Colorado River Basin -- continued

A. Winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of winter-spring streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO and SOI p-value	PDO and SOI p-value
1	Meadow Valley Wash	45	0.008	0.007	0.014
2	Coal Creek	67	0.240	0.631	0.314
3	Sevier River	78	0.542	0.268	0.072
4	Pine Creek	51	0.168	0.430	0.208
5	Virgin River	87	0.381	0.087	0.081
6	Paria River	80	0.002	0.006	0.022
7	Oak Creek	60	0.087	0.168	0.265
8	Agua Fria River	64	0.662	0.922	0.712
9	Verde River	58	0.091	0.048	0.073
10	Tonto Creek	63	0.638	0.669	0.983
11	Carrizo Creek	43	0.827	0.951	0.524
12	Show Low Creek	50	0.791	0.236	0.470
13	Little Colorado River	63	0.868	0.236	0.535
14	Salt River	90	0.287	0.867	0.495
15	Black River	46	0.407	0.381	0.488
16	White River	46	0.588	0.337	0.330
17	San Carlos River	74	0.166	0.676	0.506
18	San Francisco River	74	0.046	0.373	0.097
19	Gila River	76	0.060	0.028	0.180
20	Santa Cruz River	71	0.600	0.262	0.256
21	San Pedro River	87	0.371	0.035	0.152




	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D2. Supplementary data for differences in the variance of streamflow among positive and negative periods of SOI, AMO and SOI, and PDO and SOI, individual sites in Lower Colorado River Basin -- continued

A. Summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of summer streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO and SOI p-value	PDO and SOI p-value
1	Meadow Valley Wash	45	0.013	0.011	0.020
2	Coal Creek	67	0.906	0.788	0.703
3	Sevier River	78	0.980	0.948	0.996
4	Pine Creek	51	0.594	0.020	0.735
5	Virgin River	87	0.677	0.803	0.698
6	Paria River	80	0.424	0.644	0.758
7	Oak Creek	60	0.320	0.188	0.815
8	Agua Fria River	64	0.015	0.008	0.156
9	Verde River	58	0.303	0.110	0.544
10	Tonto Creek	63	0.387	0.074	0.218
11	Carrizo Creek	43	0.138	0.079	0.194
12	Show Low Creek	50	0.209	0.207	0.207
13	Little Colorado River	63	0.331	0.207	0.261
14	Salt River	90	0.937	0.888	0.478
15	Black River	46	0.725	0.640	0.509
16	White River	46	0.426	0.757	0.964
17	San Carlos River	74	0.281	0.530	0.601
18	San Francisco River	74	0.862	0.254	0.222
19	Gila River	76	0.272	0.650	0.977
20	Santa Cruz River	71	0.486	0.694	0.234
21	San Pedro River	87	0.515	0.778	0.012







	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

Table D2. Supplementary data for differences in the variance of streamflow among positive and negative periods of SOI, AMO and SOI, and PDO and SOI, individual sites in Lower Colorado River Basin -- continued

A. Fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	p-value for significance test of difference between the variance of fall streamflow for positive and negative climatic periods <sup>3</sup>		
			SOI p-value	AMO and SOI p-value	PDO and SOI p-value
1	Meadow Valley Wash	45	0.467	0.006	0.550
2	Coal Creek	67	0.939	0.554	0.424
3	Sevier River	78	0.202	0.145	0.664
4	Pine Creek	51	0.512	0.582	0.553
5	Virgin River	87	0.373	0.060	0.453
6	Paria River	80	0.441	0.579	0.938
7	Oak Creek	60	0.596	0.266	0.251
8	Agua Fria River	64	0.607	0.149	0.447
9	Verde River	58	0.016	0.054	0.134
10	Tonto Creek	63	0.785	0.130	0.853
11	Carrizo Creek	43	0.966	0.284	0.658
12	Show Low Creek	50	0.366	0.127	0.813
13	Little Colorado River	63	0.061	0.127	0.129
14	Salt River	90	0.499	0.065	0.060
15	Black River	46	0.249	0.083	0.152
16	White River	46	0.070	0.185	0.548
17	San Carlos River	74	0.774	0.139	0.303
18	San Francisco River	74	0.170	0.048	0.040
19	Gila River	76	0.366	0.037	0.567
20	Santa Cruz River	71	0.344	0.614	0.533
21	San Pedro River	87	0.714	0.561	0.921

	p-value
	Significant difference < 0.05
	Nearly significant difference 0.05-0.10
	No significant difference > 0.10

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>A squared ranks test was used to test for differences in the variance of streamflow for positive and negative periods of AMO and PDO and for 4 periods of AMO and PDO.

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin).

A. AMO and annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between AMO and annual flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.07	-0.22	-0.18	-0.13
2	Coal Creek	66	-0.02	-0.24	-0.31	-0.21
3	Sevier River	78	-0.29	-0.41	-0.47	-0.44
4	Pine Creek	51	0.02	-0.05	-0.12	-0.17
5	Virgin River	87	-0.36	-0.43	-0.52	-0.50
6	Paria River	80	-0.01	-0.15	-0.09	-0.09
7	Oak Creek	59	-0.10	-0.34	-0.33	-0.26
8	Agua Fria River	64	-0.08	-0.21	-0.33	-0.27
9	Verde River	58	-0.14	-0.40	-0.37	-0.34
10	Tonto Creek	63	-0.15	-0.38	-0.35	-0.26
11	Carrizo Creek	42	-0.25	-0.55	-0.48	-0.42
12	Show Low Creek	50	-0.32	-0.57	-0.47	-0.40
13	Little Colorado River	63	-0.22	-0.45	-0.36	-0.31
14	Salt River	90	-0.17	-0.37	-0.41	-0.37
15	Black River	46	-0.15	-0.47	-0.31	-0.23
16	White River	46	-0.21	-0.52	-0.37	-0.30
17	San Carlos River	74	-0.13	-0.33	-0.37	-0.23
18	San Francisco River	75	-0.06	-0.28	-0.28	-0.26
19	Gila River	76	-0.12	-0.36	-0.36	-0.32
20	Santa Cruz River	71	-0.31	-0.32	-0.23	-0.21
21	San Pedro River	87	-0.27	-0.23	-0.27	-0.23
average for northwestern area (sites 1-6)			-0.12	-0.25	-0.28	-0.26
average for central area (sites 7-19)			-0.16	-0.40	-0.37	-0.31
average for southern area (sites 20, 21)			-0.29	-0.28	-0.25	-0.22
average for entire study area			-0.16	-0.35	-0.33	-0.28

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

B. AMO and winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between AMO and winter-spring flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.02	-0.21	-0.17	-0.20
2	Coal Creek	66	-0.02	-0.20	-0.27	-0.25
3	Sevier River	78	-0.29	-0.39	-0.46	-0.46
4	Pine Creek	51	0.02	-0.01	-0.01	-0.13
5	Virgin River	87	-0.32	-0.38	-0.46	-0.46
6	Paria River	80	-0.07	-0.25	-0.30	-0.28
7	Oak Creek	59	-0.08	-0.34	-0.32	-0.28
8	Agua Fria River	64	-0.15	-0.26	-0.36	-0.38
9	Verde River	58	-0.21	-0.42	-0.41	-0.38
10	Tonto Creek	63	-0.20	-0.37	-0.39	-0.36
11	Carrizo Creek	42	-0.34	-0.56	-0.51	-0.47
12	Show Low Creek	50	-0.33	-0.54	-0.46	-0.37
13	Little Colorado River	63	-0.25	-0.46	-0.43	-0.39
14	Salt River	90	-0.15	-0.32	-0.35	-0.35
15	Black River	46	-0.20	-0.50	-0.35	-0.25
16	White River	46	-0.24	-0.52	-0.38	-0.28
17	San Carlos River	74	-0.07	-0.27	-0.34	-0.27
18	San Francisco River	75	-0.09	-0.27	-0.29	-0.29
19	Gila River	76	-0.09	-0.32	-0.30	-0.30
20	Santa Cruz River	71	-0.21	-0.30	-0.30	-0.27
21	San Pedro River	87	-0.12	-0.20	-0.22	-0.20
average for northwestern area (sites 1-6)			-0.12	-0.24	-0.28	-0.30
average for central area (sites 7-19)			-0.18	-0.40	-0.38	-0.34
average for southern area (sites 20, 21)			-0.17	-0.25	-0.26	-0.24
average for entire study area			-0.16	-0.34	-0.34	-0.32

	Significant correlation	< 0.05
	Non-significant correlation	0.05 - 1.00



Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

C. AMO and summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between AMO and summer flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.16	-0.08	-0.15	-0.03
2	Coal Creek	66	0.01	0.02	-0.27	-0.32
3	Sevier River	78	-0.16	-0.23	-0.39	-0.43
4	Pine Creek	51	0.01	-0.08	-0.24	-0.29
5	Virgin River	87	-0.28	-0.34	-0.44	-0.52
6	Paria River	80	-0.12	-0.11	-0.07	0.08
7	Oak Creek	59	-0.03	-0.01	-0.01	0.01
8	Agua Fria River	64	-0.15	-0.01	0.10	-0.01
9	Verde River	58	-0.21	-0.16	-0.17	-0.05
10	Tonto Creek	63	-0.11	-0.16	-0.18	-0.06
11	Carrizo Creek	42	-0.07	-0.05	-0.22	-0.17
12	Show Low Creek	50	-0.11	-0.27	-0.29	-0.28
13	Little Colorado River	63	-0.05	-0.12	-0.27	-0.11
14	Salt River	90	-0.20	-0.29	-0.35	-0.35
15	Black River	46	-0.10	-0.08	-0.11	-0.15
16	White River	46	-0.13	-0.24	-0.42	-0.41
17	San Carlos River	74	-0.17	-0.25	-0.03	-0.06
18	San Francisco River	75	-0.13	-0.17	-0.13	-0.14
19	Gila River	76	-0.08	-0.20	-0.24	-0.23
20	Santa Cruz River	71	-0.23	-0.17	-0.12	-0.14
21	San Pedro River	87	-0.23	-0.19	-0.03	-0.07
-----						
average for northwestern area (sites 1-6)			-0.12	-0.14	-0.26	-0.25
average for central area (sites 7-19)			-0.12	-0.15	-0.18	-0.15
average for southern area (sites 20, 21)			-0.23	-0.18	-0.08	-0.11
average for entire study area			-0.13	-0.15	-0.19	-0.18

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

D. AMO and fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between AMO and fall flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.17	-0.11	-0.10	-0.19
2	Coal Creek	66	-0.08	-0.01	-0.09	-0.13
3	Sevier River	78	-0.23	-0.20	-0.37	-0.43
4	Pine Creek	51	0.08	0.20	0.00	-0.06
5	Virgin River	87	-0.34	-0.30	-0.35	-0.38
6	Paria River	80	-0.05	0.01	0.07	0.04
7	Oak Creek	59	0.04	-0.03	-0.08	-0.01
8	Agua Fria River	64	0.02	0.13	0.06	0.06
9	Verde River	58	-0.05	-0.01	0.03	-0.01
10	Tonto Creek	63	-0.32	-0.28	-0.13	-0.06
11	Carrizo Creek	42	-0.22	-0.18	-0.17	-0.23
12	Show Low Creek	50	-0.55	-0.51	-0.43	-0.44
13	Little Colorado River	63	-0.33	-0.29	-0.33	-0.26
14	Salt River	90	-0.24	-0.28	-0.19	-0.15
15	Black River	46	-0.27	-0.19	0.03	0.07
16	White River	46	-0.42	-0.32	-0.14	-0.15
17	San Carlos River	74	-0.25	-0.28	-0.20	0.12
18	San Francisco River	75	-0.17	-0.13	-0.03	0.01
19	Gila River	76	-0.11	-0.09	-0.10	-0.07
20	Santa Cruz River	71	-0.24	-0.13	-0.12	-0.07
21	San Pedro River	87	-0.19	-0.18	-0.26	-0.25
-----						
average for northwestern area (sites 1-6)			-0.13	-0.07	-0.14	-0.19
average for central area (sites 7-19)			-0.22	-0.19	-0.13	-0.09
average for southern area (sites 20, 21)			-0.22	-0.16	-0.19	-0.16
average for entire study area			-0.19	-0.15	-0.14	-0.12

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

E. PDO and annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between PDO and annual flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	0.13	0.13	0.04	-0.27
2	Coal Creek	66	0.29	0.32	0.25	0.08
3	Sevier River	78	0.25	0.27	0.26	0.14
4	Pine Creek	51	0.34	0.34	0.32	0.20
5	Virgin River	87	0.25	0.31	0.25	0.08
6	Paria River	80	0.33	0.25	0.15	0.08
7	Oak Creek	59	0.26	0.18	0.08	-0.07
8	Agua Fria River	64	0.29	0.20	0.15	-0.03
9	Verde River	58	0.30	0.22	0.09	-0.01
10	Tonto Creek	63	0.32	0.17	0.09	0.02
11	Carrizo Creek	42	0.31	0.14	0.06	-0.01
12	Show Low Creek	50	0.31	0.17	0.20	0.17
13	Little Colorado River	63	0.29	0.24	0.16	0.04
14	Salt River	90	0.34	0.34	0.18	0.06
15	Black River	46	0.33	0.17	0.04	-0.01
16	White River	46	0.37	0.17	0.09	0.05
17	San Carlos River	74	0.42	0.39	0.23	0.15
18	San Francisco River	75	0.34	0.31	0.15	0.08
19	Gila River	76	0.34	0.30	0.15	0.15
20	Santa Cruz River	71	-0.03	-0.01	0.05	-0.08
21	San Pedro River	87	0.05	0.01	0.17	-0.03
-----						
average for northwestern area (sites 1-6)			0.27	0.27	0.21	0.05
average for central area (sites 7-19)			0.32	0.23	0.13	0.05
average for southern area (sites 20, 21)			0.01	0.00	0.11	-0.06
average for entire study area			0.28	0.22	0.15	0.04



	p-value
	Significant correlation < 0.05
	Non-significant correlation 0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

F. PDO and winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between PDO and winter-spring flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	0.16	0.15	0.06	-0.26
2	Coal Creek	66	0.29	0.35	0.30	0.17
3	Sevier River	78	0.26	0.29	0.31	0.17
4	Pine Creek	51	0.35	0.32	0.35	0.20
5	Virgin River	87	0.19	0.30	0.27	0.10
6	Paria River	80	0.24	0.32	0.20	0.09
7	Oak Creek	59	0.20	0.21	0.12	0.04
8	Agua Fria River	64	0.39	0.34	0.28	0.17
9	Verde River	58	0.24	0.27	0.22	0.18
10	Tonto Creek	63	0.29	0.23	0.16	0.12
11	Carrizo Creek	42	0.23	0.19	0.02	0.02
12	Show Low Creek	50	0.26	0.19	0.16	0.17
13	Little Colorado River	63	0.29	0.26	0.21	0.08
14	Salt River	90	0.27	0.33	0.23	0.08
15	Black River	46	0.22	0.15	0.04	0.03
16	White River	46	0.24	0.16	0.08	0.10
17	San Carlos River	74	0.36	0.36	0.27	0.13
18	San Francisco River	75	0.33	0.32	0.26	0.12
19	Gila River	76	0.27	0.28	0.18	0.09
20	Santa Cruz River	71	0.09	0.03	0.14	0.10
21	San Pedro River	87	0.14	0.15	0.30	0.23
average for northwestern area (sites 1-6)			0.25	0.29	0.25	0.08
average for central area (sites 7-19)			0.28	0.25	0.17	0.10
average for southern area (sites 20, 21)			0.12	0.09	0.22	0.17
average for entire study area			0.25	0.25	0.20	0.10

	Significant correlation	< 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

G. PDO and summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between PDO and summer flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.44	-0.36	-0.14	-0.16
2	Coal Creek	66	0.14	0.10	0.22	0.15
3	Sevier River	78	0.16	0.13	0.16	0.15
4	Pine Creek	51	0.25	0.25	0.23	0.26
5	Virgin River	87	0.10	0.08	0.24	0.08
6	Paria River	80	-0.05	-0.03	-0.01	0.01
7	Oak Creek	59	-0.18	-0.25	-0.30	-0.32
8	Agua Fria River	64	-0.19	-0.05	0.01	-0.17
9	Verde River	58	-0.04	-0.01	-0.01	-0.12
10	Tonto Creek	63	0.08	0.06	0.08	0.02
11	Carrizo Creek	42	0.06	0.17	0.16	0.02
12	Show Low Creek	50	0.11	0.10	0.18	0.22
13	Little Colorado River	63	0.16	0.08	0.12	0.01
14	Salt River	90	0.07	0.09	0.12	0.02
15	Black River	46	0.09	0.06	0.13	0.05
16	White River	46	0.18	0.13	0.21	0.13
17	San Carlos River	74	0.04	0.11	0.10	0.02
18	San Francisco River	75	0.12	0.16	0.12	-0.04
19	Gila River	76	0.18	0.14	0.14	0.09
20	Santa Cruz River	71	-0.11	-0.06	0.04	-0.03
21	San Pedro River	87	-0.23	-0.13	-0.08	-0.12
average for northwestern area (sites 1-6)			0.03	0.03	0.12	0.08
average for central area (sites 7-19)			0.05	0.06	0.08	-0.01
average for southern area (sites 20, 21)			-0.17	-0.10	-0.02	-0.08
average for entire study area			0.02	0.04	0.08	0.01

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

H. PDO and fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between PDO and fall flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.10	-0.23	-0.05	0.01
2	Coal Creek	66	0.29	0.34	0.27	0.28
3	Sevier River	78	0.20	0.27	0.29	0.32
4	Pine Creek	51	0.17	0.34	0.33	0.36
5	Virgin River	87	0.21	0.22	0.18	0.15
6	Paria River	80	0.14	0.25	0.20	0.19
7	Oak Creek	59	-0.04	0.10	-0.09	-0.13
8	Agua Fria River	64	0.14	0.25	0.10	0.10
9	Verde River	58	0.18	0.34	0.25	0.30
10	Tonto Creek	63	0.14	0.15	0.12	0.10
11	Carrizo Creek	42	0.36	0.30	0.33	0.30
12	Show Low Creek	50	0.16	0.06	0.16	0.14
13	Little Colorado River	63	0.32	0.18	0.12	0.09
14	Salt River	90	0.26	0.24	0.21	0.16
15	Black River	46	-0.02	-0.09	0.02	-0.04
16	White River	46	0.17	0.05	0.13	0.02
17	San Carlos River	74	0.23	0.26	0.26	0.20
18	San Francisco River	75	0.15	0.15	0.13	0.13
19	Gila River	76	0.21	0.16	0.16	0.18
20	Santa Cruz River	71	-0.08	0.01	0.14	0.14
21	San Pedro River	87	0.09	0.17	0.27	0.21
average for northwestern area (sites 1-6)			0.15	0.20	0.20	0.22
average for central area (sites 7-19)			0.17	0.17	0.15	0.12
average for southern area (sites 20, 21)			0.01	0.09	0.21	0.18
average for entire study area			0.15	0.17	0.17	0.15

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

I. SOI and annual streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between SOI and annual flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.32	-0.24	-0.21	0.06
2	Coal Creek	66	-0.29	-0.43	-0.23	0.02
3	Sevier River	78	-0.30	-0.34	-0.26	-0.02
4	Pine Creek	51	-0.17	-0.27	-0.25	-0.06
5	Virgin River	87	-0.24	-0.22	-0.16	0.08
6	Paria River	80	-0.31	-0.09	-0.08	-0.01
7	Oak Creek	59	-0.46	-0.42	-0.14	0.20
8	Agua Fria River	64	-0.42	-0.36	-0.26	0.08
9	Verde River	58	-0.48	-0.40	-0.19	0.11
10	Tonto Creek	63	-0.42	-0.33	-0.18	0.08
11	Carrizo Creek	42	-0.44	-0.37	-0.06	0.04
12	Show Low Creek	50	-0.36	-0.27	-0.17	-0.09
13	Little Colorado River	63	-0.36	-0.32	-0.22	0.06
14	Salt River	90	-0.45	-0.43	-0.17	0.12
15	Black River	46	-0.49	-0.38	-0.16	0.07
16	White River	46	-0.47	-0.34	-0.19	0.02
17	San Carlos River	74	-0.40	-0.44	-0.18	-0.03
18	San Francisco River	75	-0.38	-0.39	-0.20	0.05
19	Gila River	76	-0.38	-0.33	-0.10	0.08
20	Santa Cruz River	71	0.07	-0.15	-0.14	0.01
21	San Pedro River	87	0.08	-0.12	-0.04	0.07
average for northwestern area (sites 1-6)			-0.27	-0.27	-0.20	0.01
average for central area (sites 7-19)			-0.42	-0.37	-0.17	0.06
average for southern area (sites 20, 21)			0.08	-0.14	-0.09	0.04
average for entire study area			-0.33	-0.32	-0.17	0.04

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

J. SOI and winter-spring streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between SOI and winter-spring flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	-0.37	-0.28	-0.25	-0.04
2	Coal Creek	66	-0.39	-0.49	-0.28	-0.05
3	Sevier River	78	-0.35	-0.45	-0.30	-0.12
4	Pine Creek	51	-0.17	-0.24	-0.26	-0.05
5	Virgin River	87	-0.32	-0.37	-0.20	-0.08
6	Paria River	80	-0.37	-0.35	-0.24	-0.11
7	Oak Creek	59	-0.49	-0.44	-0.17	0.10
8	Agua Fria River	64	-0.49	-0.46	-0.30	-0.01
9	Verde River	58	-0.51	-0.42	-0.19	0.08
10	Tonto Creek	63	-0.46	-0.39	-0.22	0.03
11	Carrizo Creek	42	-0.46	-0.39	-0.11	0.03
12	Show Low Creek	50	-0.41	-0.31	-0.11	-0.06
13	Little Colorado River	63	-0.42	-0.38	-0.14	0.02
14	Salt River	90	-0.48	-0.45	-0.16	0.05
15	Black River	46	-0.52	-0.38	-0.11	0.07
16	White River	46	-0.50	-0.36	-0.14	0.01
17	San Carlos River	74	-0.48	-0.44	-0.21	-0.06
18	San Francisco River	75	-0.47	-0.43	-0.17	0.02
19	Gila River	76	-0.48	-0.39	-0.10	0.09
20	Santa Cruz River	71	-0.33	-0.33	-0.15	0.06
21	San Pedro River	87	-0.20	-0.28	-0.10	0.01
average for northwestern area (sites 1-6)			-0.33	-0.36	-0.26	-0.08
average for central area (sites 7-19)			-0.47	-0.40	-0.16	0.03
average for southern area (sites 20, 21)			-0.27	-0.31	-0.13	0.04
average for entire study area			-0.41	-0.38	-0.19	0.00

	p-value
Significant correlation	< 0.05
Non-significant correlation	0.05 - 1.00



Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

K. SOI and summer streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between SOI and summer flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	0.46	0.17	0.08	0.01
2	Coal Creek	66	0.15	-0.35	-0.39	-0.18
3	Sevier River	78	0.06	-0.29	-0.33	-0.12
4	Pine Creek	51	0.08	-0.27	-0.26	-0.22
5	Virgin River	87	-0.01	-0.20	-0.19	-0.08
6	Paria River	80	0.00	0.07	0.19	-0.09
7	Oak Creek	59	0.25	0.11	0.09	0.11
8	Agua Fria River	64	0.20	0.07	0.04	-0.13
9	Verde River	58	0.13	-0.09	-0.07	-0.21
10	Tonto Creek	63	0.10	-0.11	-0.16	-0.27
11	Carrizo Creek	42	0.09	-0.32	-0.51	-0.10
12	Show Low Creek	50	0.22	-0.10	-0.13	-0.30
13	Little Colorado River	63	-0.05	-0.21	-0.15	-0.12
14	Salt River	90	-0.05	-0.24	-0.21	-0.08
15	Black River	46	0.16	-0.22	-0.20	-0.26
16	White River	46	0.10	-0.35	-0.29	-0.28
17	San Carlos River	74	0.02	0.11	-0.02	-0.08
18	San Francisco River	75	0.01	-0.21	-0.20	-0.06
19	Gila River	76	0.02	-0.17	-0.17	-0.10
20	Santa Cruz River	71	0.34	0.21	0.08	-0.09
21	San Pedro River	87	0.18	0.36	0.18	0.07
average for northwestern area (sites 1-6)			0.12	-0.15	-0.15	-0.11
average for central area (sites 7-19)			0.09	-0.13	-0.15	-0.14
average for southern area (sites 20, 21)			0.26	0.29	0.13	-0.01
average for entire study area			0.12	-0.10	-0.12	-0.12

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

Table E. Supplementary data for table 5 and figures 5-7 (Correlations between seasonal streamflow and climatic indices (AMO, PDO, and SOI) current to flow and combinations of months previous to flow, individual sites in Lower Colorado River Basin) -- cont

L. SOI and fall streamflow

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	Spearman correlation coefficient between SOI and fall flow			
			Months current to flow or indicated months previous to flow			
			current	6	7-12	13-24
1	Meadow Valley Wash	45	0.08	0.04	0.01	0.04
2	Coal Creek	66	-0.28	-0.29	-0.20	-0.08
3	Sevier River	78	-0.03	-0.07	-0.29	-0.26
4	Pine Creek	51	-0.02	-0.13	-0.20	-0.21
5	Virgin River	87	-0.24	-0.19	-0.08	0.08
6	Paria River	80	-0.22	-0.15	-0.02	0.01
7	Oak Creek	59	-0.07	-0.21	-0.02	0.07
8	Agua Fria River	64	-0.24	-0.32	-0.03	0.09
9	Verde River	58	-0.16	-0.25	-0.17	-0.14
10	Tonto Creek	63	-0.04	-0.07	-0.08	-0.13
11	Carrizo Creek	42	0.02	-0.13	-0.36	-0.43
12	Show Low Creek	50	0.06	0.12	-0.12	-0.30
13	Little Colorado River	63	-0.17	-0.20	-0.07	-0.03
14	Salt River	90	-0.12	-0.16	-0.22	-0.21
15	Black River	46	0.10	0.09	-0.05	-0.10
16	White River	46	-0.01	-0.03	-0.16	-0.23
17	San Carlos River	74	-0.02	-0.17	-0.21	-0.21
18	San Francisco River	75	0.03	-0.02	-0.02	0.02
19	Gila River	76	0.02	0.00	0.05	0.09
20	Santa Cruz River	71	0.18	0.17	0.00	0.01
21	San Pedro River	87	-0.03	-0.10	-0.03	0.14
average for northwestern area (sites 1-6)			-0.12	-0.13	-0.13	-0.07
average for central area (sites 7-19)			-0.05	-0.10	-0.11	-0.12
average for southern area (sites 20, 21)			0.08	0.04	-0.02	0.08
average for entire study area			-0.06	-0.10	-0.11	-0.08

	Significant correlation	p-value < 0.05
	Non-significant correlation	0.05 - 1.00

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

Table F. Supplementary data for table 6 (Correlations between annual streamflow and original (raw) AMO, and between annual streamflow and detrended AMO, individual sites in Lower Colorado River Basin).

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	AMO <sup>3</sup>	Spearman correlation coefficient between AMO and annual flow				Difference in coefficient between original AMO and detrended AMO for 6 months prior to flow
				Months current to flow or indicated months previous to annual flow				
				current	6	7-12	13-24	
1	Meadow Valley Wash	45	original	-0.07	-0.22	-0.18	-0.13	-0.05
			detrended	-0.01	-0.17	-0.13	-0.07	
2	Coal Creek	66	original	-0.02	-0.24	-0.31	-0.21	-0.02
			detrended	-0.01	-0.22	-0.27	-0.18	
3	Sevier River	78	original	-0.29	-0.41	-0.47	-0.44	-0.15
			detrended	-0.11	-0.26	-0.34	-0.31	
4	Pine Creek	51	original	0.02	-0.05	-0.12	-0.17	0.04
			detrended	-0.01	-0.09	-0.13	-0.18	
5	Virgin River	87	original	-0.36	-0.43	-0.52	-0.50	-0.14
			detrended	-0.19	-0.29	-0.40	-0.37	
6	Paria River	80	original	-0.01	-0.15	-0.09	-0.09	-0.16
			detrended	0.16	0.01	0.06	0.06	
7	Oak Creek	59	original	-0.10	-0.34	-0.33	-0.26	-0.06
			detrended	-0.04	-0.28	-0.27	-0.20	
8	Agua Fria River	64	original	-0.08	-0.21	-0.33	-0.27	0.02
			detrended	-0.11	-0.23	-0.32	-0.27	
9	Verde River	58	original	-0.14	-0.40	-0.37	-0.34	0.02
			detrended	-0.17	-0.42	-0.37	-0.34	
10	Tonto Creek	63	original	-0.15	-0.38	-0.35	-0.26	-0.01
			detrended	-0.14	-0.37	-0.32	-0.24	
11	Carrizo Creek	42	original	-0.25	-0.55	-0.48	-0.42	0.00
			detrended	-0.25	-0.55	-0.46	-0.41	
12	Show Low Creek	50	original	-0.32	-0.57	-0.47	-0.40	0.04
			detrended	-0.35	-0.61	-0.47	-0.40	
13	Little Colorado River	63	original	-0.22	-0.45	-0.36	-0.31	-0.03
			detrended	-0.19	-0.42	-0.31	-0.26	
14	Salt River	90	original	-0.17	-0.37	-0.41	-0.37	-0.02
			detrended	-0.12	-0.35	-0.39	-0.36	

Table F. Supplementary data for table 6 (Correlations between annual streamflow and original (raw) AMO, and between annual streamflow and detrended AMO, individual sites in Lower Colorado River Basin) -- continued

Map no. <sup>1</sup>	Stream <sup>2</sup>	Years of record	AMO <sup>3</sup>	Pearson correlation coefficient between AMO and log annual flow				Percent difference between original AMO and detrended AMO for 6 months prior to flow
				Months current to flow or indicated months previous to annual flow				
				current	6	7-12	13-24	
15	Black River	46	original	-0.15	-0.47	-0.31	-0.23	0.01
			detrended	-0.14	-0.48	-0.30	-0.22	
16	White River	46	original	-0.21	-0.52	-0.37	-0.30	0.03
			detrended	-0.23	-0.55	-0.38	-0.31	
17	San Carlos River	74	original	-0.13	-0.33	-0.37	-0.23	0.01
			detrended	-0.15	-0.34	-0.37	-0.25	
18	San Francisco River	75	original	-0.06	-0.28	-0.28	-0.26	0.04
			detrended	-0.13	-0.32	-0.32	-0.30	
19	Gila River	76	original	-0.12	-0.36	-0.36	-0.32	0.04
			detrended	-0.19	-0.40	-0.39	-0.35	
20	Santa Cruz River	71	original	-0.31	-0.32	-0.23	-0.21	-0.05
			detrended	-0.25	-0.27	-0.19	-0.16	
21	San Pedro River	87	original	-0.27	-0.23	-0.27	-0.23	-0.22
			detrended	0.00	-0.01	-0.02	-0.01	

<sup>1</sup>See table A and figure 1.

<sup>2</sup>See table A.

<sup>3</sup>Original AMO values are the raw SST values, and detrended AMO was calculated by a linear regression between raw AMO and years, and using the residuals as the detrended AMO values.



	p-value
	Significant correlation < 0.05
	Non-significant correlation 0.05 - 1.00

Table G1. Supplementary data for table 7 (Statistics of regression equations for estimating long-term and short-term annual streamflow, individual sites in Lower Colorado River Basin. Positive and negative periods of AMO, PDO, and SOI are explanatory var

[R<sup>2</sup>, coefficient of determination]

		Statistics of regression equations for estimating annual flow												
		Equations for discrete periods of climatic indices <sup>3</sup>												
Map No. <sup>1</sup>	Stream	Years of record <sup>2</sup>	AMO		PDO		SOI		AMO and PDO		AMO and SOI		PDO and SOI	
			R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>
1	Meadow Valley Wash	45	0.03	104	0.01	86	0.02	105	0.01	88	0.05	105	0.10	83
2	Coal Creek	67	0.03	50	0.03	50	0.06	49	0.05	50	0.08	49	0.11	48
3	Sevier River	78	0.06	47	0.01	48	0.01	49	0.04	48	0.06	47	0.01	48
4	Pine Creek	51	0.02	70	0.04	70	0.01	70	0.06	70	0.02	70	0.05	70
5	Virgin River	87	0.10	39	0.01	41	0.01	42	0.08	40	0.11	40	0.01	42
6	Paria River	80	0.01	41	0.04	40	0.06	39	0.06	40	0.06	39	0.10	36
7	Oak Creek	60	0.04	64	0.03	66	0.15	60	0.04	66	0.17	60	0.15	61
8	Agua Fria River	64	0.12	106	0.06	113	0.08	109	0.14	108	0.18	102	0.10	111
9	Verde River	58	0.14	61	0.08	63	0.12	62	0.14	62	0.25	57	0.16	61
10	Tonto Creek	63	0.08	120	0.05	110	0.06	122	0.08	108	0.13	117	0.09	108
11	Carrizo Creek	43	0.15	115	0.05	124	0.10	119	0.11	120	0.23	110	0.08	122
12	Show Low Creek	50	0.18	99	0.08	102	0.03	110	0.15	98	0.20	99	0.09	103
13	Little Colo. River	63	0.09	91	0.03	92	0.04	94	0.07	90	0.12	90	0.06	90
14	Salt River	90	0.09	70	0.01	72	0.06	72	0.10	69	0.16	68	0.07	70
15	Black River	46	0.07	95	0.04	92	0.09	94	0.05	92	0.14	91	0.10	90
16	White River	46	0.14	69	0.07	66	0.08	72	0.11	65	0.20	68	0.11	66
17	San Carlos River	74	0.08	103	0.13	98	0.05	106	0.19	95	0.13	101	0.15	98
18	San Francisco River	74	0.07	81	0.04	88	0.04	82	0.11	80	0.11	79	0.08	81
19	Gila River	76	0.08	62	0.06	63	0.04	64	0.13	61	0.12	62	0.09	62
20	Santa Cruz River	71	0.08	124	0.01	116	0.01	129	0.07	112	0.11	122	0.02	117
21	San Pedro River	87	0.01	70	0.01	66	0.02	66	0.02	66	0.03	66	0.05	62

<sup>1</sup>See figure 1.

<sup>2</sup>Regression equations with AMO or SOI used data through 2003 and equations with PDO used data through 1998.

<sup>3</sup>Equations use dummy variables that represent a positive or negative period of AMO or PDO, and a positive or negative value of SOI. The equations with a single explanatory variable estimate mean annual log flow for two time periods that average about 30

<sup>4</sup>Average standard error of regression, in percent.



		p-value
	Significant equation	< 0.05
	Non-significant equation	0.05 - 1.00

Table G2. Supplementary data for table 7 (Statistics of regression equations for estimating long-term and short-term winter-spring streamflow, individual sites in Lower Colorado River Basin. Positive and negative periods of AMO, PDO, and SOI are explanat

[R<sup>2</sup>, coefficient of determination]

		Statistics of regression equations for estimating winter-spring flow												
		Equations for discrete periods of climatic indices <sup>3</sup>												
Map No. <sup>1</sup>	Stream	Years of record <sup>2</sup>	AMO		PDO		SOI		AMO and PDO		AMO and SOI		PDO and SOI	
			R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>	R <sup>2</sup>	SE <sup>4</sup>
1	Meadow Valley Wash	45	0.02	115	0.01	98	0.04	113	0.01	99	0.05	114	0.12	92
2	Coal Creek	67	0.02	49	0.04	47	0.04	48	0.05	48	0.06	48	0.10	46
3	Sevier River	78	0.05	43	0.01	43	0.01	43	0.03	43	0.04	43	0.01	43
4	Pine Creek	51	0.01	68	0.02	70	0.01	69	0.03	70	0.01	69	0.02	71
5	Virgin River	87	0.08	44	0.01	46	0.01	46	0.07	44	0.08	44	0.01	46
6	Paria River	80	0.04	42	0.03	42	0.06	41	0.05	41	0.08	40	0.08	41
7	Oak Creek	60	0.04	80	0.04	80	0.11	76	0.05	81	0.13	76	0.12	77
8	Agua Fria River	64	0.18	230	0.12	244	0.17	246	0.29	219	0.27	211	0.24	230
9	Verde River	58	0.14	78	0.08	82	0.11	80	0.14	79	0.22	75	0.14	80
10	Tonto Creek	63	0.09	155	0.09	148	0.06	159	0.13	146	0.14	151	0.12	146
11	Carrizo Creek	43	0.18	143	0.08	149	0.07	157	0.14	146	0.23	140	0.10	150
12	Show Low Creek	50	0.16	139	0.09	140	0.02	154	0.15	136	0.16	140	0.09	142
13	Little Colo. River	63	0.10	121	0.04	123	0.06	124	0.09	120	0.15	118	0.09	120
14	Salt River	90	0.06	95	0.02	93	0.09	92	0.08	91	0.15	89	0.11	88
15	Black River	46	0.07	128	0.05	121	0.08	127	0.06	122	0.12	125	0.09	120
16	White River	46	0.11	88	0.07	81	0.06	91	0.10	81	0.14	87	0.09	81
17	San Carlos River	74	0.04	154	0.12	145	0.05	153	0.15	144	0.09	150	0.15	144
18	San Francisco River	74	0.05	109	0.07	110	0.06	108	0.11	108	0.11	106	0.12	107
19	Gila River	76	0.05	79	0.04	80	0.06	79	0.08	79	0.09	78	0.09	78
20	Santa Cruz River	71	0.03	387	0.01	278	0.02	394	0.02	279	0.05	385	0.03	276
21	San Pedro River	87	0.02	74	0.02	72	0.02	66	0.04	72	0.03	66	0.06	64

<sup>1</sup>See figure 1.

<sup>2</sup>Regression equations with AMO or SOI used data through 2003 and equations with PDO used data through 1998.

<sup>3</sup>Equations use dummy variables that represent a positive or negative period of AMO or PDO, and a positive or negative value of SOI. The equations with a single explanatory variable estimate mean winter-spring log flow for two time periods that average ab

<sup>4</sup>Average standard error of regression, in percent.



		p-value
	Significant equation	< 0.05
	Non-significant equation	0.05 - 1.00

Table H. Supplementary data for table 8 (Regression equations for estimating streamflow for an individual year, individual sites in Lower Colorado River Basin)

A. Best equations for annual streamflow. Climatic indices during and prior to the flow are the explanatory variables.

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream	Years of data <sup>2</sup>	Equation <sup>3</sup>	R <sup>2</sup>	Standard error of regression (percent)	
					Positive	Negative
1	Meadow Valley W.	45	LQ=-0.742-0.600(A.6)-0.140(P)-0.104(P.1324)-0.105(S)-0.111(S.712)	0.31	124	-55
2	Coal Creek	67	Log Q = - 0.072 - 0.315(A.6) + 0.044(P.7-12) - 0.069(S.6)	0.30	52	-34
3	Sevier River	72	Log Q = 0.452 - 0.442(A.12) - 0.066(S.12)	0.31	46	-31
4	Pine Creek	51	Log Q = - 0.907 + 0.122(P.12)	0.12	85	-46
5	Virgin River	87	Log Q = 0.702 - 0.385(A.12) + 0.055(P.12)	0.28	41	-29
6	Paria River	80	Log Q = - 0.134 + 0.070(P)	0.11	47	-32
7	Oak Creek	60	Log Q = 0.305 - 0.512(A.6)- 0.048(S)- 0.093(S.12)+ 0.057(S.13-24)	0.42	63	-38
8	Agua Fria River	64	Log Q = -0.452 - 0.671(A.12) - 0.117(S) - 0.114(S.12)	0.34	124	-55
9	Verde River	58	Log Q = 1.10 - 0.608(A.12) - 0.078(S) - 0.076(S.12)	0.44	61	-38
10	Tonto Creek	63	Log Q = 0.440 - 1.11(A.6) - 0.180(S.12) + 0.065(S.13-24)	0.36	137	-58
11	Carrizo Creek	43	Log Q = - 0.082 - 1.24(A.6) - 0.155(S.6)	0.47	119	-54
12	Show Low Creek	50	Log Q=-0.577-1.34(A.6)+ 0.107(P.13-24)-0.072(S.6)-0.055(S.7-12)	0.49	104	-51
13	Little Colo. River	63	Log Q = - 0.340 - 1.00(A.6) - 0.148(S.12) + 0.059(S.13-24)	0.41	94	-48
14	Salt River	77	Log Q = 1.26 - 0.669(A.12) - 0.065(S) - 0.095(S.12)	0.42	69	-41
15	Black River	46	Log Q = 0.862 - 0.824(A.6) - 0.124(S) - 0.060(S.7-12)	0.44	96	-49
16	White River	46	Log Q = 0.638 - 0.784(A.6) - 0.081(S) - 0.058(S.7-12)	0.49	66	-40
17	San Carlos River	72	Log Q= 0.027- 0.767(A.6)+ 0.101(P)- 0.110(S.6)- 0.042(S.7-12)	0.39	114	-53
18	San Francisco Riv.	71	Log Q = 0.627 - 0.540(A.6) - 0.067(S) - 0.110(S.12)	0.32	91	-48
19	Gila River	73	Log Q = 0.556 - 0.512(A.6) + 0.061(P.13-24) - 0.052(S) - 0.057(S.6)	0.34	68	-40
20	Santa Cruz River	69	Log Q = - 0.323 - 0.913(A.6) - 0.099(S.12)	0.18	171	-63
21	San Pedro River	87	Log Q = 0.089 - 0.425(A.12)	0.10	86	-46

<sup>1</sup>See figure 1.

<sup>2</sup>Regression equations used data through 2003.

<sup>3</sup>Equation: Q, annual streamflow (cubic meters per second); A.x, AMO (dimensionless); P.x, PDO (dimensionless); S.x, SOI (dimensionless); x is the number of months prior to the streamflow and no x means the climatic index during the flow was used.

Table H. Supplementary data for table 8 (Regression equations for estimating streamflow for an individual year, individual sites in Lower Colorado River Basin) -- continued

B. Best equations for winter-spring streamflow. Climatic indices during and prior to the flow are the explanatory variables.

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream	Years of data <sup>2</sup>	Equation <sup>3</sup>	R <sup>2</sup>	Standard error of regression (percent)	
					Positive	Negative
1	Meadow Valley W.	45	Log Q = -0.629 - 0.493(A.6) - 0.196(P) - 0.148(S) - 0.124(S.7-12)	0.37	125	-56
2	Coal Creek	67	Log Q = -0.025 - 0.240(A.6) - 0.059(S.6) - 0.030(S.7-12)	0.29	50	-33
3	Sevier River	72	Log Q = 0.459 - 0.301(A.6) + 0.061(P.7-12) - 0.029(S.6)	0.32	40	-28
4	Pine Creek	51	Log Q = -0.894 + 0.127(P.12)	0.13	82	-45
5	Virgin River	87	Log Q = 0.785 - 0.368(A.12) + 0.066(P.12)	0.25	47	-32
6	Paria River	80	Log Q = -0.206 - 0.214(A.6) - 0.042(S) - 0.036(S.7-12)	0.25	44	-30
7	Oak Creek	60	Log Q = 0.443 - 0.687(A.6) - 0.153(S.12) + 0.040(S.13-24)	0.39	81	-45
8	Agua Fria River	64	Log Q = -0.626 - 1.46(A.12) - 0.379(S.12) + 0.057(S.13-24)	0.38	300	-75
9	Verde River	58	Log Q = 1.20 - 0.617(A.6) - 0.107(S) - 0.054(S.7-12)	0.43	82	-45
10	Tonto Creek	63	Log Q = 0.500 - 1.01(A.6) - 0.145(S) - 0.100(S.7-12)	0.37	182	-65
11	Carrizo Creek	43	Log Q = 0.045 - 1.81(A.12) - 0.188(S.12) + 0.045(S.13-24)	0.47	159	-62
12	Show Low Creek	50	Log Q = -0.484 - 1.46(A.6) + 0.163(P.7-12) - 0.091(S)	0.45	155	-61
13	Little Colo. River	63	Log Q = -0.257 - 1.12(A.6) + 0.175(P.7-12) - 0.096(S) + 0.034(S.13-24)	0.42	132	-57
14	Salt River	77	Log Q = 1.35 - 0.669(A.6) + 0.061(P.7-12) - 0.110(S) - 0.047(S.7-12)	0.40	97	-49
15	Black River	46	Log Q = 0.966 - 1.03(A.6) - 0.134(S) - 0.053(S.7-12)	0.46	129	-56
16	White River	46	Log Q = 0.732 - 0.890(A.6) - 0.087(S) - 0.051(S.7-12)	0.48	87	-46
17	San Carlos River	72	Log Q = 0.065 - 0.711(A.6) + 0.164(P.7-12) - 0.171(S)	0.35	177	-64
18	San Francisco Riv.	71	Log Q = 0.657 - 0.584(A.6) + 0.104(P.7-12) - 0.135(S)	0.34	123	-55
19	Gila River	73	Log Q = 0.608 - 0.525(A.6) + 0.068(P.7-12) - 0.102(S)	0.34	85	-46
20	Santa Cruz River	69	Log Q = -0.748 - 1.18(A.6) - 0.206(P.6) + 0.114(P.13-24) - 0.206(S)	0.26	328	-77
21	San Pedro River	87	Log Q = -0.326 - 0.386(A.6) + 0.080(P.7-12) - 0.042(S.6)	0.22	76	-43

<sup>1</sup>See figure 1.

<sup>2</sup>Regression equations used data through 2003.

<sup>3</sup>Equation: Q, winter-spring streamflow (cubic meters per second); A.*x*, AMO (dimensionless); P.*x*, PDO (dimensionless); S.*x*, SOI (dimensionless); *x* is the number of months prior to the streamflow and no *x* means the climatic index during the flow was used.



Table H. Supplementary data for table 8 (Regression equations for estimating streamflow for an individual year, individual sites in Lower Colorado River Basin) -- continued

C. Equations for winter-spring streamflow. Climatic indices prior to the flow are the explanatory variables.

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream	Years of data <sup>2</sup>	Equation <sup>3</sup>	R <sup>2</sup>	Standard error of regression (percent)	
					Positive	Negative
1	Meadow Valley W.	45	Log Q = -0.600 - 0.674(A.12) - 0.131(P.12) - 0.202(S.12)	0.26	140	-58
2	Coal Creek	67	Log Q = -0.025 - 0.240(A.6) - 0.059(S.6) - 0.030(S.7-12)	0.29	50	-33
3	Sevier River	72	Log Q = 0.459 - 0.301(A.6) + 0.061(P.7-12) - 0.029(S.6)	0.32	40	-28
4	Pine Creek	51	Log Q = -0.894 + 0.127(P.12)	0.13	82	-45
5	Virgin River	87	Log Q = 0.785 - 0.368(A.12) + 0.066(P.12)	0.25	47	-32
6	Paria River	80	Log Q = -0.204 - 0.291(A.12) - 0.060(S.12)	0.21	44	-31
7	Oak Creek	60	Log Q = 0.443 - 0.687(A.6) - 0.153(S.12) + 0.040(S.13-24)	0.39	81	-45
8	Agua Fria River	64	Log Q = -0.626 - 1.46(A.12) - 0.379(S.12) + 0.057(S.13-24)	0.38	300	-75
9	Verde River	58	Log Q = 1.23 - 0.892(A.12) - 0.148(S.12) + 0.028(S.13-24)	0.41	84	-46
10	Tonto Creek	63	Log Q = 0.545 - 1.41(A.12) - 0.228(S.12) + 0.038(S.13-24)	0.36	183	-65
11	Carrizo Creek	43	Log Q = 0.045 - 1.81(A.12) - 0.188(S.12) + 0.045(S.13-24)	0.47	159	-62
12	Show Low Creek	50	Log Q = -0.478 - 1.56(A.6) + 0.147(P.7-12) - 0.084(S.6)	0.43	158	-61
13	Little Colo. River	63	Log Q = -0.255 - 1.21(A.6) + 0.156(P.7-12) - 0.095(S.6) + 0.034(S.13-24)	0.41	133	-57
14	Salt River	77	Log Q = 1.36 - 0.762(A.6) - 0.168(S.12) + 0.030(S.13-24)	0.37	100	-50
15	Black River	46	Log Q = 0.994 - 1.11(A.6) - 0.121(S.6)	0.37	143	-59
16	White River	46	Log Q = 0.744 - 0.985(A.6) - 0.070(S.6) - 0.045(S.7-12)	0.42	93	-48
17	San Carlos River	72	Log Q = 0.072 - 0.846(A.6) + 0.134(P.7-12) - 0.158(S.6)	0.32	185	-65
18	San Francisco Riv.	71	Log Q = 0.658 - 0.691(A.6) + 0.077(P.7-12) - 0.130(S.6)	0.31	128	-56
19	Gila River	73	Log Q = 0.609 - 0.608(A.6) + 0.049(P.7-12) - 0.092(S.6)	0.30	90	-47
20	Santa Cruz River	69	Log Q = -0.742 - 1.47(A.6) - 0.245(S.12) + 0.053(S.13-24)	0.21	328	-77
21	San Pedro River	87	Log Q = -0.326 - 0.386(A.6) + 0.080(P.7-12) - 0.042(S.6)	0.22	76	-43

<sup>1</sup>See figure 1.

<sup>2</sup>Regression equations used data through 2003.

<sup>3</sup>Equation: Q, winter-spring streamflow (cubic meters per second); A.x, AMO (dimensionless); P.x, PDO (dimensionless); S.x, SOI (dimensionless); x is the number of months prior to the streamflow.

Table I. Supplementary data for table 9 (Comparison of regression equations for estimating annual streamflow for an individual year. Regression equations were developed by using AMO, PDO, and SOI prior to the flow, and by using detrended AMO, original PD

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream <sup>2</sup>	AMO	Equation <sup>3</sup>	R <sup>2</sup>	Standard error of regression		Difference in R <sup>2</sup> value between original AMO and detrended AMO
					Posi- tive	Nega- tive	
1	Meadow Valley	original	Log Q = - 0.727 - 0.658(A.12) - 0.126(P.13-24) - 0.140(S.12)	0.27	125	-56	
	Wash	detrended	Log Q = - 0.761 - 0.414(A.12) - 0.146(P.13-24) - 0.135(S.12)	0.21	132	-57	-0.06
2	Coal Creek	original	Log Q = - 0.072 - 0.315(A.6) + 0.044(P.7-12) - 0.069(S.6)	0.30	52	-34	
		detrended	Log Q = - 0.081 - 0.241(A.6) + 0.040(P.7-12) - 0.067(S.6)	0.27	53	-35	-0.03
3	Sevier River	original	Log Q = 0.452 - 0.442(A.12) - 0.066(S.12)	0.31	46	-31	
		detrended	Log Q = 0.450 - 0.339(A.12) - 0.058(S.12)	0.21	50	-33	-0.10
4	Pine Creek	original	Log Q = - 0.907 + 0.122(P.12)	0.12	85	-46	
		detrended	no AMO in equation				NA
5	Virgin River	original	Log Q = 0.702 - 0.385(A.12) + 0.055(P.12)	0.28	41	-29	
		detrended	Log Q = 0.716 - 0.338(A.12) + 0.052(P.12)	0.18	45	-31	-0.10
6	Paria River	original	Log Q = - 0.133 - 0.166(A.6) + 0.054(P.6)	0.11	47	-32	
		detrended	Log Q = - 0.137 - 0.004(A.6) + 0.053(P.6)	0.08	48	-32	-0.03
7	Oak Creek	original	Log Q = 0.317 - 0.591(A.6) - 0.115(S.12) + 0.073(S.13-24)	0.39	64	-39	
		detrended	Log Q = 0.296 - 0.502(A.6) - 0.111(S.12) + 0.075(S.13-24)	0.34	67	-40	-0.05
8	Agua Fria River	original	Log Q = - 0.412 - 0.818(A.12) - 0.164(S.12) + 0.062(S.13-24)	0.28	132	-57	
		detrended	Log Q = - 0.435 - 0.771(A.12) - 0.160(S.12) + 0.068(S.13-24)	0.29	132	-57	0.01
9	Verde River	original	Log Q = 1.119 - 0.647(A.6) - 0.126(S.12) + 0.051(S.13-24)	0.40	63	-39	
		detrended	Log Q = 1.092 - 0.668(A.6) - 0.119(S.12) + 0.057(S.13-24)	0.42	62	-38	0.02
10	Tonto Creek	original	Log Q = 0.440 - 1.11(A.6) - 0.180(S.12) + 0.065(S.13-24)	0.36	137	-58	
		detrended	Log Q = 0.404 - 0.996(A.6) - 0.174(S.12) + 0.070(S.13-24)	0.32	142	-59	-0.04
11	Carrizo Creek	original	Log Q = - 0.082 - 1.24(A.6) - 0.155(S.6)	0.47	119	-54	
		detrended	Log Q = - 0.160 - 1.119(A.6) - 0.144(S.6)	0.44	124	-55	-0.03
12	Show Low Creek	original	Log Q = - 0.577 - 1.34(A.6) + 0.107(P.13-24) - 0.072(S.6) - 0.055(S.7-12)	0.49	104	-51	
		detrended	Log Q = - 0.661 - 1.33(A.6) + 0.058(P.13-24) - 0.058(S.6) - 0.057(S.7-12)	0.47	107	-52	-0.02
13	Little Colorado River	original	Log Q = - 0.340 - 1.00(A.6) - 0.148(S.12) + 0.059(S.13-24)	0.41	94	-48	
		detrended	Log Q = - 0.371 - 0.874(A.6) - 0.142(S.12) + 0.063(S.13-24)	0.36	100	-50	-0.05

Table I. Supplementary data for table 9 (Comparison of regression equations for estimating annual streamflow for an individual year. Regression equations were developed by using AMO, PDO, and SOI prior to the flow, and by using detrended AMO, original PD

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream <sup>2</sup>	AMO	Equation <sup>3</sup>	R <sup>2</sup>	Standard error of regression		Difference in R <sup>2</sup> value between original AMO and detrended AMO
					Posi- tive	Nega- tive	
14	Salt River	original	Log Q = 1.276 - 0.663(A.6) - 0.140(S.12) + 0.052(S.13-24)	0.42	71	-41	
		detrended	Log Q = 1.278 - 0.647(A.6) - 0.130(S.12) + 0.065(S.13-24)	0.39	72	-42	-0.03
15	Black River	original	Log Q = 0.881 - 0.972(A.6) - 0.099(S.6) - 0.052(S.7-12)	0.41	99	-50	
		detrended	Log Q = 0.813 - 1.01(A.6) - 0.090(S.6) - 0.051(S.7-12)	0.39	101	-50	-0.02
16	White River	original	Log Q = 0.650 - 0.881(A.6) - 0.067(S.6) - 0.052(S.7-12)	0.48	67	-40	
		detrended	Log Q = 0.588 - 0.936(A.6) - 0.059(S.6) - 0.052(S.7-12)	0.47	68	-40	-0.01
17	San Carlos River	original	Log Q=0.027- 0.847(A.6)+ 0.060(P.13-24)- 0.140(S.6)- 0.041(S.7-12)	0.37	117	-54	
		detrended	Log Q=0.014- 0.761(A.6)+ 0.054(P.13-24)- 0.136(S.6)- 0.035(S.7-12)	0.36	118	-54	-0.01
18	San Francisco River	original	Log Q = 0.636 - 0.593(A.6) - 0.103(S.6) - 0.042(S.7-12)	0.30	94	-48	
		detrended	Log Q = 0.628 - 0.621(A.6) - 0.098(S.6) - 0.039(S.7-12)	0.33	90	-48	0.03
19	Gila River	original	Log Q = 0.564 - 0.565(A.6) + 0.059(P.13-24) - 0.081(S.6)	0.31	69	-41	
		detrended	Log Q = 0.558 - 0.578(A.6) + 0.056(P.13-24) - 0.075(S.6)	0.34	67	-40	0.03
20	Santa Cruz River	original	Log Q = - 0.323 - 0.913(A.6) - 0.099(S.12)	0.18	171	-63	
		detrended	Log Q = - 0.346 - 0.639(A.6) - 0.087(S.12)	0.12	180	-64	-0.06
21	San Pedro River	original	Log Q = 0.089 - 0.425(A.12)	0.10	86	-46	
		detrended	Log Q = 0.081 - 0.081(A.12)	0.01	92	-48	-0.09

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>Equation: Q, annual streamflow (cubic meters per second); A.x, AMO (dimensionless); P.x, PDO (dimensionless); S.x, SOI (dimensionless); x is the number of months prior to the streamflow and no x means the climatic index during the flow was used.

Table J. Supplementary data for analyzing importance of AMO to regression analysis (Regression equations for estimating annual streamflow for an individual year, Lower Colorado River Basin. Two sets of equations were developed: (1) equations with AMO, PD

1. Equations with AMO, PDO, and SOI as explanatory variables

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream <sup>2</sup>	Years of data	Equation <sup>3</sup>	R <sup>2</sup>	Average standard error of regression (percent)
1	Meadow Valley W.	45	Log Q = - 0.727 - 0.658(A.12) - 0.126(P.13-24) - 0.140(S.12)	0.27	91
2	Coal Creek	67	Log Q = - 0.072 - 0.315(A.6) + 0.044(P.7-12) - 0.069(S.6)	0.30	43
3	Sevier River	72	Log Q = 0.452 - 0.442(A.12) - 0.066(S.12)	0.31	39
4	Pine Creek	51	Log Q = - 0.907 + 0.122(P.12)	0.12	66
5	Virgin River	87	Log Q = 0.702 - 0.385(A.12) + 0.055(P.12)	0.28	35
6	Paria River	80	Log Q = - 0.133 - 0.166(A.6) + 0.054(P.6)	0.11	40
7	Oak Creek	60	Log Q = 0.317 - 0.591(A.6) - 0.115(S.12) + 0.073(S.13-24)	0.39	52
8	Agua Fria River	64	Log Q = - 0.412 - 0.818(A.12) - 0.164(S.12) + 0.062(S.13-24)	0.28	95
9	Verde River	58	Log Q = 1.119 - 0.647(A.6) - 0.126(S.12) + 0.051(S.13-24)	0.40	51
10	Tonto Creek	63	Log Q = 0.440 - 1.11(A.6) - 0.180(S.12) + 0.065(S.13-24)	0.36	98
11	Carrizo Creek	43	Log Q = - 0.082 - 1.24(A.6) - 0.155(S.6)	0.47	86
12	Show Low Creek	50	Log Q=- 0.577- 1.34(A.6)+ 0.107(P.13-24)- 0.072(S.6)- 0.055(S.7-12)	0.49	78
13	Little Colo. River	63	Log Q = - 0.340 - 1.00(A.6) - 0.148(S.12) + 0.059(S.13-24)	0.41	71
14	Salt River	77	Log Q = 1.276 - 0.663(A.6) - 0.140(S.12) + 0.052(S.13-24)	0.42	56
15	Black River	46	Log Q = 0.881 - 0.972(A.6) - 0.099(S.6) - 0.052(S.7-12)	0.41	75
16	White River	46	Log Q = 0.650 - 0.881(A.6) - 0.067(S.6) - 0.052(S.7-12)	0.48	54
17	San Carlos River	72	Log Q=0.027- 0.847(A.6)+ 0.060(P.13-24)- 0.140(S.6)- 0.041(S.7-12)	0.37	86
18	San Francisco Riv.	71	Log Q = 0.636 - 0.593(A.6) - 0.103(S.6) - 0.042(S.7-12)	0.30	71
19	Gila River	73	Log Q = 0.564 - 0.565(A.6) + 0.059(P.13-24) - 0.081(S.6)	0.31	55
20	Santa Cruz River	69	Log Q = - 0.323 - 0.913(A.6) - 0.099(S.12)	0.18	117
21	San Pedro River	87	Log Q = 0.089 - 0.425(A.12)	0.10	66
average for all sites				0.32	68
average for northwestern area (sites 1-6)				0.23	52
average for central area (sites 7-19)				0.39	71
average for southern area (sites 20, 21)				0.14	92

See footnotes at end of table.

Table J. Supplementary data for analyzing importance of AMO to regression analysis (Regression equations for estimating annual streamflow for an individual year, Lower Colorado River Basin. Two sets of equations were developed: (1) equations with AMO, PD

2. Equations with PDO and SOI as explanatory variables

[R<sup>2</sup>, coefficient of multiple determination]

Map No. <sup>1</sup>	Stream <sup>2</sup>	Years of data	Best stepwise regression equation <sup>4</sup>	R <sup>2</sup>	Average standard error of regression (percent)
1	Meadow Valley W.	45	Log Q = P +- S	0.15	97
2	Coal Creek	67	Log Q = P +- S	0.19	45
3	Sevier River	72	Log Q = P +- S	0.17	41
4	Pine Creek	51	Log Q = P +- S	0.12	66
5	Virgin River	87	Log Q = P +- S	0.10	37
6	Paria River	80	Log Q = P +- S	0.06	38
7	Oak Creek	60	Log Q = P +- S	0.19	56
8	Agua Fria River	64	Log Q = P +- S	0.17	96
9	Verde River	58	Log Q = P +- S	0.17	56
10	Tonto Creek	63	Log Q = P +- S	0.10	110
11	Carrizo Creek	43	Log Q = P +- S	0.15	111
12	Show Low Creek	50	Log Q = P +- S	0.06	105
13	Little Colo. River	63	Log Q = P +- S	0.11	86
14	Salt River	77	Log Q = P +- S	0.22	64
15	Black River	46	Log Q = P +- S	0.12	85
16	White River	46	Log Q = P +- S	0.10	66
17	San Carlos River	72	Log Q = P +- S	0.23	92
18	San Francisco Riv.	71	Log Q = P +- S	0.17	76
19	Gila River	73	Log Q = P +- S	0.13	60
20	Santa Cruz River	69	Log Q = P +- S	0.04	128
21	San Pedro River	87	Log Q = P +- S	0.04	66
average for all sites				0.13	75
average for northwestern area (sites 1-6)				0.13	54
average for central area (sites 7-19)				0.15	82
average for southern area (sites 20, 21)				0.04	97

Footnotes on next page

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>Equation:  $Q$ , annual streamflow (cubic meters per second);  $A.x$ , AMO (dimensionless);  $P.x$ , PDO (dimensionless);  $A.x$ , AMO (dimensionless);  $x$  is the number of months prior to the streamflow.

<sup>4</sup>Best stepwise regression equation:  $Q$ , annual streamflow;  $P$ , PDO prior to the streamflow;  $S$ , SOI prior to the streamflow. Best equation was determined by using stepwise-regression method in statistical package (Insightful, 2001).

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003).

Year	Atlantic Multidecadal Oscillation (AMO)												Annual
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
1900	0.06	0.06	-0.06	-0.07	-0.19	-0.20	-0.19	-0.12	-0.02	-0.10	-0.10	-0.12	-0.09
1901	-0.13	0.10	-0.09	-0.06	-0.02	-0.11	-0.16	-0.10	-0.15	-0.26	-0.29	-0.27	-0.13
1902	-0.30	-0.27	-0.20	-0.39	-0.37	-0.55	-0.65	-0.43	-0.24	-0.21	-0.31	-0.34	-0.35
1903	-0.20	-0.07	-0.35	-0.29	-0.31	-0.55	-0.60	-0.75	-0.73	-0.64	-0.44	-0.52	-0.45
1904	-0.49	-0.50	-0.54	-0.59	-0.45	-0.55	-0.37	-0.43	-0.57	-0.47	-0.36	-0.30	-0.47
1905	-0.36	-0.31	-0.46	-0.32	-0.29	-0.37	-0.21	-0.37	-0.52	-0.42	-0.45	-0.46	-0.38
1906	-0.23	-0.18	-0.21	-0.26	-0.43	-0.10	-0.17	-0.22	-0.14	-0.23	-0.16	-0.31	-0.22
1907	-0.25	-0.40	-0.32	-0.30	-0.40	-0.51	-0.51	-0.49	-0.29	-0.29	-0.37	-0.29	-0.37
1908	-0.36	-0.43	-0.44	-0.48	-0.32	-0.20	-0.17	-0.24	-0.33	-0.22	-0.28	-0.22	-0.31
1909	-0.22	-0.26	-0.27	-0.23	-0.16	-0.36	-0.44	-0.25	-0.23	-0.24	-0.39	-0.33	-0.28
1910	-0.36	-0.43	-0.43	-0.42	-0.48	-0.47	-0.47	-0.43	-0.25	-0.28	-0.27	-0.43	-0.39
1911	-0.40	-0.38	-0.44	-0.47	-0.45	-0.37	-0.29	-0.20	-0.16	-0.20	-0.41	-0.34	-0.34
1912	-0.33	-0.38	-0.33	-0.27	-0.22	-0.27	-0.43	-0.67	-0.52	-0.42	-0.38	-0.39	-0.38
1913	-0.42	-0.35	-0.38	-0.54	-0.55	-0.68	-0.52	-0.47	-0.49	-0.49	-0.49	-0.38	-0.48
1914	-0.35	-0.47	-0.54	-0.47	-0.36	-0.46	-0.45	-0.51	-0.40	-0.23	-0.28	-0.34	-0.40
1915	-0.29	-0.24	-0.21	-0.10	0.05	0.10	0.05	0.08	0.09	-0.06	-0.20	-0.16	-0.07
1916	-0.22	-0.20	-0.35	-0.24	-0.25	-0.25	-0.28	-0.18	-0.13	-0.12	-0.35	-0.31	-0.24
1917	-0.38	-0.41	-0.48	-0.40	-0.50	-0.47	-0.40	-0.39	-0.34	-0.45	-0.55	-0.27	-0.42
1918	-0.28	-0.23	-0.34	-0.29	-0.44	-0.46	-0.54	-0.52	-0.54	-0.47	-0.38	-0.41	-0.41
1919	-0.18	-0.22	-0.15	-0.22	-0.23	-0.33	-0.49	-0.39	-0.26	-0.31	-0.40	-0.42	-0.30
1920	-0.50	-0.47	-0.39	-0.37	-0.40	-0.44	-0.52	-0.40	-0.33	-0.26	-0.40	-0.45	-0.41
1921	-0.37	-0.35	-0.28	-0.28	-0.42	-0.29	-0.02	-0.39	-0.29	-0.04	-0.29	-0.19	-0.27
1922	-0.22	-0.25	-0.39	-0.51	-0.44	-0.40	-0.55	-0.47	-0.52	-0.33	-0.38	-0.31	-0.40
1923	-0.39	-0.45	-0.44	-0.49	-0.36	-0.47	-0.44	-0.54	-0.49	-0.32	-0.29	-0.09	-0.40
1924	-0.11	-0.25	-0.17	-0.15	-0.09	-0.15	-0.25	-0.32	-0.39	-0.33	-0.35	-0.32	-0.24
1925	-0.32	-0.35	-0.31	-0.28	-0.15	-0.24	-0.29	-0.28	-0.18	-0.08	-0.25	0.00	-0.23
1926	0.00	0.03	-0.04	0.04	0.02	-0.08	0.05	-0.01	-0.04	0.18	-0.14	0.00	0.00
1927	0.03	0.04	-0.02	-0.02	0.13	0.09	-0.03	0.02	-0.02	0.14	0.06	-0.03	0.03
1928	-0.08	-0.16	-0.16	-0.23	-0.12	-0.03	-0.02	-0.03	0.03	-0.03	-0.15	-0.18	-0.10
1929	-0.20	-0.12	-0.12	-0.10	-0.24	-0.29	-0.22	-0.24	-0.14	-0.08	-0.11	-0.21	-0.17
1930	-0.18	-0.25	-0.23	-0.29	-0.20	-0.19	-0.03	-0.10	0.12	0.10	0.10	0.03	-0.09
1931	0.04	0.02	0.00	0.07	0.19	0.19	0.06	-0.01	0.11	0.20	0.04	0.16	0.09
1932	0.09	0.16	0.13	0.02	0.04	0.20	0.01	0.24	0.19	0.12	0.03	-0.03	0.10
1933	0.01	0.10	0.04	0.19	0.14	0.12	0.16	0.19	0.18	0.27	-0.05	-0.15	0.10
1934	-0.15	-0.25	-0.27	-0.12	-0.17	0.06	0.14	0.03	0.08	0.12	-0.04	-0.06	-0.05
1935	0.00	-0.14	-0.22	-0.02	0.05	0.03	-0.04	-0.06	-0.06	-0.07	0.01	0.08	-0.04
1936	0.05	0.04	0.07	0.11	0.09	0.19	0.14	0.10	0.16	0.12	0.02	0.06	0.09
1937	0.12	0.13	0.12	0.01	0.10	0.50	0.53	0.51	0.49	0.27	0.25	0.23	0.27
1938	0.20	0.07	0.20	0.28	0.26	0.23	0.11	0.25	0.26	0.32	0.40	0.23	0.23
1939	0.08	0.12	-0.01	0.10	0.07	0.24	0.22	0.20	0.25	-0.01	-0.15	-0.08	0.09
1940	-0.13	-0.23	-0.13	-0.09	-0.03	-0.05	-0.02	-0.13	0.00	0.01	-0.03	-0.10	-0.08
1941	0.05	0.03	0.07	0.10	-0.07	-0.13	-0.17	-0.08	-0.01	0.22	0.29	0.18	0.04
1942	0.03	0.06	0.06	0.13	0.24	0.20	0.02	0.10	0.17	0.14	0.12	0.05	0.11
1943	0.00	-0.03	-0.16	-0.13	0.01	-0.02	-0.03	0.00	0.04	0.07	0.10	0.21	0.01
1944	0.20	0.26	0.44	0.39	0.38	0.32	0.26	0.25	0.36	0.36	0.41	0.31	0.33
1945	0.26	0.33	0.36	0.44	0.27	0.22	0.08	-0.02	-0.07	0.08	0.24	0.29	0.21

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

Year	Atlantic Multidecadal Oscillation (AMO)												Annual
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
1946	0.18	0.04	0.05	0.09	-0.01	-0.15	-0.27	-0.27	-0.01	0.03	-0.06	-0.07	-0.04
1947	-0.10	-0.10	-0.09	-0.08	-0.24	-0.23	-0.28	-0.11	-0.09	-0.03	0.12	-0.05	-0.11
1948	0.03	0.05	0.18	0.00	-0.01	0.04	-0.10	-0.07	-0.04	0.04	0.20	0.09	0.03
1949	0.13	0.20	0.05	0.17	0.00	0.00	0.10	0.10	0.15	0.19	0.11	0.15	0.11
1950	0.14	-0.03	-0.09	-0.15	-0.06	0.00	-0.06	-0.03	-0.07	-0.08	0.05	0.10	-0.02
1951	0.09	-0.01	0.03	0.11	0.14	0.20	0.40	0.33	0.23	0.26	0.21	0.24	0.19
1952	0.10	0.14	0.17	0.21	0.24	0.39	0.32	0.42	0.29	0.29	0.20	0.29	0.25
1953	0.26	0.22	0.15	0.26	0.31	0.24	0.30	0.24	0.30	0.17	0.33	0.36	0.26
1954	0.30	0.13	0.10	0.03	0.10	0.12	-0.03	-0.05	-0.03	0.00	0.02	0.03	0.06
1955	0.19	0.10	0.08	0.09	0.13	0.10	0.27	0.28	0.22	0.26	0.36	0.23	0.19
1956	0.20	0.13	0.05	0.03	-0.03	-0.26	-0.11	-0.10	-0.11	0.02	-0.07	0.06	-0.02
1957	0.00	-0.03	0.11	-0.02	-0.08	0.05	0.08	0.21	0.20	0.17	0.12	0.09	0.08
1958	0.14	0.22	0.31	0.37	0.27	0.31	0.14	0.15	0.24	0.17	0.29	0.27	0.24
1959	0.17	0.19	0.03	0.05	0.03	-0.06	-0.07	0.01	0.18	0.21	0.11	0.09	0.08
1960	0.18	0.22	0.13	0.14	0.33	0.32	0.29	0.34	0.28	0.38	0.35	0.17	0.26
1961	0.15	0.17	0.29	0.30	0.27	0.12	0.06	0.12	0.06	0.11	0.26	0.31	0.18
1962	0.23	0.26	0.22	0.14	0.09	-0.01	0.04	-0.02	0.06	0.19	0.16	0.28	0.13
1963	0.24	0.17	0.16	0.17	-0.03	0.01	-0.02	-0.04	-0.14	-0.03	0.07	-0.02	0.05
1964	-0.03	0.06	0.04	-0.09	0.13	0.06	-0.09	-0.20	-0.20	-0.22	-0.11	-0.09	-0.06
1965	-0.13	-0.15	-0.06	-0.03	-0.09	-0.15	-0.22	-0.16	-0.18	-0.11	-0.16	-0.03	-0.12
1966	-0.04	0.05	0.06	0.08	0.00	-0.01	-0.02	-0.01	0.02	0.07	0.08	0.13	0.03
1967	0.16	0.11	0.03	0.08	-0.14	-0.20	-0.17	-0.12	-0.06	-0.06	-0.10	-0.08	-0.05
1968	-0.11	-0.08	-0.16	-0.12	-0.13	-0.19	-0.18	-0.12	-0.06	0.00	-0.03	-0.03	-0.10
1969	0.06	0.17	0.21	0.19	0.09	0.04	0.12	0.02	0.03	-0.03	-0.01	0.03	0.08
1970	0.00	-0.04	0.02	0.06	0.03	-0.10	-0.19	-0.12	-0.09	-0.09	-0.14	-0.13	-0.07
1971	-0.11	-0.17	-0.23	-0.32	-0.28	-0.27	-0.24	-0.36	-0.26	-0.09	-0.08	-0.16	-0.21
1972	-0.16	-0.25	-0.32	-0.17	-0.33	-0.32	-0.28	-0.30	-0.22	-0.14	-0.12	-0.19	-0.23
1973	-0.20	-0.18	-0.12	-0.15	-0.08	-0.06	0.00	-0.11	-0.01	-0.05	-0.06	-0.11	-0.09
1974	-0.11	-0.12	-0.26	-0.39	-0.39	-0.29	-0.45	-0.40	-0.48	-0.40	-0.31	-0.27	-0.32
1975	-0.14	-0.14	-0.17	-0.22	-0.26	-0.18	-0.14	-0.03	-0.17	-0.24	-0.17	-0.22	-0.17
1976	-0.28	-0.35	-0.37	-0.31	-0.38	-0.30	-0.14	-0.04	-0.13	-0.11	-0.21	-0.32	-0.24
1977	-0.28	-0.21	-0.05	-0.08	-0.05	0.01	0.02	-0.06	-0.11	-0.09	-0.06	-0.11	-0.09
1978	-0.02	-0.04	-0.06	-0.04	-0.12	-0.18	-0.25	-0.15	-0.08	-0.07	0.05	-0.05	-0.08
1979	-0.06	-0.12	-0.19	-0.11	-0.04	0.07	0.00	-0.05	0.02	0.06	0.05	0.08	-0.02
1980	0.11	0.07	0.00	0.21	0.35	0.22	0.11	0.08	0.08	0.05	-0.10	-0.14	0.09
1981	-0.04	-0.04	0.09	0.08	0.10	0.14	0.02	0.01	0.06	-0.06	0.03	0.10	0.04
1982	-0.03	-0.06	-0.02	-0.12	-0.12	-0.19	-0.22	-0.26	-0.22	-0.28	-0.33	-0.27	-0.18
1983	-0.10	0.01	0.16	0.09	0.02	0.06	0.09	0.00	-0.10	-0.03	0.01	0.12	0.03
1984	0.00	-0.01	-0.04	-0.02	-0.04	-0.27	-0.22	-0.14	-0.10	-0.30	-0.28	-0.25	-0.14
1985	-0.23	-0.25	-0.22	-0.28	-0.23	-0.06	0.00	-0.22	-0.19	-0.13	-0.19	-0.22	-0.18
1986	-0.30	-0.23	-0.27	-0.31	-0.23	-0.24	-0.18	-0.27	-0.17	-0.23	-0.32	-0.25	-0.25
1987	-0.12	-0.09	0.05	0.15	0.23	0.27	0.40	0.45	0.34	0.17	0.11	0.15	0.17
1988	0.05	0.02	0.07	0.15	0.18	0.31	0.20	0.12	0.03	-0.06	-0.02	-0.07	0.08
1989	-0.09	0.02	-0.13	-0.24	-0.08	0.26	0.34	0.30	0.06	0.10	0.06	-0.02	0.05
1990	-0.05	0.04	0.04	0.09	0.10	0.07	0.08	0.23	0.33	0.30	0.16	0.08	0.12
1991	0.00	0.04	0.04	-0.06	0.00	-0.04	-0.03	0.03	0.07	-0.14	-0.17	-0.09	-0.03



Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

Year	Atlantic Multidecadal Oscillation (AMO)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1992	0.01	0.06	0.01	-0.10	-0.15	-0.04	-0.12	-0.29	-0.27	-0.20	-0.22	-0.13	-0.12
1993	0.00	0.04	-0.13	-0.01	-0.07	-0.13	-0.24	-0.11	-0.02	-0.11	-0.17	-0.16	-0.09
1994	-0.23	-0.24	-0.19	-0.07	-0.10	-0.13	-0.13	-0.10	-0.05	0.08	0.17	0.18	-0.07
1995	0.19	0.24	0.24	0.27	0.28	0.39	0.38	0.37	0.22	0.28	0.31	0.26	0.29
1996	0.30	0.18	0.08	0.18	0.14	0.08	0.07	0.04	0.23	0.11	0.09	0.08	0.13
1997	0.15	0.25	0.22	0.20	0.20	0.21	0.29	0.31	0.33	0.47	0.38	0.34	0.28
1998	0.45	0.54	0.47	0.45	0.48	0.63	0.58	0.72	0.51	0.52	0.48	0.48	0.52
1999	0.33	0.26	0.26	0.30	0.42	0.39	0.40	0.57	0.44	0.30	0.18	0.26	0.34
2000	0.10	0.18	0.33	0.23	0.32	0.17	0.21	0.28	0.28	0.16	0.20	0.09	0.21
2001	0.08	0.18	0.21	0.17	0.15	0.39	0.36	0.48	0.55	0.50	0.42	0.48	0.33
2002	0.52	0.45	0.38	0.35	0.17	0.04	0.07	0.25	0.29	0.39	0.32	0.27	0.29
2003	0.30	0.22	0.33	0.26	0.34	0.39	0.39	0.60	0.67	0.75	0.60	0.58	0.45

The source of AMO data was from the National Oceanic and Atmospheric Administration (NOAA), Climate Diagnostics Center, <http://www.cdc.noaa.gov/ClimateIndices/List/>

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

(Pacific Decadal Oscillation) PDO													
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1900	0.04	1.32	0.49	0.35	0.77	0.65	0.95	0.14	-0.24	0.23	-0.44	1.19	0.45
1901	0.79	-0.12	0.35	0.61	-0.42	-0.05	-0.60	-1.20	-0.33	0.16	-0.60	-0.14	-0.13
1902	0.82	1.58	0.48	1.37	1.09	0.52	1.58	1.57	0.44	0.70	0.16	-1.10	0.77
1903	0.86	-0.24	-0.22	-0.50	0.43	0.23	0.40	1.01	-0.24	0.18	0.08	-0.03	0.16
1904	0.63	-0.91	-0.71	-0.07	-0.22	-1.53	-1.58	-0.64	0.06	0.43	1.45	0.06	-0.25
1905	0.73	0.91	1.31	1.59	-0.07	0.69	0.85	1.26	-0.03	-0.15	1.11	-0.50	0.64
1906	0.92	1.18	0.83	0.74	0.44	1.24	0.09	-0.53	-0.31	0.08	1.69	-0.54	0.49
1907	-0.30	-0.32	-0.19	-0.16	0.16	0.57	0.63	-0.96	-0.23	0.84	0.66	0.72	0.12
1908	1.36	1.02	0.67	0.23	0.23	0.41	0.60	-1.04	-0.16	-0.41	0.47	1.16	0.38
1909	0.23	1.01	0.54	0.24	-0.39	-0.64	-0.39	-0.68	-0.89	-0.02	-0.40	-0.01	-0.12
1910	-0.25	-0.70	0.18	-0.37	-0.06	-0.28	0.03	-0.06	0.40	-0.66	0.02	0.84	-0.08
1911	-1.11	0.00	-0.78	-0.73	0.17	0.02	0.48	0.43	0.29	0.20	-0.86	0.01	-0.16
1912	-1.72	-0.23	-0.04	-0.38	-0.02	0.77	1.07	-0.84	0.94	0.56	0.74	0.98	0.15
1913	-0.03	0.34	0.06	-0.92	0.66	1.43	1.06	1.29	0.73	0.62	0.75	0.90	0.57
1914	0.34	-0.29	0.08	1.20	0.11	0.11	-0.21	0.11	-0.34	-0.11	0.03	0.89	0.16
1915	-0.41	0.14	-1.22	1.40	0.32	0.99	1.07	0.27	-0.05	-0.43	-0.12	0.17	0.18
1916	-0.64	-0.19	-0.11	0.35	0.42	-0.82	-0.78	-0.73	-0.77	-0.22	-0.68	-1.94	-0.51
1917	-0.79	-0.84	-0.71	-0.34	0.82	-0.03	0.10	-0.22	-0.40	-1.75	-0.34	-0.60	-0.43
1918	-1.13	-0.66	-1.15	-0.32	-0.33	0.07	0.98	-0.31	-0.59	0.61	0.34	0.86	-0.14
1919	-1.07	1.31	-0.50	0.08	0.17	-0.71	-0.47	0.38	0.06	-0.42	-0.80	0.76	-0.10
1920	-1.18	0.06	-0.78	-1.29	-0.97	-1.30	-0.90	-2.21	-1.28	-1.06	-0.26	0.29	-0.91
1921	-0.66	-0.61	-0.01	-0.93	-0.42	0.40	-0.58	-0.69	-0.78	-0.23	1.92	1.42	-0.10
1922	1.05	-0.85	0.08	0.43	-0.19	-1.04	-0.82	-0.93	-0.81	0.84	-0.60	0.48	-0.20
1923	0.75	-0.04	0.49	0.99	-0.20	0.68	1.16	0.84	-0.24	1.10	0.62	-0.36	0.48
1924	1.29	0.73	1.13	-0.02	0.36	0.75	-0.55	-0.67	-0.48	-1.25	0.24	0.11	0.14
1925	-0.05	-0.14	0.20	0.86	0.79	-1.08	-0.06	-0.86	0.52	0.04	0.88	1.19	0.19
1926	0.30	0.98	-0.50	2.10	1.43	2.03	1.05	1.64	1.18	1.65	1.00	1.06	1.16
1927	1.07	1.73	0.15	-0.18	0.30	0.69	-0.31	-0.73	-0.41	-0.62	-0.07	0.07	0.14
1928	0.96	0.79	0.52	0.81	0.66	0.15	0.30	-0.72	-1.41	-1.31	0.14	0.98	0.16
1929	0.97	0.52	0.50	0.55	1.07	0.50	-0.06	-0.69	0.45	-0.21	1.24	-0.03	0.40
1930	0.97	-1.06	-0.43	-0.70	0.06	0.58	-0.45	-0.53	-0.20	-0.38	-0.31	1.20	-0.10
1931	0.08	1.56	1.13	1.28	1.66	0.39	1.49	0.02	-0.01	-0.17	0.34	1.09	0.74
1932	-0.26	-0.58	0.51	1.15	0.64	0.10	-0.12	-0.14	-0.40	-0.29	-0.88	0.02	-0.02
1933	0.29	0.02	0.15	-0.05	-0.50	-0.68	-1.81	-1.56	-2.28	-1.19	0.55	-1.10	-0.68
1934	0.17	0.68	1.34	1.63	1.23	0.51	0.44	1.54	1.25	2.10	1.63	1.67	1.18
1935	1.01	0.79	-0.11	1.10	0.99	1.39	0.68	0.63	0.98	0.21	0.13	1.78	0.80
1936	1.79	1.75	1.36	1.32	1.83	2.37	2.57	1.71	0.04	2.10	2.65	1.28	1.73
1937	0.00	-0.49	0.38	0.20	0.53	1.75	0.11	-0.35	0.63	0.76	-0.18	0.55	0.32
1938	0.50	0.02	0.24	0.27	-0.25	-0.20	-0.21	-0.45	-0.01	0.07	0.48	1.40	0.16
1939	1.36	0.07	-0.39	0.45	0.98	1.04	-0.21	-0.74	-1.10	-1.31	-0.88	1.51	0.07
1940	2.03	1.74	1.89	2.37	2.32	2.43	2.12	1.40	1.10	1.19	0.68	1.96	1.77
1941	2.14	2.07	2.41	1.89	2.25	3.01	2.33	3.31	1.99	1.22	0.40	0.91	1.99
1942	1.01	0.79	0.29	0.79	0.84	1.19	0.12	0.44	0.68	0.54	-0.10	-1.00	0.47
1943	-0.18	0.02	0.26	1.08	0.43	0.68	-0.36	-0.90	-0.49	-0.04	0.29	0.58	0.11
1944	0.18	0.17	0.08	0.72	-0.35	-0.98	-0.40	-0.51	-0.56	-0.40	0.33	0.20	-0.13
1945	-1.02	0.72	-0.42	-0.40	-0.07	0.56	1.02	0.18	-0.27	0.10	-1.94	-0.74	-0.19

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

(Pacific Decadal Oscillation) PDO													
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1946	-0.91	-0.32	-0.41	-0.78	0.50	-0.86	-0.84	-0.36	-0.22	-0.36	-1.48	-0.96	-0.58
1947	-0.73	-0.29	1.17	0.70	0.37	1.36	0.16	0.30	0.58	0.85	-0.14	1.67	0.50
1948	-0.11	-0.74	-0.03	-1.33	-0.23	0.08	-0.92	-1.56	-1.74	-1.32	-0.89	-1.70	-0.87
1949	-2.01	-3.60	-1.00	-0.53	-1.07	-0.70	-0.56	-1.30	-0.93	-1.41	-0.83	-0.80	-1.23
1950	-2.13	-2.91	-1.13	-1.20	-2.23	-1.77	-2.93	-0.70	-2.14	-1.36	-2.46	-0.76	-1.81
1951	-1.54	-1.06	-1.90	-0.36	-0.25	-1.09	0.70	-1.37	-0.08	-0.32	-0.28	-1.68	-0.77
1952	-2.01	-0.46	-0.63	-1.05	-1.00	-1.43	-1.25	-0.60	-0.89	-0.35	-0.76	0.04	-0.87
1953	-0.57	-0.07	-1.12	0.05	0.43	0.29	0.74	0.05	-0.63	-1.09	-0.03	0.07	-0.16
1954	-1.32	-1.61	-0.52	-1.33	0.01	0.97	0.43	0.08	-0.94	0.52	0.72	-0.50	-0.29
1955	0.20	-1.52	-1.26	-1.97	-1.21	-2.44	-2.35	-2.25	-1.95	-2.80	-3.08	-2.75	-1.95
1956	-2.48	-2.74	-2.56	-2.17	-1.41	-1.70	-1.03	-1.16	-0.71	-2.30	-2.11	-1.28	-1.80
1957	-1.82	-0.68	0.03	-0.58	0.57	1.76	0.72	0.51	1.59	1.50	-0.32	-0.55	0.23
1958	0.25	0.62	0.25	1.06	1.28	1.33	0.89	1.06	0.29	0.01	-0.18	0.86	0.64
1959	0.69	-0.43	-0.95	-0.02	0.23	0.44	-0.50	-0.62	-0.85	0.52	1.11	0.06	-0.03
1960	0.30	0.52	-0.21	0.09	0.91	0.64	-0.27	-0.38	-0.94	0.09	-0.23	0.17	0.06
1961	1.18	0.43	0.09	0.34	-0.06	-0.61	-1.22	-1.13	-2.01	-2.28	-1.85	-2.69	-0.82
1962	-1.29	-1.15	-1.42	-0.80	-1.22	-1.62	-1.46	-0.48	-1.58	-1.55	-0.37	-0.96	-1.16
1963	-0.33	-0.16	-0.54	-0.41	-0.65	-0.88	-1.00	-1.03	0.45	-0.52	-2.08	-1.08	-0.69
1964	0.01	-0.21	-0.87	-1.03	-1.91	-0.32	-0.51	-1.03	-0.68	-0.37	-0.80	-1.52	-0.77
1965	-1.24	-1.16	0.04	0.62	-0.66	-0.80	-0.47	0.20	0.59	-0.36	-0.59	0.06	-0.31
1966	-0.82	-0.03	-1.29	0.06	-0.53	0.16	0.26	-0.35	-0.33	-1.17	-1.15	-0.32	-0.46
1967	-0.20	-0.18	-1.20	-0.89	-1.24	-1.16	-0.89	-1.24	-0.72	-0.64	-0.05	-0.40	-0.73
1968	-0.95	-0.40	-0.31	-1.03	-0.53	-0.35	0.53	0.19	0.06	-0.34	-0.44	-1.27	-0.40
1969	-1.26	-0.95	-0.50	-0.44	-0.20	0.89	0.10	-0.81	-0.66	1.12	0.15	1.38	-0.10
1970	0.61	0.43	1.33	0.43	-0.49	0.06	-0.68	-1.63	-1.67	-1.39	-0.80	-0.97	-0.40
1971	-1.90	-1.74	-1.68	-1.59	-1.55	-1.55	-2.20	-0.15	0.21	-0.22	-1.25	-1.87	-1.29
1972	-1.99	-1.83	-2.09	-1.65	-1.57	-1.87	-0.83	0.25	0.17	0.11	0.57	-0.33	-0.92
1973	-0.46	-0.61	-0.50	-0.69	-0.76	-0.97	-0.57	-1.14	-0.51	-0.87	-1.81	-0.76	-0.80
1974	-1.22	-1.65	-0.90	-0.52	-0.28	-0.31	-0.08	0.27	0.44	-0.10	0.43	-0.12	-0.34
1975	-0.84	-0.71	-0.51	-1.30	-1.02	-1.16	-0.40	-1.07	-1.23	-1.29	-2.08	-1.61	-1.10
1976	-1.14	-1.85	-0.96	-0.89	-0.68	-0.67	0.61	1.28	0.82	1.11	1.25	1.22	0.01
1977	1.65	1.11	0.72	0.30	0.31	0.42	0.19	0.64	-0.55	-0.61	-0.72	-0.69	0.23
1978	0.34	1.45	1.34	1.29	0.90	0.15	-1.24	-0.56	-0.44	0.10	-0.07	-0.43	0.24
1979	-0.58	-1.33	0.30	0.89	1.09	0.17	0.84	0.52	1.00	1.06	0.48	-0.42	0.34
1980	-0.11	1.32	1.09	1.49	1.20	-0.22	0.23	0.51	0.10	1.35	0.37	-0.10	0.60
1981	0.59	1.46	0.99	1.45	1.75	1.69	0.84	0.18	0.42	0.18	0.80	0.67	0.92
1982	0.34	0.20	0.19	-0.19	-0.58	-0.78	0.58	0.39	0.84	0.37	-0.25	0.26	0.11
1983	0.56	1.14	2.11	1.87	1.80	2.36	3.51	1.85	0.91	0.96	1.02	1.69	1.65
1984	1.50	1.21	1.77	1.52	1.30	0.18	-0.18	-0.03	0.67	0.58	0.71	0.82	0.84
1985	1.27	0.94	0.57	0.19	0.00	0.18	1.07	0.81	0.44	0.29	-0.75	0.38	0.45
1986	1.12	1.61	2.18	1.55	1.16	0.89	1.38	0.22	0.22	1.00	1.77	1.77	1.24
1987	1.88	1.75	2.10	2.16	1.85	0.73	2.01	2.83	2.44	1.36	1.47	1.27	1.82
1988	0.93	1.24	1.42	0.94	1.20	0.74	0.64	0.19	-0.37	-0.10	-0.02	-0.43	0.53
1989	-0.95	-1.02	-0.83	-0.32	0.47	0.36	0.83	0.09	0.05	-0.12	-0.50	-0.21	-0.18
1990	-0.30	-0.65	-0.62	0.27	0.44	0.44	0.27	0.11	0.38	-0.69	-1.69	-2.23	-0.36
1991	-2.02	-1.19	-0.74	-1.01	-0.51	-1.47	-0.10	0.36	0.65	0.49	0.42	0.09	-0.42

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

(Pacific Decadal Oscillation) PDO													
Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1992	0.05	0.31	0.67	0.75	1.54	1.26	1.90	1.44	0.83	0.93	0.93	0.53	0.93
1993	0.05	0.19	0.76	1.21	2.13	2.34	2.35	2.69	1.56	1.41	1.24	1.07	1.42
1994	1.21	0.59	0.80	1.05	1.23	0.46	0.06	-0.79	-1.36	-1.32	-1.96	-1.79	-0.15
1995	-0.49	0.46	0.75	0.83	1.46	1.27	1.71	0.21	1.16	0.47	-0.28	0.16	0.64
1996	0.59	0.75	1.01	1.46	2.18	1.10	0.77	-0.14	0.24	-0.33	0.09	-0.03	0.64
1997	0.23	0.28	0.65	1.05	1.83	2.76	2.35	2.79	2.19	1.61	1.12	0.67	1.46
1998	0.83	1.56	2.01	1.27	0.70	0.40	-0.04	-0.22	-1.21	-1.39	-0.52	-0.44	0.25
1999	-0.32	-0.66	-0.33	-0.41	-0.68	-1.30	-0.66	-0.96	-1.53	-2.23	-2.05	-1.63	-1.06
2000	-2.00	-0.83	0.29	0.35	-0.05	-0.44	-0.66	-1.19	-1.24	-1.30	-0.53	0.52	-0.59
2001	0.60	0.29	0.45	-0.31	-0.30	-0.47	-1.31	-0.77	-1.37	-1.37	-1.26	-0.93	-0.56
2002	0.27	-0.64	-0.43	-0.32	-0.63	-0.35	-0.31	0.60	0.43	0.42	1.51	2.10	0.22
2003	2.09	1.75	1.51	1.18	0.89	0.68	0.96	0.88	0.01	0.83	0.52	0.33	0.97

The source of PDO data was from the Joint Institute for the Study of the Atmosphere and Ocean, University of Washington, Seattle, Washington, [http://jisao.washington.edu/data\\_sets/pdo/](http://jisao.washington.edu/data_sets/pdo/)

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

Year	Southern Oscillation Index (SOI)												Annual
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
1900	-1.6	-1.6	-5.2	-2.3	-1.0	3.1	1.6	0.9	-3.0	-3.3	-1.2	-1.2	-1.23
1901	-0.3	0.4	1.7	0.6	0.0	2.4	2.3	1.5	-2.7	-4.1	-1.7	-0.6	-0.04
1902	3.6	-0.7	2.1	0.9	1.2	0.3	0.1	-1.6	-3.0	-1.4	-0.8	-0.7	0.00
1903	-2.1	-2.6	3.0	2.3	1.2	-0.2	0.7	-0.1	1.4	0.7	0.0	2.9	0.60
1904	2.9	3.2	1.6	3.8	1.2	-1.2	-1.6	-0.1	0.2	-0.2	-2.9	0.2	0.59
1905	-2.0	-4.1	-5.9	-5.3	-5.0	-4.1	-3.3	-1.5	-1.2	-1.3	-3.0	-3.0	-3.31
1906	-1.0	-2.0				-0.6	0.8	2.3	3.1	1.3	3.0		0.86
1907													
1908									3.3	1.1	0.2	-1.2	
1909	-0.6	-0.7	-0.5	-1.8	0.2	2.6	1.7	1.3	0.0	0.3	1.0	0.8	0.36
1910	0.9	3.2	2.2	0.5	0.2	2.7	3.3	1.4	2.4	1.5	2.8	3.1	2.02
1911	0.4	0.2	0.4	0.1	-1.0	-1.8	-2.2	-2.1	-1.5	-2.3	-1.5	-0.6	-0.99
1912	-2.3	-3.9	-2.0	-2.8	-1.6	-0.9	-0.4	-1.6	-0.8	-1.4	0.1	-2.0	-1.63
1913	-0.9	-1.3	-0.2	-0.9	-0.9	-0.8	-0.3	-1.6	-1.7	-1.7	-2.0	-1.7	-1.17
1914	-1.2	0.3	1.6							-1.4			
1915											-2.7	1.7	
1916	0.9	-0.9	-1.6	-0.1	0.7	0.9	4.0	2.3	0.6	0.8	1.3	2.6	0.96
1917	1.0	2.3	3.2	2.7	2.9	2.6	4.2	5.3	5.2	2.5	3.1	4.3	3.28
1918	3.0	3.4	-0.7	2.2	1.4	-0.7	-2.4	-0.9	-1.3	-1.0	-0.1	-1.8	0.09
1919	-3.5	-2.6	-2.7	-0.3	-1.1	-1.5	-1.5	-1.5	-0.9	-2.0	-2.0	-2.1	-1.81
1920	0.1	-0.8	-1.1	-0.1	-0.4	0.5	1.3	0.5	1.0	-1.0	-0.2	1.6	0.12
1921	2.4	1.1					0.4	-1.3	0.7	1.6	1.0	1.3	0.90
1922	1.5	1.7	0.8	-0.6	-0.8	0.4	0.1	-0.4	0.8	0.7	1.2	2.0	0.62
1923	1.0	0.6	1.4	1.0	0.2	-0.2	-1.9	-3.2	-2.6	-1.1	-2.3	0.3	-0.57
1924	-1.2	0.0	0.4	-1.9	1.5	0.8	1.1	1.6	1.3	1.1	1.7	0.7	0.59
1925	1.0	2.9	2.4	1.6	-0.2	-0.7	-2.2	-1.9	-1.0	-2.5	-1.8	-1.9	-0.36
1926	-3.2	-5.1	-4.4	-2.6	-2.0	-2.7	-2.0	-3.2	-1.5	-1.2	-1.7	-0.8	-2.53
1927	0.9	-0.1	3.2	1.0	0.9				0.0	-0.9	-1.5	1.3	0.53
1928	-2.1	2.0	2.3	1.6	-0.3	-1.1	0.0	1.4	1.6	1.5	0.1	2.3	0.78
1929	3.1	3.8	0.8	0.6	-1.6	0.1	0.4	-0.2	-0.1	1.2	1.6	1.0	0.89
1930	2.5	1.3	0.0	-0.3	0.2	-0.9	-0.8	-0.6	-1.2	0.7	0.2	-0.6	0.04
1931	1.5	-3.3	0.8	1.2	1.9	2.1	1.4						0.80
1932									-1.9	-1.0	-0.9	0.3	
1933	-2.6	0.6	-0.6	0.4	0.8	-0.7	0.4	-0.4	0.5	0.4	0.8	1.4	0.08
1934	1.2	0.0	-0.2	0.7	-0.9	1.4	0.3	-4.0	-1.2	0.4	1.7	-0.7	-0.11
1935	1.2	-1.1	2.1	0.4	-0.6	-0.4	0.0	0.2	1.0	1.1	0.3	-1.0	0.27
1936	-0.5	-0.2	0.0	0.7	0.6	-0.5	0.5	-1.7	0.3	-0.1	-2.4	-0.2	-0.29
1937	1.8	-1.3	0.9	0.1	-0.1	0.2	-0.9	0.2	0.1	-0.7	-0.9	1.0	0.03
1938	1.3	0.6	-0.8	0.5	1.7	2.2	2.9	1.6	1.4	2.1	0.0	2.6	1.34
1939	3.4	1.3	1.8	1.2	-0.2	-0.3	1.3	-0.5	-1.7	-2.8	-1.6	-2.0	-0.01
1940	-0.1	-1.3	-2.2	-1.1	-1.9	-2.7	-2.6	-3.1	-3.3	-3.1	-1.4	-4.2	-2.25
1941	-2.2	-3.5	-2.3	-1.4	-0.9	-2.0	-3.3	-3.3	-1.5	-3.7	-1.7	-1.9	-2.31
1942	-2.9	-1.1	-1.3	-0.7	0.6	0.8	-0.3	0.4	1.4	1.2	-1.0	2.6	-0.03
1943	1.9	2.0	0.5	1.7	0.4	-1.2	0.3	1.0	0.9	1.3	0.3	-2.0	0.59
1944	-1.9	0.6	0.8	-0.7	-0.1	-0.7	-1.5	0.4	0.4	-1.7	-1.3	0.5	-0.43
1945	1.0	1.1	2.2	-0.9	0.0	0.8	0.5	1.7	1.5	0.2	-0.8	1.1	0.70

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

Year	Southern Oscillation Index (SOI)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1946	-0.7	0.6	-0.6	-1.2	-1.5	-1.4	-1.7	-0.9	-2.9	-2.3	-0.5	-1.4	-1.21
1947	-1.2	-1.2	2.0	-0.6	-1.8	0.1	1.4	0.9	2.0	-0.5	1.2	0.8	0.26
1948	-0.8	-0.9	-1.1	0.3	0.5	-0.8	0.0	-1.0	-1.4	0.8	0.4	-1.4	-0.45
1949	-1.7	0.1	0.7	0.2	-0.8	-1.7	-0.4	-0.9	0.3	0.7	-1.2	1.2	-0.29
1950	0.9	3.4	3.1	1.9	0.9	3.2	3.3	1.8	1.1	2.7	1.6	4.4	2.36
1951	2.7	1.0	-1.3	-1.1	-1.7	-0.5	-2.3	-1.2	-2.1	-2.3	-1.6	-1.6	-1.00
1952	-2.0	-1.8	0.0	-0.9	1.0	0.8	0.7	-0.7	-0.4	0.3	-0.3	-2.6	-0.49
1953	0.4	-1.6	-1.4	-0.1	-3.6	-0.5	-0.2	-3.1	-2.4	-0.3	-0.7	-1.1	-1.22
1954	1.0	-1.2	-0.5	0.6	0.4	-0.5	0.4	1.3	0.3	0.1	0.2	2.4	0.38
1955	-1.1	2.9	0.1	-0.8	1.4	1.7	2.7	2.0	2.5	2.5	2.2	1.7	1.48
1956	2.3	2.4	1.5	1.2	2.2	1.3	1.7	1.5	0.0	3.0	0.1	1.7	1.58
1957	1.0	-0.8	-0.6	0.0	-1.7	-0.4	0.1	-1.7	-1.8	-0.3	-2.0	-0.9	-0.76
1958	-3.8	-1.6	-0.5	0.2	-1.5	-0.2	0.4	1.0	-0.7	-0.4	-1.0	-1.4	-0.79
1959	-2.0	-3.2	1.4	0.3	0.4	-0.9	-0.8	-0.9	0.0	0.5	1.6	1.4	-0.18
1960	0.0	-0.4	0.9	1.0	0.5	-0.5	0.6	0.8	1.1	-0.2	0.9	1.2	0.49
1961	-0.7	1.1	-4.5	1.1	0.2	-0.5	0.2	-0.4	0.1	-1.1	0.9	2.6	-0.08
1962	3.6	-1.1	-0.7	-0.1	1.6	0.6	-0.2	0.6	0.8	1.4	0.4	0.1	0.58
1963	1.8	0.6	1.1	1.0	0.2	-1.6	-0.5	-0.8	-1.1	-2.7	-1.7	-2.6	-0.53
1964	-0.9	-0.5	1.1	1.7	-0.1	0.7	0.7	2.2	2.3	2.0	0.1	-0.9	0.70
1965	-1.0	0.1	0.4	-1.3	-0.2	-1.7	-3.6	-2.0	-2.5	-2.0	-2.9	0.0	-1.39
1966	-2.8	-1.1	-2.8	-0.8	-1.1	0.0	-0.2	0.5	-0.4	-0.6	-0.2	-1.0	-0.88
1967	3.0	2.6	1.3	-0.4	-0.5	0.6	0.0	0.7	1.0	-0.3	-1.0	-1.4	0.47
1968	0.6	1.8	-0.8	-0.4	1.9	1.4	1.0	-0.2	-0.5	-0.5	-0.7	0.1	0.31
1969	-3.2	-1.8	-0.2	-1.1	-0.9	-0.3	-1.2	-0.9	-2.0	-2.2	-0.3	0.5	-1.13
1970	-2.3	-2.7	0.1	-0.6	0.2	1.2	-1.0	0.4	2.1	1.5	2.8	3.3	0.42
1971	0.4	3.1	3.4	2.8	1.2	0.2	0.1	2.2	2.7	2.8	0.9	0.1	1.66
1972	0.6	1.4	0.1	-0.6	-3.4	-1.8	-3.1	-1.6	-2.6	-2.0	-0.7	-2.6	-1.36
1973	-0.8	-3.2	0.3	-0.3	0.4	1.3	0.9	1.7	2.3	1.0	4.7	3.2	0.96
1974	4.3	3.2	3.6	1.4	1.4	0.1	1.9	0.8	2.0	1.3	-0.5	0.0	1.63
1975	-1.3	1.0	1.9	1.7	0.8	1.8	3.4	3.1	3.9	2.7	2.1	3.7	2.07
1976	2.4	2.6	2.2	0.2	0.3	-0.2	-1.9	-2.2	-2.2	0.4	1.1	-1.0	0.14
1977	-1.1	1.7	-2.1	-1.3	-1.4	-2.5	-2.5	-2.2	-1.6	-2.3	-2.5	-2.3	-1.68
1978	-0.7	-5.7	-1.3	-1.0	2.1	0.5	0.7	0.0	0.1	-1.2	-0.2	-0.4	-0.59
1979	-1.1	1.3	-0.8	-0.7	0.5	0.6	2.1	-1.0	0.2	-0.6	-1.0	-1.6	-0.18
1980	0.5	0.0	-2.0	-1.7	-0.5	-0.7	-0.4	0.0	-0.9	-0.4	-0.8	-0.5	-0.62
1981	0.4	-1.0	-3.4	-0.7	1.1	1.7	1.2	0.6	0.6	-1.2	0.1	0.7	0.01
1982	2.2	-0.1	0.1	-0.3	-1.1	-2.6	-3.2	-4.0	-3.3	-3.6	-5.1	-4.6	-2.13
1983	-6.9	-7.6	-5.6	-2.2	0.7	-0.5	-1.3	-0.3	1.7	0.4	-0.3	-0.2	-1.84
1984	0.2	0.9	-1.5	0.3	-0.1	-1.3	0.1	0.1	0.2	-1.0	0.4	-0.7	-0.20
1985	-0.7	1.7	0.3	1.7	0.3	-1.5	-0.4	1.1	-0.1	-1.2	-0.5	0.2	0.08
1986	1.5	-2.7	-0.1	0.1	-0.9	1.1	0.2	-1.6	-1.0	0.9	-2.5	-2.9	-0.66
1987	-1.5	-3.1	-3.3	-3.0	-2.8	-2.8	-2.8	-2.5	-1.9	-1.1	-0.2	-1.2	-2.18
1988	-0.3	-1.4	0.1	-0.1	1.3	-0.4	1.7	2.2	3.4	2.2	3.0	2.1	1.15
1989	2.7	1.8	1.0	2.6	1.9	0.8	1.4	-1.3	0.9	1.0	-0.6	-1.2	0.92
1990	-0.4	-3.9	-1.9	-0.1	1.8	-0.1	0.8	-1.0	-1.3	0.1	-1.1	-0.7	-0.65
1991	1.0	-0.1	-2.2	-1.7	-2.4	-0.9	-0.2	-1.4	-2.9	-2.4	-1.4	-3.7	-1.53

Table K. Supplementary data for figure 2 and analyses of study (Monthly climatic indices, AMO, PDO, and SOI, 1900-2003) -- continued.

Year	Southern Oscillation Index (SOI)												
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
1992	-5.6	-2.3	-4.8	-2.3	0.1	-1.9	-1.3	0.0	0.0	-3.2	-1.4	-1.4	-2.01
1993	-2.0	-2.1	-1.8	-2.6	-1.0	-2.2	-1.8	-2.4	-1.3	-2.5	-0.3	0.1	-1.66
1994	-0.5	-0.1	-2.2	-2.9	-1.7	-1.5	-2.9	-2.9	-3.0	-2.6	-1.2	-2.5	-2.00
1995	-1.0	-0.8	0.4	-1.8	-1.2	-0.4	0.6	-0.1	0.5	-0.5	-0.1	-1.3	-0.48
1996	1.7	-0.2	1.1	1.1	0.2	1.6	1.0	0.7	1.0	0.7	-0.3	1.3	0.83
1997	0.8	2.6	-1.9	-1.4	-3.0	-3.2	-1.7	-3.4	-2.6	-3.1	-2.3	-2.1	-1.78
1998	-5.4	-4.4	-5.7	-3.2	0.1	1.2	2.0	1.6	2.0	1.6	1.7	2.3	-0.52
1999	3.2	1.2	1.4	2.2	0.1	-0.1	0.8	0.1	-0.1	1.5	1.8	2.5	1.22
2000	1.1	2.6	1.6	1.9	0.3	-1.0	-0.7	0.6	1.7	1.6	3.3	1.1	1.18
2001	1.8	2.4	0.8	-0.1	-1.4	-0.1	-0.7	-1.6	0.3	-0.6	1.2	-1.9	0.01
2002	0.7	1.5	-1.4	-0.6	-2.0	-1.1	-1.1	-2.6	-1.1	-1.2	-1.0	-2.4	-1.03
2003	-0.6	-2.0	-1.6	-0.7	-1.0	-1.9	0.4	-0.5	-0.2	-0.5	-0.7	1.8	-0.63

The SOI anomaly data were from two sources. Data for 1951 to 2003 was from the National Oceanic and Atmospheric Administration, Climate Diagnostics Center, <http://www.cdc.noaa.gov/ClimaticIndices/List/>. SOI anomaly data for 1900 to 1950 was originally fro

Table L. Supplementary data for figure 10 (Estimated normalized streamflow for periods of AMO, PDO, and SOI, 13 sites in central part of Lower Colorado River Basin)

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic period to long-term log streamflow					
			Positive period			Negative period		
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
AMO	Annual	Oak Creek	-0.478	1.125	2.854	-0.255	0.881	2.077
		Agua Fria River	-0.693	1.416	3.853	-0.055	0.723	1.517
		Verde River	-0.506	1.242	3.124	-0.098	0.778	1.674
		Tonto Creek	-0.499	1.358	3.449	-0.195	0.745	1.765
		Carrizo Creek	-0.322	1.413	3.311	-0.183	0.619	1.523
		Show Low Creek	-0.273	1.371	3.124	-0.172	0.596	1.439
		Little Colorado River	-0.408	1.294	3.134	-0.254	0.780	1.901
		Salt River	-0.572	1.239	3.189	-0.175	0.822	1.853
		Black River	-0.192	1.175	2.610	-0.434	0.721	2.122
		White River	-0.088	1.194	2.497	-0.491	0.692	2.100
		San Carlos River	-0.722	1.365	3.760	-0.136	0.800	1.777
		San Francisco River	-0.800	1.271	3.629	-0.104	0.843	1.814
		Gila River	-0.799	1.233	3.483	-0.107	0.865	1.855
		median	-0.499	1.271	3.189	-0.175	0.778	1.814
AMO	Winter-spring	Oak Creek	-0.457	1.148	2.899	-0.274	0.863	2.082
		Agua Fria River	-0.454	2.094	4.977	-0.120	0.499	1.209
		Verde River	-0.456	1.309	3.224	-0.147	0.733	1.654
		Tonto Creek	-0.470	1.483	3.701	-0.205	0.682	1.684
		Carrizo Creek	-0.290	1.585	3.633	-0.167	0.546	1.377
		Show Low Creek	-0.269	1.455	3.322	-0.185	0.545	1.393
		Little Colorado River	-0.371	1.406	3.341	-0.243	0.718	1.792
		Salt River	-0.541	1.250	3.211	-0.215	0.817	1.906
		Black River	-0.150	1.213	2.644	-0.437	0.671	2.142
		White River	-0.071	1.208	2.507	-0.523	0.678	2.206
		San Carlos River	-0.722	1.349	3.868	-0.139	0.805	1.808
		San Francisco River	-0.751	1.303	3.706	-0.132	0.826	1.824
		Gila River	-0.809	1.225	3.542	-0.115	0.871	1.881
		median	-0.456	1.309	3.341	-0.185	0.718	1.808



Table L. Supplementary data for figure 10 (Estimated normalized streamflow for periods of AMO, PDO, and SOI, 13 sites in central part of Lower Colorado River Basin) -- continued

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic period to long-term log streamflow					
			Positive period			Negative period		
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
PDO	Annual	Oak Creek	-0.253	0.942	2.197	-0.561	1.161	3.048
		Agua Fria River	-0.205	0.826	1.936	-0.609	1.352	3.607
		Verde River	-0.092	0.904	1.918	-0.796	1.276	3.619
		Tonto Creek	-0.070	0.902	1.897	-0.551	1.406	3.642
		Carrizo Creek	-0.375	0.863	2.366	-0.305	1.384	3.239
		Show Low Creek	-0.207	0.869	2.037	-0.460	1.445	3.574
		Little Colorado River	-0.326	0.944	2.333	-0.377	1.225	2.959
		Salt River	-0.407	0.959	2.425	-0.339	1.125	2.662
		Black River	-0.256	0.923	2.213	-0.386	1.291	3.140
		White River	-0.217	0.923	2.130	-0.311	1.268	2.945
		San Carlos River	-0.266	0.728	1.823	-0.298	1.426	3.246
		San Francisco River	-0.411	0.855	2.257	-0.313	1.180	2.757
		Gila River	-0.453	0.871	2.311	-0.266	1.172	2.663
	median	-0.256	0.902	2.197	-0.377	1.276	3.140	
PDO	Winter-spring	Oak Creek	-0.245	0.902	2.121	-0.557	1.233	3.222
		Agua Fria River	-0.173	0.518	1.368	-0.378	2.178	5.010
		Verde River	-0.133	0.871	1.913	-0.755	1.361	3.796
		Tonto Creek	-0.163	0.780	1.808	-0.515	1.618	4.059
		Carrizo Creek	-0.305	0.811	2.185	-0.255	1.614	3.644
		Show Low Creek	-0.239	0.809	2.012	-0.352	1.633	3.825
		Little Colorado River	-0.343	0.893	2.306	-0.298	1.343	3.111
		Salt River	-0.390	0.925	2.365	-0.311	1.191	2.779
		Black River	-0.274	0.887	2.214	-0.324	1.406	3.315
		White River	-0.261	0.895	2.161	-0.233	1.346	3.010
		San Carlos River	-0.265	0.650	1.716	-0.295	1.560	3.545
		San Francisco River	-0.369	0.782	2.096	-0.306	1.288	2.989
		Gila River	-0.431	0.871	2.310	-0.313	1.186	2.765
	median	-0.265	0.871	2.121	-0.313	1.361	3.315	

Table L. Supplementary data for figure 10 (Estimated normalized streamflow for periods of AMO, PDO, and SOI, 13 sites in central part of Lower Colorado River Basin) -- continued

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic period to long-term log streamflow					
			Positive period			Negative period		
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
SOI	Annual	Oak Creek	-0.351	1.202	2.838	-0.149	0.741	1.663
		Agua Fria River	-0.283	1.222	2.829	-0.310	0.700	1.851
		Verde River	-0.373	1.175	2.814	-0.089	0.750	1.607
		Tonto Creek	-0.328	1.213	2.893	-0.262	0.716	1.815
		Carrizo Creek	-0.127	1.256	2.695	-0.374	0.627	1.919
		Show Low Creek	-0.291	1.143	2.700	-0.379	0.804	2.190
		Little Colorado River	-0.251	1.132	2.593	-0.462	0.807	2.277
		Salt River	-0.424	1.130	2.779	-0.333	0.804	2.017
		Black River	-0.244	1.219	2.772	-0.356	0.714	1.966
		White River	-0.247	1.159	2.635	-0.412	0.776	2.125
		San Carlos River	-0.412	1.175	2.910	-0.199	0.757	1.779
		San Francisco River	-0.364	1.125	2.712	-0.330	0.815	2.057
		Gila River	-0.377	1.102	2.660	-0.354	0.853	2.140
		median	-0.328	1.175	2.772	-0.333	0.757	1.966
SOI	Winter- spring	Oak Creek	-0.311	1.202	2.802	-0.257	0.728	1.792
		Agua Fria River	-0.163	1.535	3.335	-0.233	0.442	1.381
		Verde River	-0.299	1.197	2.781	-0.238	0.710	1.734
		Tonto Creek	-0.271	1.265	2.936	-0.290	0.644	1.770
		Carrizo Creek	-0.179	1.250	2.782	-0.363	0.621	1.970
		Show Low Creek	-0.253	1.153	2.699	-0.392	0.778	2.255
		Little Colorado River	-0.218	1.216	2.735	-0.397	0.693	2.020
		Salt River	-0.408	1.230	2.985	-0.257	0.726	1.784
		Black River	-0.186	1.242	2.755	-0.395	0.667	2.035
		White River	-0.211	1.153	2.591	-0.471	0.764	2.253
		San Carlos River	-0.365	1.233	3.005	-0.245	0.690	1.750
		San Francisco River	-0.346	1.191	2.850	-0.270	0.724	1.822
		Gila River	-0.368	1.143	2.749	-0.323	0.802	2.017
		median	-0.271	1.216	2.782	-0.290	0.710	1.822

<sup>1</sup>Season, winter-spring is November—May.

<sup>2</sup>See table A.

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin).

			Ratio of log streamflow for climatic periods to long-term log streamflow					
Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	95 percent lower CI		95 percent Mean	95 percent upper CI		
			lower CI	Mean	upper CI	lower CI	Mean	upper CI
			positive AMO, positive PDO			positive AMO, negative PDO		
AMO-PDO	Annual	Oak Creek	-1.367	1.059	4.222	-0.566	0.883	2.521
		Agua Fria River	-0.800	0.959	3.276	-0.292	0.650	1.732
		Verde River	-1.962	0.993	5.646	-0.211	0.787	1.837
		Tonto Creek	-1.009	1.127	4.111	-0.270	0.778	1.956
		Little Colorado River	-1.002	0.964	3.615	-0.595	0.804	2.518
		Salt River	-0.489	0.951	2.517	-0.678	0.695	2.316
		San Carlos River	-0.535	1.169	3.098	-0.473	0.604	1.947
		San Francisco River	-0.366	0.991	2.457	-0.638	0.726	2.383
		Gila River	-0.404	1.021	2.539	-0.669	0.760	2.415
		median		-0.800	0.993	3.276	-0.566	0.760
			negative AMO, negative PDO			negative AMO, positive PDO		
AMO-PDO	Annual	Oak Creek	-0.928	1.012	3.335	-1.119	1.213	4.010
		Agua Fria River	-1.081	1.130	4.184	-1.505	1.663	5.951
		Verde River	-0.905	1.084	3.436	-1.208	1.368	4.445
		Tonto Creek	-0.761	1.094	3.475	-1.236	1.589	5.341
		Little Colorado River	-1.121	1.164	4.169	-0.874	1.396	4.085
		Salt River	-1.011	1.125	3.610	-1.569	1.274	4.794
		San Carlos River	-0.958	0.929	3.482	-1.390	1.799	5.764
		San Francisco River	-1.357	1.059	4.316	-1.518	1.449	5.209
		Gila River	-1.495	1.040	4.302	-1.426	1.396	4.750
		median		-1.011	1.084	3.610	-1.390	1.396

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin) -- continued.

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic periods to long-term log streamflow					
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
			positive AMO, positive PDO			positive AMO, negative PDO		
AMO-PDO	Winter-spring	Oak Creek	-1.362	1.119	4.511	-0.576	0.843	2.514
		Agua Fria River	-0.560	1.014	3.299	-0.187	0.303	1.057
		Verde River	-1.842	0.991	6.027	-0.312	0.731	1.890
		Tonto Creek	-1.085	1.178	4.744	-0.343	0.630	1.872
		Little Colorado River	-0.824	0.982	3.463	-0.592	0.723	2.514
		Salt River	-0.522	0.991	2.682	-0.709	0.661	2.407
		San Carlos River	-0.792	1.297	3.945	-0.443	0.546	1.921
		San Francisco River	-0.467	1.072	2.808	-0.590	0.656	2.288
		Gila River	-0.470	1.045	2.702	-0.685	0.769	2.525
		median	-0.792	1.045	3.463	-0.576	0.661	2.288
			negative AMO, negative PDO			negative AMO, positive PDO		
AMO-PDO	Winter-spring	Oak Creek	-0.836	0.975	3.208	-1.116	1.294	4.270
		Agua Fria River	-0.620	1.040	3.540	-1.609	3.475	10.357
		Verde River	-0.830	1.096	3.441	-1.158	1.486	4.723
		Tonto Creek	-0.763	1.030	3.570	-1.177	1.928	6.025
		Little Colorado River	-1.028	1.178	4.257	-0.830	1.596	4.515
		Salt River	-0.954	1.072	3.538	-1.483	1.346	4.978
		San Carlos River	-0.833	0.817	3.366	-1.510	1.941	6.664
		San Francisco River	-1.154	0.982	4.068	-1.464	1.600	5.630
		Gila River	-1.391	1.023	4.293	-1.467	1.393	4.979
		median	-0.836	1.030	3.540	-1.464	1.596	4.979

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin) -- continued.

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic periods to long-term log streamflow					
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
			positive AMO, positive SOI			positive AMO, negative SOI		
AMO-SOI	Annual	Oak Creek	-0.381	0.682	1.859	-0.843	1.084	3.309
		Agua Fria River	-0.445	0.604	1.921	-1.014	0.847	3.624
		Verde River	-0.172	0.647	1.507	-0.546	0.885	2.490
		Tonto Creek	-0.482	0.617	2.055	-0.573	0.847	2.633
		Little Colorado River	-0.577	0.652	2.207	-0.683	0.883	2.801
		Salt River	-0.434	0.711	1.981	-0.608	0.910	2.610
		San Carlos River	-0.409	0.778	2.141	-0.555	0.798	2.431
		San Francisco River	-0.410	0.736	2.023	-0.514	0.920	2.530
		Gila River	-0.265	0.773	1.867	-0.691	0.940	2.774
		median	-0.410	0.682	1.981	-0.608	0.885	2.633
			negative AMO, negative SOI			negative AMO, positive SOI		
AMO-SOI	Annual	Oak Creek	-1.081	1.303	4.085	-0.689	0.828	2.599
		Agua Fria River	-0.271	0.813	2.007	-0.445	0.604	1.921
		Verde River	-1.168	1.459	4.516	-0.644	0.883	2.635
		Tonto Creek	-1.160	1.679	5.269	-0.794	0.871	3.172
		Little Colorado River	-0.782	1.419	3.951	-1.428	1.069	4.724
		Salt River	-1.377	1.510	4.890	-1.155	0.986	3.621
		San Carlos River	-1.418	1.854	5.883	-0.812	0.733	2.857
		San Francisco River	-1.462	1.432	5.047	-1.560	1.023	4.703
		Gila River	-1.270	1.340	4.387	-2.040	1.059	5.433
		median	-1.168	1.432	4.516	-0.812	0.883	3.172

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin) -- continued.

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic periods to long-term log streamflow					
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
			positive AMO, positive SOI			positive AMO, negative SOI		
AMO-SOI	Winter-spring	Oak Creek	-0.375	0.628	1.776	-0.879	1.117	3.508
		Agua Fria River	-0.193	0.233	1.001	-0.294	0.820	2.201
		Verde River	-0.234	0.543	1.403	-0.570	0.902	2.616
		Tonto Creek	-0.333	0.454	1.544	-0.570	0.906	2.844
		Little Colorado River	-0.491	0.565	2.010	-0.646	0.853	2.812
		Salt River	-0.467	0.676	2.007	-0.705	0.955	2.910
		San Carlos River	-0.392	0.692	2.031	-0.578	0.912	2.805
		San Francisco River	-0.307	0.661	1.757	-0.625	0.955	2.850
		Gila River	-0.235	0.724	1.746	-0.740	1.000	3.021
		median	-0.333	0.628	1.757	-0.625	0.912	2.844
			negative AMO, negative SOI			negative AMO, positive SOI		
AMO-SOI	Winter-spring	Oak Creek	-0.935	1.268	3.875	-1.042	0.902	3.469
		Agua Fria River	-1.184	2.723	7.818	-0.845	1.112	4.415
		Verde River	-1.009	1.462	4.385	-0.935	0.989	3.428
		Tonto Creek	-1.025	1.687	5.208	-1.054	1.089	4.468
		Little Colorado River	-0.626	1.663	4.254	-1.268	0.935	4.733
		Salt River	-1.291	1.622	5.100	-0.899	0.851	3.083
		San Carlos River	-1.401	1.778	6.101	-0.942	0.741	3.675
		San Francisco River	-1.306	1.549	5.179	-1.459	0.912	4.898
		Gila River	-1.210	1.318	4.371	-2.084	1.023	6.047
		median	-1.184	1.622	5.100	-1.042	0.935	4.415

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin) -- continued.

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic periods to long-term log streamflow					
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
			positive PDO, positive SOI			positive PDO, negative SOI		
PDO-SOI	Annual	Oak Creek	-1.314	0.809	3.007	-0.873	1.219	3.623
		Agua Fria River	-0.955	0.724	2.749	-0.943	1.489	4.480
		Verde River	-1.723	0.828	4.144	-1.105	1.318	4.185
		Tonto Creek	-1.411	0.830	4.395	-0.989	1.409	4.417
		Little Colorado River	-1.788	0.914	5.109	-0.570	1.216	3.229
		Salt River	-0.709	0.841	1.795	-0.872	1.227	3.599
		San Carlos River	-0.671	0.968	1.988	-0.849	1.531	4.299
		San Francisco River	-0.560	0.855	1.632	-0.842	1.309	3.785
		Gila River	-0.791	0.944	1.999	-0.749	1.236	3.430
		median		-0.955	0.841	2.749	-0.872	1.309
			negative PDO, negative SOI			negative PDO, positive SOI		
PDO-SOI	Annual	Oak Creek	-0.948	1.164	3.641	-0.297	0.700	1.780
		Agua Fria River	-0.496	0.887	2.543	-0.579	0.682	2.366
		Verde River	-0.680	1.009	2.939	-0.158	0.719	1.634
		Tonto Creek	-0.568	0.942	2.770	-0.391	0.670	1.946
		Little Colorado River	-0.921	1.033	3.522	-0.664	0.738	2.527
		Salt River	-1.144	1.045	3.705	-0.810	0.817	2.754
		San Carlos River	-0.739	0.741	2.720	-0.480	0.632	2.010
		San Francisco River	-0.930	0.940	3.281	-0.836	0.746	2.797
		Gila River	-1.047	0.931	3.333	-0.847	0.760	2.709
		median		-0.921	0.942	3.281	-0.579	0.719

Table M. Supplementary data for figure 11 (Estimated normalized streamflow for periods of AMO-PDO, AMO-SOI, and PDO-SOI, 9 sites in central part of Lower Colorado River Basin) -- continued.

Climatic period	Season <sup>1</sup>	Stream <sup>2</sup>	Ratio of log streamflow for climatic periods to long-term log streamflow					
			95 percent lower CI	Mean	95 percent upper CI	95 percent lower CI	Mean	95 percent upper CI
			positive PDO, positive SOI			positive PDO, negative SOI		
PDO-SOI	Winter-spring	Oak Creek	-1.594	0.891	4.047	-0.909	1.288	3.880
		Agua Fria River	-0.674	1.045	2.764	-0.789	2.477	6.496
		Verde River	-1.897	0.893	5.593	-1.022	1.384	4.297
		Tonto Creek	-1.391	1.000	5.101	-0.882	1.622	4.781
		Little Colorado River	-1.192	0.851	3.670	-0.546	1.349	3.522
		Salt River	-0.635	0.813	1.723	-0.883	1.349	3.926
		San Carlos River	-0.607	0.955	2.013	-0.894	1.778	5.026
		San Francisco River	-0.401	0.794	1.382	-0.888	1.549	4.426
		Gila River	-0.639	0.832	1.730	-0.845	1.349	3.848
		median	-0.674	0.891	2.764	-0.883	1.384	4.297
			negative PDO, negative SOI			negative PDO, positive SOI		
PDO-SOI	Winter-spring	Oak Creek	-0.863	1.096	3.457	-0.413	0.661	1.901
		Agua Fria River	-0.336	0.822	2.344	-0.222	0.252	1.231
		Verde River	-0.573	0.979	2.781	-0.334	0.662	1.793
		Tonto Creek	-0.518	0.871	2.667	-0.396	0.525	1.819
		Little Colorado River	-0.806	1.023	3.460	-0.614	0.603	2.400
		Salt River	-1.102	1.096	3.865	-0.630	0.661	2.264
		San Carlos River	-0.579	0.692	2.493	-0.496	0.537	2.069
		San Francisco River	-0.763	0.871	3.002	-0.761	0.661	2.711
		Gila River	-0.889	0.933	3.172	-0.921	0.759	2.960
		median	-0.763	0.933	3.002	-0.496	0.661	2.069

<sup>1</sup>Season, winter-spring is November—May.

<sup>2</sup>See table A.



Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Autocorrelation coefficients for indicated lag years									
			AMO.6 <sup>3</sup> sorted by year					AMO.6 <sup>3</sup> sorted by annual discharge				
			1	2	3	4	5	1	2	3	4	5
1	Meadow Valley Wash	1952	0.57	0.44	0.37	0.18	0.02	0.04	-0.12	0.12	-0.09	-0.04
2	Coal Creek	1936	0.51	0.35	0.27	0.11	-0.01	0.21	0.10	-0.03	-0.01	-0.16
3	Sevier River	1915	0.61	0.52	0.45	0.30	0.16	0.14	0.10	-0.02	0.01	0.22
4	Pine Creek	1951	0.58	0.43	0.38	0.23	0.03	-0.08	0.01	-0.04	-0.08	0.02
5	Virgin River	1910	0.68	0.53	0.46	0.38	0.29	0.28	0.16	0.11	0.18	0.15
6	Paria River	1924	0.53	0.34	0.23	0.12	0.05	-0.10	0.03	0.16	-0.06	0.11
7	Oak Creek	1941	0.50	0.43	0.31	0.19	-0.03	0.02	0.12	0.05	-0.10	0.11
8	Agua Fria River	1940	0.51	0.37	0.31	0.12	-0.03	0.16	-0.11	0.04	0.05	0.07
9	Verde River	1946	0.54	0.40	0.35	0.16	-0.05	0.06	0.05	0.13	0.09	0.03
10	Tonto Creek	1941	0.52	0.38	0.30	0.12	-0.05	0.12	0.04	0.03	0.02	0.04
11	Carrizo Creek	1952	0.54	0.38	0.32	0.15	-0.02	0.15	0.12	0.15	0.18	0.40
12	Show Low Creek	1954	0.54	0.44	0.37	0.19	0.01	0.19	0.37	0.19	0.14	0.20
13	Little Colorado River	1941	0.52	0.38	0.30	0.12	-0.05	0.28	0.13	-0.01	-0.04	-0.06
14	Salt River	1914	0.63	0.46	0.42	0.34	0.26	0.20	0.12	0.17	-0.06	0.08
15	Black River	1958	0.58	0.45	0.39	0.21	-0.03	0.13	0.17	0.02	0.04	-0.05
16	White River	1958	0.58	0.45	0.39	0.21	-0.03	0.31	0.08	-0.04	0.07	0.28
17	San Carlos River	1930	0.52	0.33	0.24	0.10	0.01	0.26	0.13	0.14	0.03	0.10
18	San Francisco River	1928	0.52	0.33	0.24	0.10	0.01	0.09	-0.08	0.01	0.09	0.07
19	Gila River	1928	0.53	0.33	0.24	0.10	0.01	0.07	-0.05	0.06	0.06	-0.01
20	Santa Cruz River	1930	0.51	0.35	0.28	0.11	-0.02	0.17	-0.05	-0.08	0.20	0.04
21	San Pedro River	1913	0.66	0.50	0.44	0.37	0.27	0.13	0.16	-0.11	-0.09	-0.10
average for all streams			0.56	0.41	0.34	0.19	0.04	0.13	0.07	0.05	0.03	0.07
average for northwestern area (sites 1-6)			0.58	0.44	0.36	0.22	0.09	0.08	0.05	0.05	-0.01	0.05
average for central area (sites 7-19)			0.54	0.39	0.32	0.16	0.00	0.16	0.08	0.07	0.04	0.10

Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin -- continued.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Average autocorrelation coefficients for indicated lag years					
			AMO.6 sorted by year			AMO.6 sorted by annual discharge		
			1 to 3	1 to 4	1 to 5	1 to 3	1 to 4	1 to 5
1	Meadow Valley Wash	1952	0.46	0.39	0.32	0.01	-0.01	-0.02
2	Coal Creek	1936	0.38	0.31	0.25	0.09	0.07	0.02
3	Sevier River	1915	0.53	0.47	0.41	0.07	0.06	0.09
4	Pine Creek	1951	0.46	0.41	0.33	-0.04	-0.05	-0.03
5	Virgin River	1910	0.56	0.51	0.47	0.18	0.18	0.18
6	Paria River	1924	0.37	0.31	0.25	0.03	0.01	0.03
7	Oak Creek	1941	0.41	0.36	0.28	0.06	0.02	0.04
8	Agua Fria River	1940	0.40	0.33	0.26	0.03	0.04	0.04
9	Verde River	1946	0.43	0.36	0.28	0.08	0.08	0.07
10	Tonto Creek	1941	0.40	0.33	0.25	0.06	0.05	0.05
11	Carrizo Creek	1952	0.41	0.35	0.27	0.14	0.15	0.20
12	Show Low Creek	1954	0.45	0.39	0.31	0.25	0.22	0.22
13	Little Colorado River	1941	0.40	0.33	0.25	0.13	0.09	0.06
14	Salt River	1914	0.50	0.46	0.42	0.16	0.11	0.10
15	Black River	1958	0.47	0.41	0.32	0.11	0.09	0.06
16	White River	1958	0.47	0.41	0.32	0.12	0.11	0.14
17	San Carlos River	1930	0.36	0.30	0.24	0.18	0.14	0.13
18	San Francisco River	1928	0.36	0.30	0.24	0.01	0.03	0.04
19	Gila River	1928	0.37	0.30	0.24	0.03	0.04	0.03
20	Santa Cruz River	1930	0.38	0.31	0.25	0.01	0.06	0.06
21	San Pedro River	1913	0.53	0.49	0.45	0.06	0.02	0.00
average for all streams			0.43	0.37	0.31	0.09	0.07	0.07
average for northwestern area (sites 1-6)			0.46	0.40	0.34	0.06	0.04	0.04
average for central area (sites 7-19)			0.42	0.35	0.28	0.10	0.09	0.09

Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin -- continued.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Autocorrelation coefficients for indicated lag years									
			Annual PDO sorted by year					Annual PDO sorted by annual discharge				
			1	2	3	4	5	1	2	3	4	5
1	Meadow Valley Wash	1952	0.54	0.28	0.24	0.25	0.25	0.07	-0.30	-0.12	0.12	0.09
2	Coal Creek	1936	0.58	0.32	0.27	0.29	0.27	-0.24	0.16	0.21	0.05	0.01
3	Sevier River	1915	0.58	0.32	0.28	0.28	0.26	0.05	0.11	-0.04	0.04	0.01
4	Pine Creek	1951	0.51	0.32	0.27	0.25	0.29	0.11	0.07	-0.08	0.09	-0.03
5	Virgin River	1910	0.58	0.31	0.24	0.28	0.33	0.06	0.07	-0.05	-0.13	-0.04
6	Paria River	1924	0.59	0.31	0.25	0.29	0.36	0.15	-0.03	-0.01	0.08	-0.01
7	Oak Creek	1941	0.54	0.28	0.21	0.21	0.20	0.01	-0.01	-0.01	0.10	0.07
8	Agua Fria River	1940	0.59	0.30	0.22	0.23	0.26	0.07	0.04	-0.03	-0.11	0.03
9	Verde River	1946	0.57	0.32	0.26	0.28	0.33	0.26	-0.12	-0.16	0.06	0.08
10	Tonto Creek	1941	0.55	0.29	0.23	0.24	0.27	0.13	0.17	-0.03	0.14	0.21
11	Carrizo Creek	1952	0.53	0.24	0.19	0.15	0.16	0.25	-0.05	-0.25	-0.12	-0.05
12	Show Low Creek	1954	0.55	0.28	0.20	0.20	0.25	0.16	-0.01	0.15	0.05	0.06
13	Little Colorado River	1941	0.55	0.29	0.23	0.24	0.27	0.23	0.20	0.09	-0.01	0.03
14	Salt River	1914	0.59	0.31	0.25	0.29	0.34	0.10	0.01	-0.02	0.11	0.08
15	Black River	1958	0.54	0.33	0.26	0.25	0.27	-0.05	-0.04	-0.09	-0.01	0.10
16	White River	1958	0.54	0.33	0.26	0.25	0.27	0.26	-0.20	-0.03	0.15	0.10
17	San Carlos River	1930	0.60	0.31	0.25	0.30	0.35	0.02	0.13	0.16	0.11	0.22
18	San Francisco River	1928	0.60	0.31	0.25	0.30	0.36	0.17	0.02	0.19	0.10	0.17
19	Gila River	1928	0.60	0.31	0.25	0.30	0.36	0.09	-0.04	0.10	0.06	0.06
20	Santa Cruz River	1930	0.57	0.29	0.27	0.30	0.30	-0.01	-0.24	-0.16	0.17	0.17
21	San Pedro River	1913	0.55	0.29	0.27	0.28	0.26	-0.04	0.03	-0.04	0.03	0.10
average for all streams			0.56	0.30	0.25	0.26	0.29	0.09	0.00	-0.01	0.05	0.07
average for northwestern area (sites 1-6)			0.56	0.31	0.26	0.27	0.29	0.03	0.01	-0.02	0.04	0.01
average for central area (sites 7-19)			0.57	0.30	0.24	0.25	0.28	0.13	0.01	0.01	0.05	0.09

Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin -- continued.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Average autocorrelation coefficients for indicated lag years					
			Annual PDO sorted by year			Annual PDO sorted by annual discharge		
			1 to 3	1 to 4	1 to 5	1 to 3	1 to 4	1 to 5
1	Meadow Valley Wash	1952	0.35	0.33	0.31	-0.12	-0.06	-0.03
2	Coal Creek	1936	0.39	0.37	0.35	0.04	0.05	0.04
3	Sevier River	1915	0.39	0.37	0.34	0.04	0.04	0.03
4	Pine Creek	1951	0.37	0.34	0.33	0.03	0.05	0.03
5	Virgin River	1910	0.38	0.35	0.35	0.03	-0.01	-0.02
6	Paria River	1924	0.38	0.36	0.36	0.04	0.05	0.04
7	Oak Creek	1941	0.34	0.31	0.29	0.00	0.02	0.03
8	Agua Fria River	1940	0.37	0.34	0.32	0.03	-0.01	0.00
9	Verde River	1946	0.38	0.36	0.35	-0.01	0.01	0.02
10	Tonto Creek	1941	0.36	0.33	0.32	0.09	0.10	0.12
11	Carrizo Creek	1952	0.32	0.28	0.25	-0.02	-0.04	-0.04
12	Show Low Creek	1954	0.34	0.31	0.30	0.10	0.09	0.08
13	Little Colorado River	1941	0.36	0.33	0.32	0.17	0.13	0.11
14	Salt River	1914	0.38	0.36	0.36	0.03	0.05	0.06
15	Black River	1958	0.38	0.35	0.33	-0.06	-0.05	-0.02
16	White River	1958	0.38	0.35	0.33	0.01	0.05	0.06
17	San Carlos River	1930	0.39	0.37	0.36	0.10	0.11	0.13
18	San Francisco River	1928	0.39	0.37	0.36	0.13	0.12	0.13
19	Gila River	1928	0.39	0.37	0.36	0.05	0.05	0.05
20	Santa Cruz River	1930	0.38	0.36	0.35	-0.14	-0.06	-0.01
21	San Pedro River	1913	0.37	0.35	0.33	-0.02	-0.01	0.02
average for all streams			0.37	0.34	0.33	0.03	0.03	0.04
average for northwestern area (sites 1-6)			0.38	0.35	0.34	0.01	0.02	0.02
average for central area (sites 7-19)			0.37	0.34	0.33	0.05	0.05	0.06

Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin -- continued.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Autocorrelation coefficients for indicated lag years					Trend in log annual flow <sup>4</sup>	
			Log annual flow					Slope	p-value
			1	2	3	4	5		
1	Meadow Valley Wash	1952	0.30	0.09	0.02	-0.11	0.08	negative	0.003
2	Coal Creek	1936	0.03	0.02	0.03	-0.04	0.08	negative	0.928
3	Sevier River	1915	0.39	0.21	0.15	0.12	0.14	negative	0.001
4	Pine Creek	1951	0.31	-0.01	0.00	0.00	-0.01	positive	0.066
5	Virgin River	1910	0.25	0.11	0.23	0.16	0.19	negative	0.002
6	Paria River	1924	0.16	0.08	0.02	0.04	-0.02	negative	0.002
7	Oak Creek	1941	-0.05	-0.01	0.04	-0.05	0.01	negative	0.457
8	Agua Fria River	1940	0.06	0.06	0.13	-0.10	0.07	positive	0.420
9	Verde River	1946	0.06	0.06	0.10	-0.07	0.11	positive	0.384
10	Tonto Creek	1941	0.00	0.08	0.14	-0.09	0.04	negative	0.723
11	Carrizo Creek	1952	0.24	0.02	-0.07	0.08	0.10	negative	0.906
12	Show Low Creek	1954	0.12	0.11	0.10	0.10	-0.04	positive	0.797
13	Little Colorado River	1941	0.01	0.04	0.03	0.09	-0.06	negative	0.542
14	Salt River	1914	0.07	0.00	0.02	0.11	0.09	negative	0.312
15	Black River	1958	-0.02	0.05	0.00	0.02	-0.02	negative	0.540
16	White River	1958	0.02	0.12	0.05	0.05	0.00	negative	0.655
17	San Carlos River	1930	0.07	0.22	0.06	0.00	0.14	positive	0.385
18	San Francisco River	1928	0.09	-0.04	0.00	0.12	0.09	positive	0.124
19	Gila River	1928	0.07	-0.01	0.05	0.14	0.07	positive	0.107
20	Santa Cruz River	1930	0.11	0.03	0.02	-0.05	0.14	negative	0.278
21	San Pedro River	1913	0.26	0.12	0.09	0.16	0.32	negative	<0.001
average for all streams			0.12	0.06	0.06	0.03	0.07		
average for northwestern area (sites 1-6)			0.24	0.08	0.08	0.03	0.08		
average for central area (sites 7-19)			0.06	0.05	0.05	0.03	0.05		

Table N. Supplementary data for analysis of effects of autocorrelation and persistence of AMO and PDO on the statistical analysis in the study, individual sites in the Little Colorado River Basin -- continued.

Map no. <sup>1</sup>	Stream <sup>2</sup>	Starting year of record	Average autocorrelation coefficients for indicated lag years		
			Log annual discharge		
			1 to 3	1 to 4	1 to 5
1	Meadow Valley Wash	1952	0.14	0.08	0.08
2	Coal Creek	1936	0.03	0.01	0.02
3	Sevier River	1915	0.25	0.22	0.20
4	Pine Creek	1951	0.10	0.08	0.06
5	Virgin River	1910	0.20	0.19	0.19
6	Paria River	1924	0.09	0.08	0.06
7	Oak Creek	1941	-0.01	-0.02	-0.01
8	Agua Fria River	1940	0.08	0.04	0.04
9	Verde River	1946	0.07	0.04	0.05
10	Tonto Creek	1941	0.07	0.03	0.03
11	Carrizo Creek	1952	0.06	0.07	0.07
12	Show Low Creek	1954	0.11	0.11	0.08
13	Little Colorado River	1941	0.03	0.04	0.02
14	Salt River	1914	0.03	0.05	0.06
15	Black River	1958	0.01	0.01	0.01
16	White River	1958	0.06	0.06	0.05
17	San Carlos River	1930	0.12	0.09	0.10
18	San Francisco River	1928	0.02	0.04	0.05
19	Gila River	1928	0.04	0.06	0.06
20	Santa Cruz River	1930	0.05	0.03	0.05
21	San Pedro River	1913	0.16	0.16	0.19
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	average for all streams		0.08	0.07	0.07
	average for northwestern area (sites 1-6)		0.13	0.11	0.10
	average for central area (sites 7-19)		0.05	0.05	0.05

<sup>1</sup>See figure 1.

<sup>2</sup>See table A.

<sup>3</sup>AMO.6 is the average AMO value for 6 months prior to the streamflow.

<sup>4</sup>Trend, slope, and p-value are for linear least squares regression between log annual flow and time (years).