

Appendix B

Fish Periodicity Chart, Including an Attempt at Reconstructing the Natural Hydrograph for Sinmax Creek Below Johnson Creek

Fish periodicity chart for Sinmax Creek at Old WSC Site, British Columbia (Draft)

Estimated Natural Mean Annual Discharge (mad in cms) = 0.44 cms 15.6 cfs WSC plus demand (Ptolemy)
Nominal Flow Standard (%mad)

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	
Ecological Function													
Flushing				x	xxxx	xxx							Remove fines
Icing	xxxx	xxxx										xxxx	Egg freezing risk
Wetland/trib/sidechannel linkage					xxxx	xxxx							
Channel Maintenance (200-400% MAD)					xx	xx							once every 5 years
	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	
Conservation Flow (%mad): PRELIMINARY	20	20	40	60	220	150	60	20	20	30	30	20	Modified tennant and Ptolemy (BC)
based on Naturalized Mean Monthly Flow													Groundwater and tributaries included.
Preliminary Conservation Flow in cms	0.088	0.088	0.177	0.265	0.972	0.663	0.265	0.088	0.088	0.133	0.133	0.088	
Mean Flow for period of record (cms)	0.305	0.270	0.264	0.512	1.340	0.581	0.596	0.280	0.180	0.155	0.179	0.199	
Minimum mean monthly flow (in short period of record)					0.305	0.208	0.066	0.054	0.030				
Maximum mean monthly flow (in short period of record)					3.090	0.825	1.570	0.619	0.338				
Preliminary Conservation Flow in cfs (cubic feet per sec.)	3.1	3.1	6.2	9.4	34.3	23.4	9.4	3.1	3.1	4.7	4.7	3.1	
Species													
Sockeye Salmon													
Adult Migration									xxxx	xx			Delta access
Spawning									xx	xxxx	xx		
Incubation	xxxx	xxxx	xxxx	xxxx	xxxx				xx	xxxx	xxxx	xxxx	Are sockeye still viable?
Fry /smolt emmigration			xx	xxxx	xxxx	xxxx	xxxx						
Coho Salmon													
Adult Migration	xxxx							x	xxxx	xxxx	xxxx	xxxx	Mainstem vs. tributary migration
Spawning	xxxx									x	xxxx	xxxx	
Incubation	xxxx	xxxx	xxxx	xxxx						x	xxxx	xxxx	
Rearing			xx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Smolt migration				xx	xxxx	xxxx	x						
Over-wintering	xxxx	xxxx	xx								xxxx	xxxx	
Rainbow Trout (two stocks)													
Adult passage into mainstem and tributaries				xxxx	xxxx	xxxx							Viable migratory stock
Spawning				xx	xxxx	xx							spawning sites unknown
Incubation				x	xxxx	xxxx	xxxx						Stream resident stock present
Rearing			xx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx			
Over-wintering	xxxx	xxxx	xx								xxxx	xxxx	
Fry Migration (including Upstream to Johnson Lake)							xx	xxxx	xxxx	xxx			
Kokanee													
Adult Passage									xxxx	xxxx			Stock still viable?
Spawning									xx	xxx			little information except FN history
Incubation	xxxx	xxxx	xxxx	x					xx	xxx	xxxx	xxxx	
Fry Emmigration			xx	xxxx	xxxx	xxxx	xx						

Attempt at Naturalizing Hydrograph for Sinmax Creek at old WSC Gauge Site (08LD004) - Sinmax Creek Below Johnson Creek

WSC Streamflow Data:

ID	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
08LD004	1926					0.305	0.208	0.066	0.054	0.030				
08LD004	1927				0.080	0.555	0.545	0.423	0.185	0.132				
08LD004	1928				0.873	1.600	0.605	0.336	0.149	0.100				
08LD004	1965						0.825	0.404	0.421	0.244				
08LD004	1966				0.616	1.150	0.721	0.417	0.307	0.198				
08LD004	1967							0.451	0.224	0.110				
08LD004	1968							0.681	0.295	0.276				
08LD004	1969							1.570	0.619	0.338				
08LD004	1970							0.325	0.129	0.094				
08LD004	1971							0.958	0.356	0.240				
08LD004	1972							1.240	0.529	0.291				
08LD004	1973							0.275	0.139	0.081				
08LD004	1974							0.598	0.238	0.157	0.123	0.134	0.147	
08LD004	1975									0.223	0.186	0.224	0.250	
08LD004	1976	0.305	0.270	0.264	0.477	3.090								

Average		0.305	0.270	0.264	0.512	1.340	0.581	0.596	0.280	0.180	0.155	0.179	0.199	0.405
Min						0.305	0.208	0.066	0.054	0.030				
Max						3.090	0.825	1.570	0.619	0.338				

Naturalized By Adding Calculated (120 day) Irrigation Diversions:

ID	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Total Licensed Use up to the Given Year
08LD004	1926					0.305	0.218	0.076	0.064	0.040					0.010
08LD004	1927				0.080	0.555	0.561	0.439	0.201	0.148					0.016
08LD004	1928				0.873	1.600	0.625	0.356	0.169	0.120					0.020
08LD004	1965						0.981	0.560	0.577	0.400					0.156
08LD004	1966				0.616	1.150	0.877	0.573	0.463	0.354					0.156
08LD004	1967							0.607	0.380	0.266					0.156
08LD004	1968							0.837	0.451	0.432					0.156
08LD004	1969							1.727	0.776	0.495					0.157
08LD004	1970							0.482	0.286	0.251					0.157
08LD004	1971							1.115	0.513	0.397					0.157
08LD004	1972							1.397	0.686	0.448					0.157
08LD004	1973							0.432	0.296	0.238					0.157
08LD004	1974							0.755	0.395	0.314	0.123	0.134	0.147		0.157
08LD004	1975									0.403	0.186	0.224	0.250		0.180
08LD004	1976	0.305	0.270	0.264	0.477	3.090									0.180

Average		0.305	0.270	0.264	0.512	1.340	0.652	0.720	0.404	0.308	0.155	0.179	0.199	0.442
Min						0.305	0.218	0.076	0.064	0.040				
Max						3.090	0.981	1.727	0.776	0.495				

Note: The Sept average flow is TOO HIGH as it should not drop this much in Oct in the Southern Interior. 1974 and 1975 are the best examples of this.

Conclusion: This naturalization of streamflow is highly suspect. Either all the licensed irrigation demand was not in use in all years, or more likely, the licensed tributary streams are not directly connected to Sinmax Creek (i.e. Use of 0.010 cms on a tributary does not decrease Sinmax Creek flow by 0.010 cms).