

APPENDIX B17: PENTICTON CREEK

Discharge Records

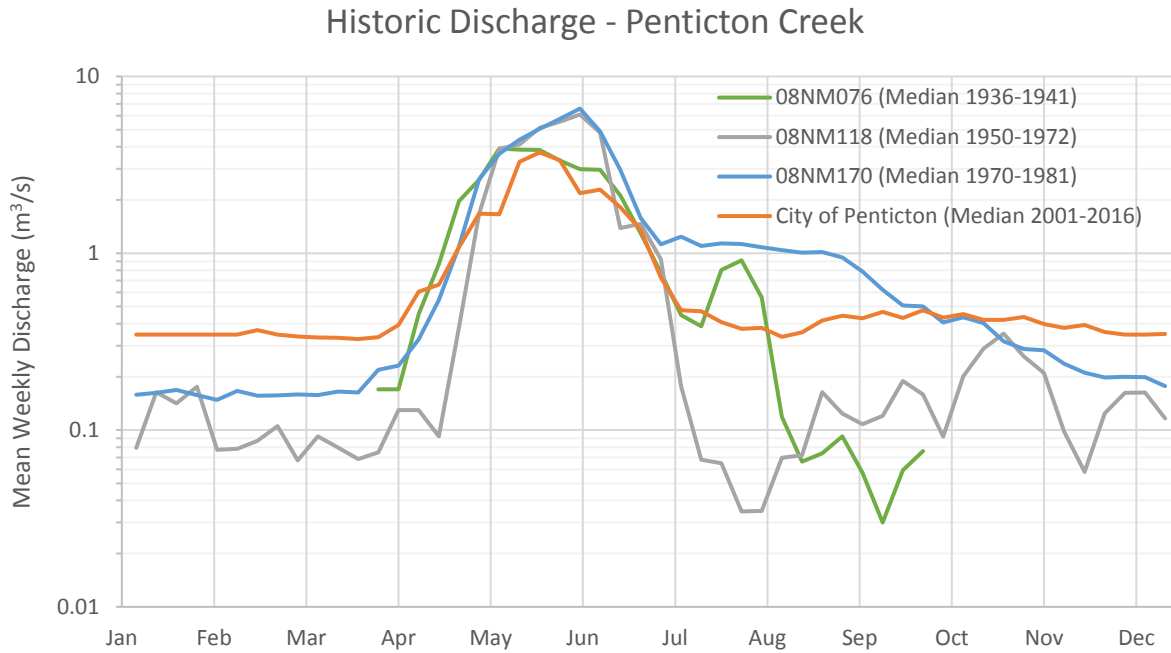


Figure B17-1: Historic discharge recorded at WSC stations 08NM076 (Penticton Creek above Diversion) from 1936-1941, 08NM118 (Penticton Creek at the Mouth) from 1950-1972, 08NM170 (Penticton Creek below Harris Creek) from 1970-1981, and City of Penticton station (Penticton Creek at Nanaimo Ave) from 2001-2016

Flow standards and periodicity – Okanagan Tennant analysis for Penticton Creek

Week Ending	Life Stage/ Week	Rainbow					Kokanee				Ecological Flows		
		Adult migration	Spawning	Incubation	Rearing	Juvenile migration	Over-wintering	Adult migration	Spawning	Incubation	Juvenile migration	Wetland, side channel linkage, flushing and channel maintenance flow	Cottonwood ecosystem
Jan							20%			20%			
Feb							20%			20%			
Mar							20%			20%			
1-Apr	13				20%						50%	<input checked="" type="checkbox"/>	
8-Apr	14				20%						50%	<input checked="" type="checkbox"/>	
15-Apr	15	141%			20%						50%	<input checked="" type="checkbox"/>	
22-Apr	16	141%			20%						50%	<input checked="" type="checkbox"/>	
29-Apr	17	141%			20%						50%	<input checked="" type="checkbox"/>	
6-May	18	141%			20%	50%					50%	<input checked="" type="checkbox"/>	
13-May	19	141%	40%		20%	50%					50%	<input checked="" type="checkbox"/>	
20-May	20	141%	40%		20%	50%					50%	<input checked="" type="checkbox"/>	
27-May	21	141%	40%	20%	20%	50%					50%	<input checked="" type="checkbox"/>	
3-Jun	22	141%	40%	20%	20%	50%						950%	
10-Jun	23	141%	40%	20%	20%	50%						<input checked="" type="checkbox"/>	100%
17-Jun	24	141%	40%	20%	20%	50%						<input checked="" type="checkbox"/>	100%
24-Jun	25	141%	40%	20%	20%	50%							100%
1-Jul	26	141%	40%	20%	20%	50%							100%
8-Jul	27	141%	40%	20%	20%	50%							100%
15-Jul	28			20%	20%	50%							100%
22-Jul	29			20%	20%								100%
29-Jul	30			20%	20%								100%
5-Aug	31				20%								
12-Aug	32				20%								
19-Aug	33				20%								
26-Aug	34				20%			20%					
2-Sep	35				20%			20%					
9-Sep	36				20%			20%	20%	20%			
16-Sep	37				20%			20%	20%	20%			
23-Sep	38				20%			20%	20%	20%			
30-Sep	39				20%			20%	20%	20%			
7-Oct	40				20%			20%	20%	20%			
14-Oct	41				20%					20%			
21-Oct	42				20%					20%			
28-Oct	43				20%					20%			
Nov							20%			20%			
Dec							20%			20%			

EFNs and critical flows for Penticton Creek

Week Ending	Okanagan Tennant EFN					FINAL EFN		CRITICAL FLOWS (m ³ /s)			
	EFN - all factors (%LTMAD)	EFN based on flow standards (m ³ /s)	Residual median weekly Q (m ³ /s)	Discharge m ³ /s	%LTMAD	Value (m ³ /s)	Dominant Species / Life Stage	Rainbow trout rearing & over wintering	Kokanee spawning	Rainbow trout migration & spawning	FINAL
Jan	20%	0.232	0.373	0.232	20%	0.373	overwintering egg incubation	0.058			0.058
Feb	20%	0.232	0.331	0.232	20%	0.331	overwintering egg incubation	0.058			0.058
Mar	20%	0.232	0.345	0.232	20%	0.345	overwintering egg incubation	0.058			0.058
1-Apr	50%	0.580	0.355	0.355	31%	0.355	KO juvenile migration	0.058			0.058
8-Apr	50%	0.580	0.429	0.429	37%	0.429	KO juvenile migration	0.058			0.058
15-Apr	141%	1.634	0.665	0.665	57%	0.665	RB adult migration	0.058		0.576	0.576
22-Apr	141%	1.634	1.310	1.310	113%	1.310	RB adult migration	0.058		0.576	0.576
29-Apr	141%	1.634	2.344	1.634	141%	1.634	RB adult migration	0.058		0.576	0.576
6-May	141%	1.634	2.579	1.634	141%	1.634	RB adult migration	0.058		0.576	0.576
13-May	141%	1.634	2.215	1.634	141%	1.634	RB adult migration	0.058		0.576	0.576
20-May	141%	1.634	4.051	1.634	141%	1.634	RB spawning	0.058		0.576	0.576
27-May	950%	11.012	5.198	5.198	448%	5.198	Ecosystem	0.058		0.576	0.576
3-Jun	950%	11.012	5.176	5.176	447%	5.176	Ecosystem	0.058		0.576	0.576
10-Jun	141%	1.634	3.717	1.634	141%	1.634	RB spawning	0.058		0.576	0.576
17-Jun	141%	1.634	3.155	1.634	141%	1.634	RB spawning	0.058		0.576	0.576
24-Jun	141%	1.634	1.860	1.634	141%	1.634	RB spawning	0.058		0.576	0.576
1-Jul	141%	1.634	1.188	1.188	102%	1.188	RB spawning	0.058		0.576	0.576
8-Jul	141%	1.634	0.864	0.864	75%	0.864	RB spawning	0.058		0.576	0.576
15-Jul	100%	1.159	0.686	0.686	59%	0.686	RB incubation	0.058			0.058
22-Jul	100%	1.159	0.733	0.733	63%	0.733	RB incubation	0.058			0.058
29-Jul	100%	1.159	0.508	0.508	44%	0.508	RB incubation	0.058			0.058
5-Aug	20%	0.232	0.473	0.232	20%	0.473	RB parr rearing	0.058			0.058
12-Aug	20%	0.232	0.596	0.232	20%	0.596	RB parr rearing	0.058			0.058
19-Aug	20%	0.232	0.469	0.232	20%	0.469	RB parr rearing	0.058			0.058
26-Aug	20%	0.232	0.561	0.232	20%	0.561	RB parr rearing	0.058			0.058
2-Sep	20%	0.232	0.645	0.232	20%	0.645	RB parr rearing	0.058			0.058
9-Sep	20%	0.232	0.468	0.232	20%	0.468	KO Spawning	0.058	0.115		0.115
16-Sep	20%	0.232	0.402	0.232	20%	0.402	KO Spawning	0.058	0.115		0.115
23-Sep	20%	0.232	0.486	0.232	20%	0.486	KO Spawning	0.058	0.115		0.115
30-Sep	20%	0.232	0.369	0.232	20%	0.369	KO Spawning	0.058	0.115		0.115
7-Oct	20%	0.232	0.417	0.232	20%	0.417	KO Spawning	0.058	0.115		0.115
14-Oct	20%	0.232	0.425	0.232	20%	0.425	RB parr rearing	0.058			0.058
21-Oct	20%	0.232	0.592	0.232	20%	0.592	RB parr rearing	0.058			0.058
28-Oct	20%	0.232	0.476	0.232	20%	0.476	RB parr rearing	0.058			0.058
Nov	20%	0.232	0.526	0.232	20%	0.526	overwintering egg incubation	0.058			0.058
Dec	20%	0.232	0.377	0.232	20%	0.377	overwintering egg incubation	0.058			0.058

Percentile Flows

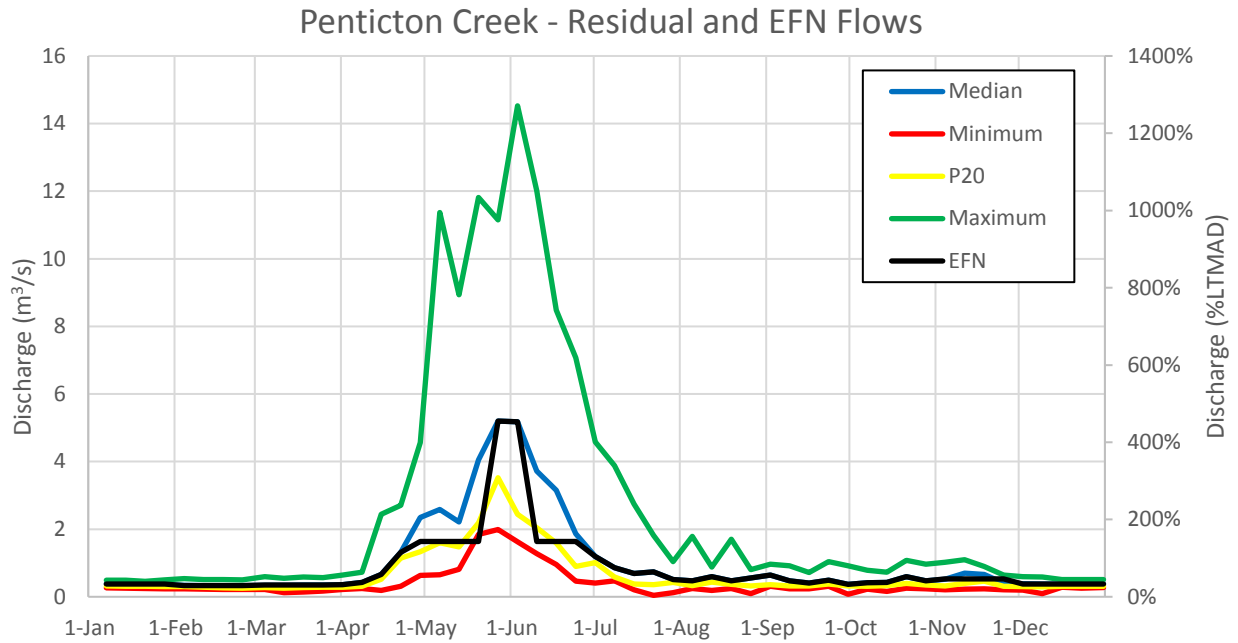


Figure B17-2: Okanagan Tennant EFNs compared to residual flow percentiles for Penticton Creek (Discharge & %LTMAD)

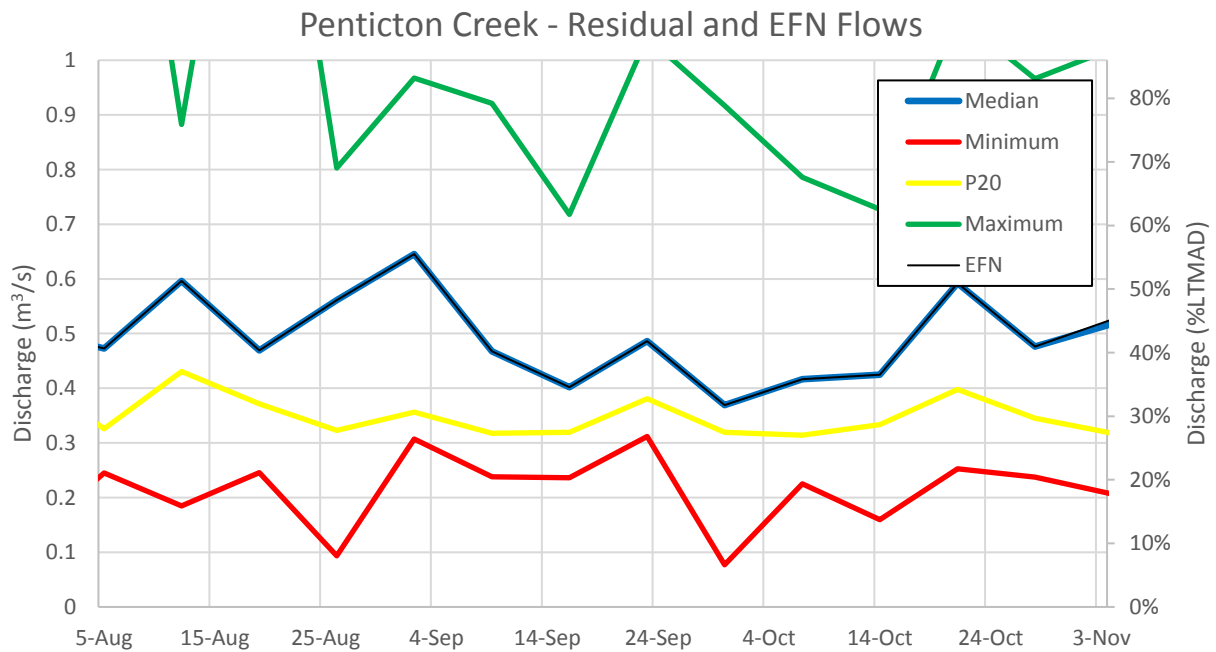


Figure B17-3: Okanagan Tennant EFNs compared to residual flow percentiles for Penticton Creek Aug – Nov (Discharge & %LTMAD)

Penticton Creek naturalized percentile flow data

NATURALIZED FLOW		as m ³ /s				as %LTMD			
Week	Ending	Min	P20	Median	Max	Min	P20	Median	Max
01	7-Jan	0.066	0.075	0.102	0.325	6%	7%	9%	28%
02	14-Jan	0.061	0.076	0.115	0.317	5%	7%	10%	27%
03	21-Jan	0.057	0.073	0.114	0.310	5%	6%	10%	27%
04	28-Jan	0.055	0.069	0.101	0.312	5%	6%	9%	27%
05	4-Feb	0.054	0.069	0.091	0.345	5%	6%	8%	30%
06	11-Feb	0.052	0.069	0.100	0.321	4%	6%	9%	28%
07	18-Feb	0.051	0.069	0.102	0.314	4%	6%	9%	27%
08	25-Feb	0.056	0.069	0.102	0.323	5%	6%	9%	28%
09	4-Mar	0.056	0.076	0.103	0.350	5%	7%	9%	30%
10	11-Mar	0.058	0.078	0.105	0.364	5%	7%	9%	31%
11	18-Mar	0.062	0.078	0.119	0.384	5%	7%	10%	33%
12	25-Mar	0.069	0.087	0.126	0.357	6%	7%	11%	31%
13	1-Apr	0.075	0.087	0.154	0.370	6%	7%	13%	32%
14	8-Apr	0.073	0.123	0.168	0.508	6%	11%	14%	44%
15	15-Apr	0.088	0.238	0.434	1.881	8%	21%	37%	162%
16	22-Apr	0.101	0.528	1.042	2.329	9%	46%	90%	201%
17	29-Apr	0.164	0.989	2.180	5.337	14%	85%	188%	460%
18	6-May	0.561	1.505	2.763	14.944	48%	130%	238%	1289%
19	13-May	1.189	1.753	3.014	11.913	103%	151%	260%	1028%
20	20-May	3.036	3.880	5.996	16.534	262%	335%	517%	1426%
21	27-May	2.872	5.786	8.075	14.562	248%	499%	697%	1256%
22	3-Jun	2.118	3.802	6.454	15.068	183%	328%	557%	1300%
23	10-Jun	2.156	2.671	4.290	12.694	186%	230%	370%	1095%
24	17-Jun	1.660	2.346	3.420	9.954	143%	202%	295%	859%
25	24-Jun	1.045	1.390	2.670	7.930	90%	120%	230%	684%
26	1-Jul	0.739	1.045	1.947	5.335	64%	90%	168%	460%
27	8-Jul	0.473	0.735	1.147	4.952	41%	63%	99%	427%
28	15-Jul	0.324	0.498	0.781	3.260	28%	43%	67%	281%
29	22-Jul	0.238	0.366	0.533	2.211	21%	32%	46%	191%
30	29-Jul	0.169	0.278	0.453	1.271	15%	24%	39%	110%
31	5-Aug	0.126	0.165	0.264	1.081	11%	14%	23%	93%
32	12-Aug	0.108	0.132	0.227	0.903	9%	11%	20%	78%
33	19-Aug	0.093	0.111	0.170	1.680	8%	10%	15%	145%
34	26-Aug	0.076	0.099	0.175	0.646	7%	9%	15%	56%
35	2-Sep	0.062	0.100	0.165	0.694	5%	9%	14%	60%
36	9-Sep	0.047	0.086	0.116	0.507	4%	7%	10%	44%
37	16-Sep	0.031	0.074	0.094	0.584	3%	6%	8%	50%
38	23-Sep	0.051	0.074	0.116	1.187	4%	6%	10%	102%
39	30-Sep	0.041	0.069	0.127	0.674	4%	6%	11%	58%
40	7-Oct	0.046	0.071	0.134	0.633	4%	6%	12%	55%
41	14-Oct	0.036	0.072	0.126	0.796	3%	6%	11%	69%
42	21-Oct	0.068	0.107	0.176	1.035	6%	9%	15%	89%
43	28-Oct	0.063	0.127	0.160	0.697	5%	11%	14%	60%
44	4-Nov	0.058	0.141	0.176	0.651	5%	12%	15%	56%
45	11-Nov	0.047	0.147	0.192	0.713	4%	13%	17%	62%
46	18-Nov	0.051	0.118	0.179	0.502	4%	10%	15%	43%
47	25-Nov	0.047	0.093	0.168	0.377	4%	8%	15%	33%
48	2-Dec	0.047	0.088	0.161	0.373	4%	8%	14%	32%
49	9-Dec	0.050	0.076	0.145	0.397	4%	7%	13%	34%
50	16-Dec	0.061	0.078	0.119	0.361	5%	7%	10%	31%
51	23-Dec	0.065	0.079	0.114	0.341	6%	7%	10%	29%
52	31-Dec	0.074	0.084	0.108	0.344	6%	7%	9%	30%

Penticton Creek residual percentile flow data

RESIDUAL FLOW		as m ³ /s				as %LTMD			
Week	Ending	Min	P20	Median	Max	Min	P20	Median	Max
01	7-Jan	0.263	0.316	0.385	0.495	23%	27%	33%	43%
02	14-Jan	0.254	0.314	0.389	0.494	22%	27%	34%	43%
03	21-Jan	0.245	0.314	0.370	0.457	21%	27%	32%	39%
04	28-Jan	0.235	0.305	0.361	0.502	20%	26%	31%	43%
05	4-Feb	0.231	0.299	0.340	0.534	20%	26%	29%	46%
06	11-Feb	0.227	0.287	0.331	0.509	20%	25%	29%	44%
07	18-Feb	0.219	0.261	0.326	0.507	19%	23%	28%	44%
08	25-Feb	0.219	0.256	0.329	0.504	19%	22%	28%	43%
09	4-Mar	0.213	0.270	0.343	0.593	18%	23%	30%	51%
10	11-Mar	0.120	0.254	0.338	0.550	10%	22%	29%	47%
11	18-Mar	0.141	0.270	0.347	0.590	12%	23%	30%	51%
12	25-Mar	0.169	0.287	0.351	0.569	15%	25%	30%	49%
13	1-Apr	0.217	0.278	0.355	0.639	19%	24%	31%	55%
14	8-Apr	0.242	0.313	0.429	0.726	21%	27%	37%	63%
15	15-Apr	0.184	0.523	0.665	2.441	16%	45%	57%	211%
16	22-Apr	0.311	1.144	1.310	2.706	27%	99%	113%	233%
17	29-Apr	0.631	1.335	2.344	4.559	54%	115%	202%	393%
18	6-May	0.651	1.594	2.579	11.365	56%	137%	222%	980%
19	13-May	0.812	1.471	2.215	8.939	70%	127%	191%	771%
20	20-May	1.841	2.188	4.051	11.815	159%	189%	349%	1019%
21	27-May	1.989	3.523	5.198	11.156	172%	304%	448%	962%
22	3-Jun	1.622	2.438	5.176	14.524	140%	210%	447%	1253%
23	10-Jun	1.278	2.039	3.717	12.011	110%	176%	321%	1036%
24	17-Jun	0.957	1.585	3.155	8.481	83%	137%	272%	732%
25	24-Jun	0.465	0.898	1.860	7.068	40%	77%	160%	610%
26	1-Jul	0.405	1.011	1.188	4.581	35%	87%	102%	395%
27	8-Jul	0.473	0.585	0.864	3.877	41%	50%	75%	334%
28	15-Jul	0.205	0.378	0.686	2.742	18%	33%	59%	237%
29	22-Jul	0.042	0.354	0.733	1.814	4%	31%	63%	156%
30	29-Jul	0.121	0.428	0.508	1.036	10%	37%	44%	89%
31	5-Aug	0.245	0.326	0.473	1.790	21%	28%	41%	154%
32	12-Aug	0.185	0.430	0.596	0.883	16%	37%	51%	76%
33	19-Aug	0.245	0.372	0.469	1.700	21%	32%	40%	147%
34	26-Aug	0.094	0.323	0.561	0.803	8%	28%	48%	69%
35	2-Sep	0.307	0.357	0.645	0.967	27%	31%	56%	83%
36	9-Sep	0.238	0.318	0.468	0.921	21%	27%	40%	79%
37	16-Sep	0.236	0.319	0.402	0.718	20%	28%	35%	62%
38	23-Sep	0.312	0.381	0.486	1.042	27%	33%	42%	90%
39	30-Sep	0.077	0.319	0.369	0.917	7%	28%	32%	79%
40	7-Oct	0.225	0.314	0.417	0.786	19%	27%	36%	68%
41	14-Oct	0.159	0.333	0.425	0.727	14%	29%	37%	63%
42	21-Oct	0.253	0.398	0.592	1.080	22%	34%	51%	93%
43	28-Oct	0.238	0.345	0.476	0.966	20%	30%	41%	83%
44	4-Nov	0.206	0.318	0.518	1.021	18%	27%	45%	88%
45	11-Nov	0.227	0.395	0.701	1.094	20%	34%	60%	94%
46	18-Nov	0.231	0.459	0.659	0.896	20%	40%	57%	77%
47	25-Nov	0.209	0.313	0.405	0.638	18%	27%	35%	55%
48	2-Dec	0.194	0.302	0.389	0.591	17%	26%	34%	51%
49	9-Dec	0.088	0.295	0.377	0.586	8%	25%	32%	51%
50	16-Dec	0.279	0.312	0.376	0.511	24%	27%	32%	44%
51	23-Dec	0.251	0.314	0.381	0.514	22%	27%	33%	44%
52	31-Dec	0.275	0.312	0.372	0.509	24%	27%	32%	44%

Maximum licensed flows are not available at this time.