

APPENDIX B13: POWERS CREEK

Discharge Records

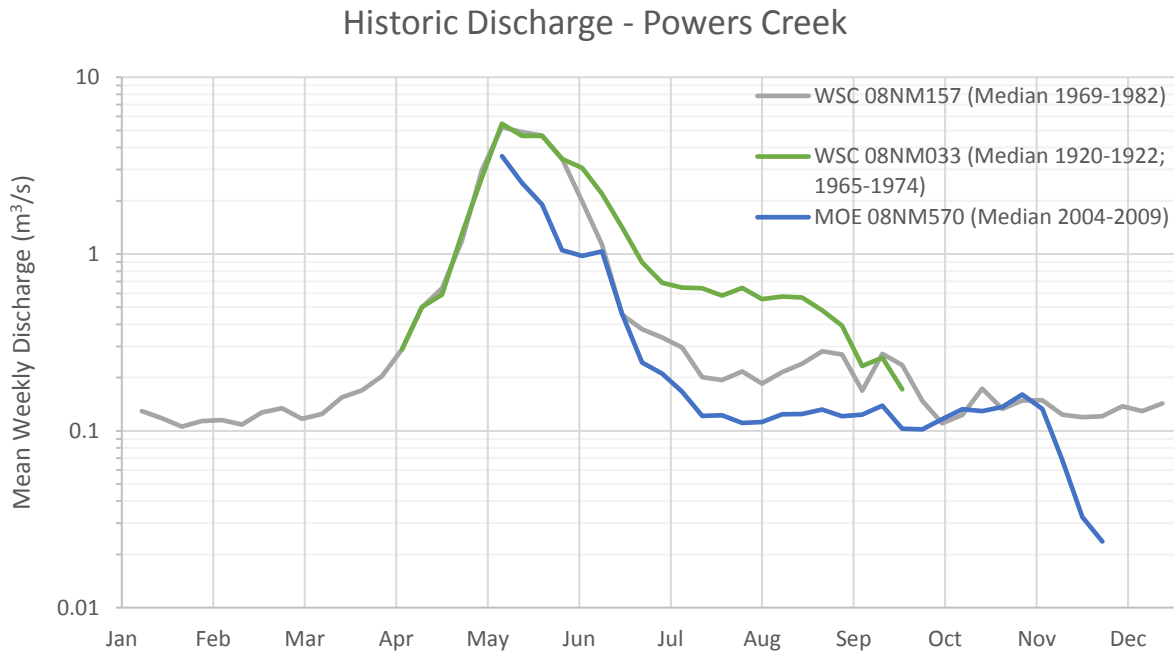


Figure B13-1: Historical discharge recorded at WSC station 08NM157 (Powers Creek at the Mouth) from 1969-1982, WSC station 08NM033 (Powers Creek above Westbank Diversion) from 1920-1922; 1965-1974, and MOE station 08NM570 (Powers Creek at Gellatly Road) from 2004-2009

Flow standards and periodicity – Okanagan Tennant analysis for Powers 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
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	174%			20%					50%	<input checked="" type="checkbox"/>	
22-Apr	16	174%			20%					50%	<input checked="" type="checkbox"/>	
29-Apr	17	174%			20%					50%	<input checked="" type="checkbox"/>	
6-May	18	174%			20%	50%				50%	<input checked="" type="checkbox"/>	
13-May	19	174%			20%	50%				50%	<input checked="" type="checkbox"/>	
20-May	20	174%	40%		20%	50%				50%	990%	
27-May	21	174%	40%	20%	20%	50%				50%	990%	
3-Jun	22	174%	40%	20%	20%	50%					<input checked="" type="checkbox"/>	100%
10-Jun	23	174%	40%	20%	20%	50%					<input checked="" type="checkbox"/>	100%
17-Jun	24	174%	40%	20%	20%	50%					<input checked="" type="checkbox"/>	100%
24-Jun	25	174%	40%	20%	20%	50%						100%
1-Jul	26	174%	40%	20%	20%	50%						100%
8-Jul	27	174%	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%							
2-Sep	35				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 Powers 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)	Nat. 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%	0.129	0.125	0.125	19%	0.125	overwintering egg Incubation	0.032			0.032
Feb	20%	0.129	0.120	0.120	19%	0.120	overwintering egg Incubation	0.032			0.032
Mar	20%	0.129	0.146	0.146	23%	0.146	overwintering egg Incubation	0.032			0.032
1-Apr	50%	0.321	0.221	0.221	34%	0.221	KO juvenile migration	0.032			0.032
8-Apr	50%	0.321	0.302	0.302	47%	0.302	KO juvenile migration	0.032			0.032
15-Apr	174%	1.119	0.420	0.420	65%	0.420	RB adult migration	0.032		0.321	0.321
22-Apr	174%	1.119	0.640	0.640	100%	0.640	RB adult migration	0.032		0.321	0.321
29-Apr	174%	1.119	1.668	1.119	174%	1.119	RB adult migration	0.032		0.321	0.321
6-May	174%	1.119	2.199	1.119	174%	1.119	RB adult migration	0.032		0.321	0.321
13-May	174%	1.119	2.100	1.119	174%	1.119	RB adult migration	0.032		0.321	0.321
20-May	990%	6.365	3.803	3.803	592%	3.803	Ecosystem	0.032		0.321	0.321
27-May	990%	6.365	2.926	2.926	455%	2.926	Ecosystem	0.032		0.321	0.321
3-Jun	174%	1.119	2.607	1.119	174%	1.119	RB Spawning	0.032		0.321	0.321
10-Jun	174%	1.119	1.894	1.119	174%	1.119	RB Spawning	0.032		0.321	0.321
17-Jun	174%	1.119	1.434	1.119	174%	1.119	RB Spawning	0.032		0.321	0.321
24-Jun	174%	1.119	1.131	1.119	174%	1.119	RB Spawning	0.032		0.321	0.321
1-Jul	174%	1.119	0.841	0.841	131%	0.841	RB Spawning	0.032		0.321	0.321
8-Jul	174%	1.119	0.574	0.574	89%	0.574	RB Spawning	0.032		0.321	0.321
15-Jul	100%	0.643	0.486	0.486	76%	0.486	RB incubation	0.032			0.032
22-Jul	100%	0.643	0.409	0.409	64%	0.409	RB incubation	0.032			0.032
29-Jul	100%	0.643	0.317	0.317	49%	0.317	RB incubation	0.032			0.032
5-Aug	20%	0.129	0.272	0.129	20%	0.129	RB parr rearing	0.032			0.032
12-Aug	20%	0.129	0.223	0.129	20%	0.129	RB parr rearing	0.032			0.032
19-Aug	20%	0.129	0.197	0.129	20%	0.129	RB parr rearing	0.032			0.032
26-Aug	20%	0.129	0.190	0.129	20%	0.129	RB parr rearing	0.032			0.032
2-Sep	20%	0.129	0.162	0.129	20%	0.129	RB parr rearing	0.032			0.032
9-Sep	20%	0.129	0.147	0.141	22%	0.141	KO Spawning	0.032	0.064		0.064
16-Sep	20%	0.129	0.139	0.141	22%	0.141	KO Spawning	0.032	0.064		0.064
23-Sep	20%	0.129	0.141	0.141	22%	0.141	KO Spawning	0.032	0.064		0.064
30-Sep	20%	0.129	0.140	0.141	22%	0.141	KO Spawning	0.032	0.064		0.064
7-Oct	20%	0.129	0.144	0.141	22%	0.141	KO Spawning	0.032	0.064		0.064
14-Oct	20%	0.129	0.145	0.129	20%	0.129	RB parr rearing	0.032			0.032
21-Oct	20%	0.129	0.161	0.129	20%	0.129	RB parr rearing	0.032			0.032
28-Oct	20%	0.129	0.168	0.129	20%	0.129	overwintering egg Incubation	0.032			0.032
Nov	20%	0.129	0.160	0.160	25%	0.160	overwintering egg Incubation	0.032			0.032
Dec	20%	0.129	0.143	0.143	22%	0.143	overwintering egg Incubation	0.032			0.032

Percentile Flows for Powers Creek

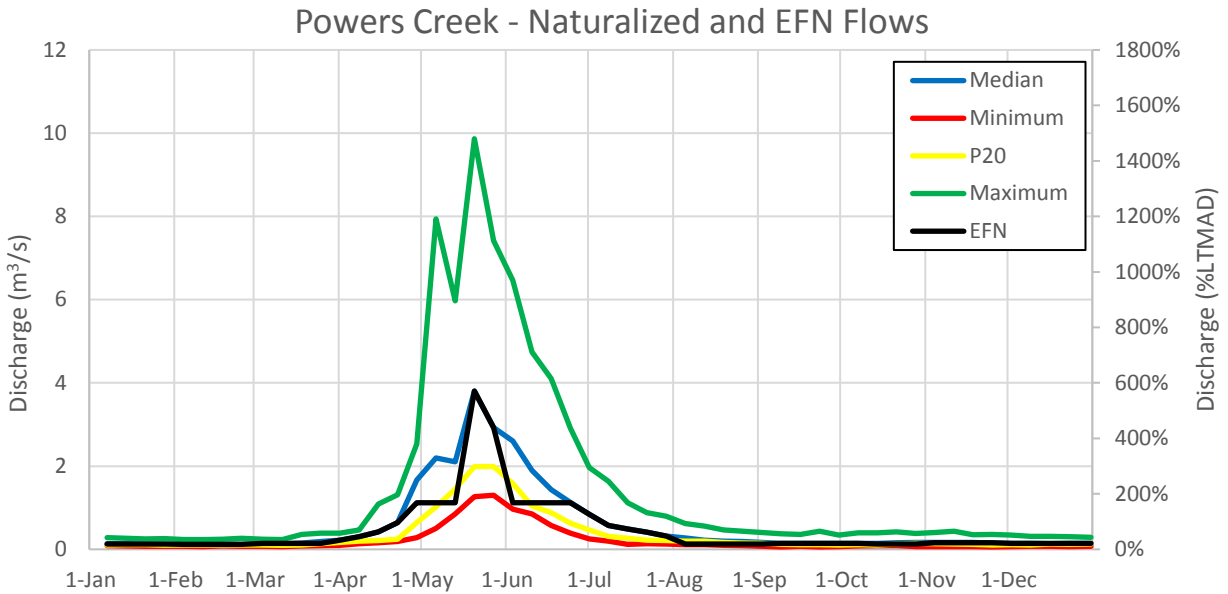


Figure B13-2: Okanagan Tennant EFNs compared to naturalized flow percentiles for Powers Creek (Discharge & %LTMAD)

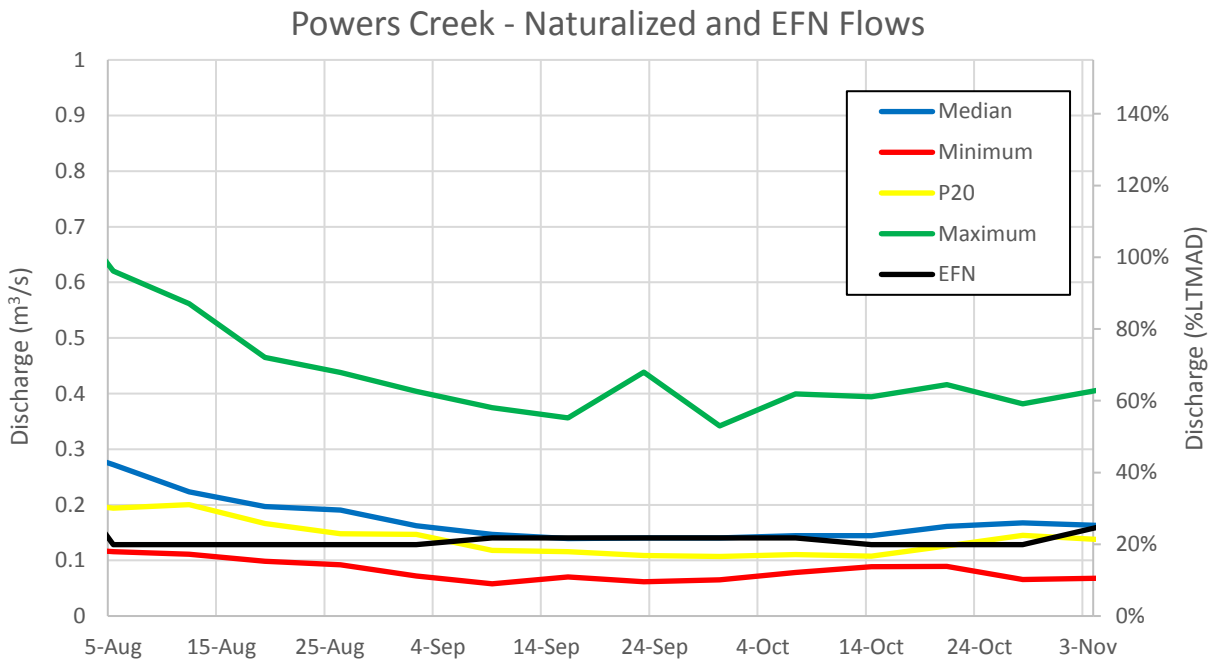


Figure B13-3: Okanagan Tennant EFNs compared to naturalized flow percentiles for Powers Creek Aug – Nov (Discharge & %LTMAD)

Powers Creek naturalized percentile flows

NATURALIZED FLOW		as m ³ /s				as %LTMD			
Week	Ending	Min	P20	Median	Max	Min	P20	Median	Max
01	7-Jan	0.089	0.107	0.132	0.281	14%	17%	20%	44%
02	14-Jan	0.079	0.110	0.133	0.270	12%	17%	21%	42%
03	21-Jan	0.073	0.111	0.121	0.248	11%	17%	19%	39%
04	28-Jan	0.075	0.100	0.116	0.256	12%	16%	18%	40%
05	4-Feb	0.074	0.107	0.114	0.236	11%	17%	18%	37%
06	11-Feb	0.064	0.101	0.119	0.235	10%	16%	19%	36%
07	18-Feb	0.081	0.105	0.124	0.246	13%	16%	19%	38%
08	25-Feb	0.072	0.104	0.121	0.264	11%	16%	19%	41%
09	4-Mar	0.074	0.104	0.127	0.247	11%	16%	20%	38%
10	11-Mar	0.069	0.100	0.132	0.239	11%	16%	20%	37%
11	18-Mar	0.084	0.107	0.150	0.357	13%	17%	23%	56%
12	25-Mar	0.088	0.139	0.185	0.387	14%	22%	29%	60%
13	1-Apr	0.096	0.165	0.221	0.386	15%	26%	34%	60%
14	8-Apr	0.132	0.193	0.302	0.465	21%	30%	47%	72%
15	15-Apr	0.156	0.213	0.420	1.089	24%	33%	65%	169%
16	22-Apr	0.190	0.244	0.640	1.313	30%	38%	100%	204%
17	29-Apr	0.283	0.639	1.668	2.533	44%	99%	259%	394%
18	6-May	0.503	1.016	2.199	7.939	78%	158%	342%	1235%
19	13-May	0.851	1.447	2.100	5.973	132%	225%	327%	929%
20	20-May	1.265	1.986	3.803	9.866	197%	309%	592%	1535%
21	27-May	1.300	1.990	2.926	7.414	202%	310%	455%	1153%
22	3-Jun	0.965	1.581	2.607	6.462	150%	246%	405%	1005%
23	10-Jun	0.848	1.045	1.894	4.740	132%	163%	295%	737%
24	17-Jun	0.574	0.879	1.434	4.103	89%	137%	223%	638%
25	24-Jun	0.389	0.629	1.131	2.911	61%	98%	176%	453%
26	1-Jul	0.248	0.463	0.841	1.967	39%	72%	131%	306%
27	8-Jul	0.200	0.315	0.574	1.632	31%	49%	89%	254%
28	15-Jul	0.118	0.263	0.486	1.118	18%	41%	76%	174%
29	22-Jul	0.135	0.223	0.409	0.883	21%	35%	64%	137%
30	29-Jul	0.126	0.210	0.317	0.800	20%	33%	49%	124%
31	5-Aug	0.116	0.194	0.272	0.620	18%	30%	42%	96%
32	12-Aug	0.111	0.200	0.223	0.562	17%	31%	35%	87%
33	19-Aug	0.098	0.166	0.197	0.465	15%	26%	31%	72%
34	26-Aug	0.092	0.148	0.190	0.438	14%	23%	30%	68%
35	2-Sep	0.072	0.147	0.162	0.404	11%	23%	25%	63%
36	9-Sep	0.058	0.118	0.147	0.375	9%	18%	23%	58%
37	16-Sep	0.070	0.116	0.139	0.356	11%	18%	22%	55%
38	23-Sep	0.061	0.109	0.141	0.439	10%	17%	22%	68%
39	30-Sep	0.065	0.107	0.140	0.342	10%	17%	22%	53%
40	7-Oct	0.078	0.110	0.144	0.399	12%	17%	22%	62%
41	14-Oct	0.088	0.108	0.145	0.394	14%	17%	23%	61%
42	21-Oct	0.089	0.126	0.161	0.416	14%	20%	25%	65%
43	28-Oct	0.065	0.145	0.168	0.381	10%	23%	26%	59%
44	4-Nov	0.068	0.138	0.163	0.406	11%	21%	25%	63%
45	11-Nov	0.067	0.130	0.167	0.432	10%	20%	26%	67%
46	18-Nov	0.070	0.118	0.165	0.353	11%	18%	26%	55%
47	25-Nov	0.062	0.105	0.151	0.359	10%	16%	23%	56%
48	2-Dec	0.065	0.114	0.144	0.342	10%	18%	22%	53%
49	9-Dec	0.072	0.106	0.140	0.309	11%	16%	22%	48%
50	16-Dec	0.076	0.125	0.134	0.311	12%	19%	21%	48%
51	23-Dec	0.065	0.120	0.143	0.304	10%	19%	22%	47%
52	31-Dec	0.070	0.126	0.146	0.289	11%	20%	23%	45%

Residual and maximum licensed flows are not available at this time.