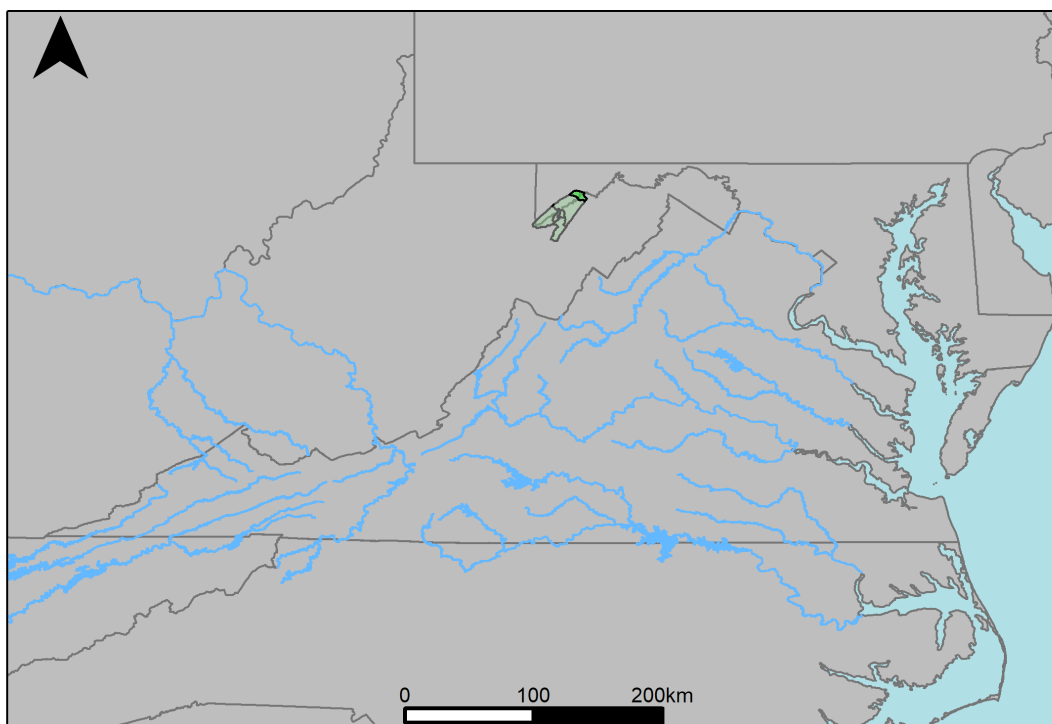


## River Segment YP4\_6720\_6750: USGS Gage 01673000 vs. VA Hydro Run 120



This river segment follows part of the flow of the Pamunkey River near Hanover, VA. Gage 01673000 is located in Hanover County, VA (Lat 37 46'03", Long 77 19'57") approximately 2.0 miles east of Hanover, VA. Drainage area is 1,078 sq. miles. This gage started taking data in 1941 and is still taking data currently. Some regulations have been applied since January 1972 by Lake Anna, capacity, 373,000 acre-ft, and occasional diurnal fluctuation occurs at low flow caused by a mill upstream from station. The average daily discharge change between scenario 1 and scenario 2 for the 20 year timespan was -48.3057%, with 96% of its rolling three month time spans above 20% difference.

**Table 1: Monthly Low Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
Jan. Low Flow	98	95.3	-2.72
Feb. Low Flow	194	127	-34.1
Mar. Low Flow	369	270	-27
Apr. Low Flow	543	323	-40.6
May Low Flow	672	357	-47
Jun. Low Flow	622	339	-45.5
Jul. Low Flow	489	335	-31.6
Aug. Low Flow	280	194	-30.9
Sep. Low Flow	181	124	-31.7
Oct. Low Flow	108	77.5	-28.6
Nov. Low Flow	98.8	106	7.69
Dec. Low Flow	78.9	67.5	-14.5

**Table 2: Monthly Average Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
Overall Mean Flow	955	494	-48.3
Jan. Mean Flow	1300	700	-46.3
Feb. Mean Flow	1510	794	-47.3
Mar. Mean Flow	1770	903	-48.8
Apr. Mean Flow	1380	711	-48.5
May Mean Flow	1130	494	-56.3
Jun. Mean Flow	647	332	-48.7
Jul. Mean Flow	395	223	-43.6
Aug. Mean Flow	350	217	-38.2
Sep. Mean Flow	503	310	-38.4
Oct. Mean Flow	426	265	-37.7
Nov. Mean Flow	855	391	-54.3
Dec. Mean Flow	1240	605	-51.1

**Table 3: Monthly High Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
Jan. High Flow	788	427	-45.8
Feb. High Flow	2580	534	-79.3
Mar. High Flow	3400	1050	-69.1
Apr. High Flow	2930	1330	-54.5
May High Flow	3190	984	-69.1
Jun. High Flow	5010	1290	-74.2
Jul. High Flow	4730	1510	-68.2
Aug. High Flow	2720	824	-69.7
Sep. High Flow	1340	415	-69
Oct. High Flow	870	360	-58.6
Nov. High Flow	486	333	-31.5
Dec. High Flow	444	353	-20.6

**Table 4: Period Low Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
Min. 1 Day Min	23.4	14.5	-38.2
Med. 1 Day Min	65	50.1	-22.9
Min. 3 Day Min	27.1	14.6	-46.3
Med. 3 Day Min	71.7	51.3	-28.4
Min. 7 Day Min	29.2	15	-48.7
Med. 7 Day Min	76.9	53.1	-30.9
Min. 30 Day Min	37.7	22.8	-39.6
Med. 30 Day Min	98.9	72.6	-26.6
Min. 90 Day Min	53.3	33.9	-36.3
Med. 90 Day Min	198	136	-31.3
7Q10	42.5	25.6	-39.8
Year of 90-Day Min. Flow	2000	2000	0
Drought Year Mean	147	65.7	-55.3
Mean Baseflow	411	293	-28.8

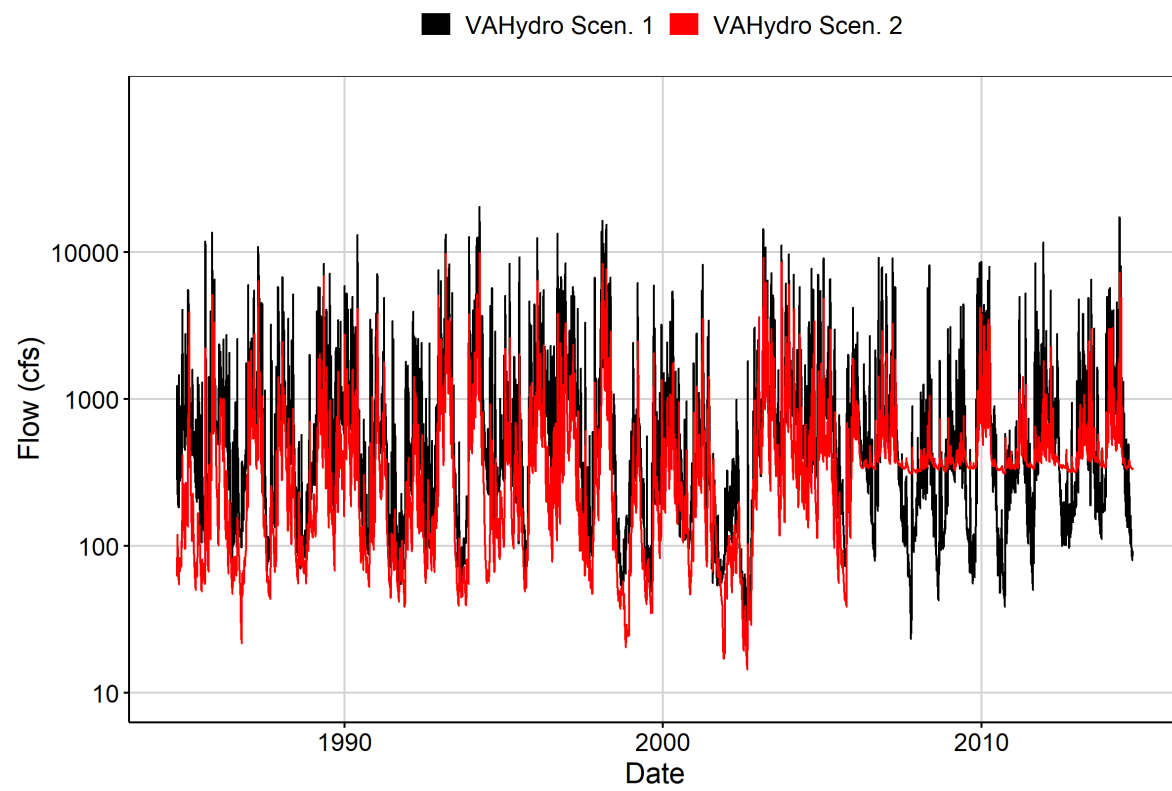
**Table 5: Period High Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
Max. 1 Day Max	20400	9900	-51.5
Med. 1 Day Max	8870	3670	-58.7
Max. 3 Day Max	18600	9100	-51.1
Med. 3 Day Max	8070	3250	-59.7
Max. 7 Day Max	13400	6830	-48.9
Med. 7 Day Max	6360	2630	-58.6
Max. 30 Day Max	8010	4020	-49.8
Med. 30 Day Max	2620	1330	-49.3
Max. 90 Day Max	5390	2720	-49.6
Med. 90 Day Max	1850	849	-54.1

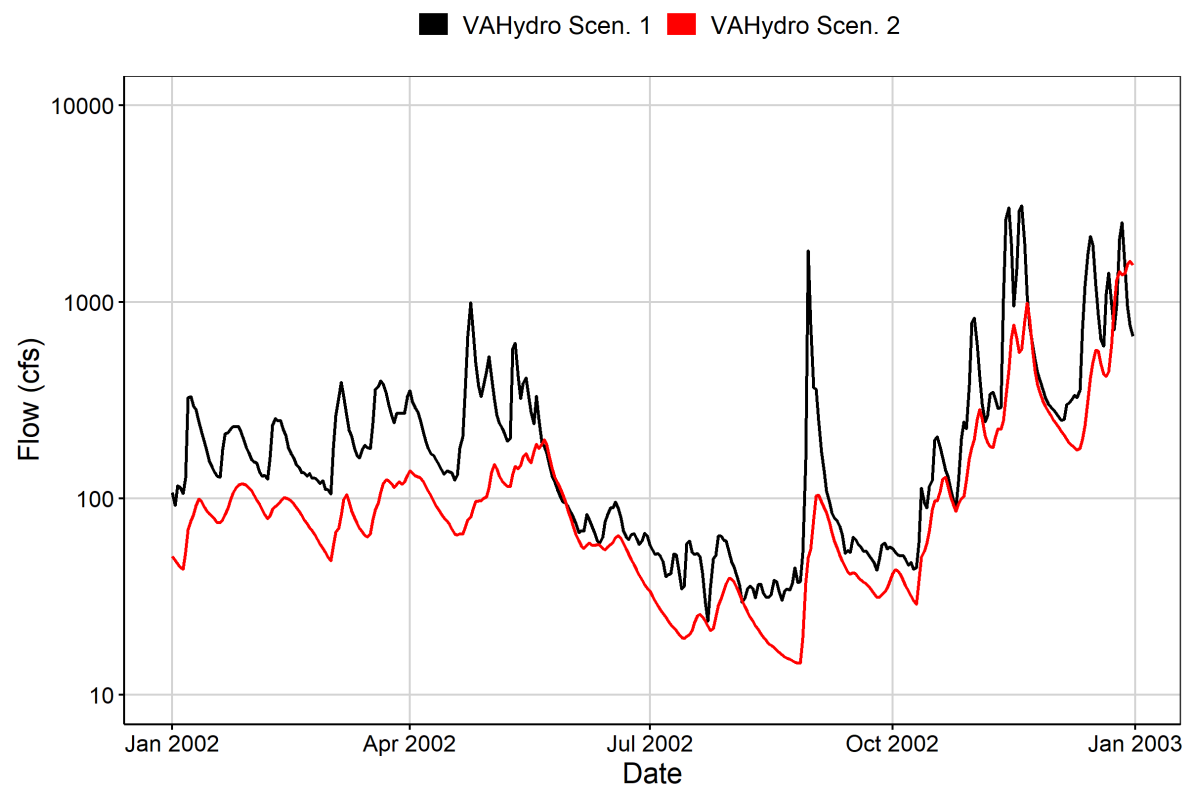
**Table 6: Non-Exceedance Flows**

	VAHydro Scen. 1	VAHydro Scen. 2	Pct. Difference
1% Non-Exceedance	51.9	27	-47.9
5% Non-Exceedance	76.6	51.9	-32.3
50% Non-Exceedance	486	343	-29.4
95% Non-Exceedance	3810	1610	-57.9
99% Non-Exceedance	8080	3510	-56.6
Sept. 10% Non-Exceedance	61	49.5	-18.8

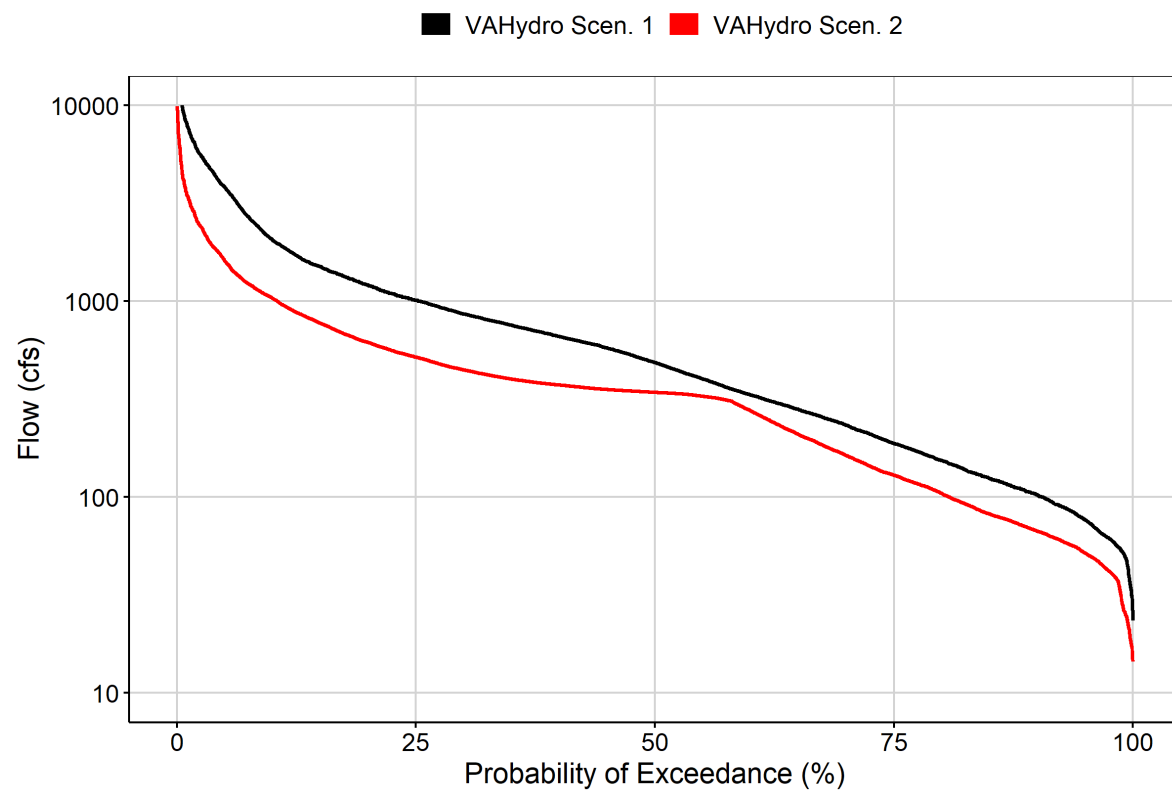
Fig. 1: Hydrograph



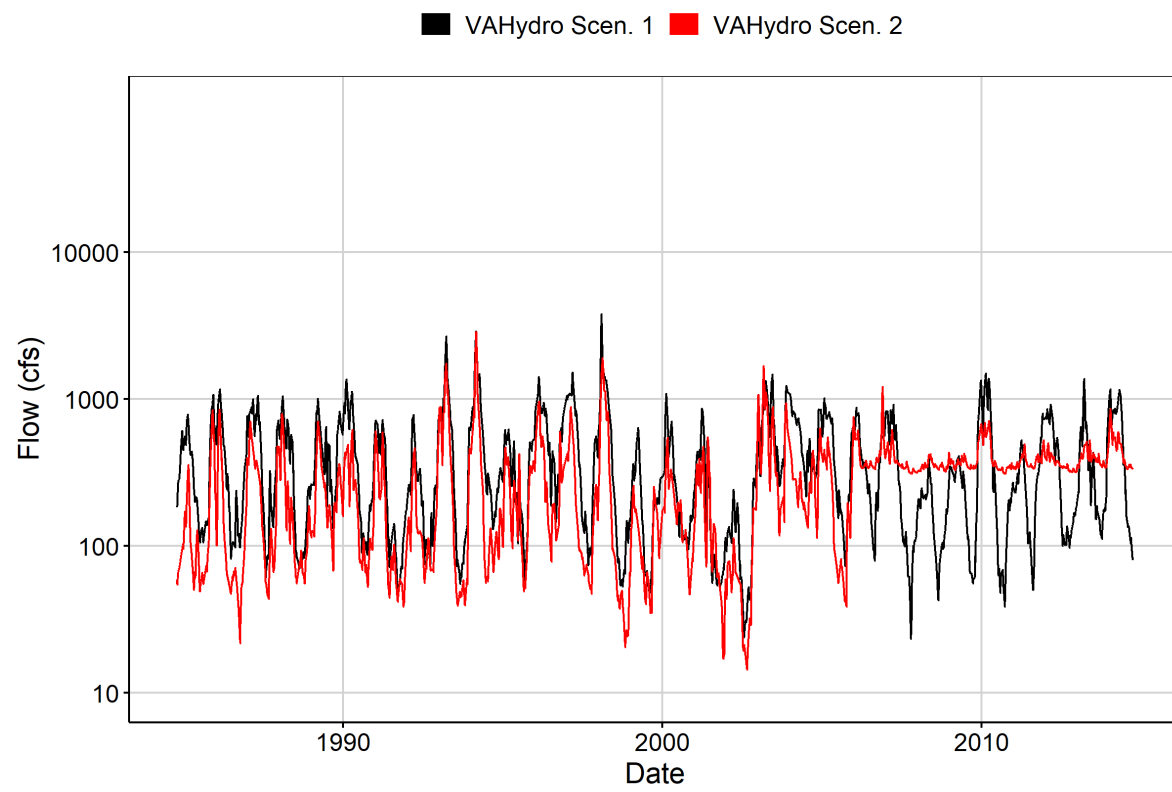
**Fig. 2: Zoomed Hydrograph**



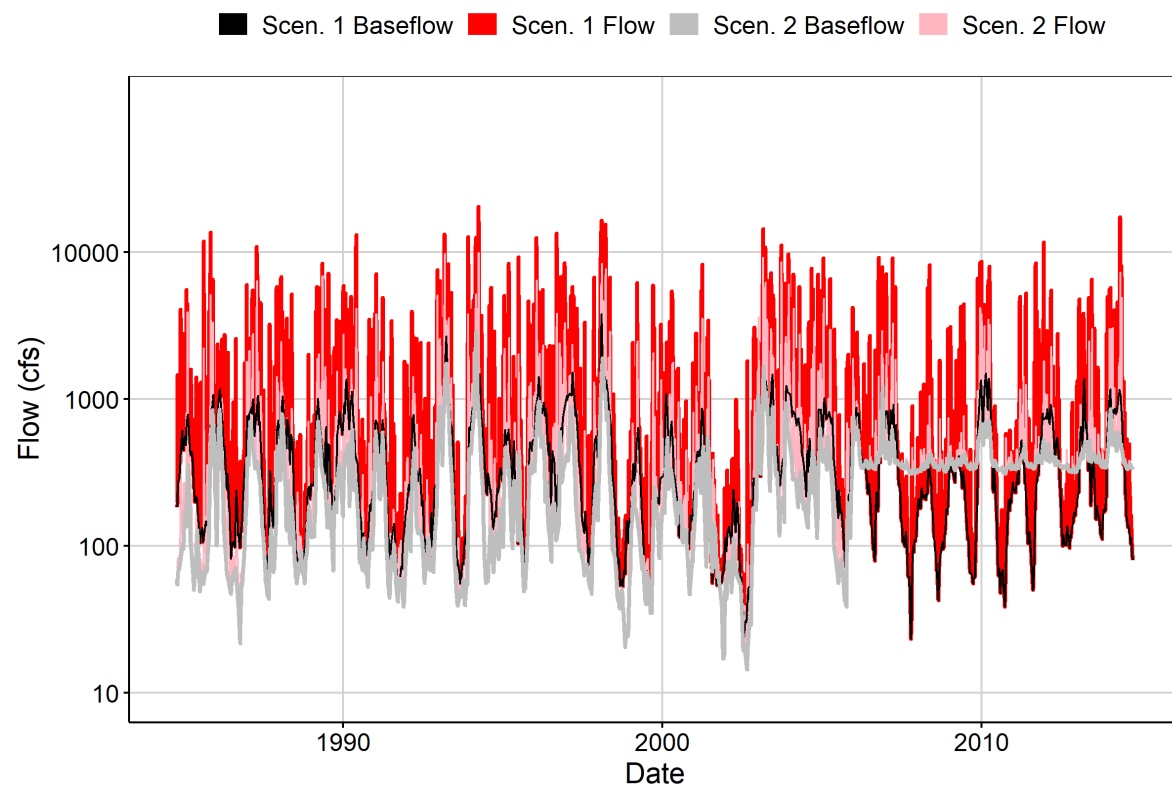
**Fig. 3: Flow Exceedance**



**Fig. 4: Baseflow**



**Fig. 5: Combined Baseflow**





**Fig. 6: Largest Difference Period**

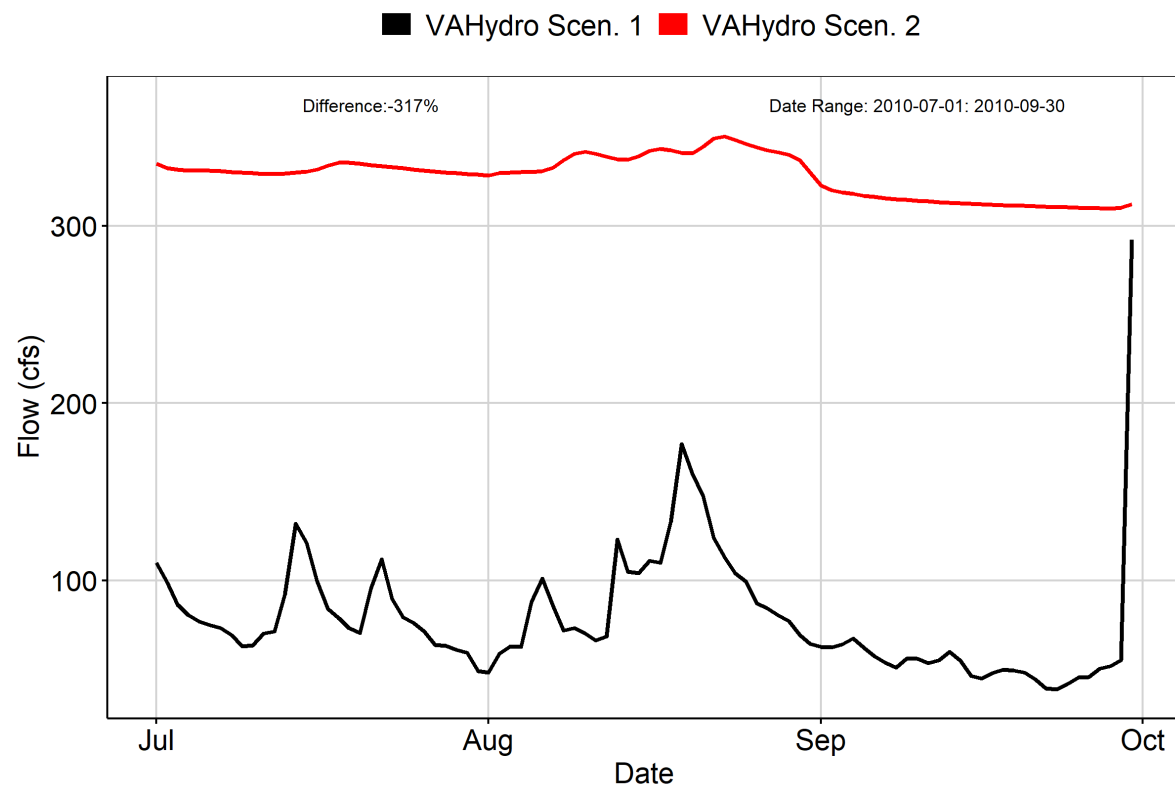


Fig. 7: Second Largest Difference Period

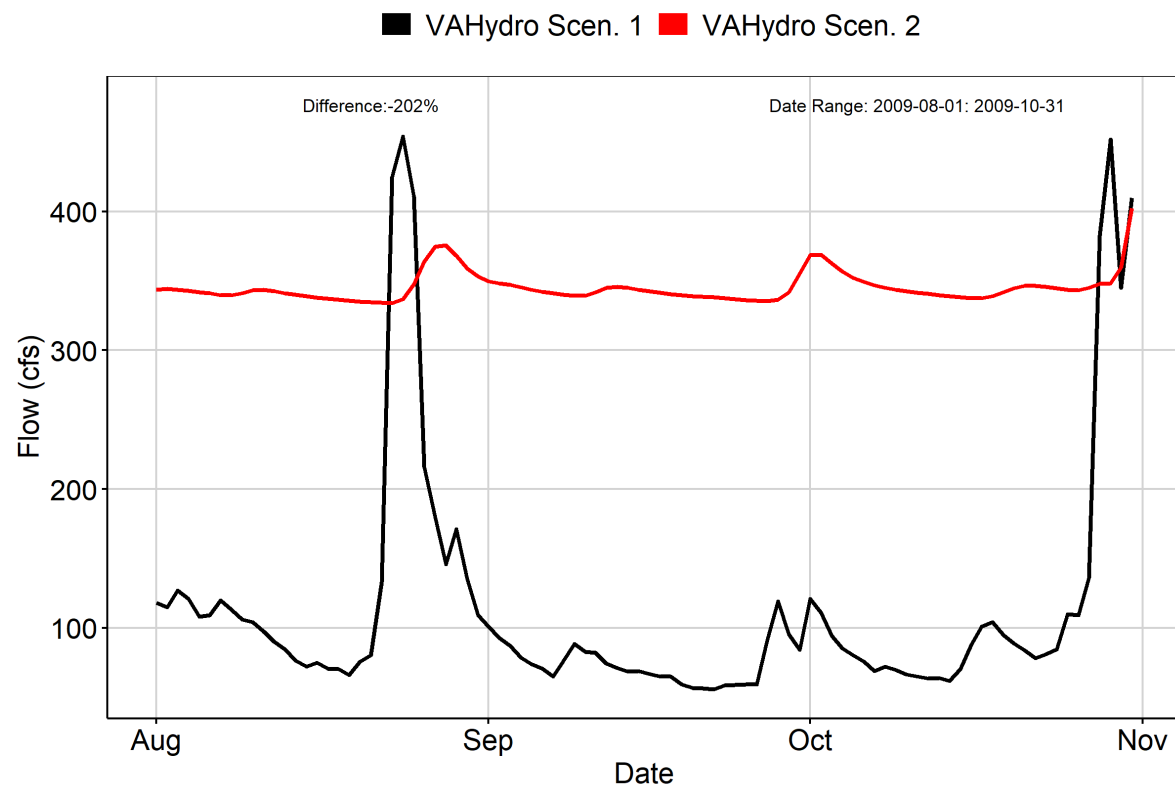


Fig. 8: Third Largest Difference Period

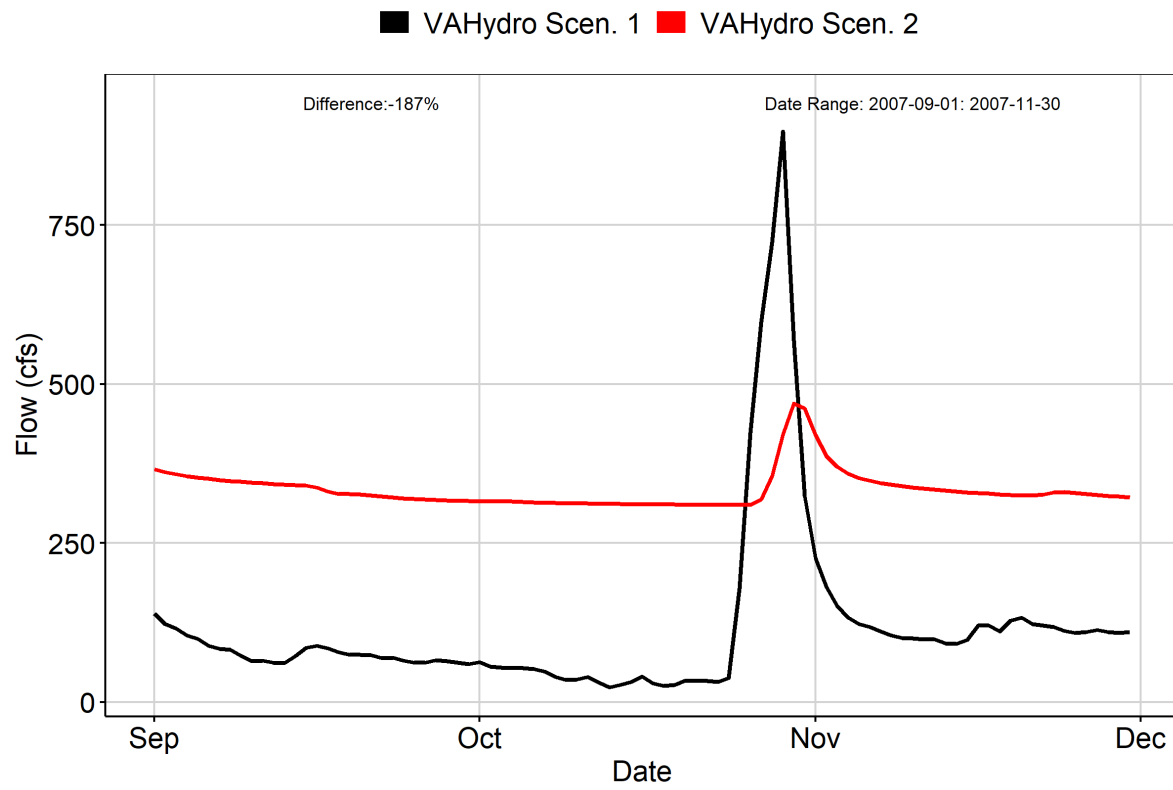


Fig. 9A: Residuals Plot

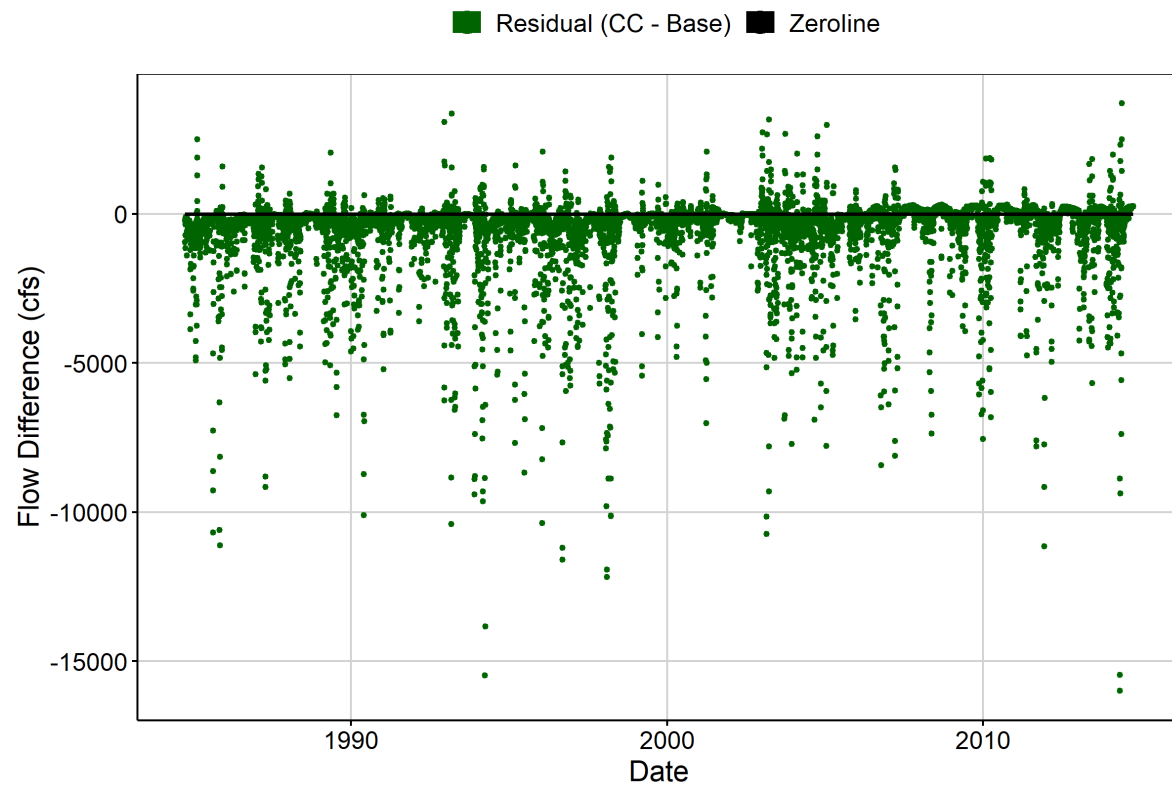


Fig. 9B: Area Weighted Residuals Plot

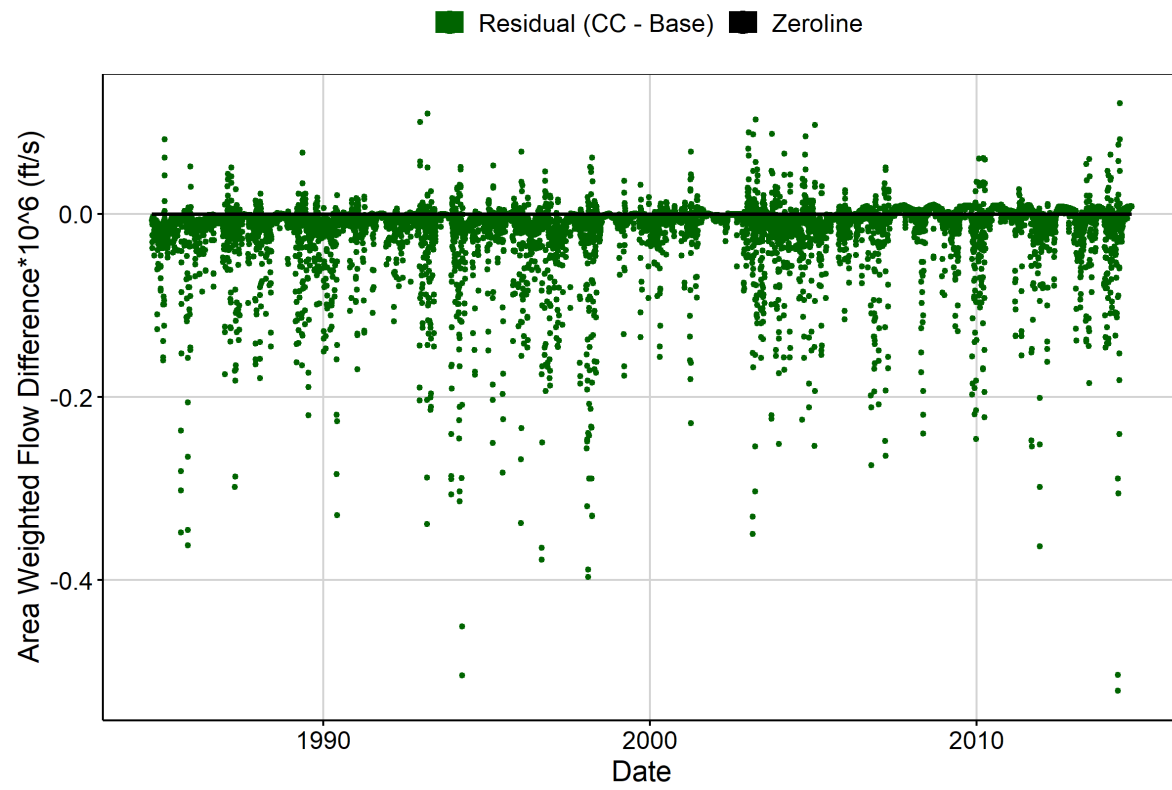


Fig. 10: VA Hydro Scen. 1 Runit Values (Outliers Excluded)

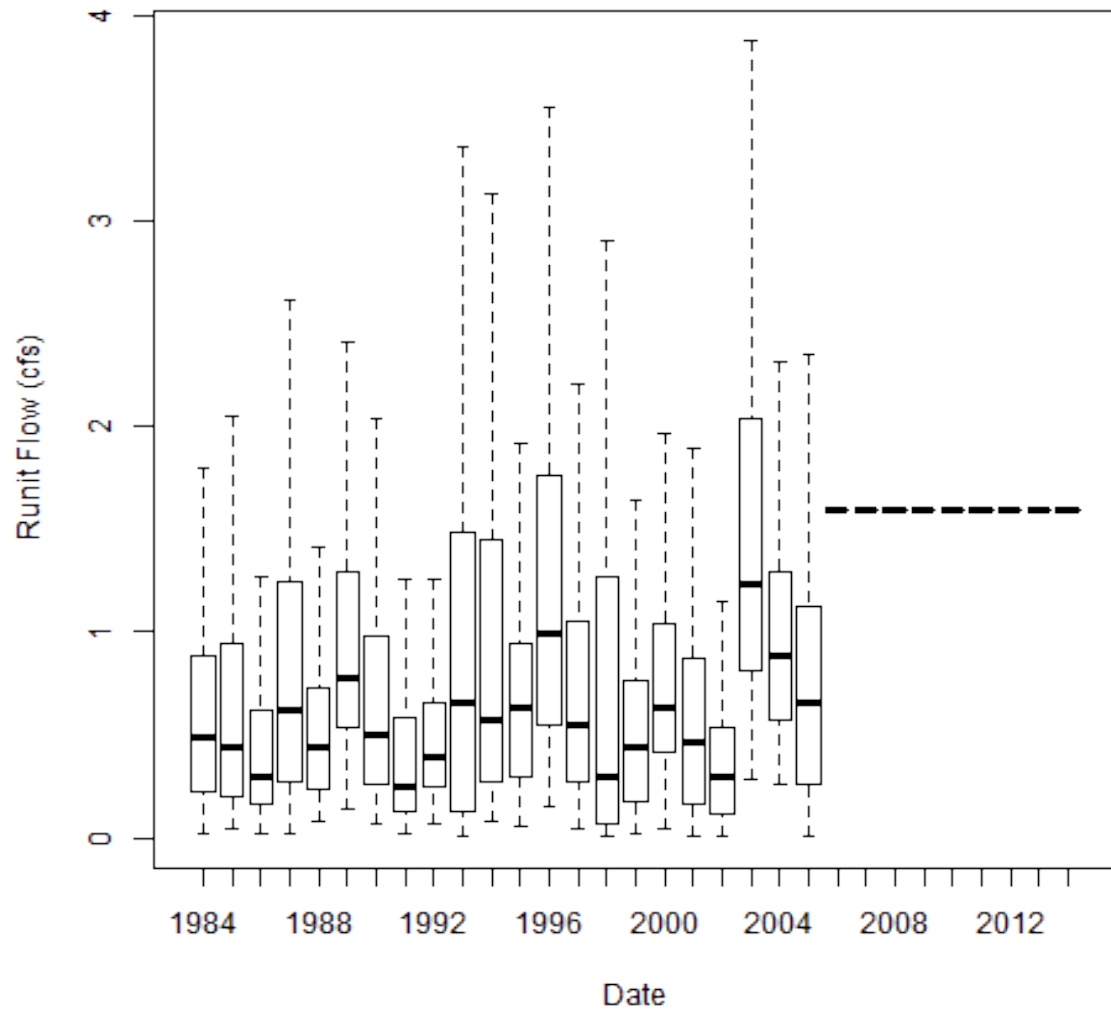


Fig. 11: Smallest Difference Period

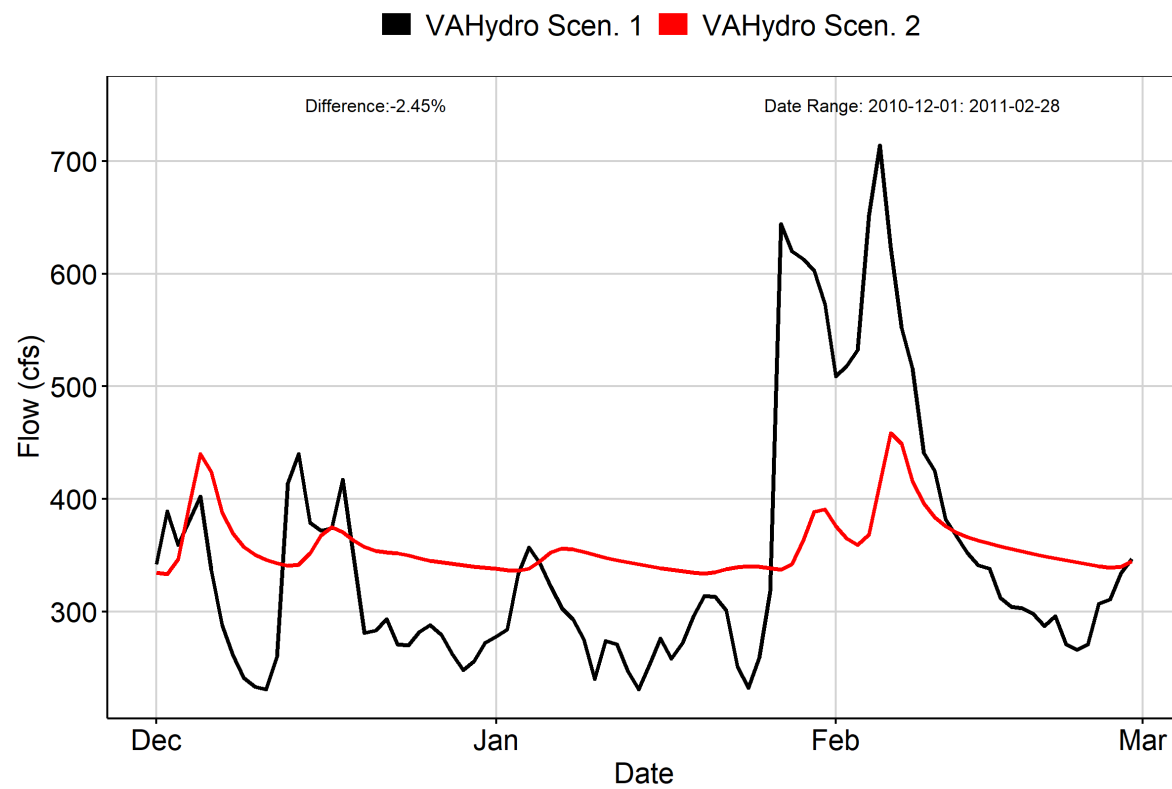


Fig. 12: Second Smallest Difference Period

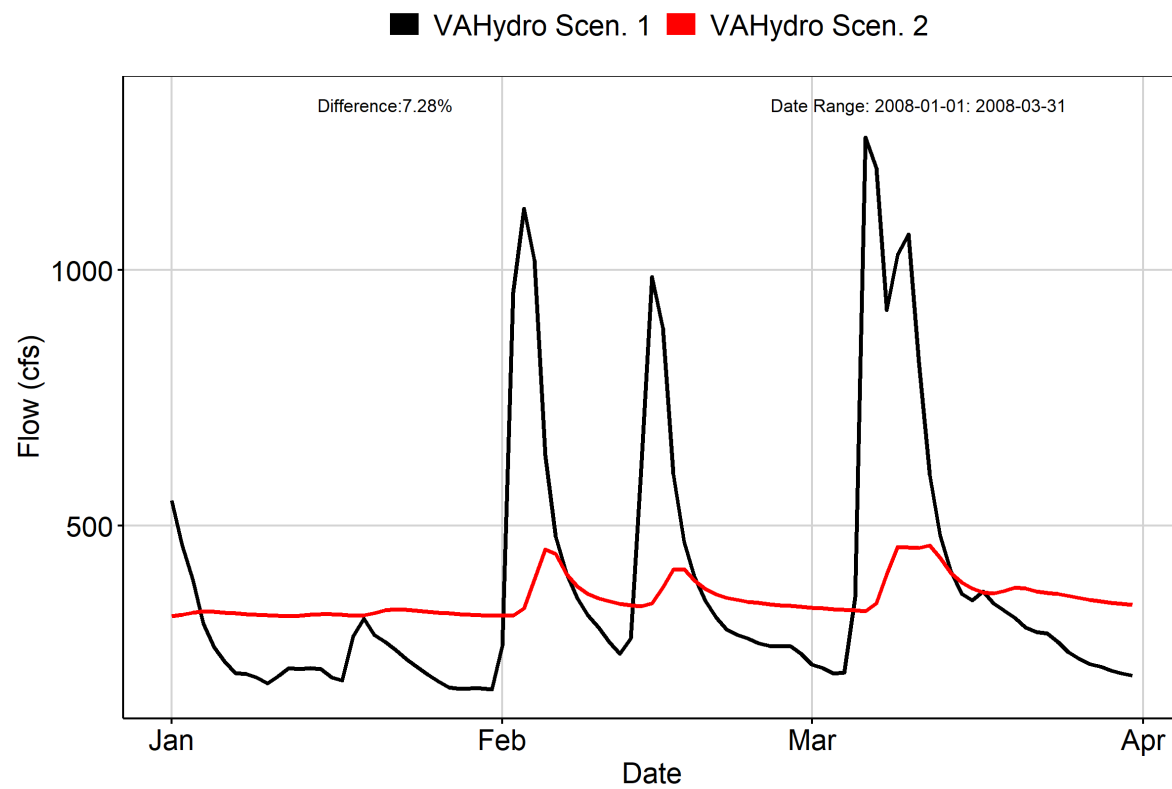




Fig. 13: Third Smallest Difference Period

