elid : 351592 , Facility SHENANDOAH (TOWN) WTP:SF Shenandoah River @ Luray : 11 vs. 18

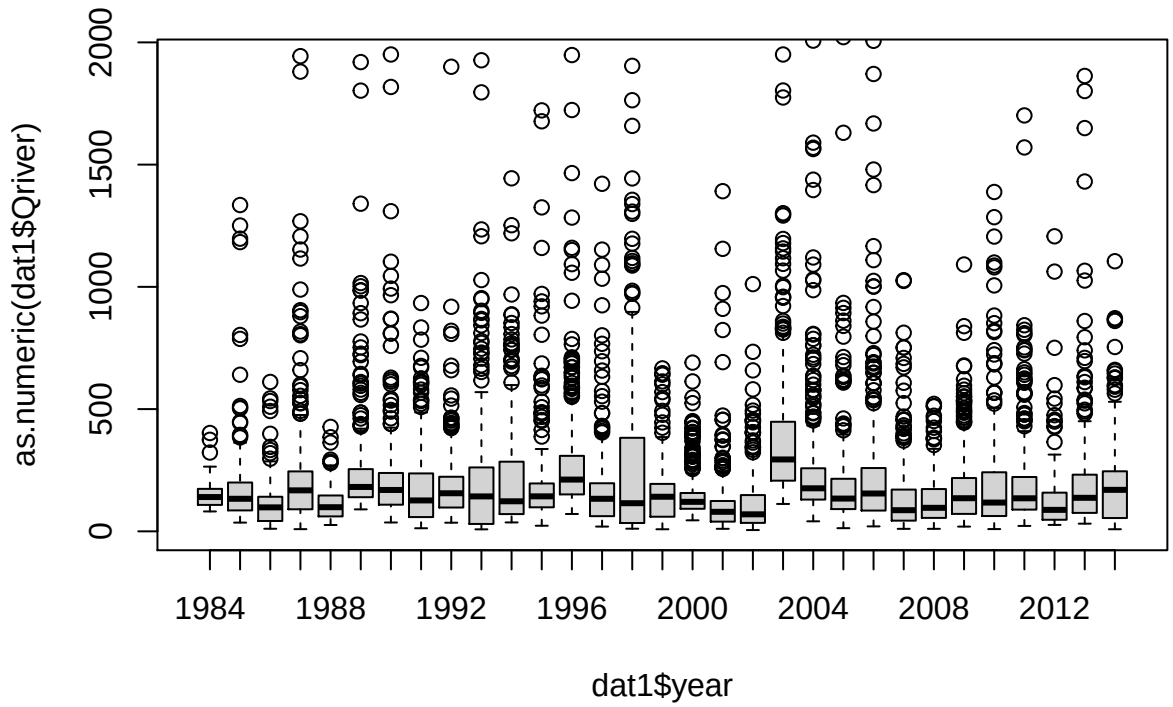

Figure 1: Qriver

Table 1: Quantiles11

	availiable_mgd	Qintake	flowby	base_demand_mgd	adj_demand_mgd	wd_mgd	unmet_demand	drought_adj
1%	7.940364	12.28374	0	0.2137348	0.2137348	0.2137348	0	0
5%	15.858403	24.53295	0	0.2137348	0.2137348	0.2137348	0	0
10%	24.152941	37.36460	0	0.2137348	0.2137348	0.2137348	0	0

	availiable_mgd	Qintake	flowby	base_demand_mgd	adj_demand_mgd	wd_mgd	unmet_demand	drought_adj
20%	38.324332	59.28774	0	0.2137348	0.2137348	0.2137348	0	0
30%	55.626808	86.05467	0	0.2137348	0.2137348	0.2137348	0	0

Table 2: Quantiles18

	availiable_mgd	Qintake	flowby	base_demand_mgd	adj_demand_mgd	wd_mgd	unmet_demand	drought_adj
1%	2.871316	4.441927	0	14.52577	14.52577	2.871316	0	-0.0000002
5%	6.571802	10.166578	0	14.52577	14.52577	6.571802	0	-0.0000002
10%	11.136114	17.227569	0	14.52577	14.52577	11.127196	0	-0.0000002
20%	22.252511	34.424635	0	14.52577	14.52577	14.525774	0	-0.0000002
30%	39.296324	60.791413	0	14.52577	14.52577	14.525774	0	-0.0000002

Table 3: Rejected Demand11

	Rejected Demand
90%	0
95%	0
97%	0
98%	0
99%	0
100%	0

Table 4: Rejected Demand18

	Rejected Demand
90%	0.0000000
95%	0.0000000
97%	0.0000000
98%	0.0000000
99%	0.0000000
100%	0.3748803

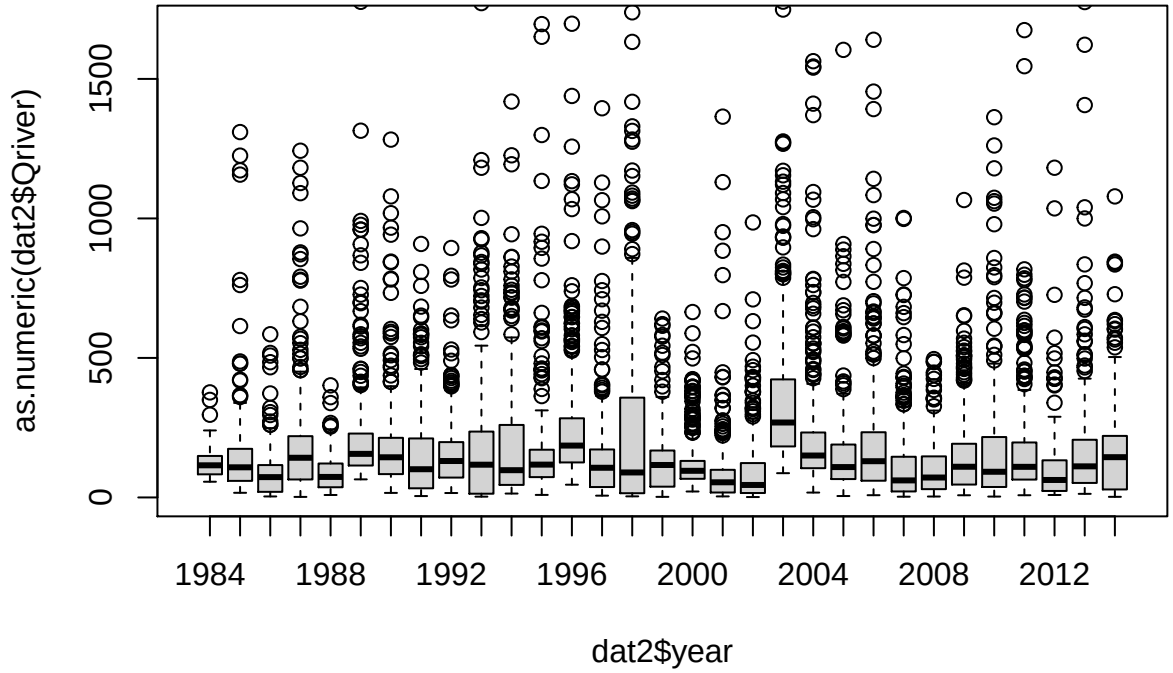

Figure 2: Qriver

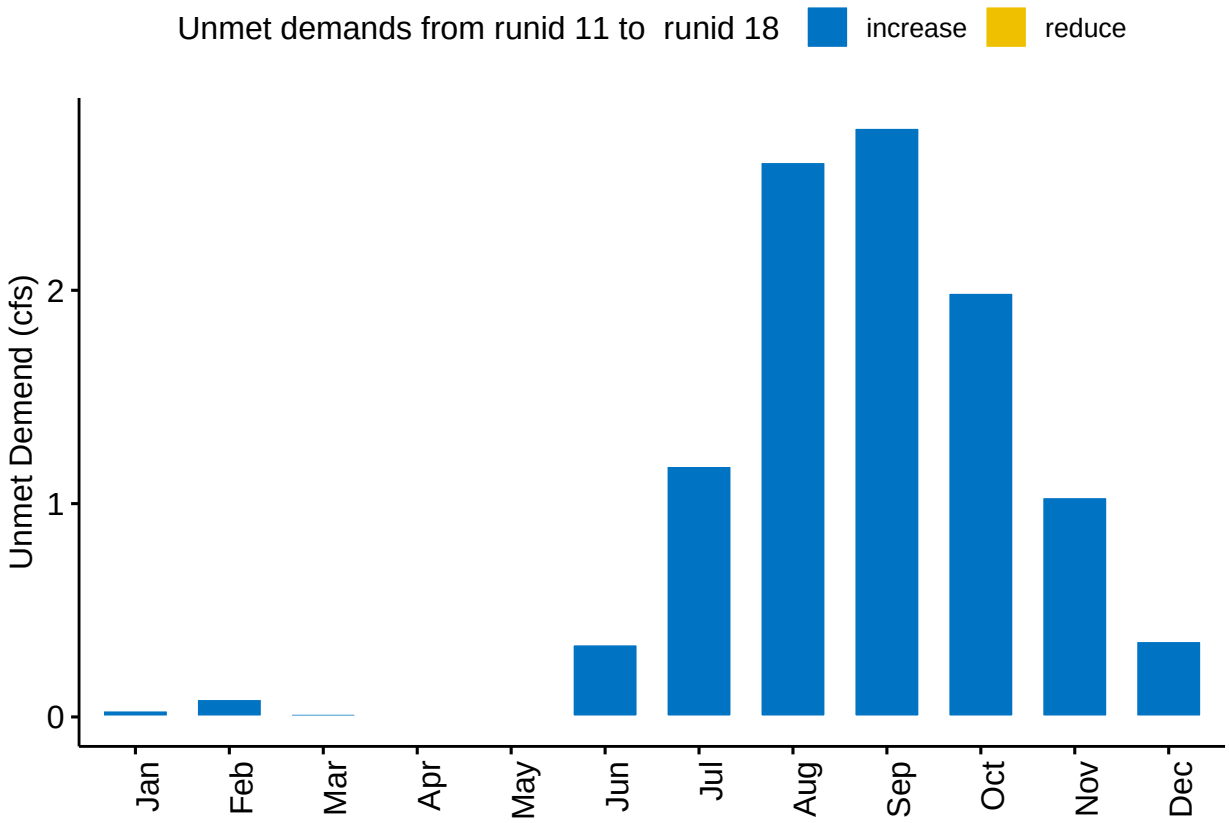

Figure 3: Demands

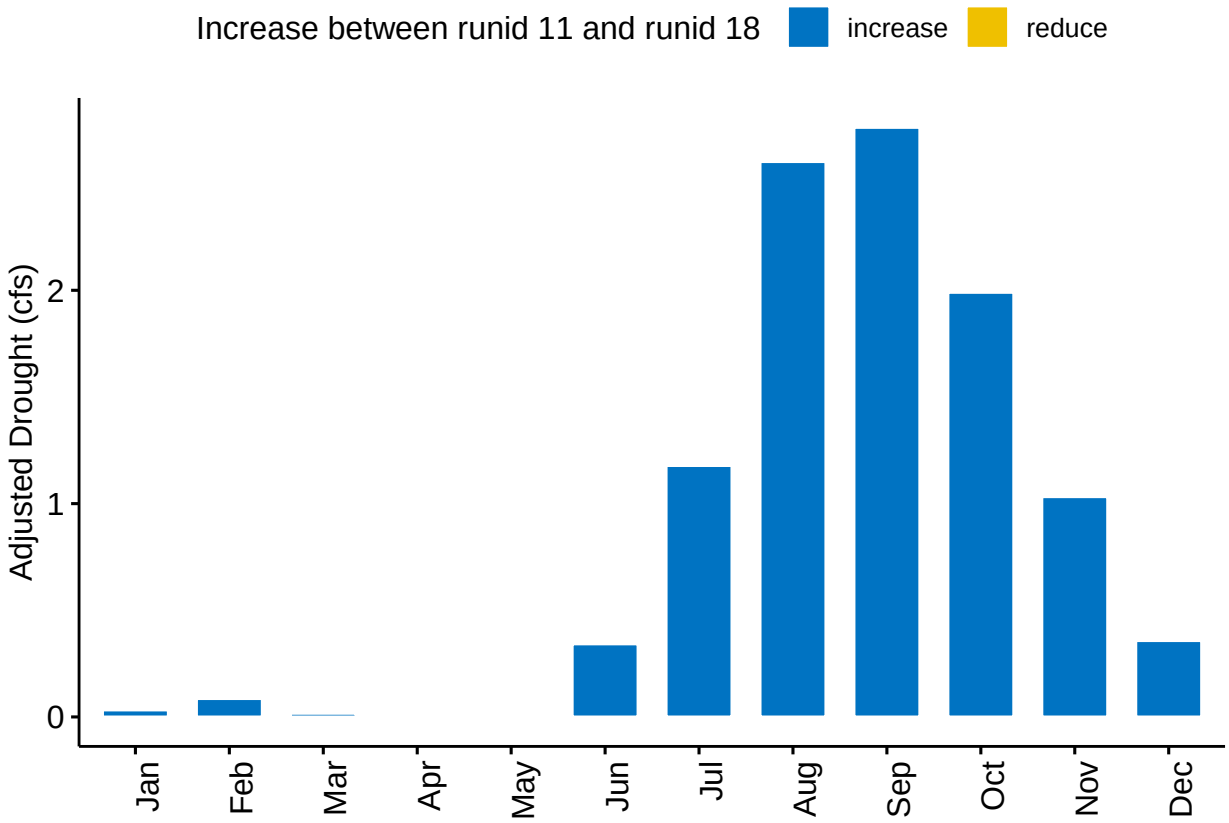

Figure 4: Demands

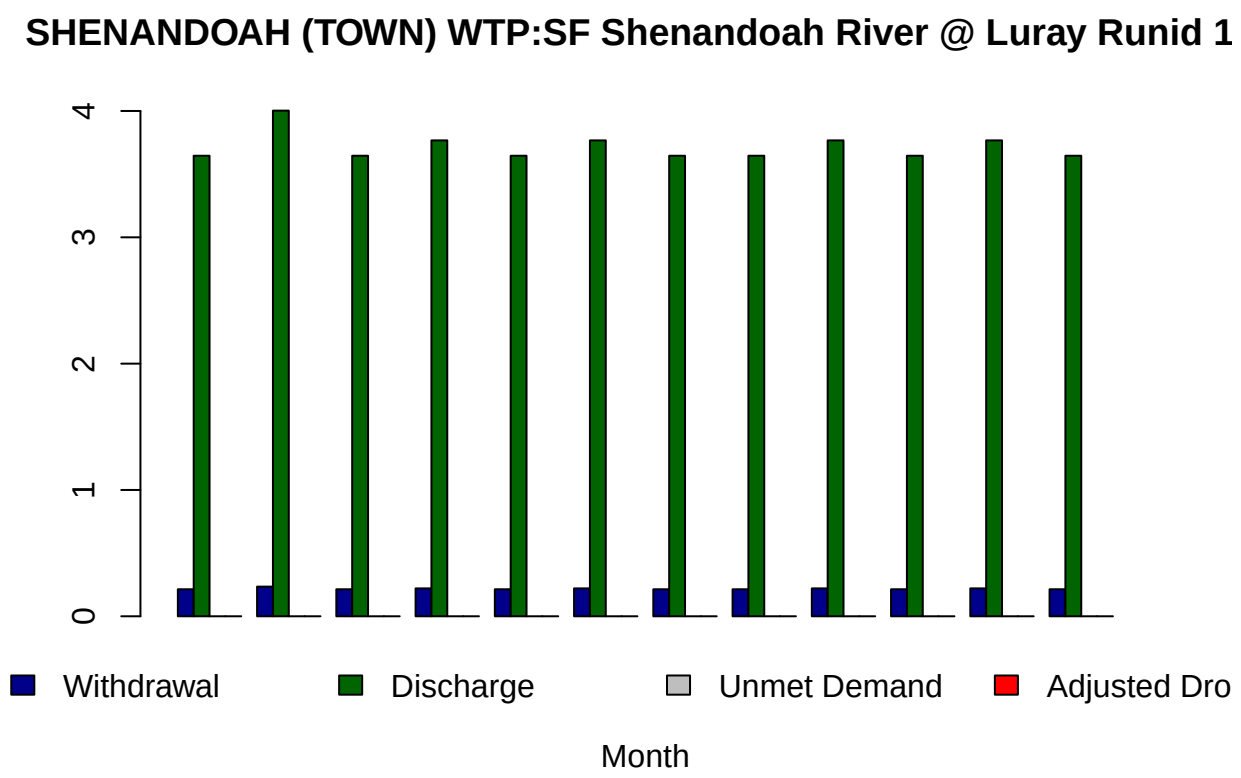

Figure 5: Demands

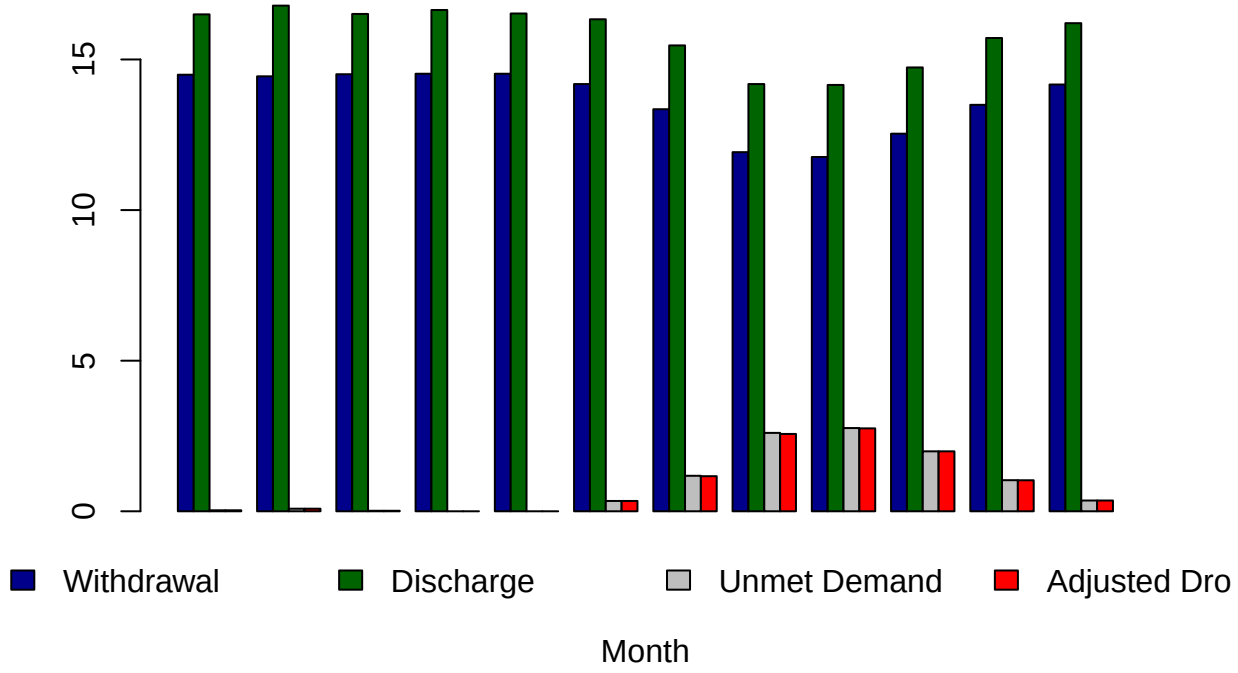

Figure 6: Demands

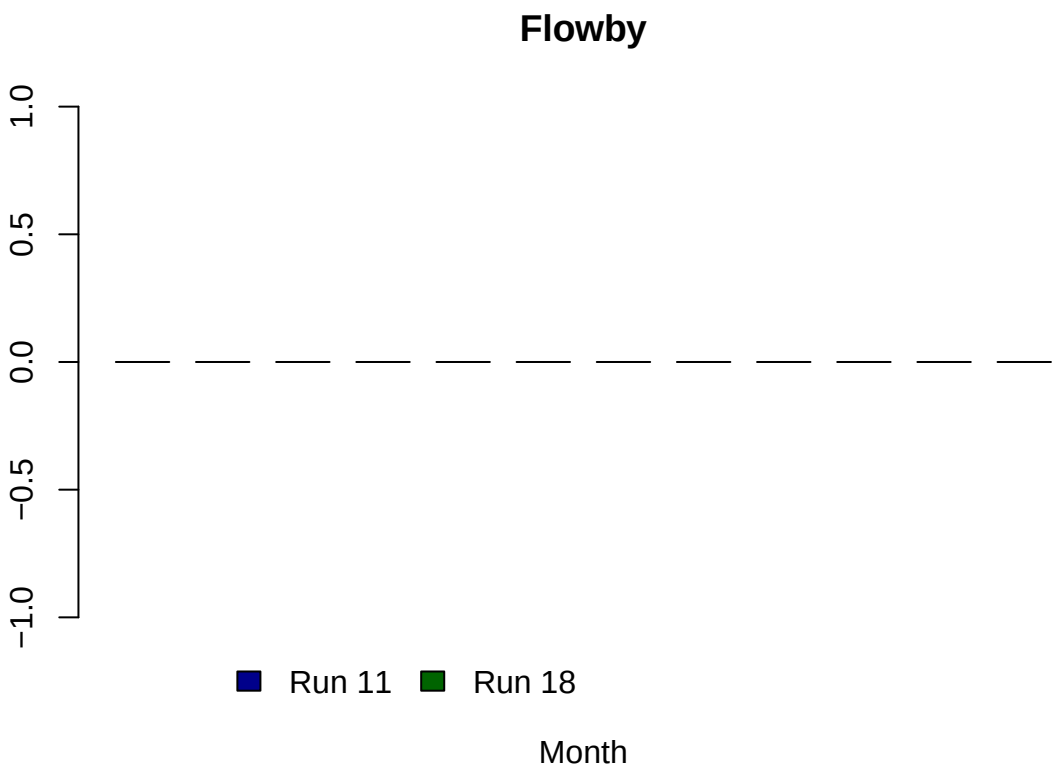

Figure 7: Flowby

Table 5: Unmet Demands Quantiles11

	1 Day Min	1 Day Max	3 Day Min	3 Day Max	7 Day Min	7 Day Max	30 Day Min	30 Day Max	90 Day Min	90 Day Max	Zero Flow Days
1%	0	0	0	0	0	0	0	0	0	0	365
5%	0	0	0	0	0	0	0	0	0	0	365
10%	0	0	0	0	0	0	0	0	0	0	365
25%	0	0	0	0	0	0	0	0	0	0	365
50%	0	0	0	0	0	0	0	0	0	0	365
75%	0	0	0	0	0	0	0	0	0	0	365
90%	0	0	0	0	0	0	0	0	0	0	366
95%	0	0	0	0	0	0	0	0	0	0	366
99%	0	0	0	0	0	0	0	0	0	0	366

Table 6: Unmet Demands Quantiles18

	1 Day Min	1 Day Max	3 Day Min	3 Day Max	7 Day Min	7 Day Max	30 Day Min	30 Day Max	90 Day Min	90 Day Max	Zero Flow Days
1%	0	0.000000	0	0.0000000	0	0.0000000	0	0.0000000	0	0.0000000	182.76
5%	0	1.439605	0	0.6838671	0	0.2930859	0	0.1181282	0	0.0418036	241.90
10%	0	3.219374	0	2.3751465	0	1.2218207	0	0.2961452	0	0.0992545	277.80
25%	0	12.438271	0	10.5436978	0	9.0782747	0	3.9214032	0	1.5740382	293.25
50%	0	16.020670	0	14.8874128	0	13.0125824	0	6.8241131	0	2.9255603	316.50
75%	0	19.082329	0	18.1869932	0	17.4287076	0	13.5549359	0	6.2927669	337.75
90%	0	20.356397	0	19.3211949	0	18.6441937	0	15.7950302	0	8.6472005	361.10
95%	0	20.503939	0	19.5625770	0	18.7777652	0	15.8874194	0	10.8070922	364.20
99%	0	20.916273	0	20.3581348	0	19.9723501	0	16.9070431	0	12.2870236	366.00

Table 1: Monthly Low Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
Jan. Low Flow	41	18.9	-53.9
Feb. Low Flow	75.4	49.3	-34.7
Mar. Low Flow	122	95.3	-21.8
Apr. Low Flow	130	104	-20.3
May Low Flow	135	108	-19.6
Jun. Low Flow	135	108	-19.7
Jul. Low Flow	124	97	-21.6
Aug. Low Flow	107	80.6	-25
Sep. Low Flow	59.6	32.8	-44.9
Oct. Low Flow	46.2	21.1	-54.3
Nov. Low Flow	32.4	14.9	-54.1
Dec. Low Flow	30.2	13.7	-54.6

Table 2: Monthly Average Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
Overall Mean Flow	199	173	-12.7
Jan. Mean Flow	246	220	-10.8
Feb. Mean Flow	248	222	-10.6
Mar. Mean Flow	285	258	-9.35
Apr. Mean Flow	267	240	-10
May Mean Flow	219	192	-12.3
Jun. Mean Flow	164	138	-16.1
Jul. Mean Flow	111	85.7	-22.6
Aug. Mean Flow	86.6	64.1	-26
Sep. Mean Flow	167	145	-13.2
Oct. Mean Flow	151	127	-15.5
Nov. Mean Flow	213	188	-11.7
Dec. Mean Flow	230	204	-11.3

Table 3: Monthly High Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
Jan. High Flow	252	225	-10.6
Feb. High Flow	321	294	-8.44
Mar. High Flow	492	464	-5.55
Apr. High Flow	517	489	-5.26
May High Flow	392	365	-6.85
Jun. High Flow	581	553	-4.7
Jul. High Flow	572	545	-4.75
Aug. High Flow	349	321	-7.93
Sep. High Flow	200	173	-13.4
Oct. High Flow	176	148	-15.6
Nov. High Flow	158	126	-20.2
Dec. High Flow	167	139	-16.6

Table 4: Period Low Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
Min. 1 Day Min	8.58	4.82	-43.9
Med. 1 Day Min	21.3	9.54	-55.2
Min. 3 Day Min	8.7	5.14	-40.9
Med. 3 Day Min	22	10.5	-52
Min. 7 Day Min	9.04	5.36	-40.6
Med. 7 Day Min	25.6	12.4	-51.7
Min. 30 Day Min	16.7	9.23	-44.7
Med. 30 Day Min	39.8	20.7	-47.9
Min. 90 Day Min	29.4	16.7	-43.3
Med. 90 Day Min	65	41.7	-35.8
7Q10	13.4	6.83	-48.9
Year of 90-Day Min. Flow	2002	1993	-0.45
Drought Year Mean	67.6	213	215
Mean Baseflow	115	89.5	-22.4

Table 5: Period High Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
Max. 1 Day Max	11800	11800	-0.23
Med. 1 Day Max	1940	1910	-1.38
Max. 3 Day Max	9520	9490	-0.28
Med. 3 Day Max	1600	1570	-1.69
Max. 7 Day Max	5200	5170	-0.51
Med. 7 Day Max	1010	988	-2.64
Max. 30 Day Max	1500	1480	-1.77
Med. 30 Day Max	472	445	-5.64
Max. 90 Day Max	659	632	-4.04
Med. 90 Day Max	340	314	-7.86

Table 6: Non-Exceedance Flows

	VA Hydro: Base	VA Hydro: Exempt Users	Pct. Difference
1% Non-Exceedance	15.7	7.65	-51.4
5% Non-Exceedance	28	13	-53.5
50% Non-Exceedance	141	114	-19.1
95% Non-Exceedance	540	514	-4.88
99% Non-Exceedance	1160	1130	-2.28
Sept. 10% Non-Exceedance	22.1	10.7	-51.6

Fig. 1: Hydrograph

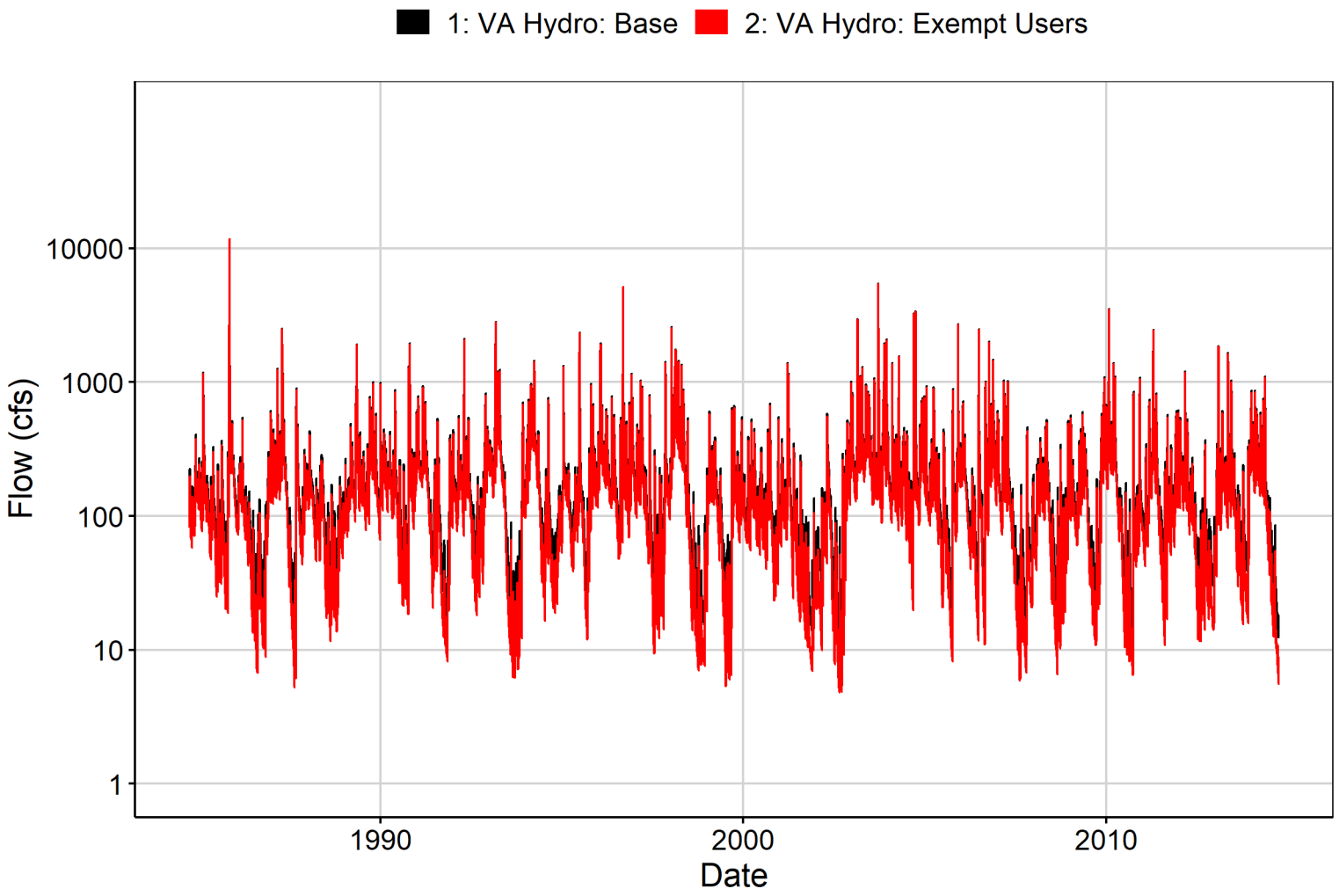

Fig. 2: Zoomed Hydrograph

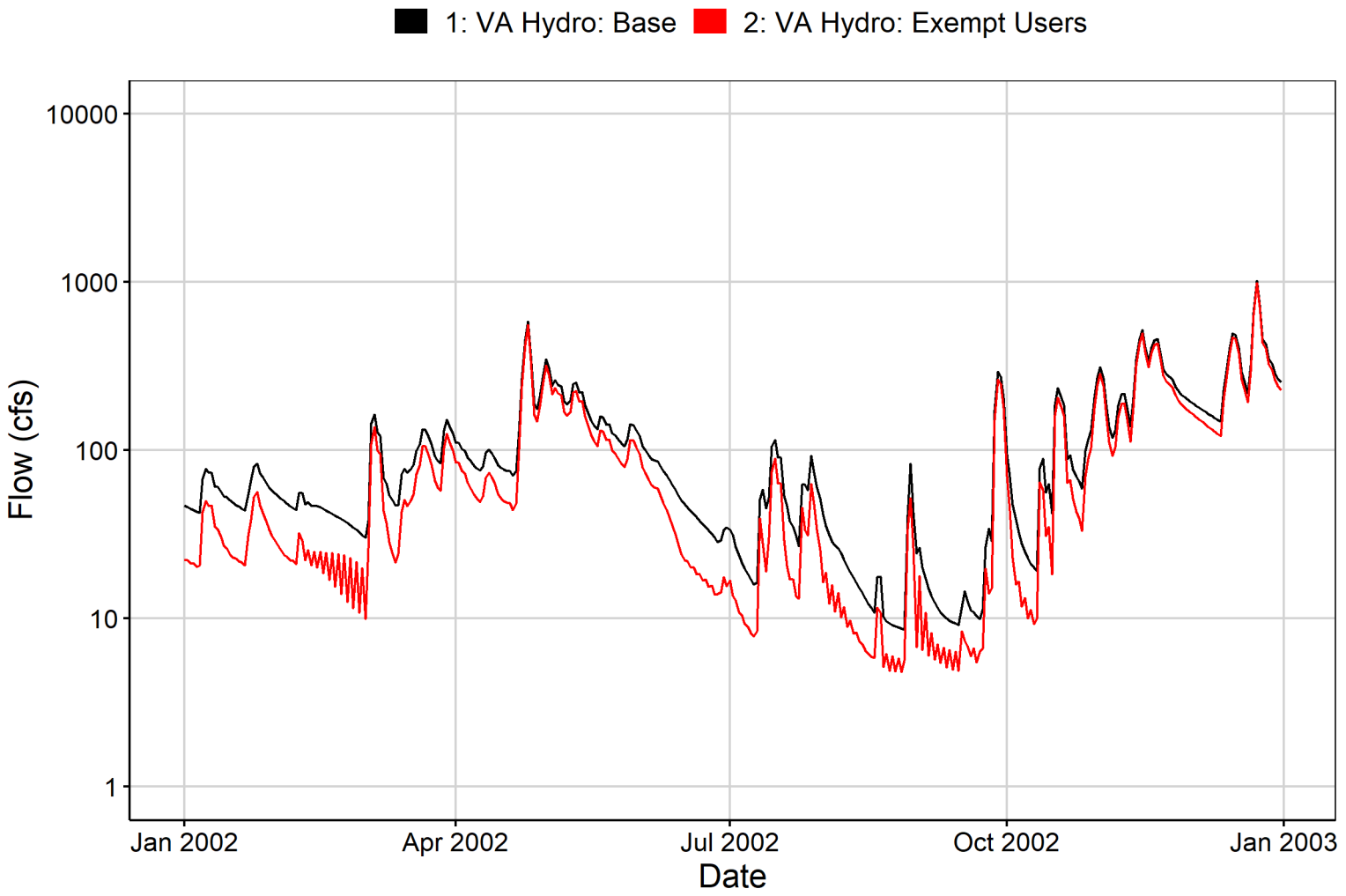

Fig. 3: Flow Exceedance

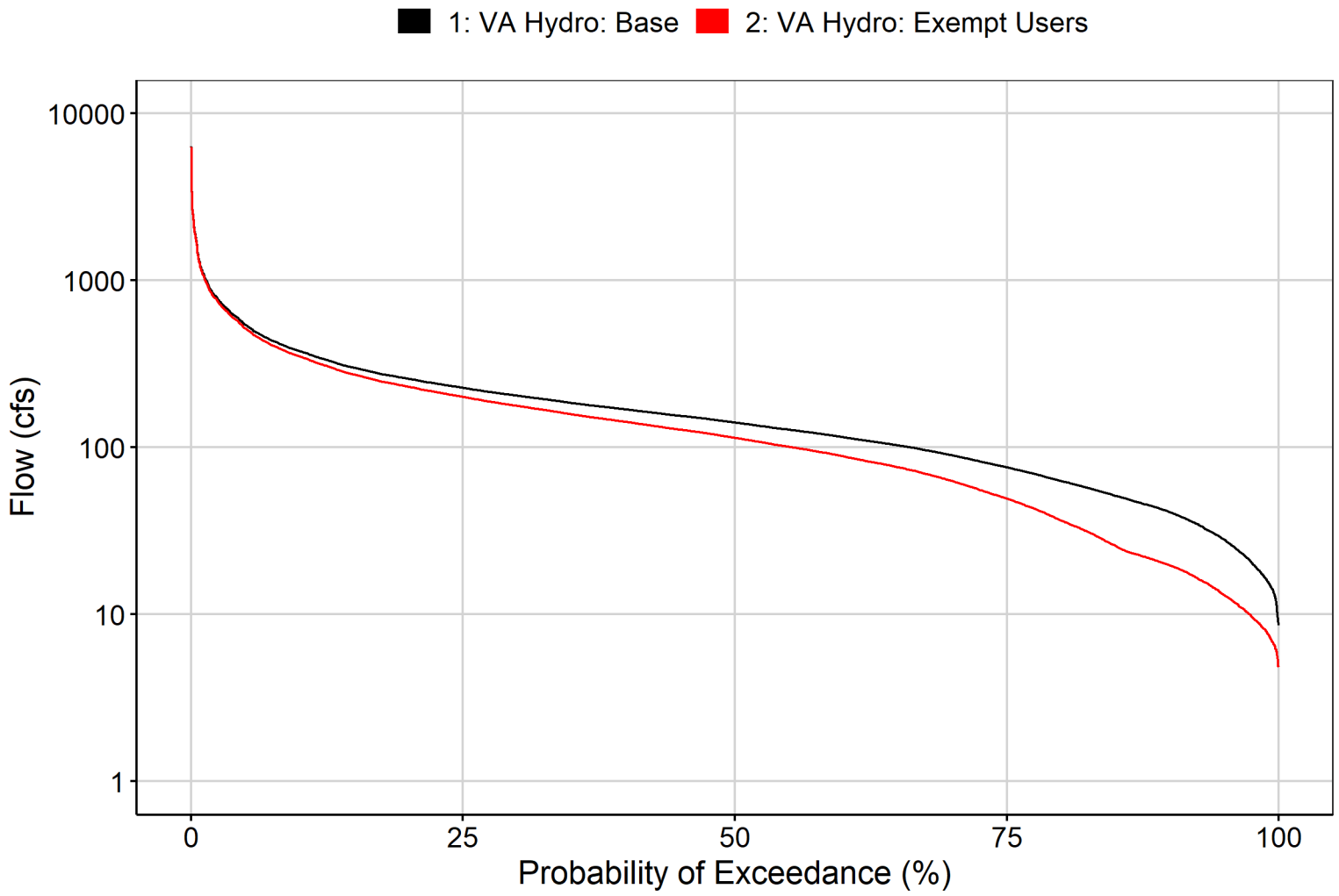

Fig. 4: Baseflow

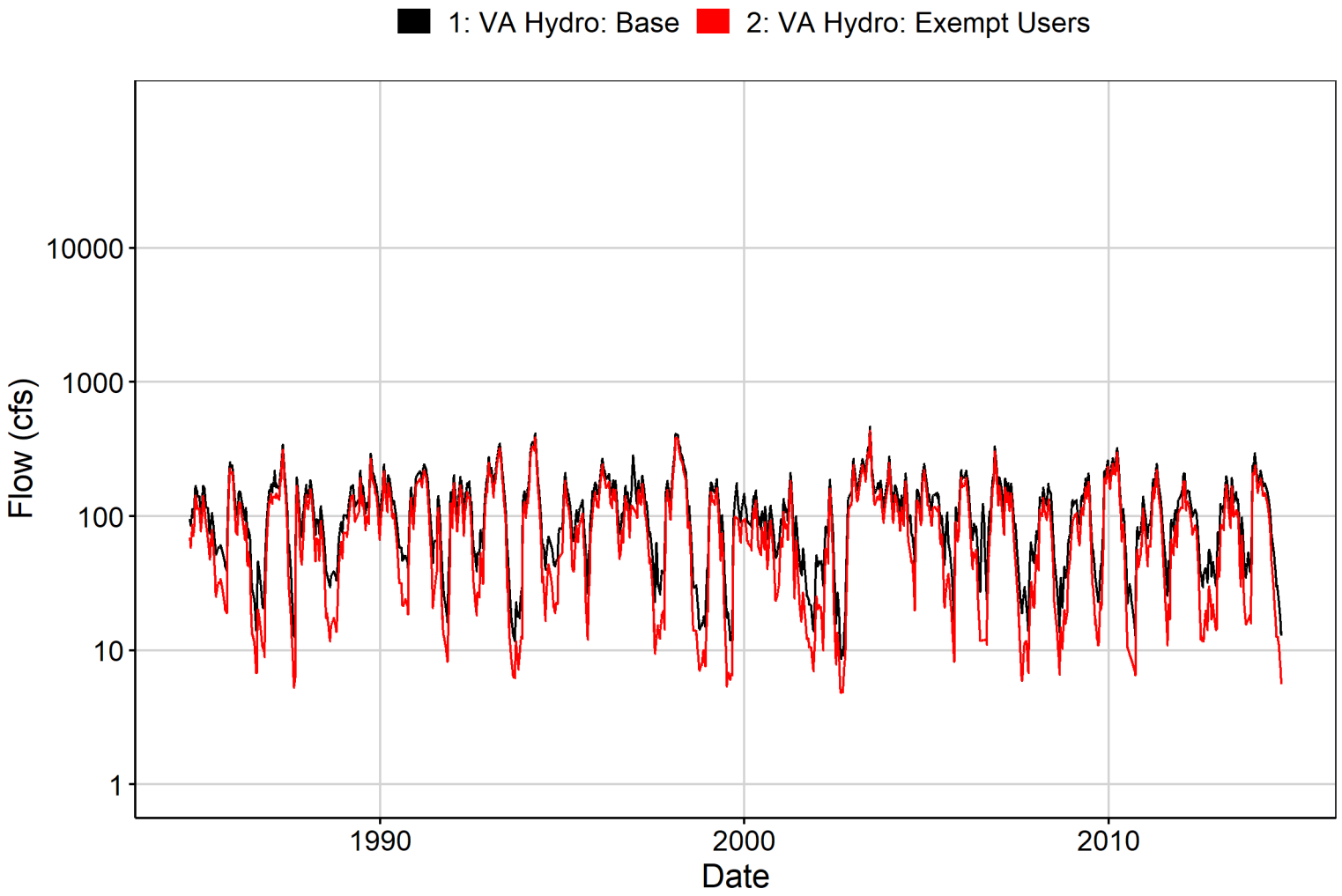

Fig. 5: Combined Baseflow

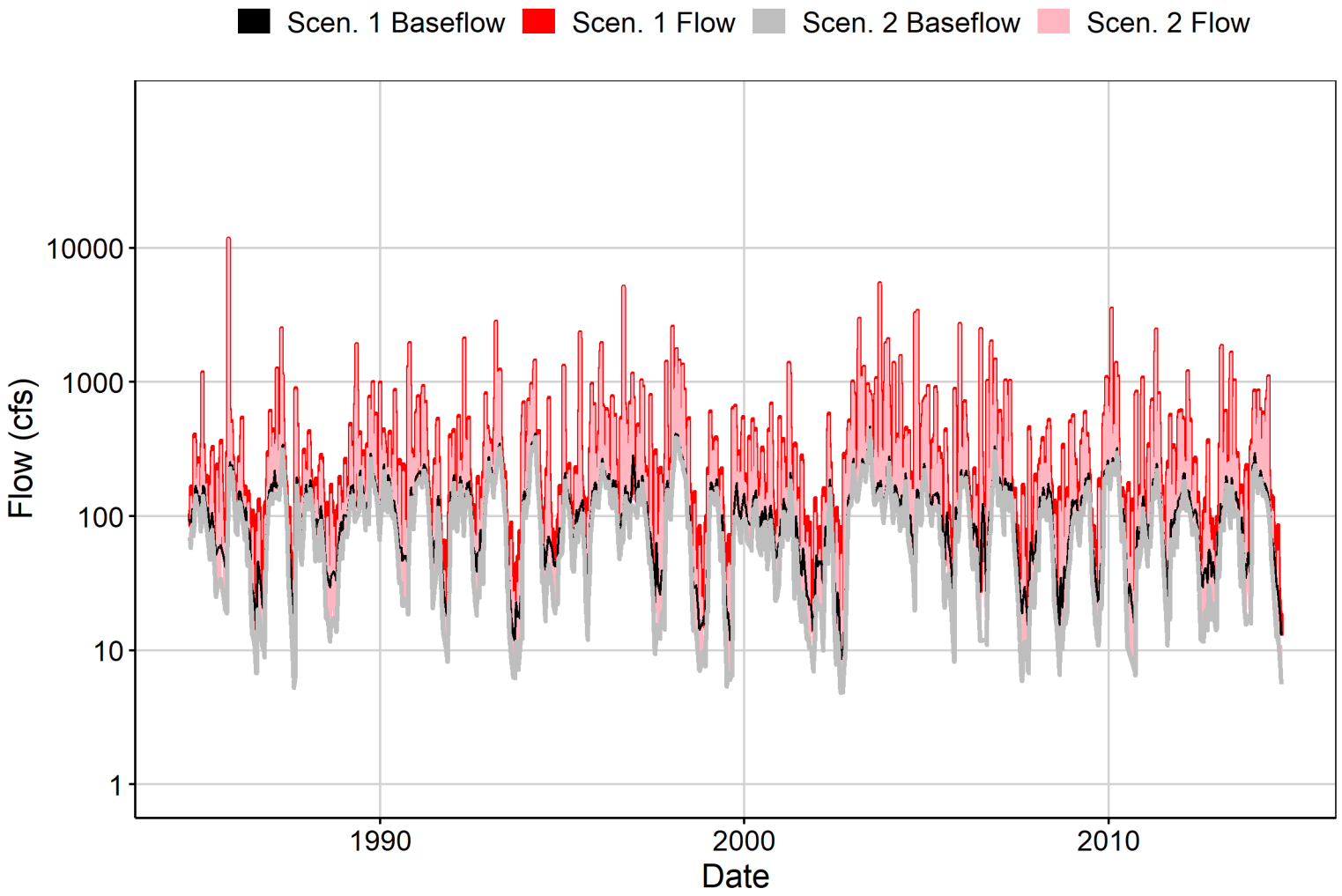

Fig. 6: Largest Difference Period

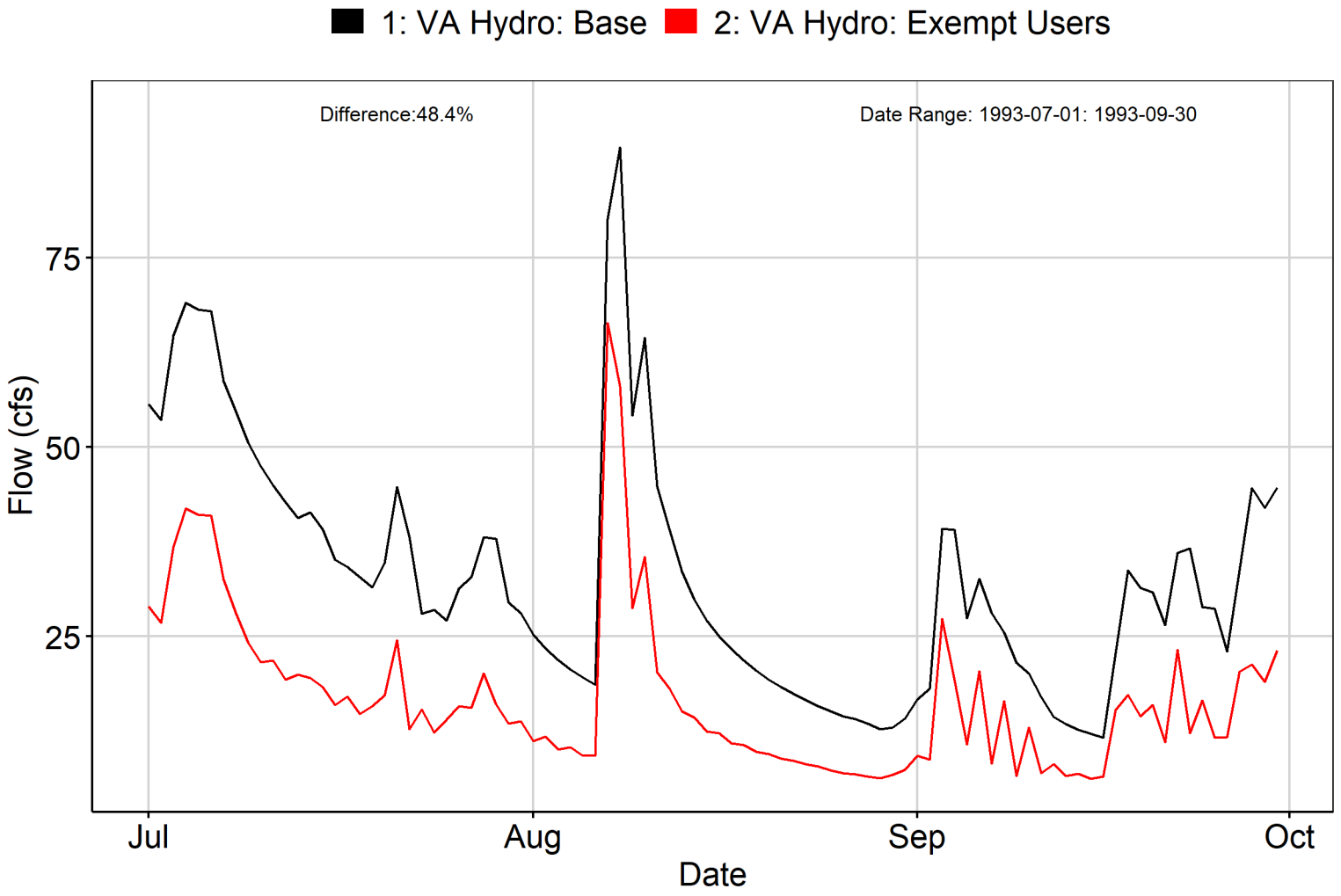

Fig. 7: Second Largest Difference Period

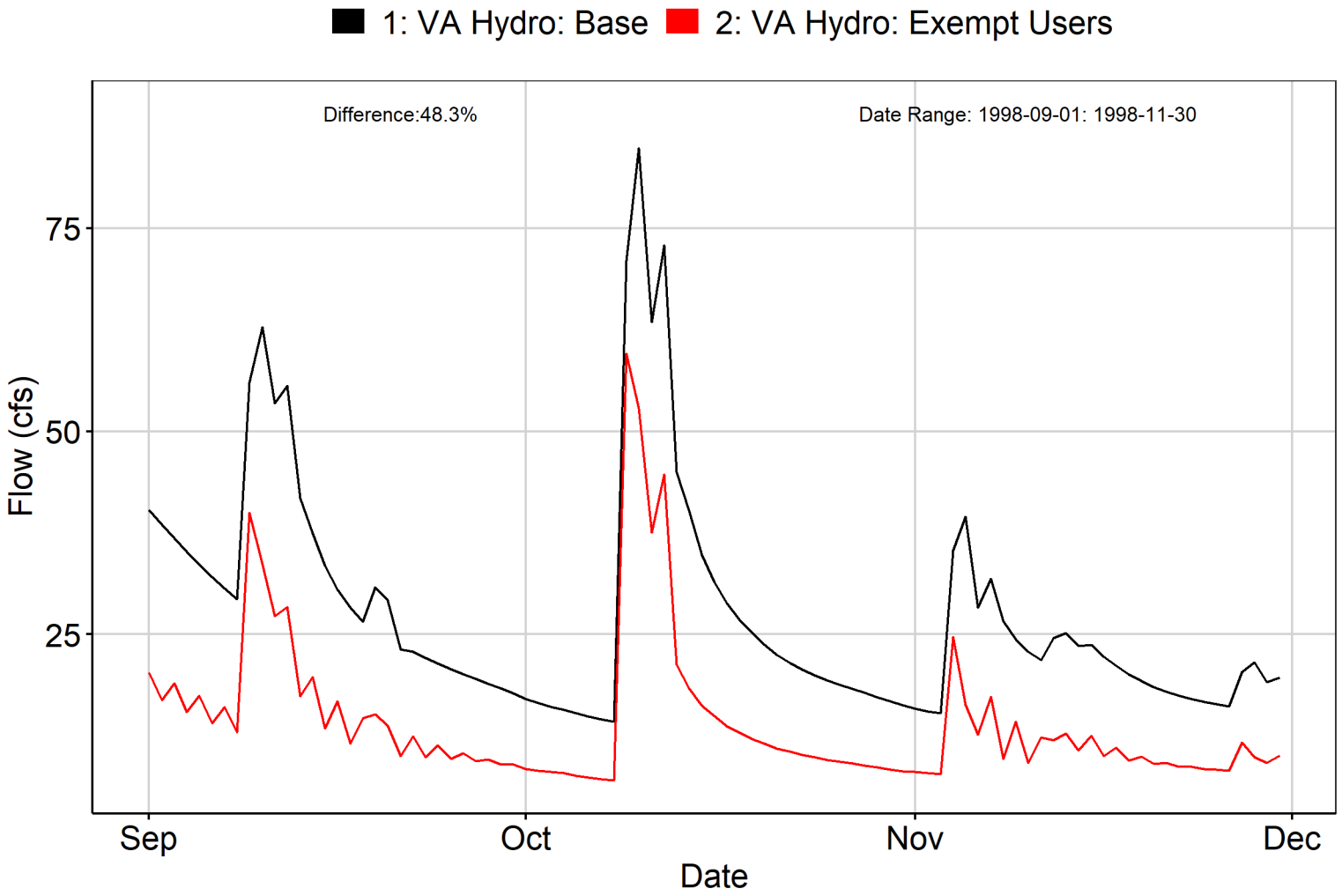

Fig. 8: Third Largest Difference Period

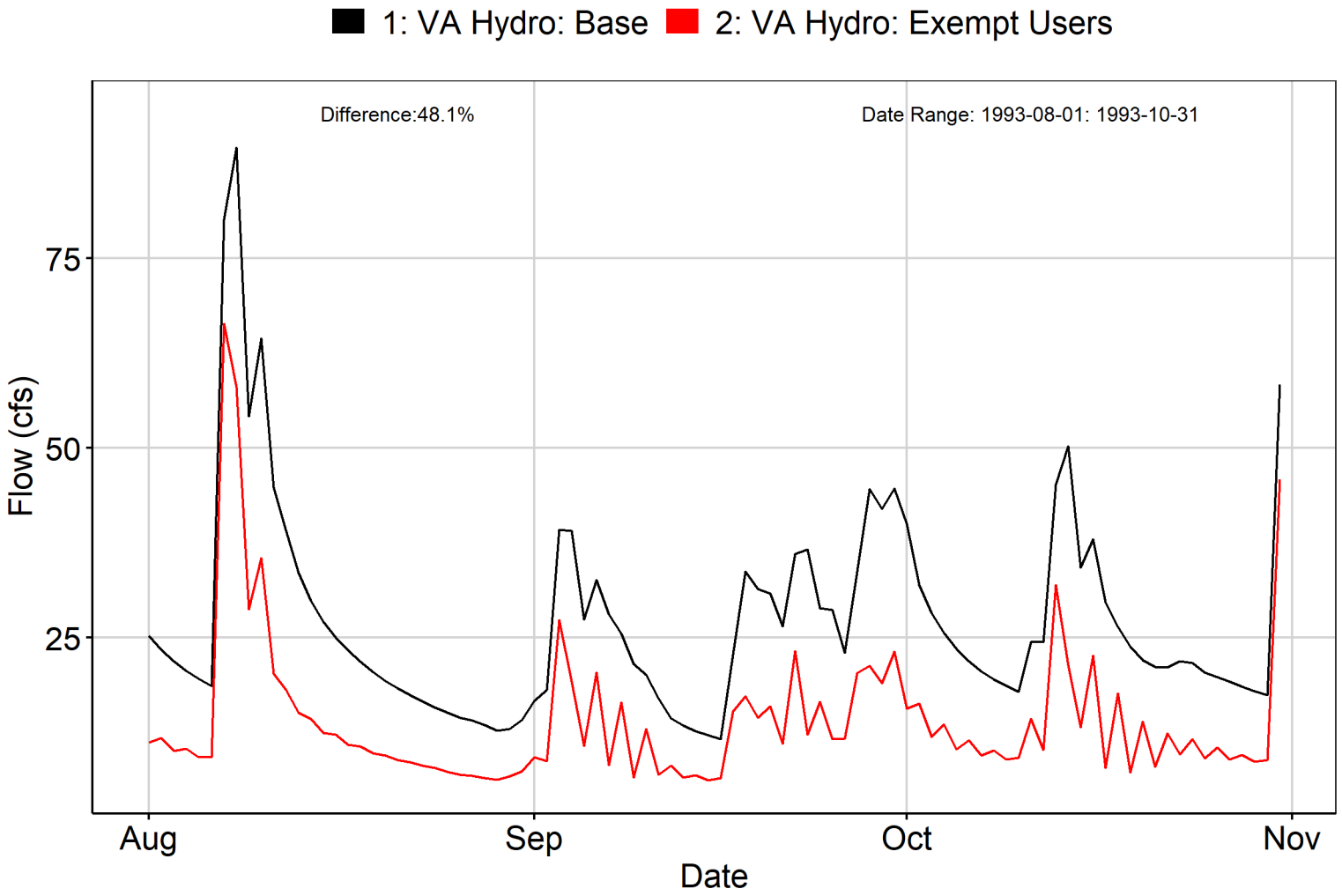

Fig. 9A: Residuals Plot

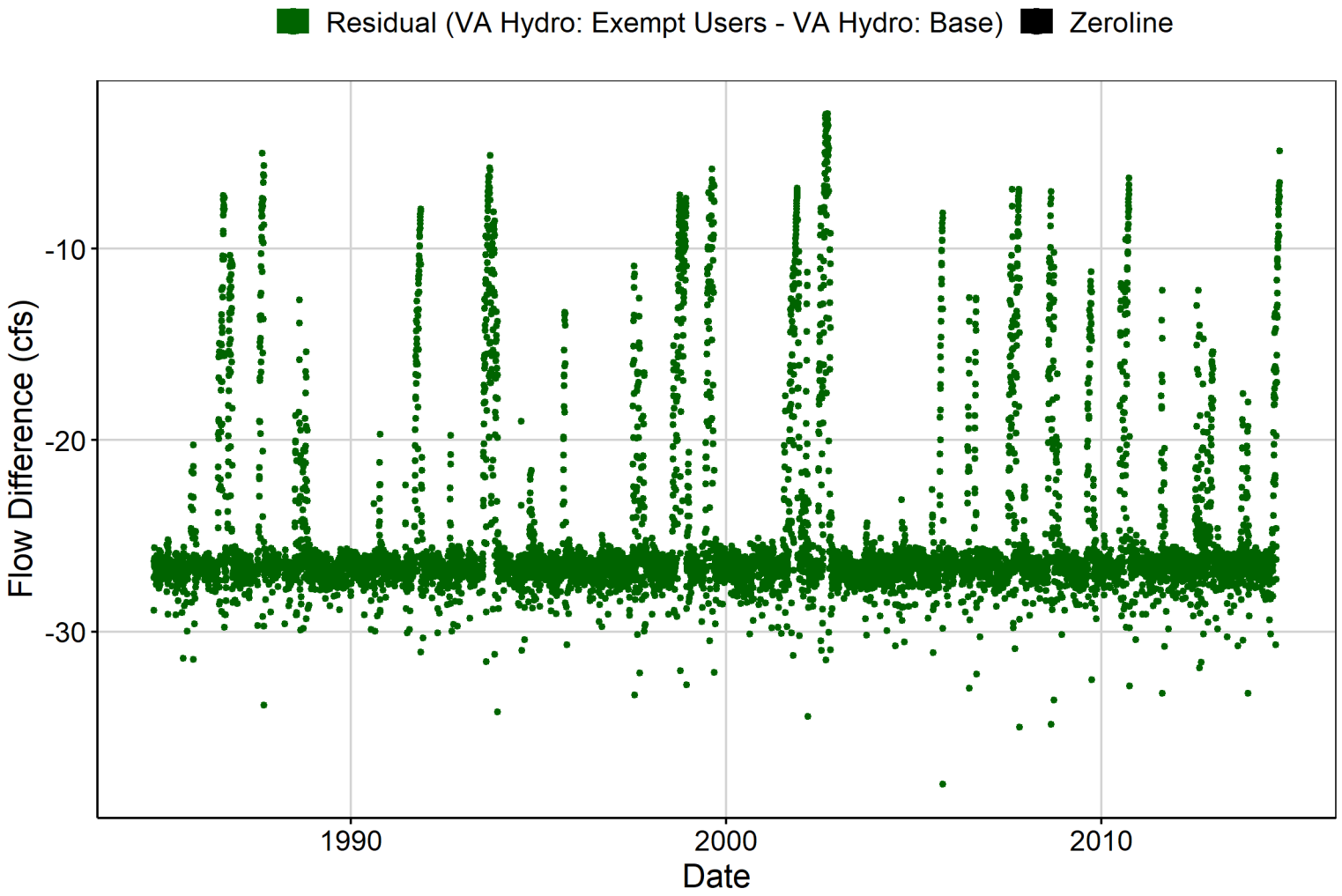

Fig. 11: Smallest Difference Period

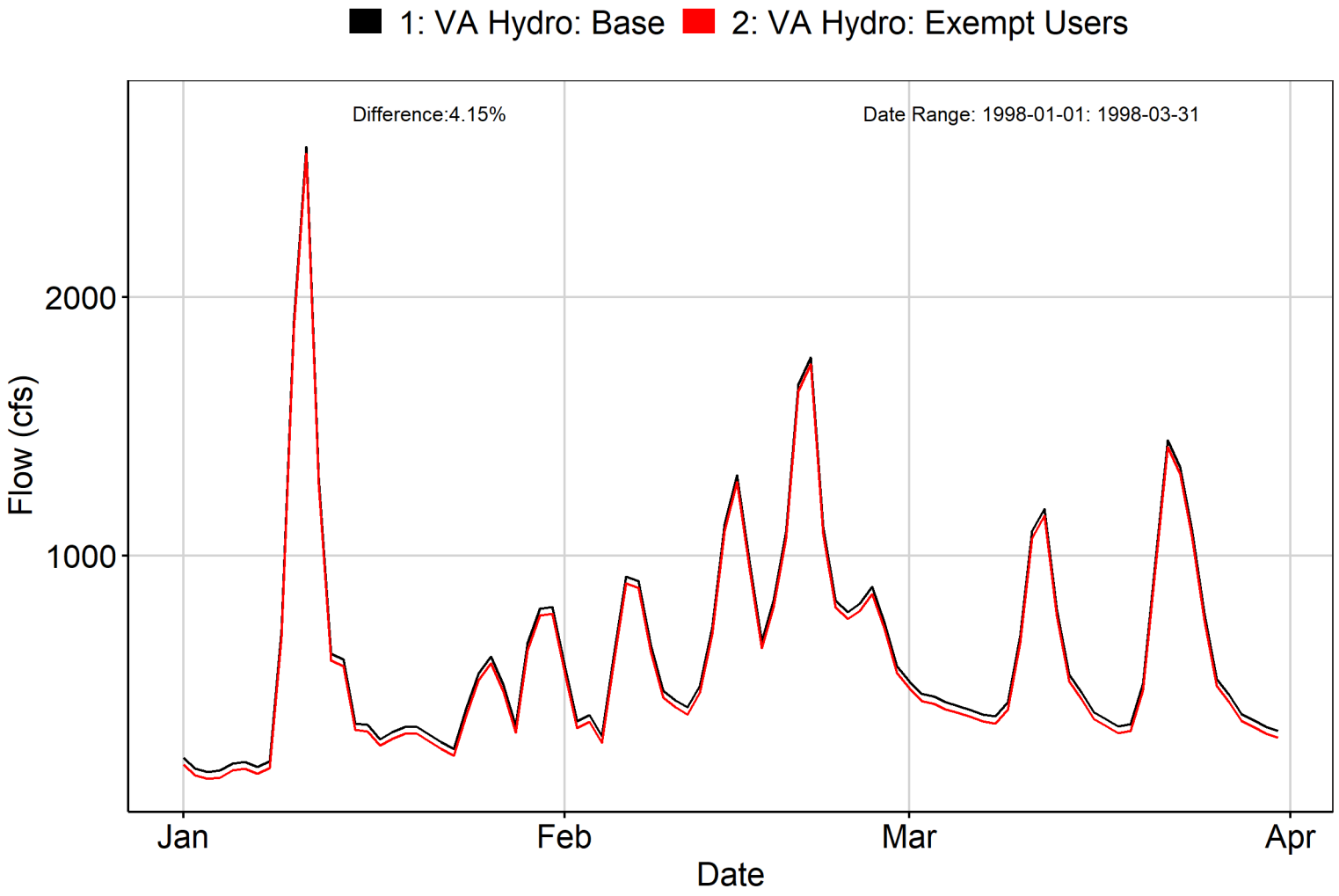

Fig. 12: Second Smallest Difference Period

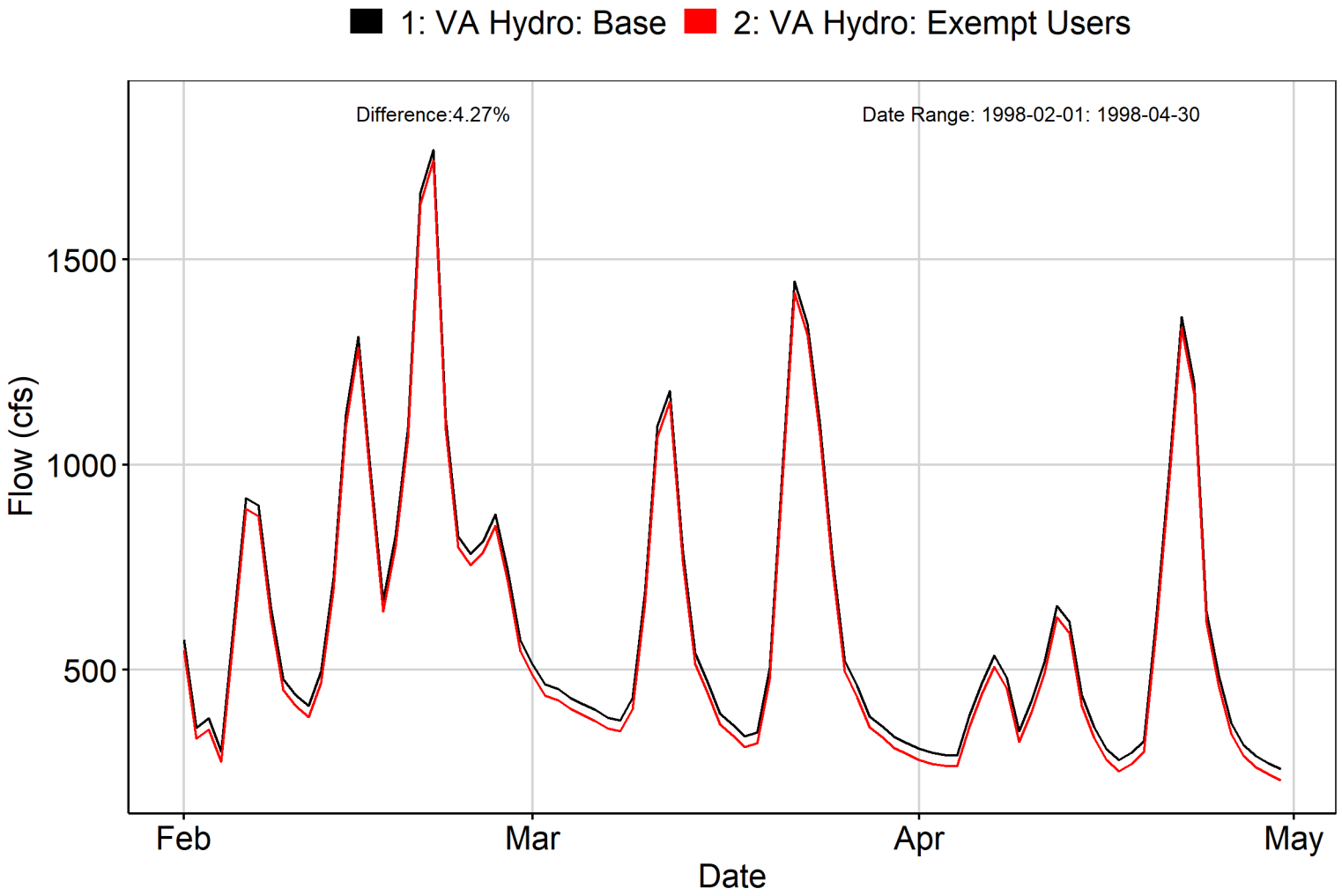

Fig. 13: Third Smallest Difference Period

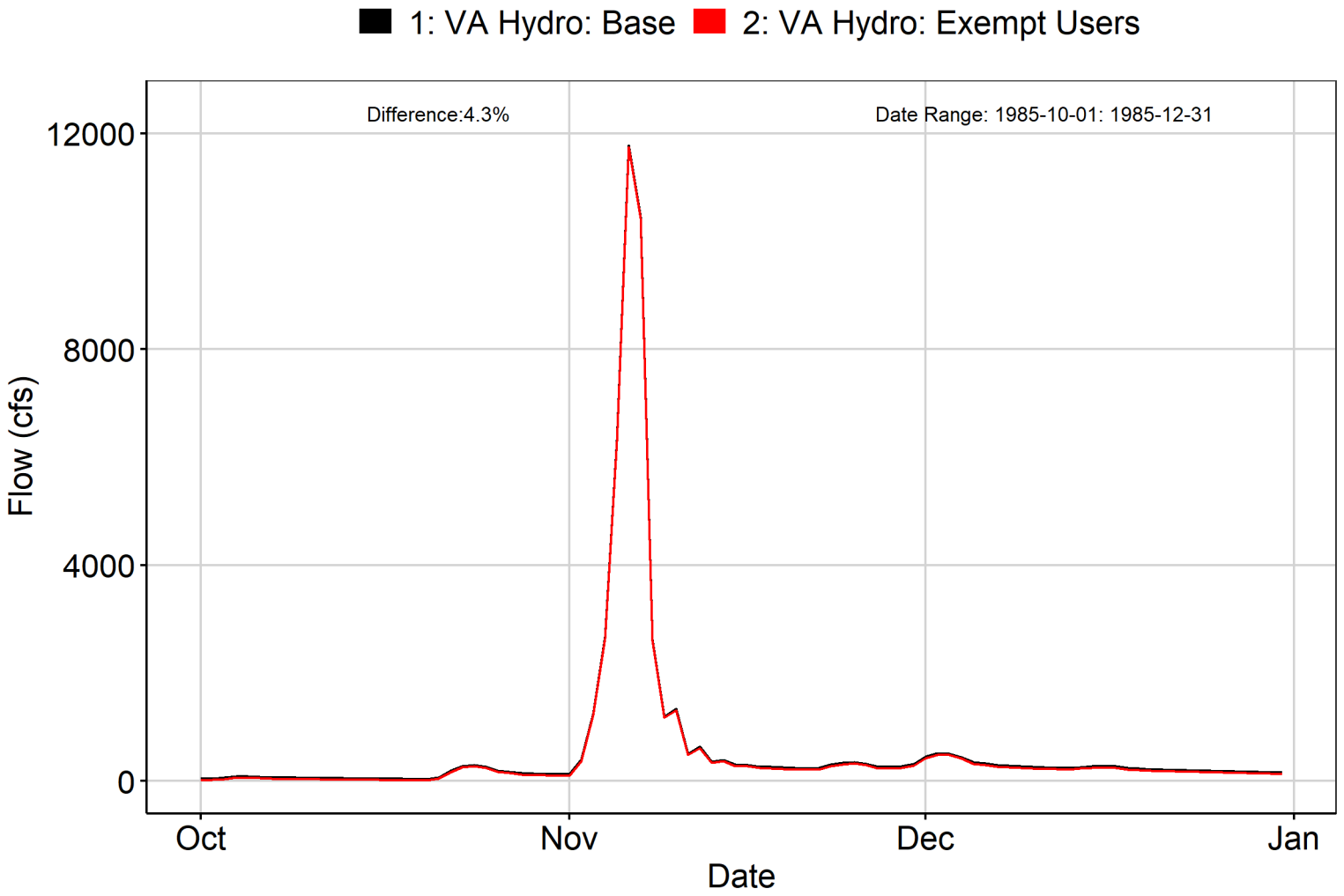

Fig. 14: Summer Months for year with max 90 day max Run 11

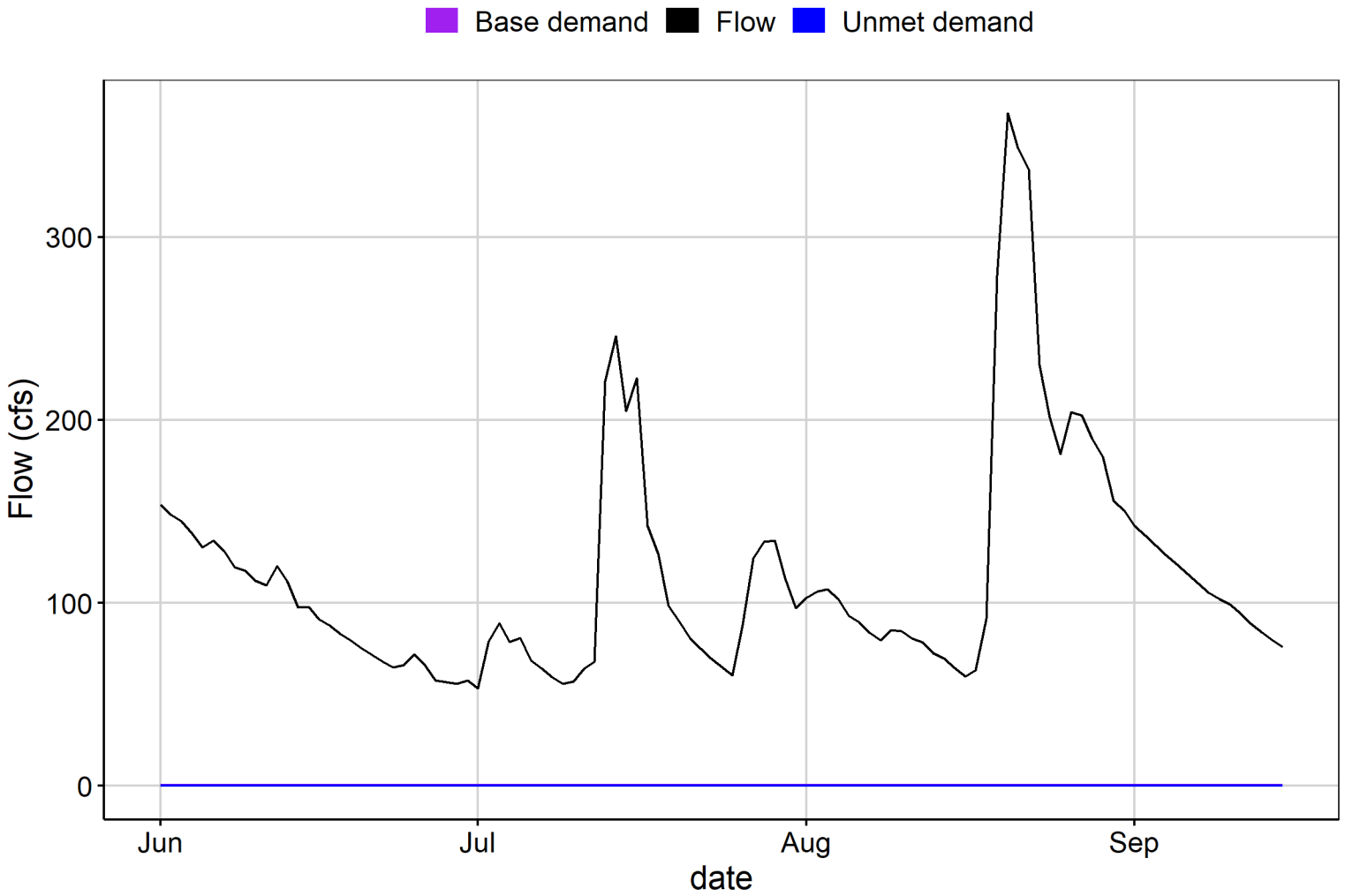
Base demand
Flow
Unmet demand
300
200
100
0
Flow (cfs)
Jun
Jul
Aug
Sep
date

Fig. 15: Summer Months for year with max in 90 day max Run 18

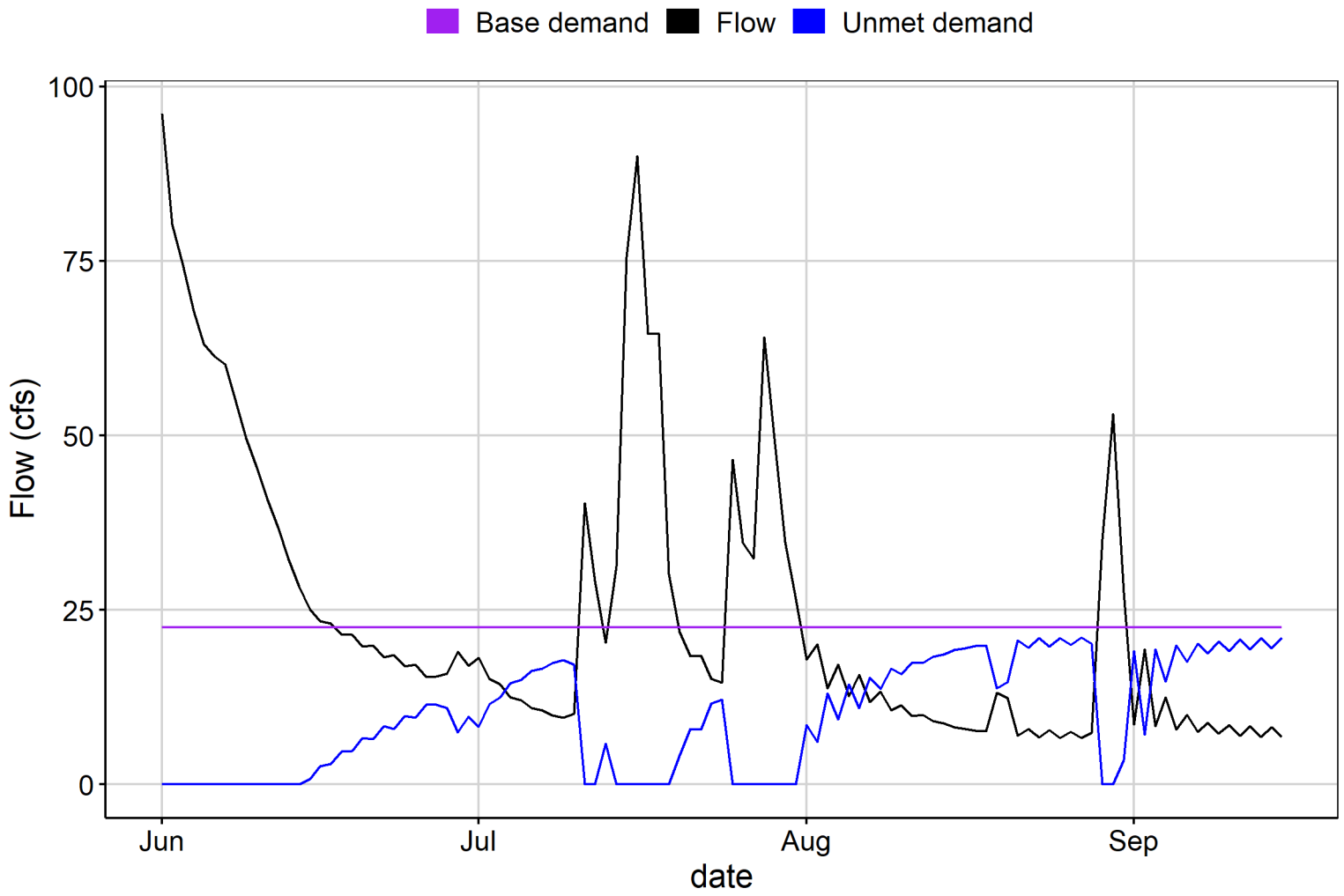

Fig. 16: Summer Months for year with max 30 day max Run 11

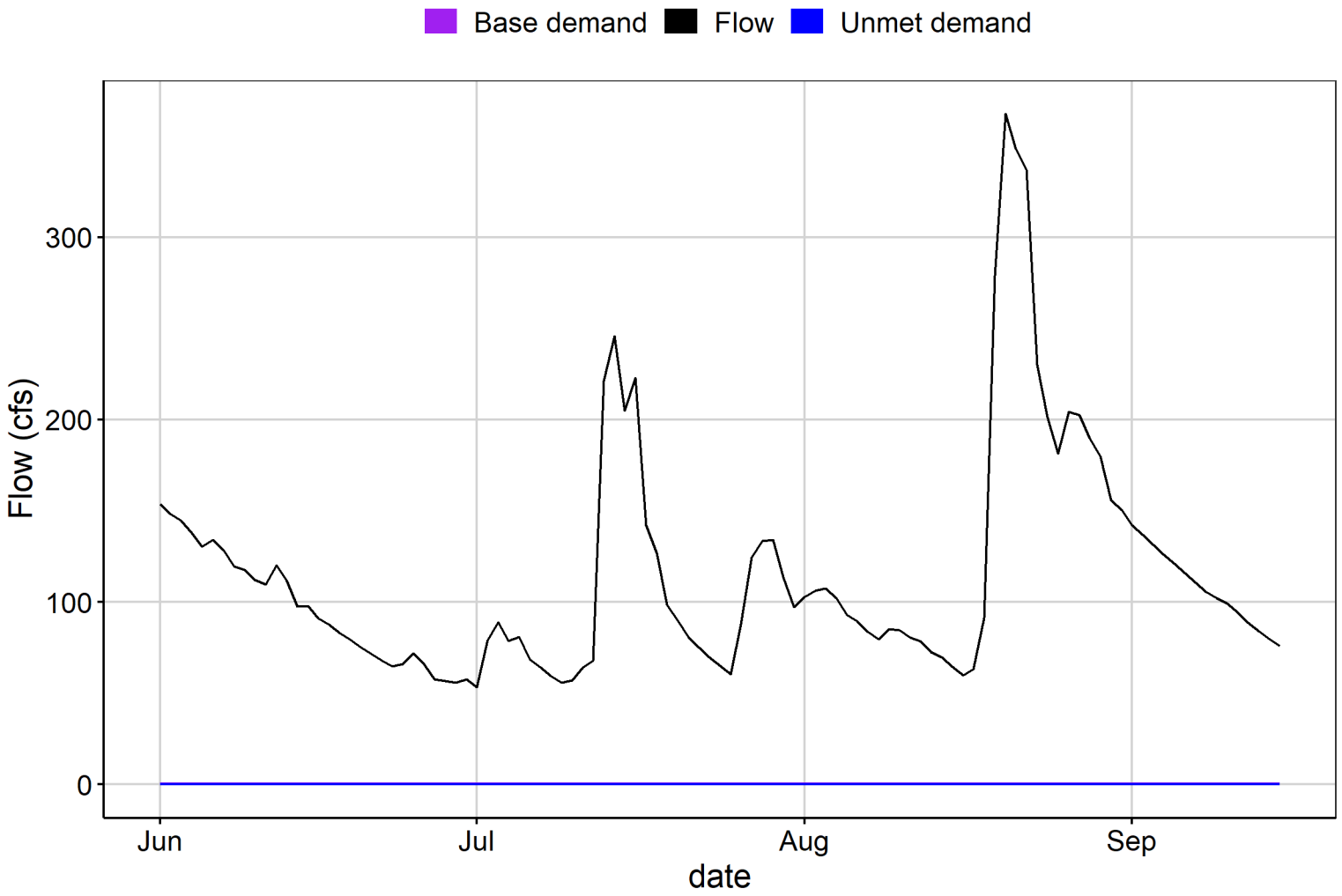

Fig. 17: Summer Months for year with max in 30 day max Run 18

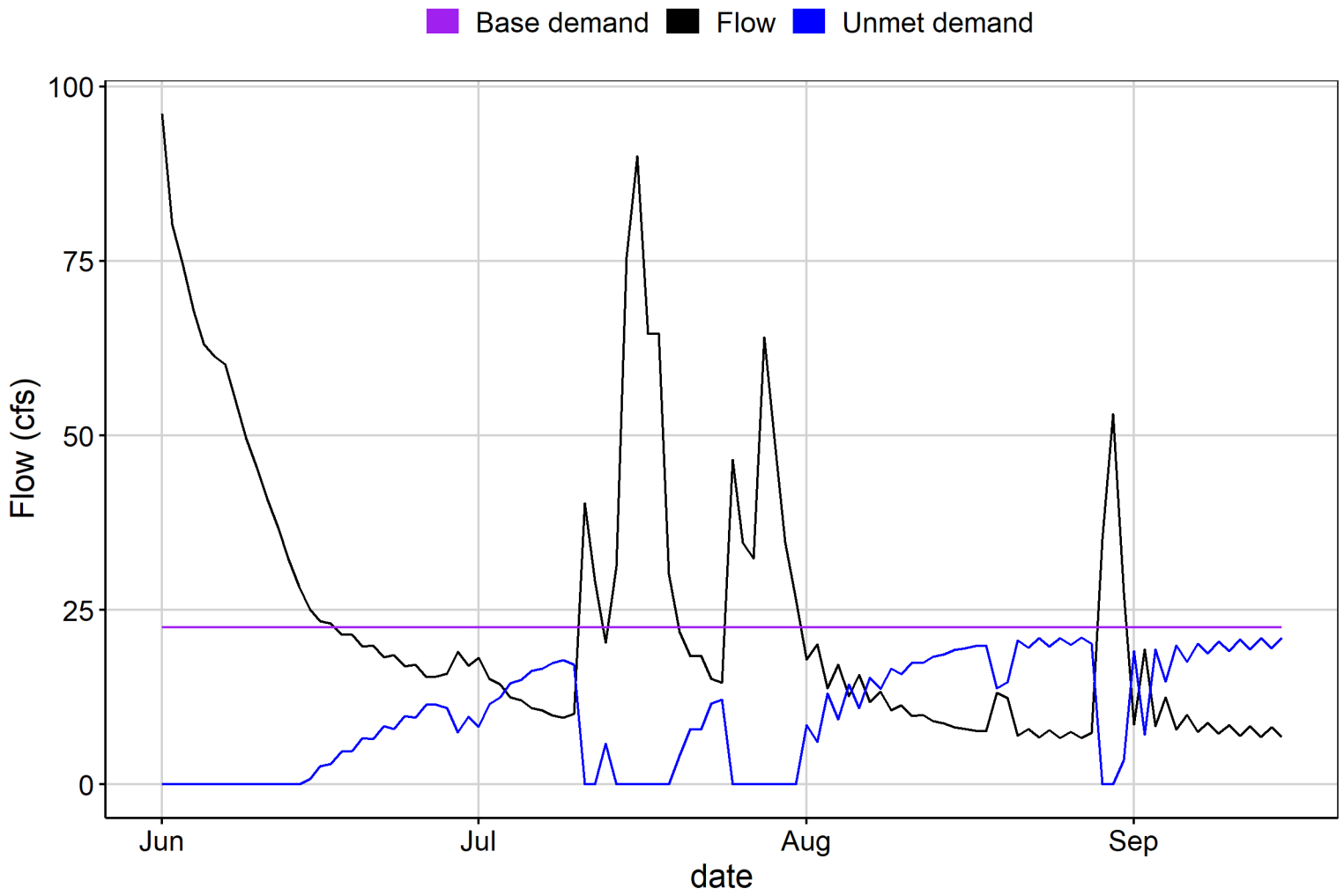

Fig. 18: Summer Months for year with max in 7 day max Run 11

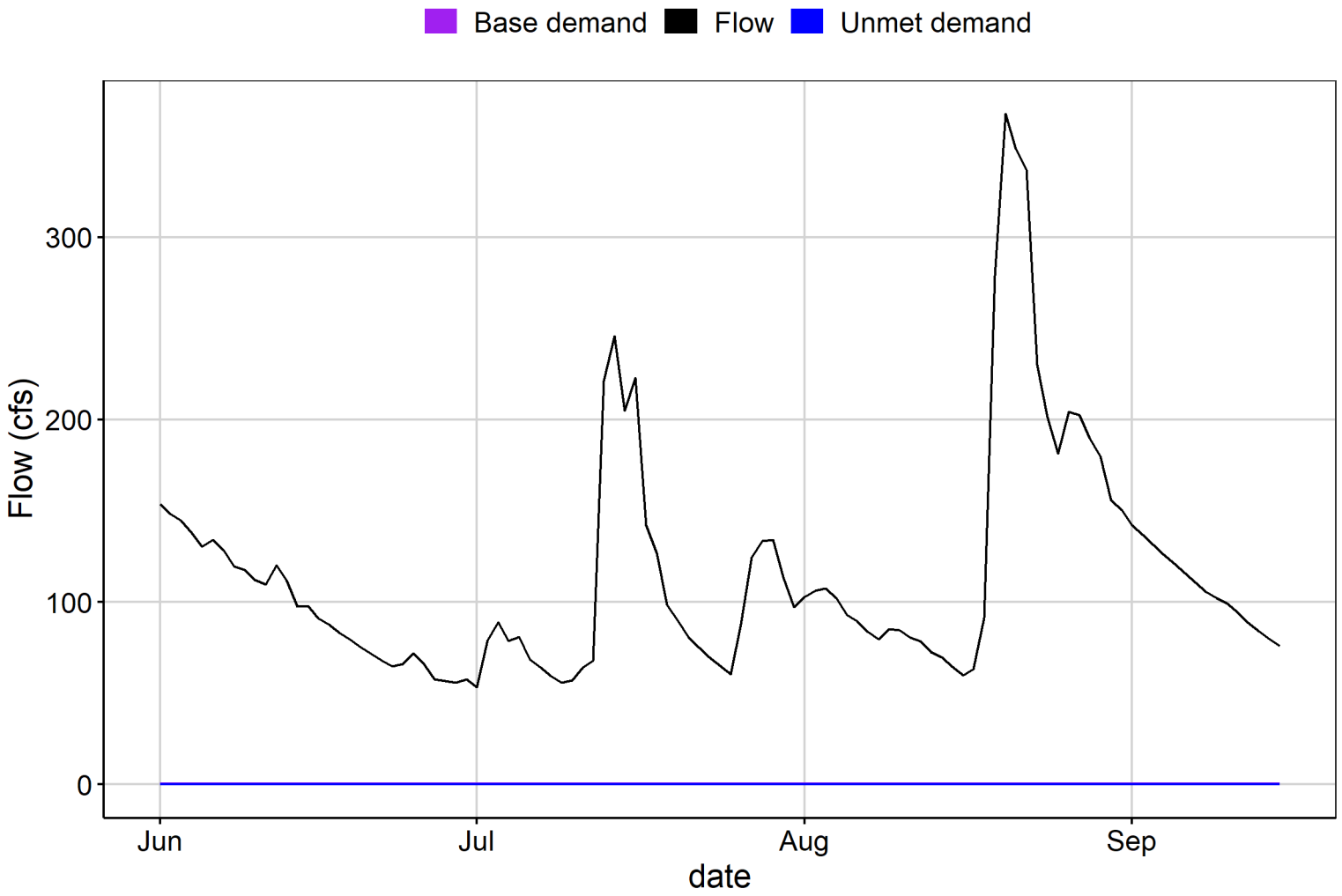

Fig. 19: Summer Months for year with max in 7 day max Run 18

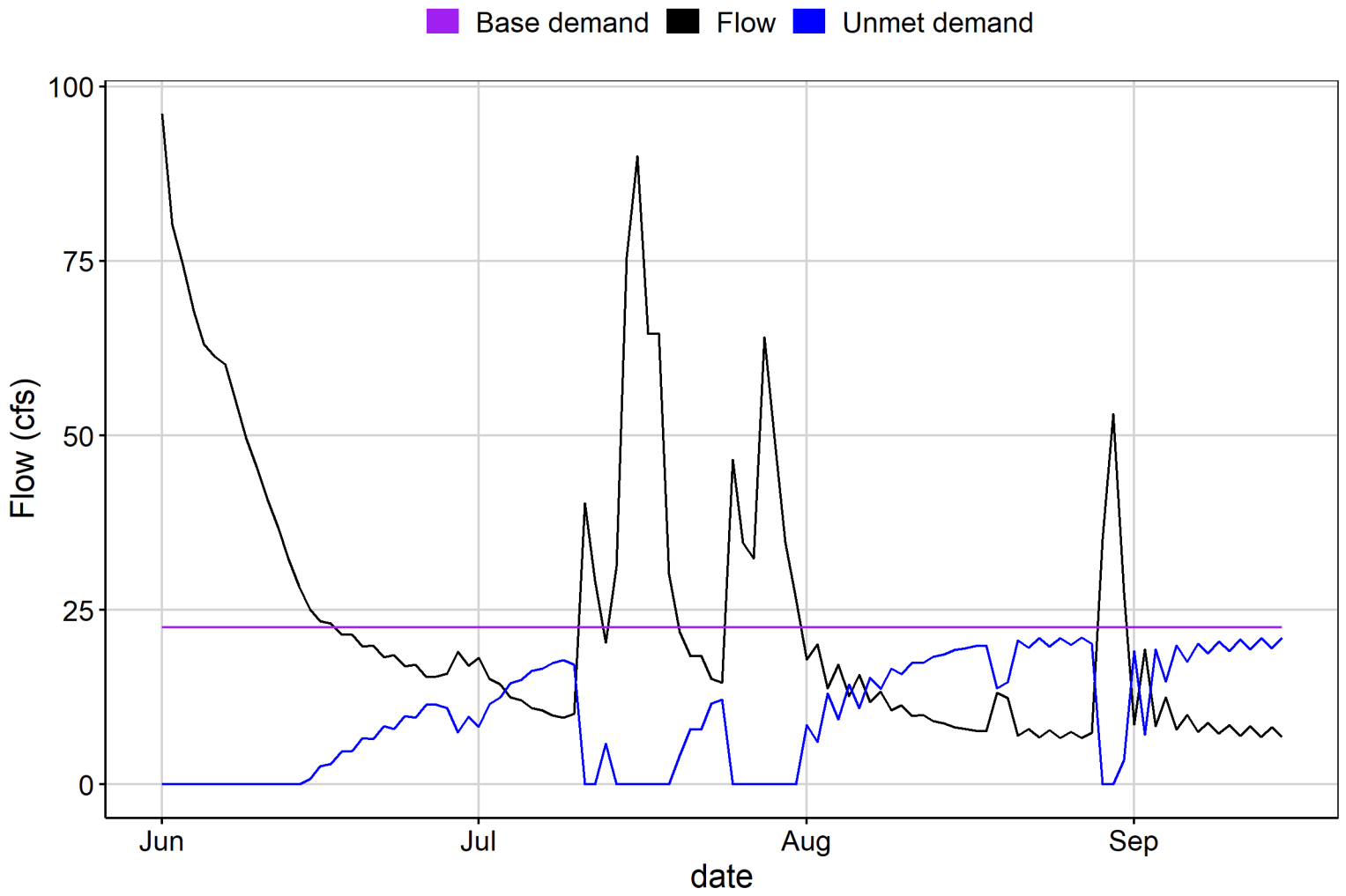

Fig. 18: Summer Months for year with max in 1 day max Run 11

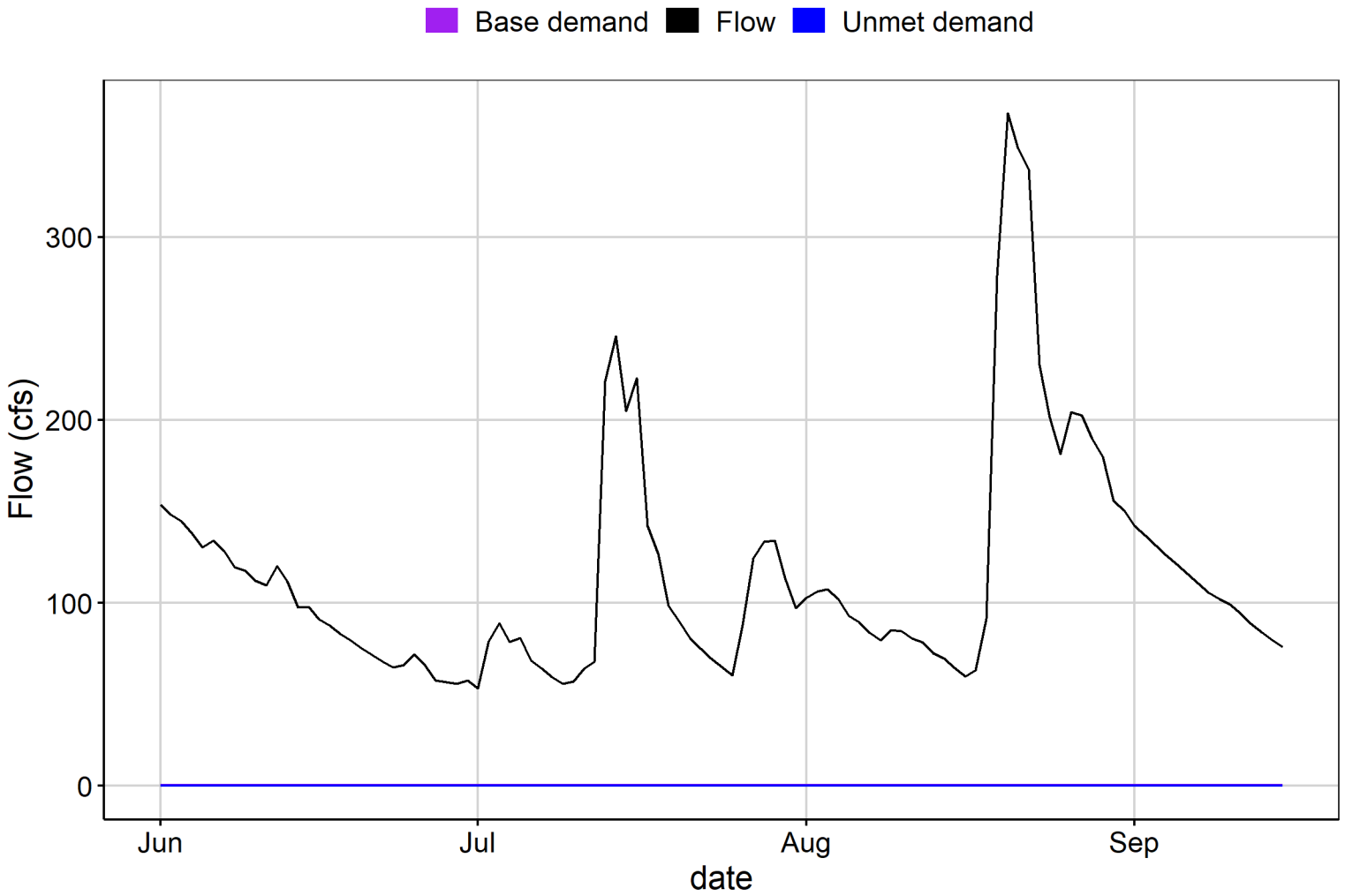
Base demand
Flow
Unmet demand
300
200
100
0
Flow (cfs)
Jun
Jul
Aug
Sep
date

Fig. 19: Summer Months for year with max in 1 day max Run 18

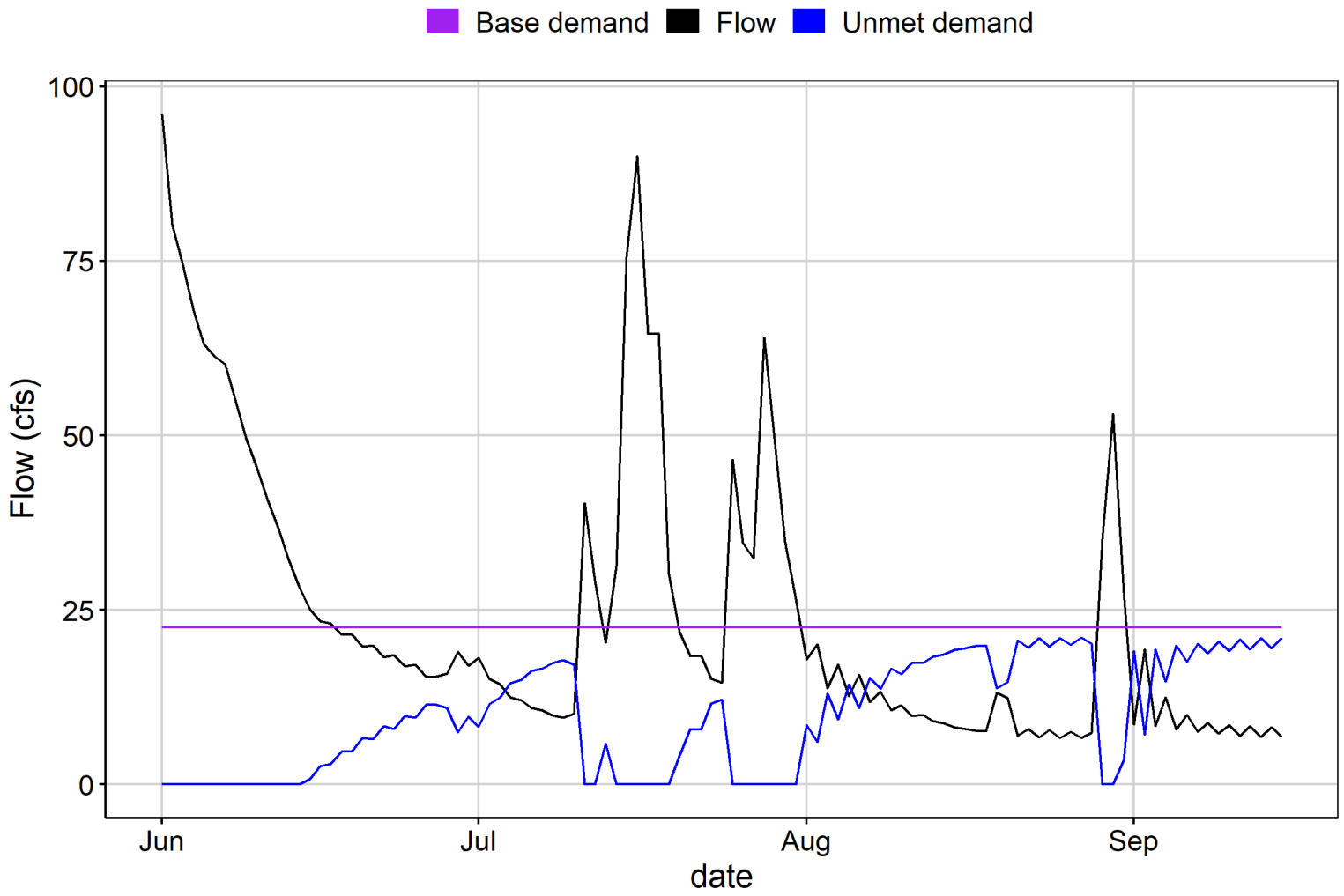

Fig. 20: Summer Months for year with 90 day min Run 11

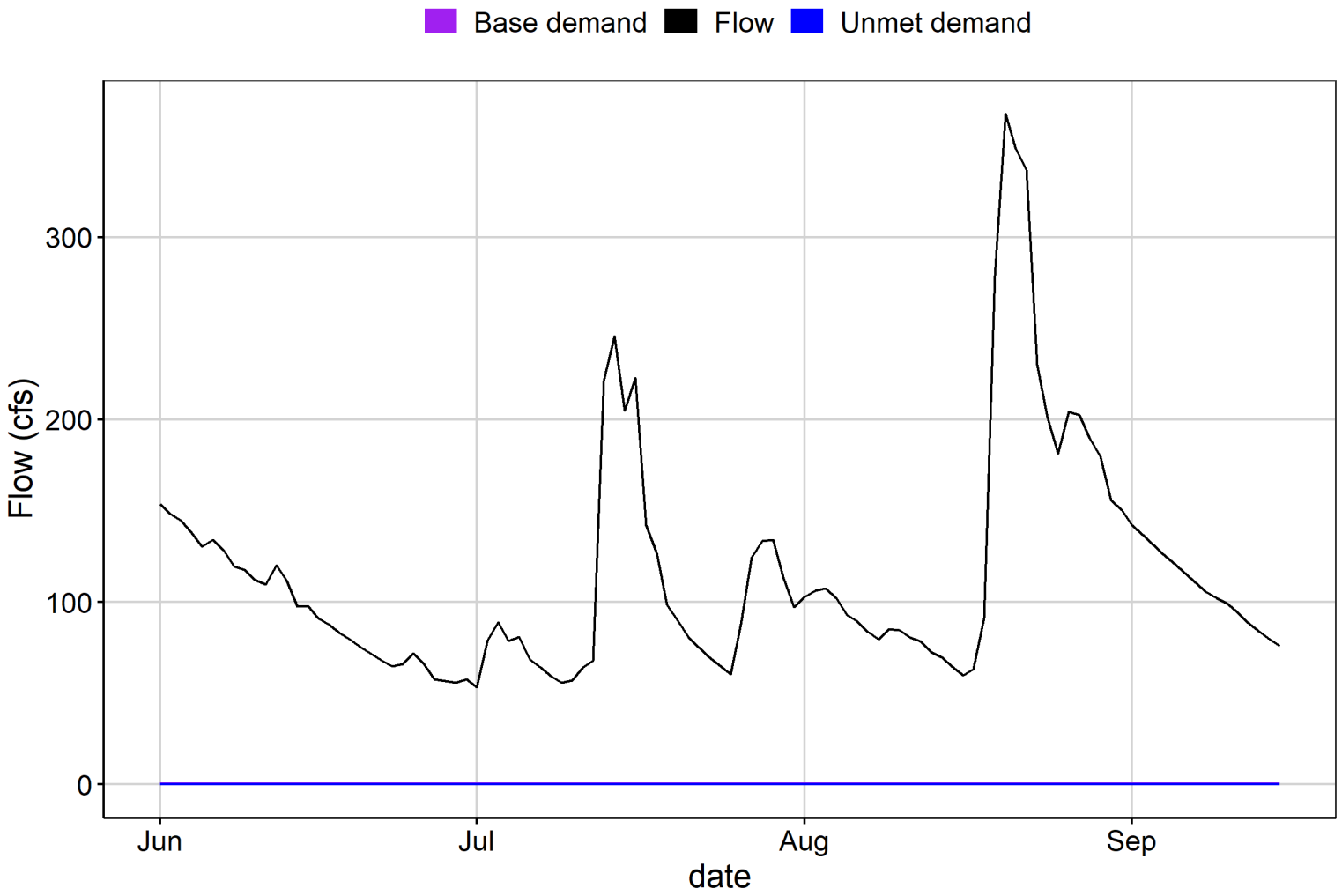

Fig. 21: Summer Months for year with 90 day min Run 18