

APPENDIX B12: MILL CREEK

Discharge Records

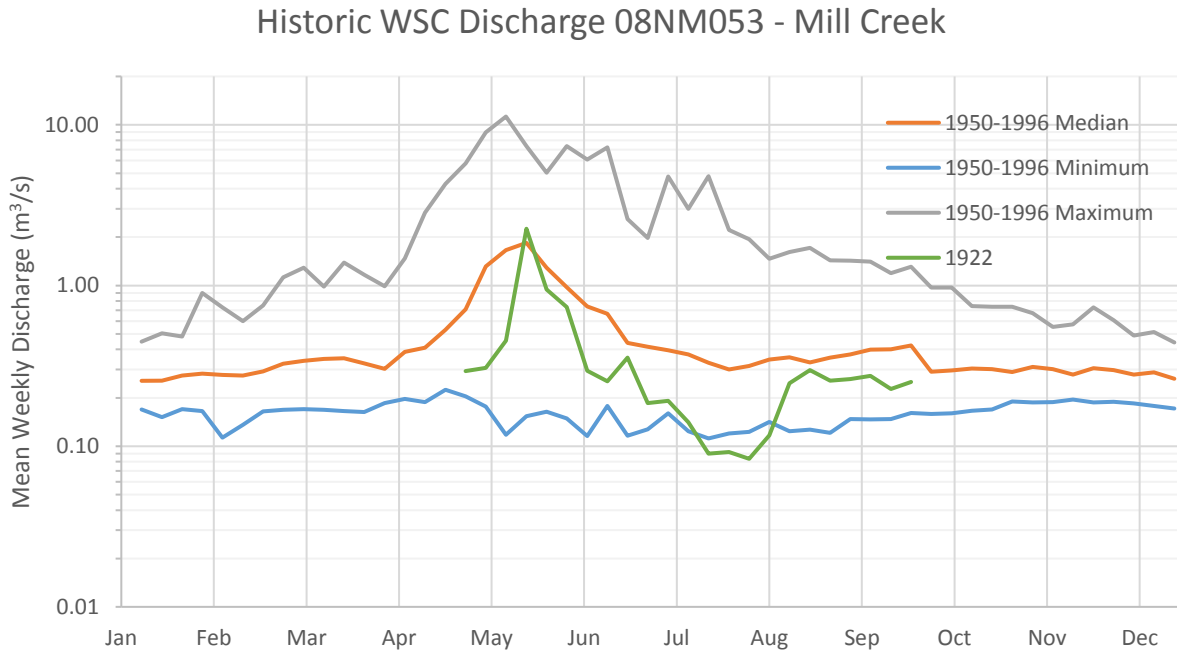


Figure B12-1: Historic discharge recorded at WSC station 08NM053 (Kelowna Creek near Kelowna) from 1922; 1950-1996

Flow standards and periodicity – Okanagan Tennant analysis for Mill 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 ecosystems
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	165%			20%						50%	<input checked="" type="checkbox"/>	
22-Apr	16	165%			20%						50%	<input checked="" type="checkbox"/>	
29-Apr	17	165%			20%						50%	<input checked="" type="checkbox"/>	
6-May	18	165%			20%	50%					50%	<input checked="" type="checkbox"/>	
13-May	19	165%	40%		20%	50%					50%	2000%	
20-May	20	165%	40%		20%	50%					50%	2000%	
27-May	21	165%	40%	20%	20%	50%					50%	<input checked="" type="checkbox"/>	100%
3-Jun	22	165%	40%	20%	20%	50%						<input checked="" type="checkbox"/>	100%
10-Jun	23	165%	40%	20%	20%	50%						<input checked="" type="checkbox"/>	100%
17-Jun	24	165%	40%	20%	20%	50%						<input checked="" type="checkbox"/>	100%
24-Jun	25	165%	40%	20%	20%	50%							100%
1-Jul	26	165%	40%	20%	20%	50%							100%
8-Jul	27	165%	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 Mill 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 & overwintering	Kokanee spawning	Rainbow trout mig. & spawning	FINAL
Jan	20%	0.149	0.287	0.149	20%	0.250	overwintering egg incubation	0.037			0.037
Feb	20%	0.149	0.286	0.149	20%	0.250	overwintering egg incubation	0.037			0.037
Mar	20%	0.149	0.318	0.149	20%	0.250	overwintering egg incubation	0.037			0.037
1-Apr	50%	0.372	0.578	0.372	50%	0.372	KO juvenile migration	0.037			0.037
8-Apr	50%	0.372	0.648	0.372	50%	0.372	KO juvenile migration	0.037			0.037
15-Apr	165%	1.228	0.853	0.853	115%	0.853	RB adult migration	0.037		0.372	0.372
22-Apr	165%	1.228	1.316	1.228	165%	1.228	RB adult migration	0.037		0.372	0.372
29-Apr	165%	1.228	2.318	1.228	165%	1.228	RB adult migration	0.037		0.372	0.372
6-May	165%	1.228	2.642	1.228	165%	1.228	RB adult migration	0.037		0.372	0.372
13-May	2000%	14.890	2.628	2.628	353%	2.628	RB adult migration	0.037		0.372	0.372
20-May	2000%	14.890	2.822	2.822	379%	2.822	Ecosystem	0.037		0.372	0.372
27-May	165%	1.228	2.403	1.228	165%	1.228	Ecosystem	0.037		0.372	0.372
3-Jun	165%	1.228	1.720	1.228	165%	1.228	RB spawning	0.037		0.372	0.372
10-Jun	165%	1.228	1.610	1.228	165%	1.228	RB spawning	0.037		0.372	0.372
17-Jun	165%	1.228	1.368	1.228	165%	1.228	RB spawning	0.037		0.372	0.372
24-Jun	165%	1.228	1.102	1.102	148%	1.102	RB spawning	0.037		0.372	0.372
1-Jul	165%	1.228	0.993	0.993	133%	0.993	RB spawning	0.037		0.372	0.372
8-Jul	165%	1.228	0.801	0.801	108%	0.801	RB spawning	0.037		0.372	0.372
15-Jul	100%	0.744	0.644	0.644	86%	0.644	RB incubation	0.037			0.037
22-Jul	100%	0.744	0.519	0.519	70%	0.519	RB incubation	0.037			0.037
29-Jul	100%	0.744	0.462	0.462	62%	0.462	RB incubation	0.037			0.037
5-Aug	20%	0.149	0.360	0.149	20%	0.250	RB parr rearing	0.037			0.037
12-Aug	20%	0.149	0.372	0.149	20%	0.250	RB parr rearing	0.037			0.037
19-Aug	20%	0.149	0.312	0.149	20%	0.250	RB parr rearing	0.037			0.037
26-Aug	20%	0.149	0.311	0.149	20%	0.250	RB parr rearing	0.037			0.037
2-Sep	20%	0.149	0.310	0.149	20%	0.250	RB parr rearing, KO migration	0.037			0.037
9-Sep	20%	0.149	0.269	0.149	20%	0.250	RB parr rearing, KO migration	0.037			0.037
16-Sep	20%	0.149	0.295	0.149	20%	0.250	KO Spawning	0.037	0.074		0.074
23-Sep	20%	0.149	0.293	0.149	20%	0.250	KO Spawning	0.037	0.074		0.074
30-Sep	20%	0.149	0.298	0.149	20%	0.250	KO Spawning	0.037	0.074		0.074
7-Oct	20%	0.149	0.299	0.149	20%	0.250	KO Spawning	0.037	0.074		0.074
14-Oct	20%	0.149	0.297	0.149	20%	0.250	KO Spawning	0.037	0.074		0.074
21-Oct	20%	0.149	0.349	0.149	20%	0.250	RB parr rearing	0.037			0.037
28-Oct	20%	0.149	0.334	0.149	20%	0.250	RB parr rearing	0.037			0.037
Nov	20%	0.149	0.342	0.149	20%	0.250	overwintering egg incubation	0.037			0.037
Dec	20%	0.149	0.286	0.149	20%	0.250	overwintering egg incubation	0.037			0.037

Percentile Flows for Mill Creek

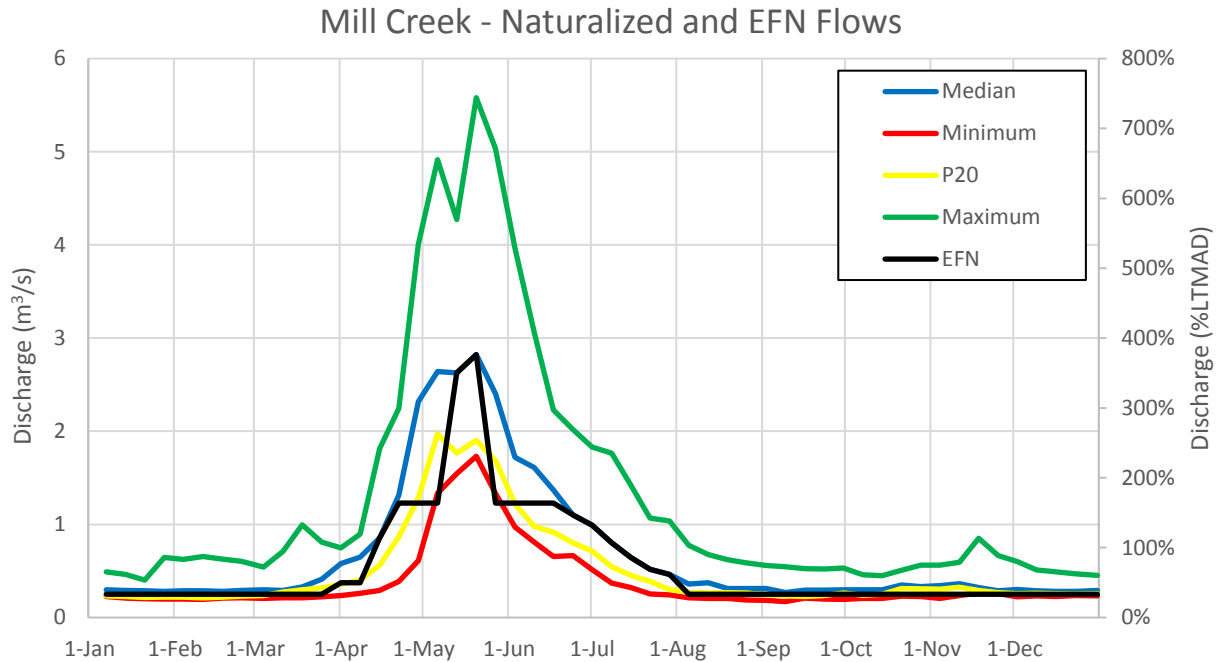


Figure B12-2: Okanagan Tennant EFNs compared to naturalized flow percentiles for Mill Creek (Discharge & %LTMAD)

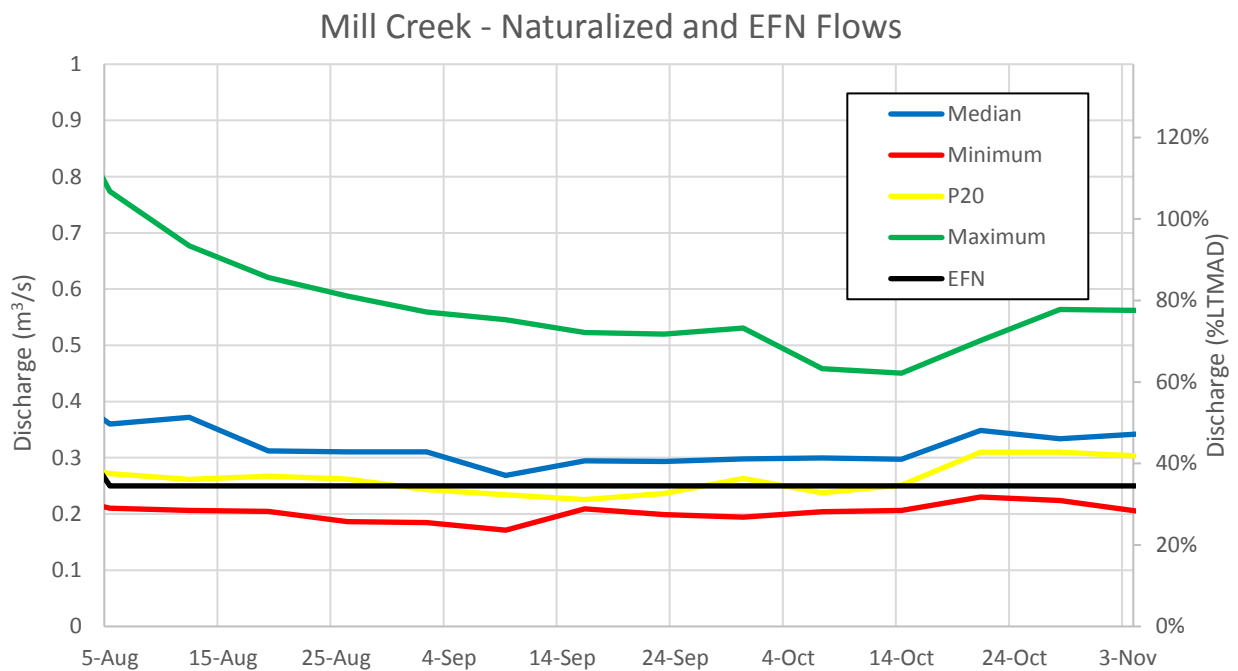


Figure B12-3: Okanagan Tennant EFNs compared to naturalized flow percentiles for Mill Creek Aug – Nov (Discharge & %LTMAD)

Mill Creek naturalized flows

NATURALIZED FLOW		as m ³ /s				as %LTMAD			
Week	Ending	Min	P20	Median	Max	Min	P20	Median	Max
01	7-Jan	0.227	0.231	0.298	0.492	31%	31%	40%	66%
02	14-Jan	0.207	0.225	0.292	0.462	28%	30%	39%	62%
03	21-Jan	0.203	0.217	0.289	0.402	27%	29%	39%	54%
04	28-Jan	0.199	0.217	0.281	0.643	27%	29%	38%	86%
05	4-Feb	0.197	0.219	0.286	0.623	26%	29%	38%	84%
06	11-Feb	0.194	0.211	0.286	0.654	26%	28%	38%	88%
07	18-Feb	0.207	0.220	0.282	0.627	28%	30%	38%	84%
08	25-Feb	0.213	0.230	0.291	0.602	29%	31%	39%	81%
09	4-Mar	0.206	0.235	0.299	0.541	28%	32%	40%	73%
10	11-Mar	0.211	0.275	0.292	0.710	28%	37%	39%	95%
11	18-Mar	0.212	0.297	0.329	0.995	28%	40%	44%	134%
12	25-Mar	0.222	0.317	0.411	0.811	30%	43%	55%	109%
13	1-Apr	0.235	0.355	0.578	0.748	32%	48%	78%	101%
14	8-Apr	0.259	0.400	0.648	0.894	35%	54%	87%	120%
15	15-Apr	0.292	0.561	0.853	1.812	39%	75%	115%	243%
16	22-Apr	0.388	0.869	1.316	2.245	52%	117%	177%	302%
17	29-Apr	0.610	1.284	2.318	4.008	82%	172%	311%	538%
18	6-May	1.335	1.971	2.642	4.913	179%	265%	355%	660%
19	13-May	1.545	1.765	2.628	4.273	208%	237%	353%	574%
20	20-May	1.731	1.904	2.822	5.580	233%	256%	379%	750%
21	27-May	1.333	1.685	2.403	5.037	179%	226%	323%	677%
22	3-Jun	0.972	1.219	1.720	3.965	130%	164%	231%	533%
23	10-Jun	0.809	0.979	1.610	3.063	109%	132%	216%	411%
24	17-Jun	0.653	0.916	1.368	2.227	88%	123%	184%	299%
25	24-Jun	0.664	0.802	1.102	2.019	89%	108%	148%	271%
26	1-Jul	0.516	0.712	0.993	1.829	69%	96%	133%	246%
27	8-Jul	0.369	0.546	0.801	1.766	50%	73%	108%	237%
28	15-Jul	0.321	0.454	0.644	1.422	43%	61%	86%	191%
29	22-Jul	0.253	0.388	0.519	1.066	34%	52%	70%	143%
30	29-Jul	0.242	0.302	0.462	1.038	33%	41%	62%	139%
31	5-Aug	0.210	0.272	0.360	0.774	28%	37%	48%	104%
32	12-Aug	0.206	0.262	0.372	0.677	28%	35%	50%	91%
33	19-Aug	0.205	0.267	0.312	0.621	27%	36%	42%	83%
34	26-Aug	0.186	0.262	0.311	0.588	25%	35%	42%	79%
35	2-Sep	0.185	0.243	0.310	0.559	25%	33%	42%	75%
36	9-Sep	0.171	0.234	0.269	0.546	23%	31%	36%	73%
37	16-Sep	0.209	0.225	0.295	0.523	28%	30%	40%	70%
38	23-Sep	0.199	0.236	0.293	0.520	27%	32%	39%	70%
39	30-Sep	0.194	0.263	0.298	0.531	26%	35%	40%	71%
40	7-Oct	0.204	0.238	0.299	0.459	27%	32%	40%	62%
41	14-Oct	0.206	0.251	0.297	0.450	28%	34%	40%	60%
42	21-Oct	0.230	0.310	0.349	0.508	31%	42%	47%	68%
43	28-Oct	0.224	0.310	0.334	0.564	30%	42%	45%	76%
44	4-Nov	0.205	0.303	0.342	0.562	28%	41%	46%	76%
45	11-Nov	0.237	0.326	0.363	0.594	32%	44%	49%	80%
46	18-Nov	0.262	0.290	0.323	0.852	35%	39%	43%	115%
47	25-Nov	0.257	0.267	0.287	0.664	35%	36%	39%	89%
48	2-Dec	0.221	0.258	0.301	0.600	30%	35%	40%	81%
49	9-Dec	0.233	0.260	0.286	0.510	31%	35%	38%	68%
50	16-Dec	0.226	0.258	0.280	0.489	30%	35%	38%	66%
51	23-Dec	0.237	0.254	0.280	0.470	32%	34%	38%	63%
52	31-Dec	0.233	0.258	0.290	0.453	31%	35%	39%	61%

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