

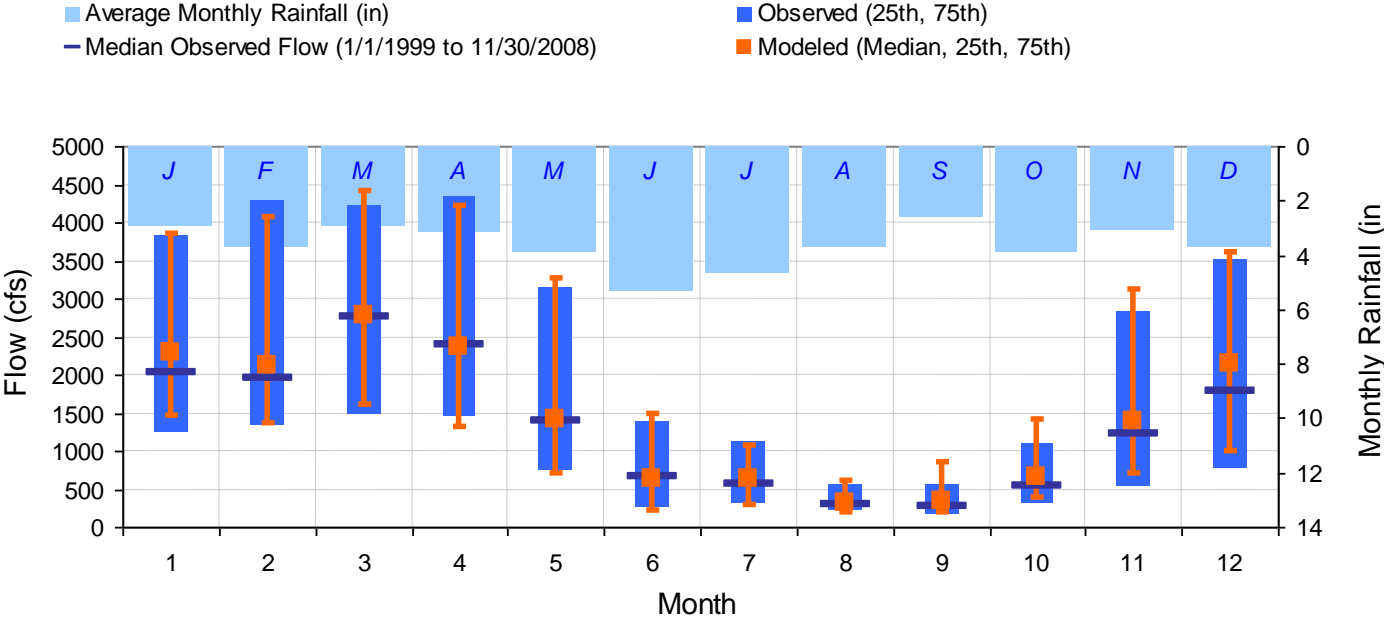
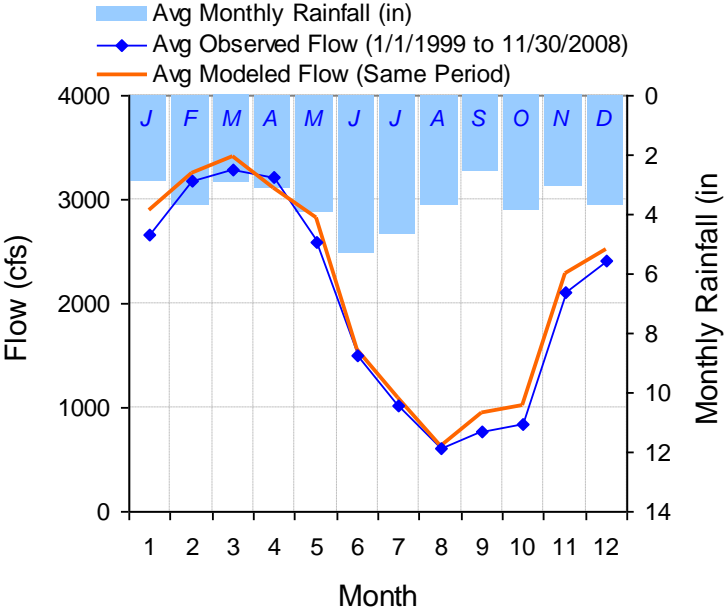
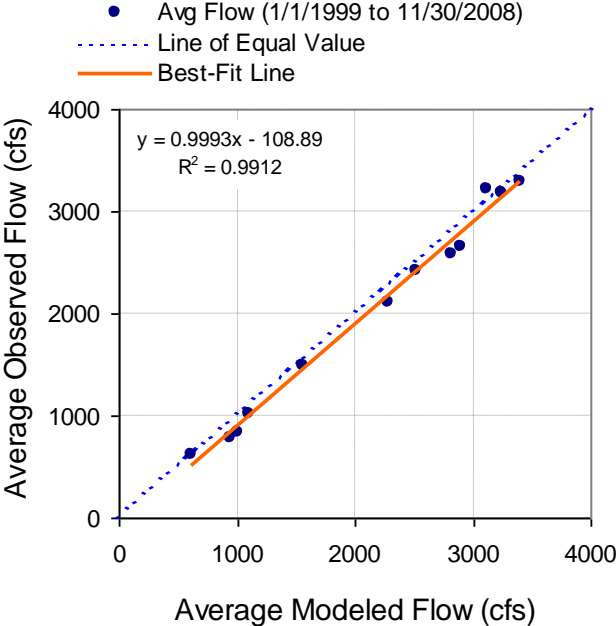
USGS Gage Location Elk River and Lower Kanawha WAB Stations



Elk River Flow Statistics

LSPC Simulated Flow		Observed Flow Gage	
REACH OUTFLOW FROM SUBBASIN 20365		USGS 03197000 ELK RIVER AT QUEEN SHOALS, WV	
9.92-Year Analysis Period: 1/1/1999 - 11/30/2008 Flow volumes are (inches/year) for upstream drainage area		Kanawha County, West Virginia Hydrologic Unit Code 05050007 Latitude 38°28'15", Longitude 81°17'03" NAD27 Drainage area 1145.00 square miles	
Total Simulated In-stream Flow:	105.29	Total Observed In-stream Flow:	99.77
Total of simulated highest 10% flows:	39.61	Total of Observed highest 10% flows:	37.79
Total of Simulated lowest 50% flows:	13.74	Total of Observed Lowest 50% flows:	12.59
Simulated Summer Flow Volume (months 7-9):	11.22	Observed Summer Flow Volume (7-9):	10.11
Simulated Fall Flow Volume (months 10-12):	23.37	Observed Fall Flow Volume (10-12):	21.53
Simulated Winter Flow Volume (months 1-3):	39.45	Observed Winter Flow Volume (1-3):	37.71
Simulated Spring Flow Volume (months 4-6):	31.25	Observed Spring Flow Volume (4-6):	30.41
Total Simulated Storm Volume:	50.03	Total Observed Storm Volume:	47.56
Simulated Summer Storm Volume (7-9):	6.59	Observed Summer Storm Volume (7-9):	5.87
<i>Errors (Simulated-Observed)</i>	<i>Error Statistics</i>	<i>Recommended Criteria</i>	
Error in total volume:	5.25	10	
Error in 50% lowest flows:	8.37	10	
Error in 10% highest flows:	4.58	15	
Seasonal volume error - Summer:	9.91	30	
Seasonal volume error - Fall:	7.87	30	
Seasonal volume error - Winter:	4.40	30	
Seasonal volume error - Spring:	2.68	30	
Error in storm volumes:	4.94	20	
Error in summer storm volumes:	11.00	50	

Elk River Best Fit

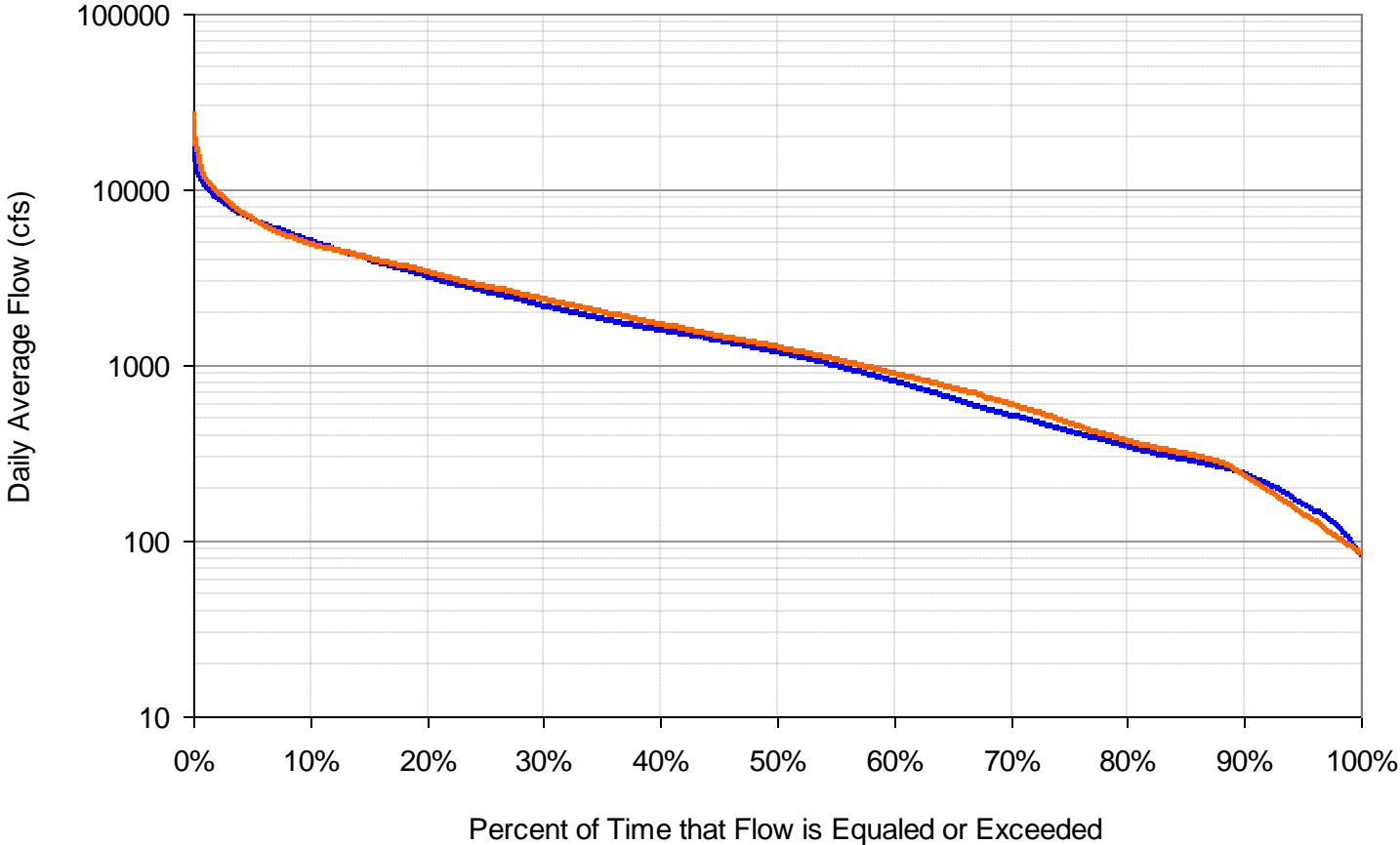


Elk River Observed and Modeled Flow

MONTH	OBSERVED FLOW (CFS)				MODELED FLOW (CFS)			
	MEAN	MEDIAN	25TH	75TH	MEAN	MEDIAN	25TH	75TH
Jan	2663.55	2025.00	1240.00	3825.00	2894.01	2287.21	1451.53	3850.69
Feb	3184.02	1960.00	1340.00	4285.00	3249.72	2129.72	1365.06	4081.14
Mar	3285.55	2760.00	1482.50	4207.50	3402.34	2791.78	1604.05	4414.88
Apr	3215.46	2400.00	1470.00	4342.50	3114.31	2369.72	1318.83	4215.23
May	2583.13	1395.00	750.25	3157.50	2816.42	1424.07	710.48	3278.50
Jun	1495.34	654.00	274.50	1395.00	1558.41	625.43	228.12	1481.37
Jul	1009.48	572.00	325.50	1115.00	1096.14	633.55	293.91	1069.33
Aug	613.94	298.00	220.25	572.25	618.73	323.92	197.57	609.70
Sep	775.26	279.00	180.75	555.25	950.70	342.35	202.87	853.14
Oct	844.48	532.00	324.25	1105.00	1010.55	657.96	380.29	1425.01
Nov	2107.91	1230.00	525.00	2832.50	2278.93	1386.30	701.17	3130.53
Dec	2413.37	1770.00	774.00	3510.00	2524.98	2149.80	989.88	3604.95

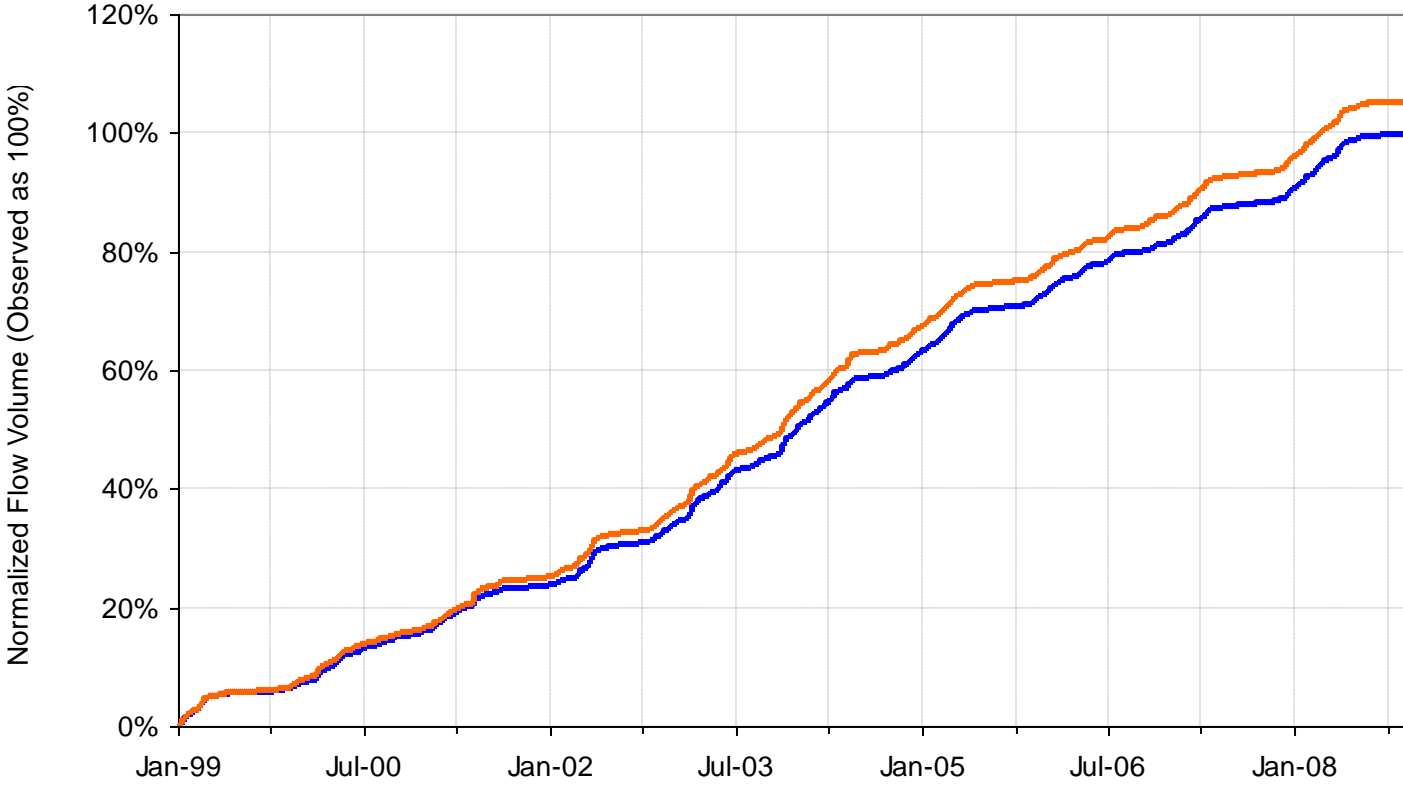
Elk River Flow Equaled or Exceeded

- Observed Flow Duration (1/1/1999 to 11/30/2008)
- Modeled Flow Duration (1/1/1999 to 11/30/2008)

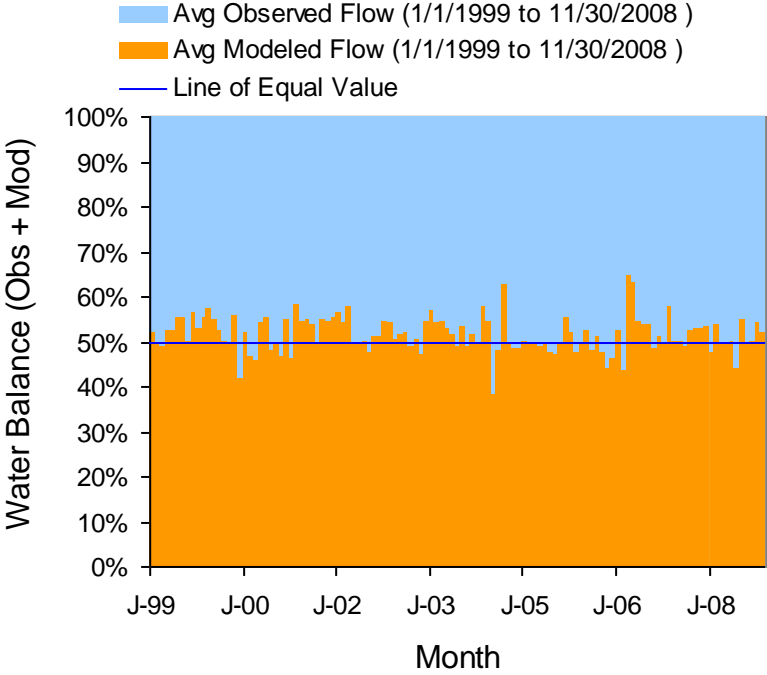
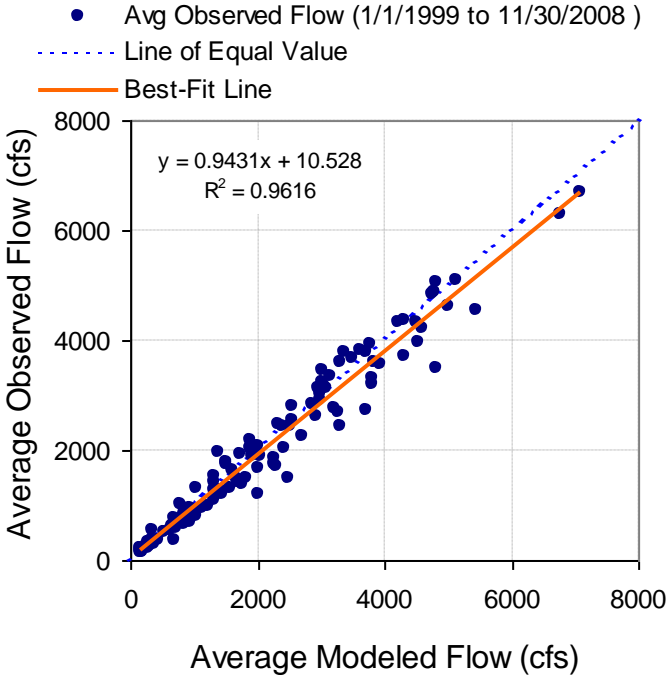


Elk River Normalized Flow Volume

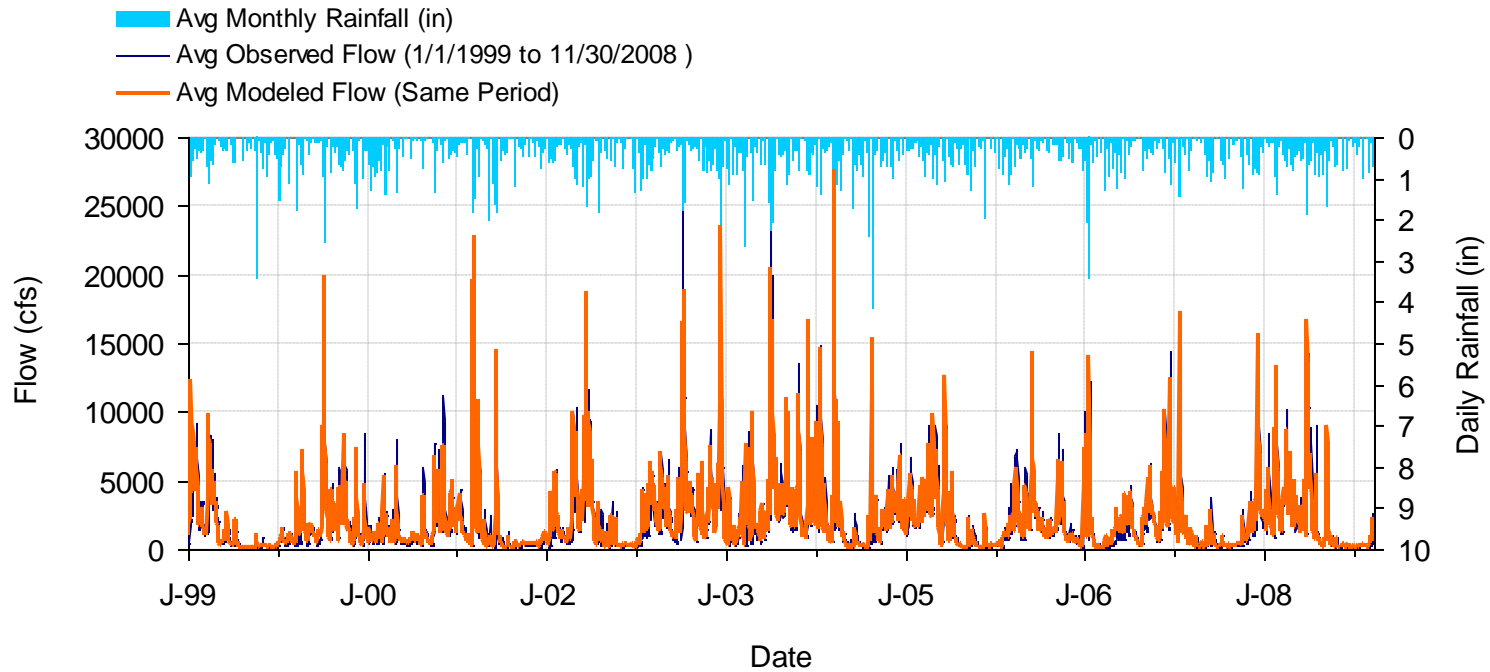
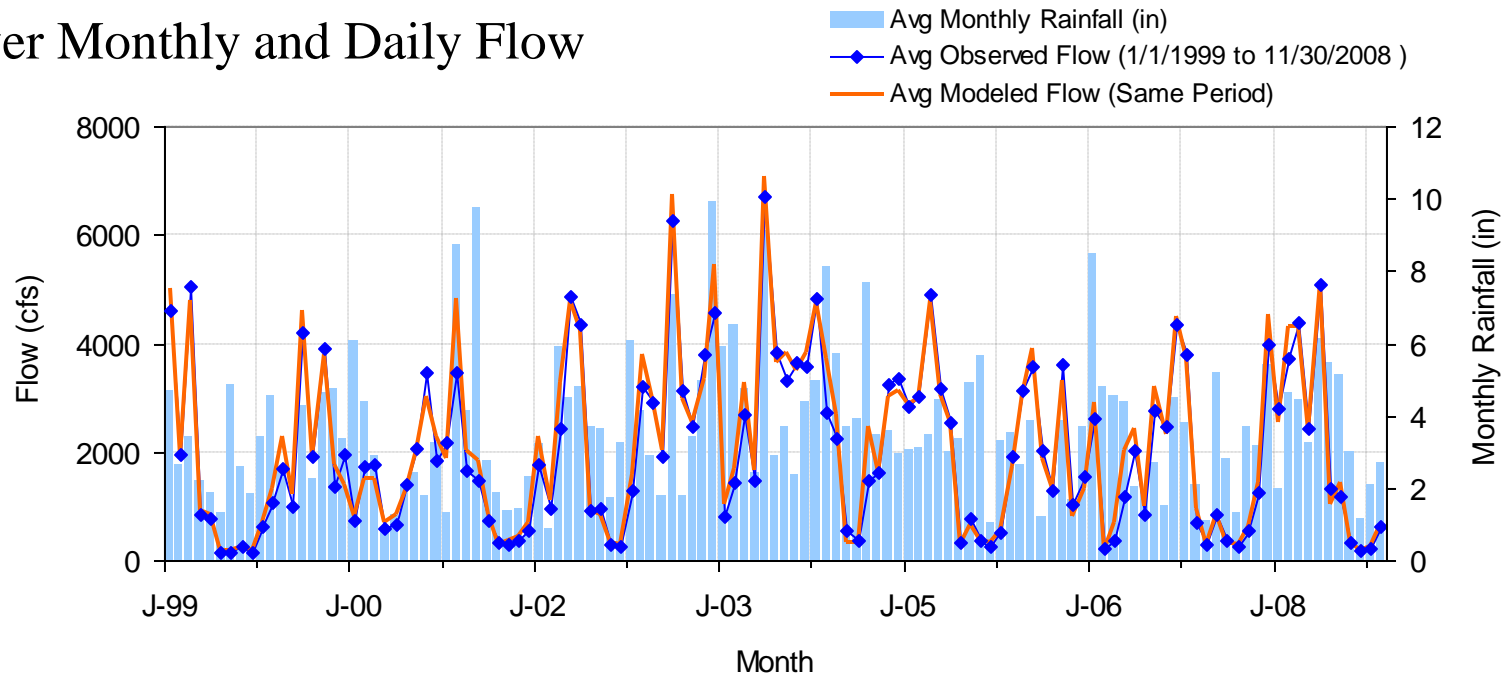
- Observed Flow Volume (1/1/1999 to 11/30/2008)
- Modeled Flow Volume (1/1/1999 to 11/30/2008)



Elk River Water Balance

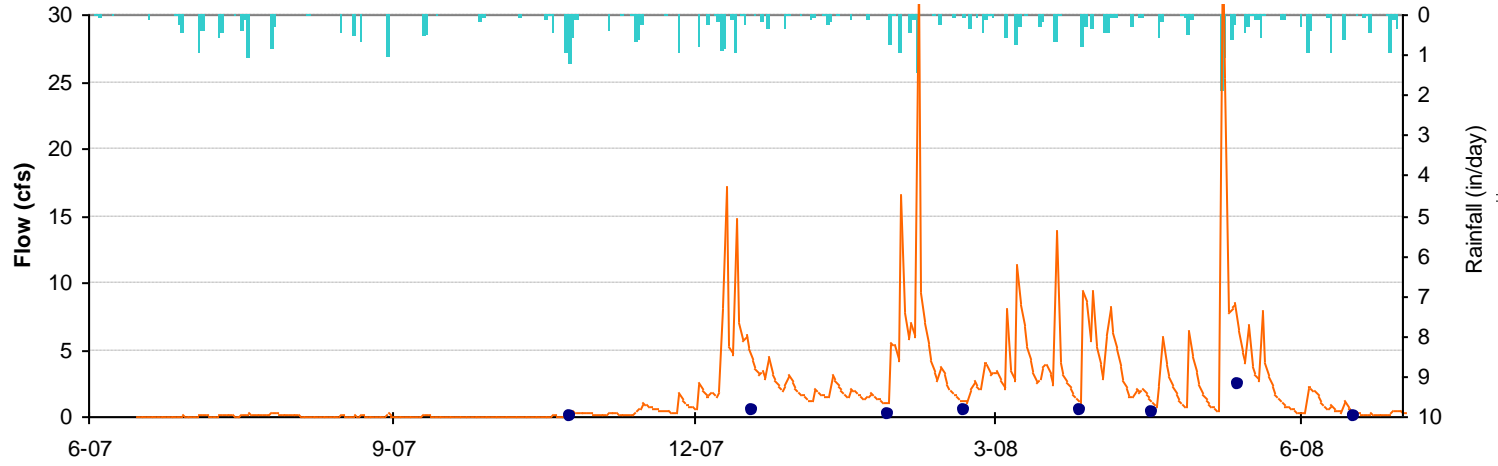


Elk River Monthly and Daily Flow



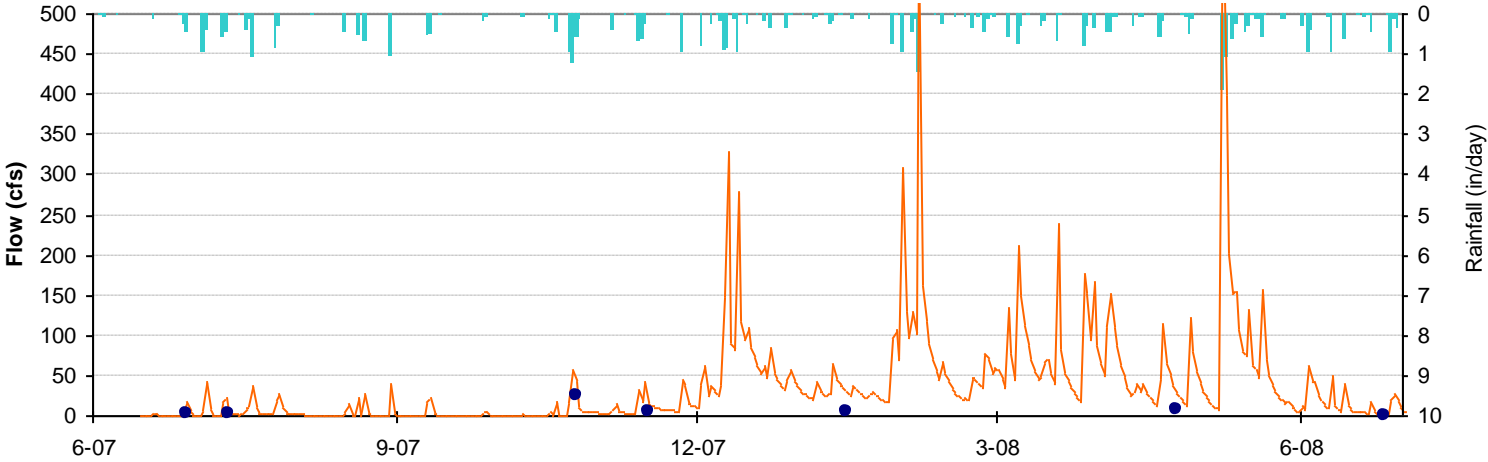
SWS 30341 Lower Kanawha Watershed WAB Station Flow Check

SWS 30341 Modeled Flow vs. WAB Station KL-00239-0 Observed Flow
UNT/Little Buffalo Creek RM 1.17



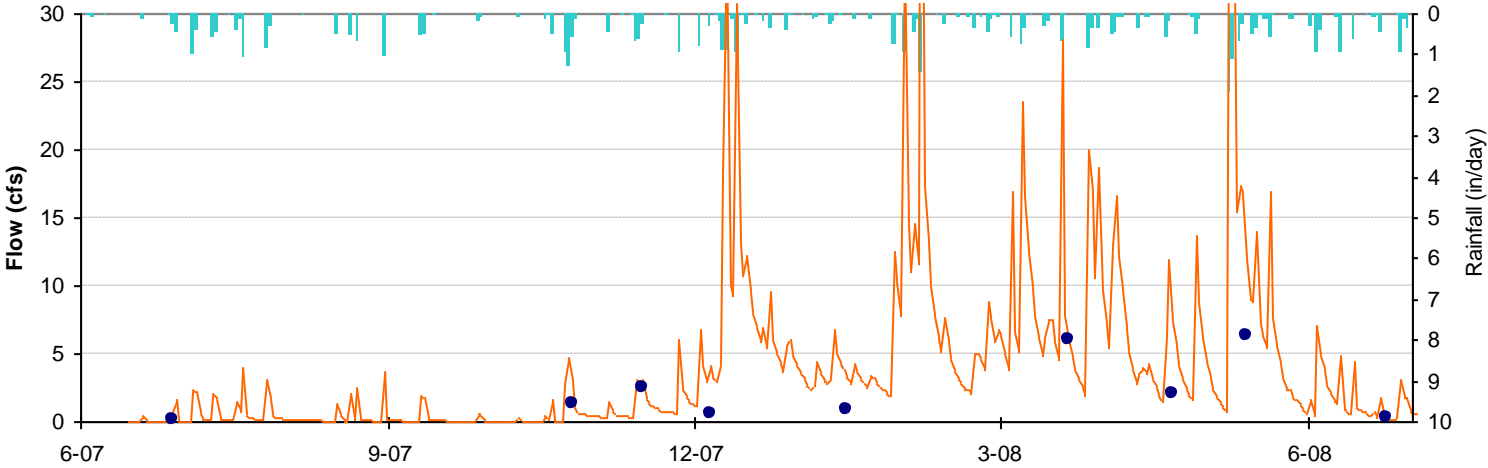
SWS 30406 Lower Kanawha Watershed WAB Station Flow Check

**SWS 30406 Modeled Flow vs. WAB Station KL-00035-0.15 Observed Flow
Poplar Fork**



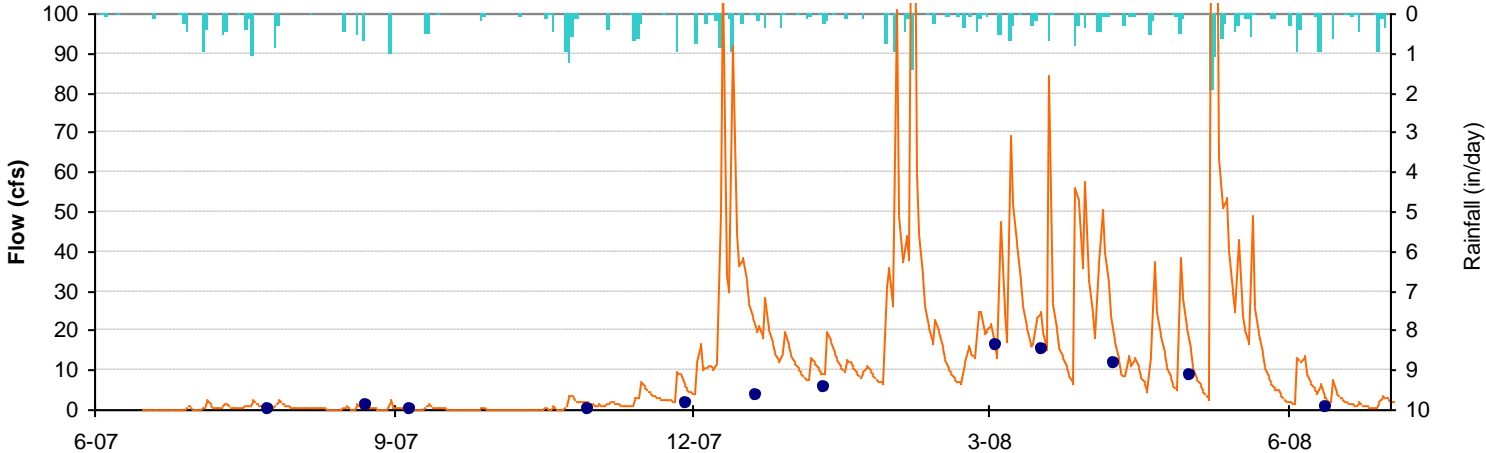
SWS 30418 Lower Kanawha Watershed WAB Station Flow Check

SWS 30418 Modeled Flow vs. WAB Station KL-00037-0 Observed Flow Long Branch



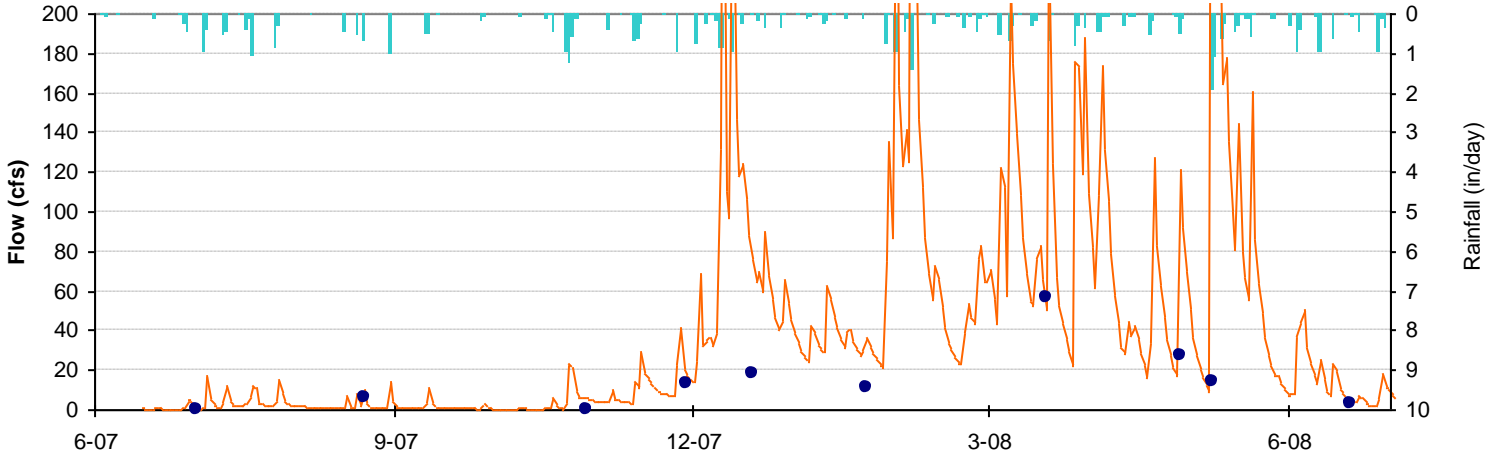
SWS 30658 Lower Kanawha Watershed WAB Station Flow Check

SWS 30658 Modeled Flow vs. WAB Station KL-00097-0.3 Observed Flow Grapevine Creek



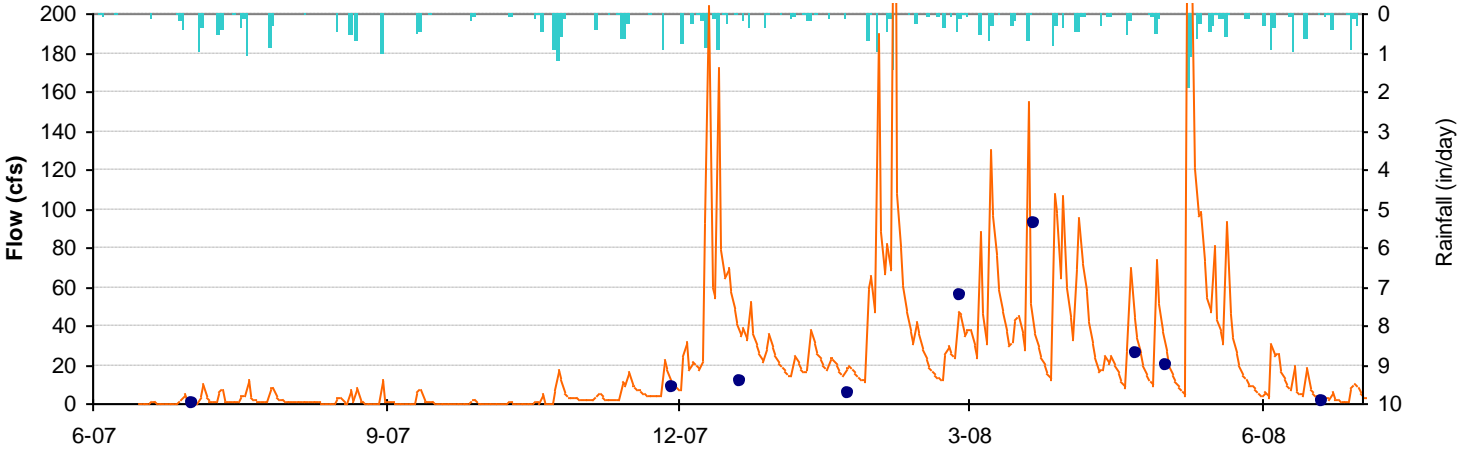
SWS 30677 Lower Kanawha Watershed WAB Station Flow Check

SWS 30677 Modeled Flow vs. WAB Station KL-00101-0.1 Observed Flow Middle Fork/Pocatalico Creek



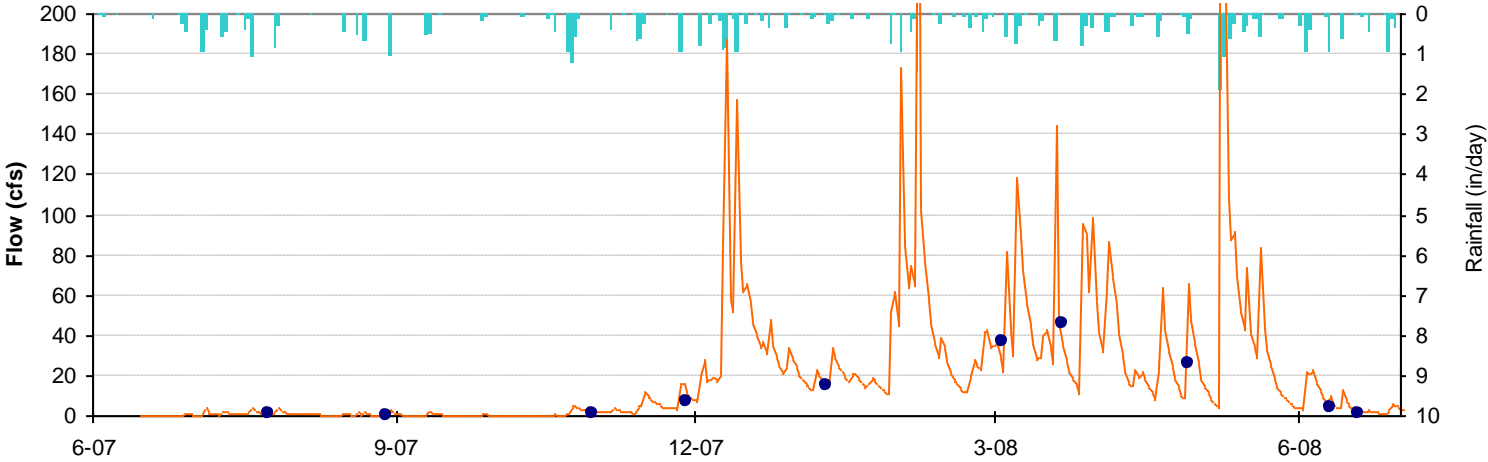
SWS 30680 Lower Kanawha Watershed WAB Station Flow Check

**SWS 30680 Modeled Flow vs. WAB Station KL-00101-9.1 Observed Flow
Middle Fork/Pocatalico Creek**



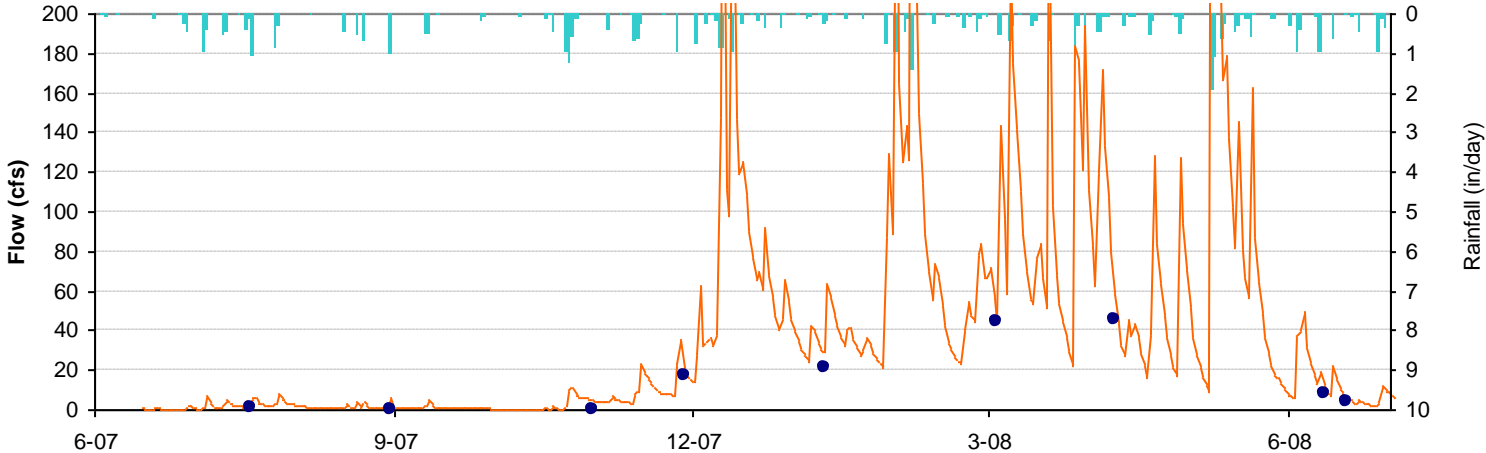
SWS 30705 Lower Kanawha Watershed WAB Station Flow Check

SWS 30705 Modeled Flow vs. WAB Station KL-00142-0.2 Observed Flow Green Creek



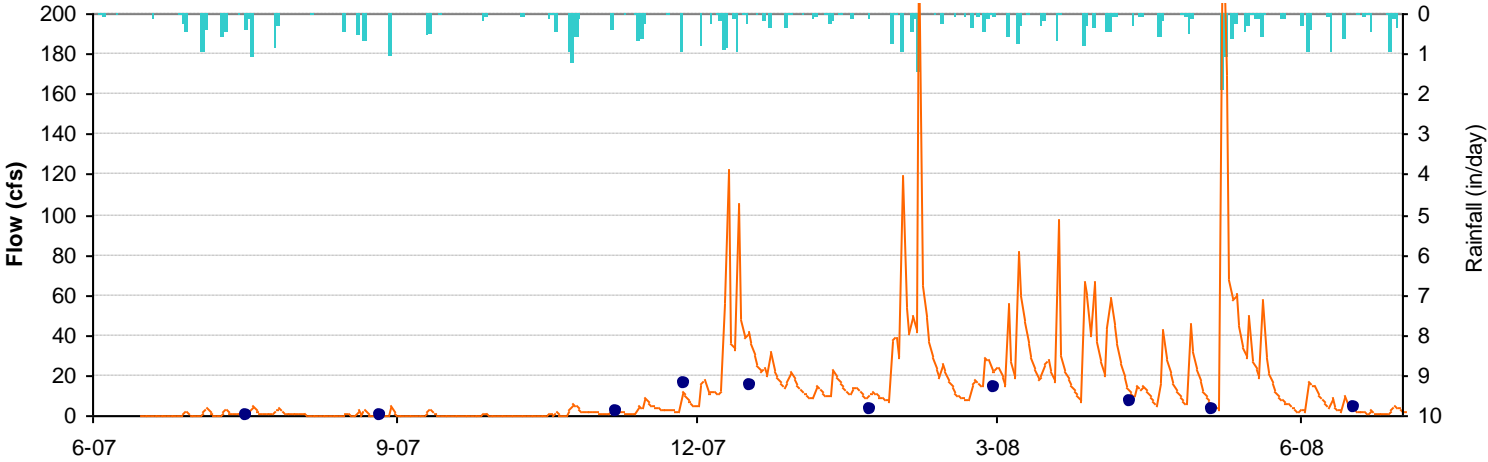
SWS 30723 Lower Kanawha Watershed WAB Station Flow Check

SWS 30723 Modeled Flow vs. WAB Station KL-00149-0 Observed Flow Flat Fork



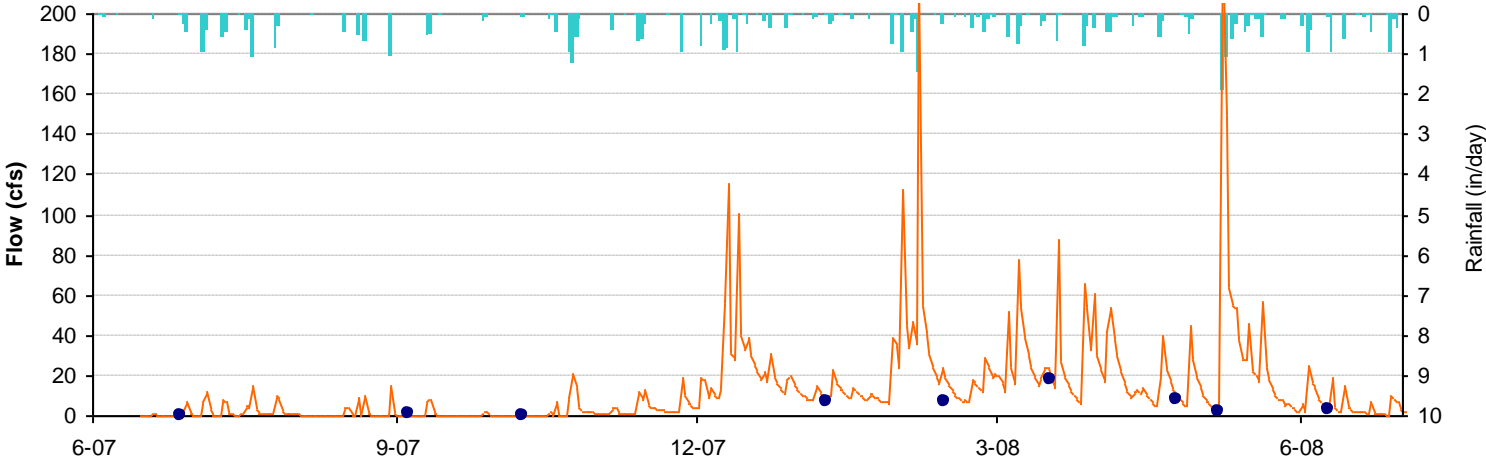
SWS 30759 Lower Kanawha Watershed WAB Station Flow Check

SWS 30759 Modeled Flow vs. WAB Station KL-00432-0 Observed Flow Big Lick Run



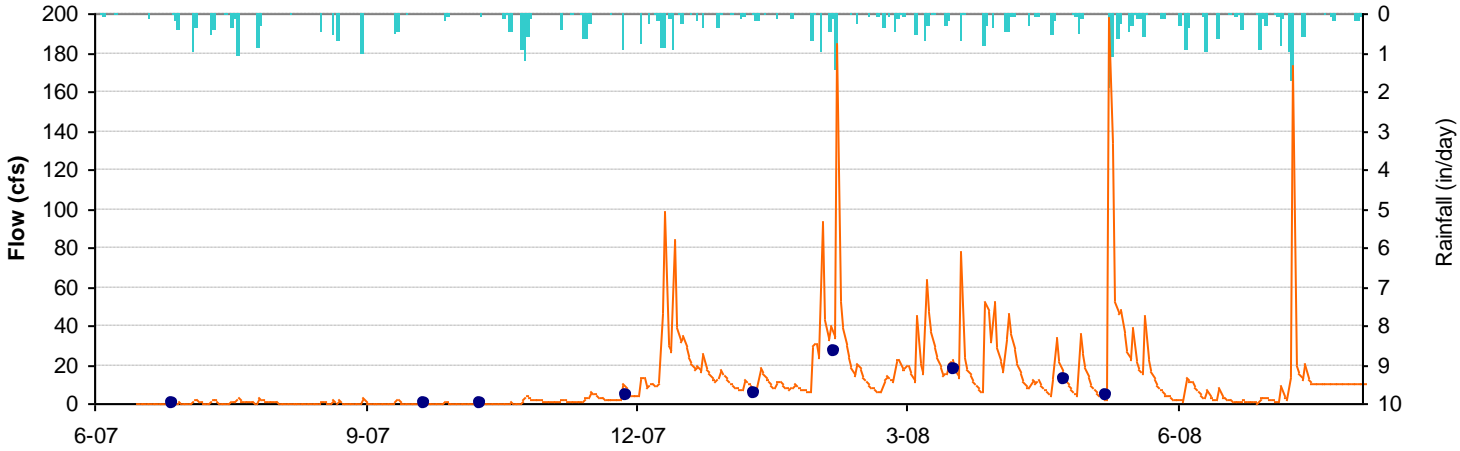
SWS 30904 Lower Kanawha Watershed WAB Station Flow Check

SWS 30904 Modeled Flow vs. WAB Station KL-00055-0.1 Observed Flow Trace Fork



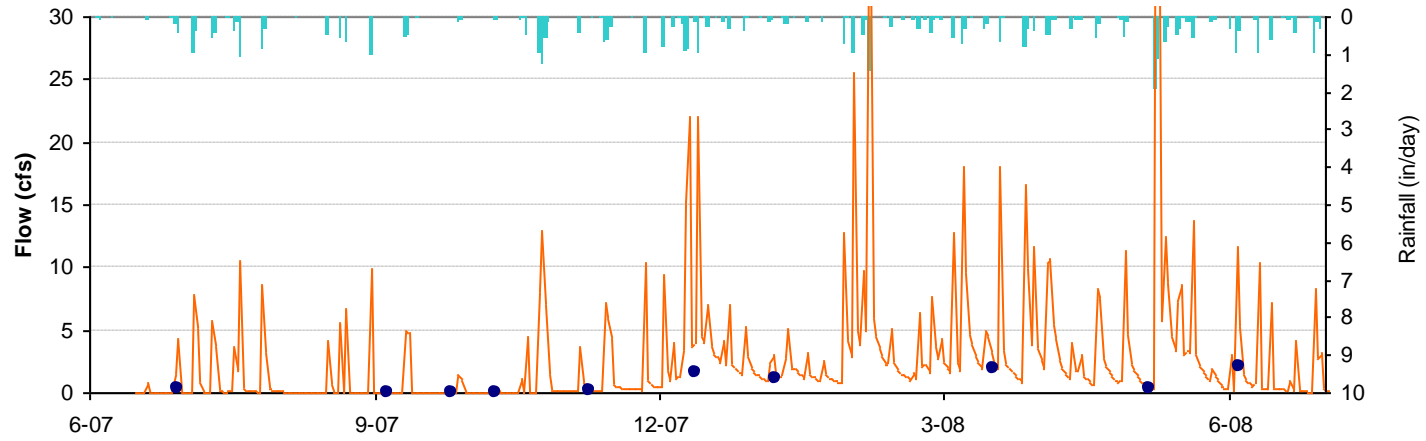
SWS 30914 Lower Kanawha Watershed WAB Station Flow Check

SWS 30914 Modeled Flow vs. WAB Station KL-00056-0 Observed Flow Middle Fork/Davis Creek



SWS 30951 Lower Kanawha Watershed WAB Station Flow Check

**SWS 30951 Modeled Flow vs. WAB Station KL-00080-0.4 Observed Flow
Joplin Branch**



USGS Gage Location Patterson Creek, North Branch Potomac Watershed

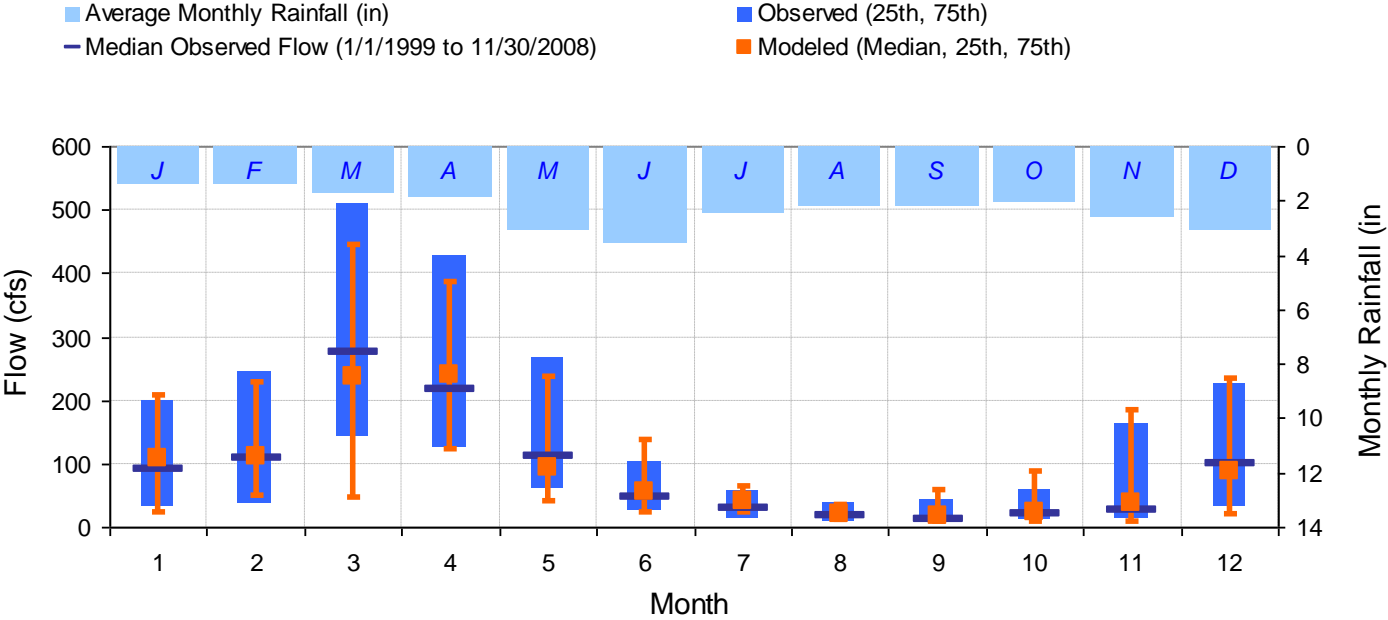
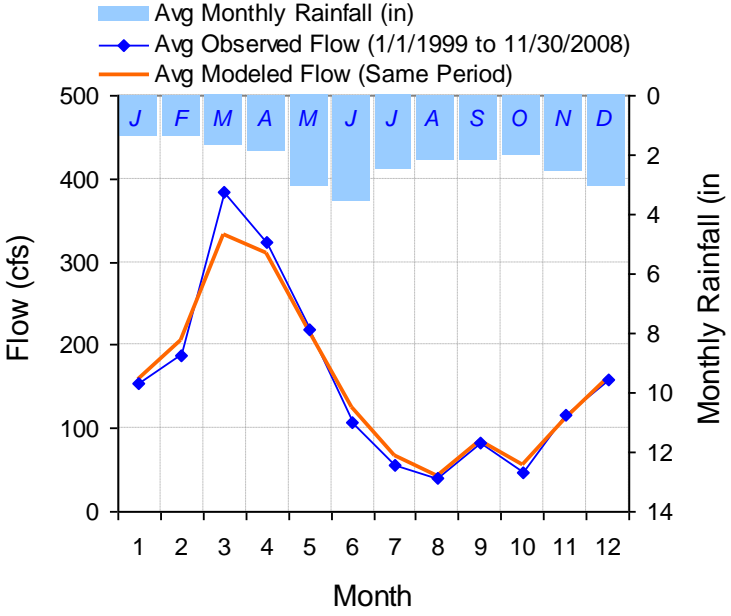
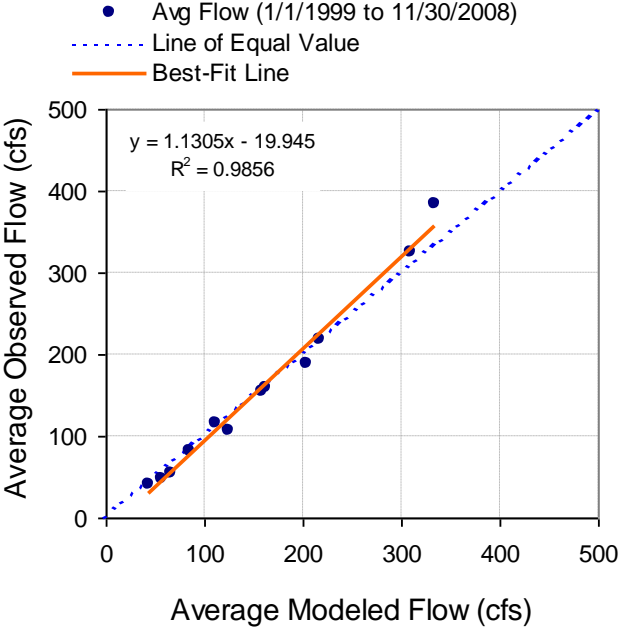


USGS Gage Patterson
Creek near Headsville

Patterson Creek Flow Statistics

LSPC Simulated Flow		Observed Flow Gage	
REACH OUTFLOW FROM SUBBASIN 12045		USGS 01604500 PATTERSON CREEK NEAR HEADSVILLE, WV	
9.92-Year Analysis Period: 1/1/1999 - 11/30/2008 Flow volumes are (inches/year) for upstream drainage area		Hydrologic Unit Code: 2070002 Mineral County, West Virginia Latitude: 39.44314946 Longitude: -78.8219649 Drainage Area (sq-mi): 221	
Total Simulated In-stream Flow:	7.74	Total Observed In-stream Flow:	7.77
Total of simulated highest 10% flows:	3.75	Total of Observed highest 10% flows:	3.58
Total of Simulated lowest 50% flows:	0.59	Total of Observed Lowest 50% flows:	0.61
Simulated Summer Flow Volume (months 7-9):	0.82	Observed Summer Flow Volume (7-9):	0.75
Simulated Fall Flow Volume (months 10-12):	1.32	Observed Fall Flow Volume (10-12):	1.29
Simulated Winter Flow Volume (months 1-3):	2.89	Observed Winter Flow Volume (1-3):	3.02
Simulated Spring Flow Volume (months 4-6):	2.72	Observed Spring Flow Volume (4-6):	2.70
Total Simulated Storm Volume:	3.51	Total Observed Storm Volume:	3.51
Simulated Summer Storm Volume (7-9):	0.44	Observed Summer Storm Volume (7-9):	0.44
<i>Errors (Simulated-Observed)</i>	<i>Error Statistics</i>	<i>Recommended Criteria</i>	
Error in total volume:	-0.36	10	
Error in 50% lowest flows:	-3.17	10	
Error in 10% highest flows:	4.75	15	
Seasonal volume error - Summer:	8.64	30	
Seasonal volume error - Fall:	1.67	30	
Seasonal volume error - Winter:	-4.61	30	
Seasonal volume error - Spring:	0.47	30	
Error in storm volumes:	0.10	20	
Error in summer storm volumes:	0.77	50	

Patterson Creek Best Fit

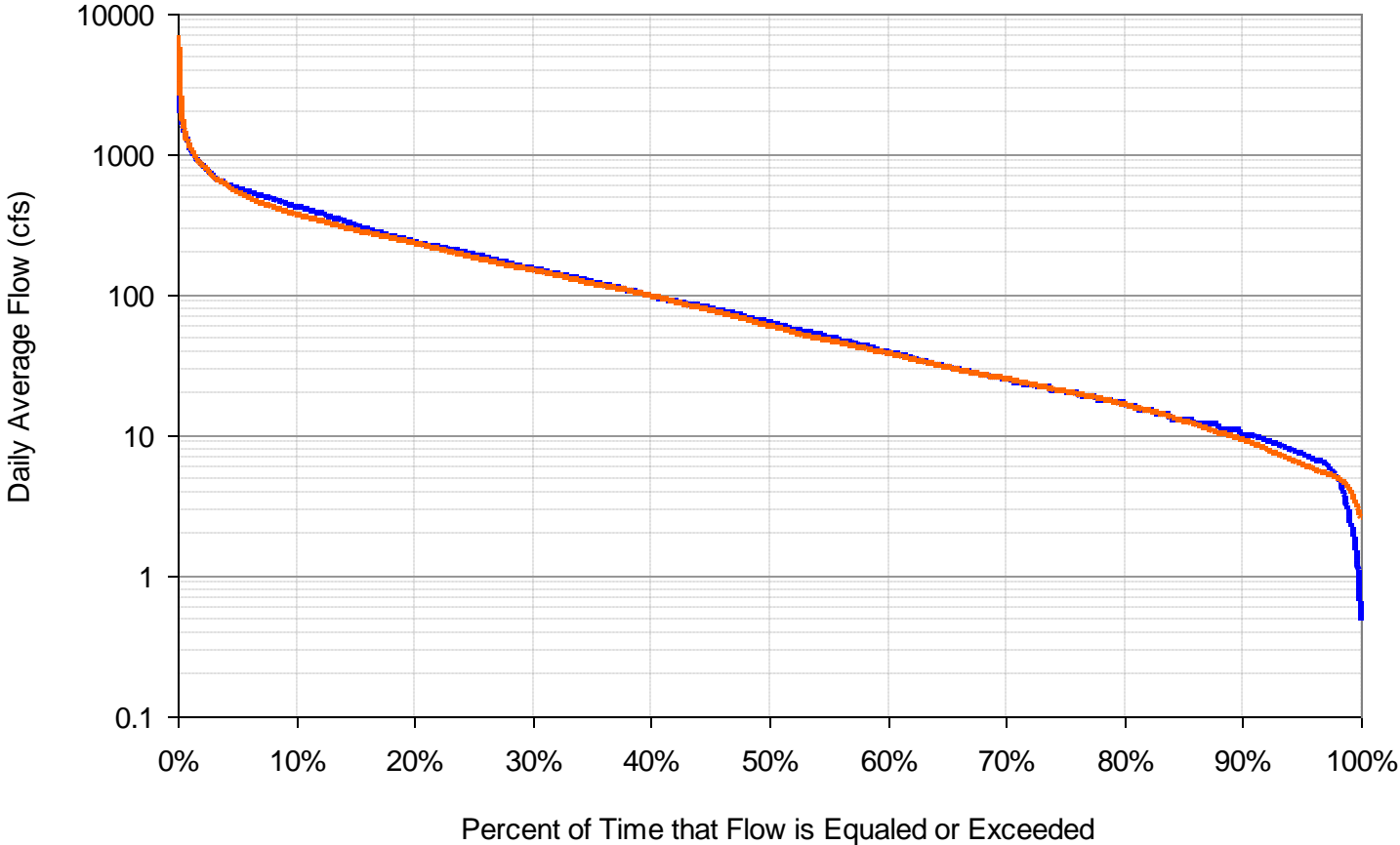


Patterson Creek Observed and Modeled Flow

MONTH	OBSERVED FLOW (CFS)				MODELED FLOW (CFS)			
	MEAN	MEDIAN	25TH	75TH	MEAN	MEDIAN	25TH	75TH
Jan	153.76	91.00	31.25	198.50	157.71	108.90	22.18	208.82
Feb	188.48	107.00	39.50	246.00	204.38	110.23	48.55	228.67
Mar	383.36	276.00	143.25	510.50	333.61	236.91	48.22	443.96
Apr	324.09	216.00	127.00	428.50	309.52	239.04	122.82	385.81
May	218.07	111.50	60.50	267.50	216.91	94.71	40.92	237.59
Jun	106.43	47.00	25.00	101.25	125.29	54.22	23.81	138.50
Jul	55.15	30.00	16.00	59.50	66.59	39.74	22.52	65.38
Aug	40.45	18.00	8.90	38.75	42.87	21.70	12.71	34.87
Sep	82.72	13.00	8.00	44.25	85.55	16.97	9.15	57.10
Oct	47.40	21.00	12.00	59.75	55.86	24.24	9.03	88.57
Nov	116.96	25.00	15.00	162.50	111.53	38.85	9.66	185.69
Dec	159.32	100.00	33.50	224.50	161.47	88.82	19.56	235.19

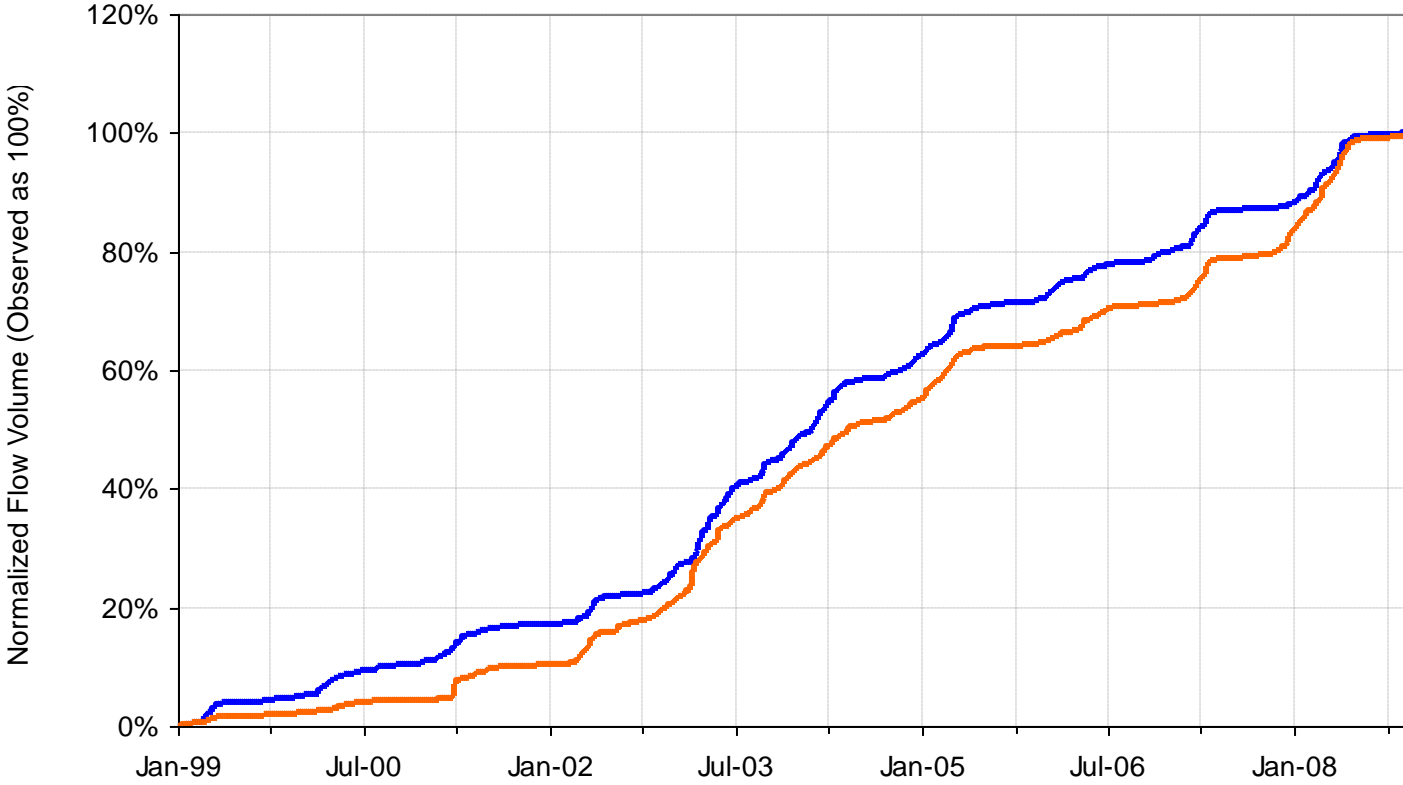
Patterson Creek Flow Equaled or Exceeded

- Observed Flow Duration (1/1/1999 to 11/30/2008)
- Modeled Flow Duration (1/1/1999 to 11/30/2008)

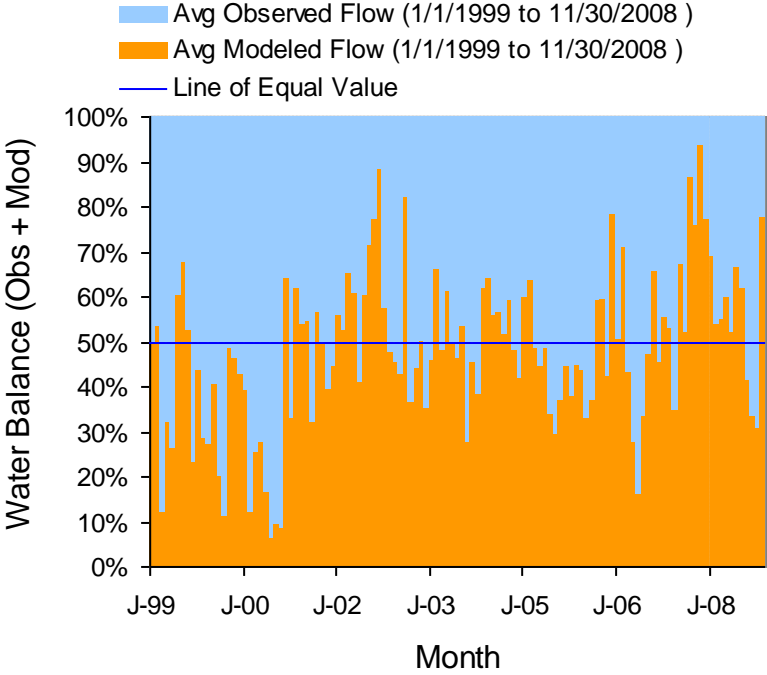
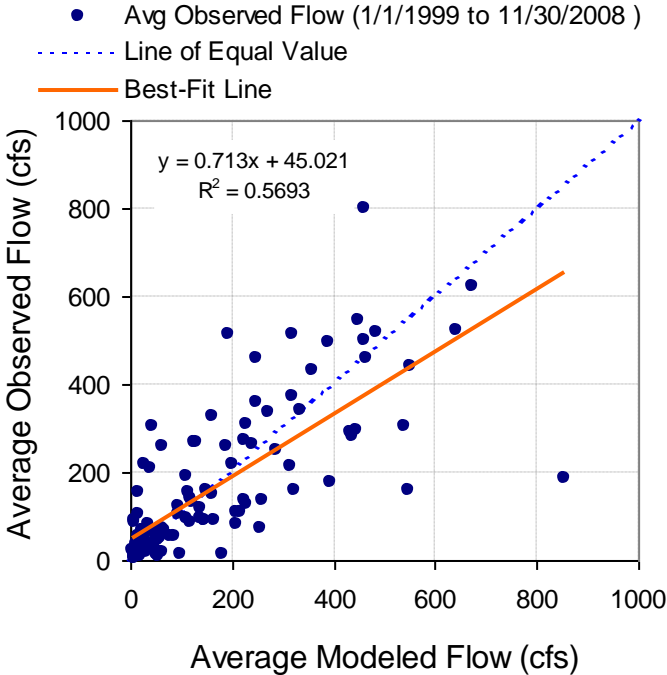


Patterson Creek Normalized Flow Volume

- Observed Flow Volume (1/1/1999 to 11/30/2008)
- Modeled Flow Volume (1/1/1999 to 11/30/2008)



Patterson Creek Water Balance



Patterson Creek Monthly and Daily Flow

- Avg Monthly Rainfall (in)
- Avg Observed Flow (1/1/1999 to 11/30/2008)
- Avg Modeled Flow (Same Period)

