

Snow Survey and Water Supply Bulletin – April 1st, 2019

The April 1st snow survey is now complete. Data from 148 manual snow courses and 79 automated snow weather stations around the province (collected by the Ministry of Environment and Climate Change Strategy Snow Survey Program, BC Hydro and partners), and climate data from Environment and Climate Change Canada and the provincial Climate Related Monitoring Program have been used to form the basis of the following report¹.

Weather

Following an extremely cold February, temperatures were mixed across British Columbia in March. Cooler temperatures dominated the first half or more of the month in most areas. A warm spell towards the end of March brought record or near-record high seasonal temperatures, particularly in southern BC. Despite this warm spell, overall monthly temperatures were near-normal to below normal (+0.5 to -3 °C) through most of the southern two-thirds of the province. In the far north, temperatures were well above normal, with Fort Nelson experiencing the warmest March on record (March temperature anomaly of nearly 6 °C above normal).

March was extremely dry across most of the province; it was among the driest March on record for areas in the south-west and north-east. Observed precipitation ranged from 5% to 70% of normal, with most areas in the province receiving less than 25 mm of precipitation through the month.

Snowpack

Snow basin indices for April 1st, 2019 range from a low of 47% of normal in the Northwest to a high of 94% in the Upper Fraser West (Table 1 and Figure 1) with the average of all snow measurements across the province calculated to be 79% of normal. A well-below normal snowpack (<60% of normal) is present in the Stikine, Northwest and Skagit. A below normal snowpack (60-80% of normal) exists in the Liard, Skeena-Nass, Nechako, Central Coast, South Coast, Lower Fraser, Vancouver Island, Similkameen, Nicola, Okanagan, South Thompson, Boundary and East Kootenay. The rest of the province has slightly below normal to normal snowpack (80-95% of normal). There are no regions in the province with normal or above normal snowpacks. The April 1st snow basin index for the entire Fraser River is 80% of normal.

Snow accumulation has been dominated by persistent weather patterns so far this season. Most of this year's snowpack built up rapidly over a five to six-week period during early-December to early-January. Weather through February was dominated by Arctic air across the province, with extremely cold temperatures and limited snow accumulation. This pattern has continued into the beginning of March. Extremely dry weather through March led to very little snow accumulation through the month. In low and mid-elevations (<1500m), hot weather led to snowpack ripening and early season snowmelt. Most basins dropped by 5 to

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15% relative to normal compared to March 1 due to dry conditions (and limited accumulation), and in some sites early snowmelt.

Table 1 - BC Snow Basin Indices – April 1, 2019

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	94	Boundary	65
Upper Fraser East	89	Similkameen	65
Nechako	72	South Coast	75
Middle Fraser	85	Vancouver Island	66
Lower Fraser	71	Central Coast	71
North Thompson	89	Skagit	51
South Thompson	75	Peace	91
Upper Columbia	89	Skeena-Nass	72
West Kootenay	82	Stikine	50
East Kootenay	77	Liard	65
Okanagan	72	Northwest	47
Nicola	66	Fraser	80

Streamflow

With persistent dry weather in March, rain-dominated rivers in coastal areas of British Columbia have been experiencing extremely low, and in some cases record low, seasonal levels. This has been primarily due to the extremely dry weather in regions that typically experience wetter weather through February and March. Cold also played a role, as freezing temperatures at low elevations inhibited runoff.

Warmer temperatures towards the end of March led to melt of low elevation snowpacks. In coastal areas, this led to modest increases in streamflows, which still remain well below normal for this time of year. In the BC Interior, warm temperatures have led to the early onset of freshet, and rivers have been receiving snowmelt runoff. Early-April streamflow is

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generally above normal or well above normal across the Interior, reflecting the onset of freshet 2-4 or more weeks ahead of normal.

Outlook

The Climate Prediction Centre (CPC) at the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) has declared that El Niño conditions are present and sea surface temperature anomalies in the equatorial Pacific Ocean have strengthened since the beginning of February. NWS continues to forecast a high likelihood of El Niño continuing through spring 2019, and potentially extending into the summer and fall periods. Typically, El Niño is linked to warmer winters across British Columbia, with a trend towards a lower than normal snowpack. While this year's low snowpack follows this trend for El Niño winters, low snowpacks are not the result of warmer winter temperatures typically expected during El Niño winters; instead, this year has featured persistent colder than normal temperatures and extremely dry weather through February and March, leading to the observed low snowpack across the province.

Seasonal forecasts from Environment and Climate Change Canada favor a high likelihood above normal spring temperatures (April-May-June) across British Columbia, particularly along coastal areas.

Annual snow accumulation in British Columbia usually reaches maximum levels in mid-April, therefore the April 1st survey usually provides a good snapshot of the overall annual snowpack that will provide river runoff for the freshet season. Currently, the snow accumulation ranges from well below normal to normal across the province.

At this stage in the season there is no elevated flood risk present in the current snowpack across the province. Normal seasonal flood risk is expected in the Peace, Upper Fraser and North Thompson. With below normal snowpack in most regions, reduced flood risk is expected. On the Fraser River, the overall basin index is 80% of normal; a peak flow in the range of 6500-8000 m³/s at Hope is likely with higher flows possible if adverse weather patterns, in particular heavy rainfall, emerge in the spring.

While snow is one significant aspect to seasonal flooding in BC, weather during the freshet season also plays a key role, and flooding is possible in years with near normal or low snowpack. In areas with low snowpack, key flood risks shift towards heavy precipitation events, either short-duration events or prolonged periods of wet weather. It is important to note that May and June are wet months through the BC Interior with the potential for extreme precipitation pattern. In the Rockies and north-east BC, upper-low weather patterns can extend the flood season into July. Therefore, it is important to note that precipitation poses a real flood risk through the spring even with limited snowpack.

Seasonal volume runoff forecasts (see below) are near-normal (85-105%) for the Upper Fraser, Middle Fraser, North Thompson, and Skeena. Seasonal volume runoff forecasts are

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below-normal (<85%) for the South Thompson, Thompson, Similkameen, Bulkley, Cowichan Lake, Okanagan Lake, Nicola Lake and Kalamalka-Wood Lake. The snowmelt component of seasonal runoff for Vancouver Island, South Coast, and Lower Fraser is below normal and may lead to low flow issues in the summer. Well below normal snowpack in the Northwest and Stikine is an early indication of the potential for below normal seasonal runoff.

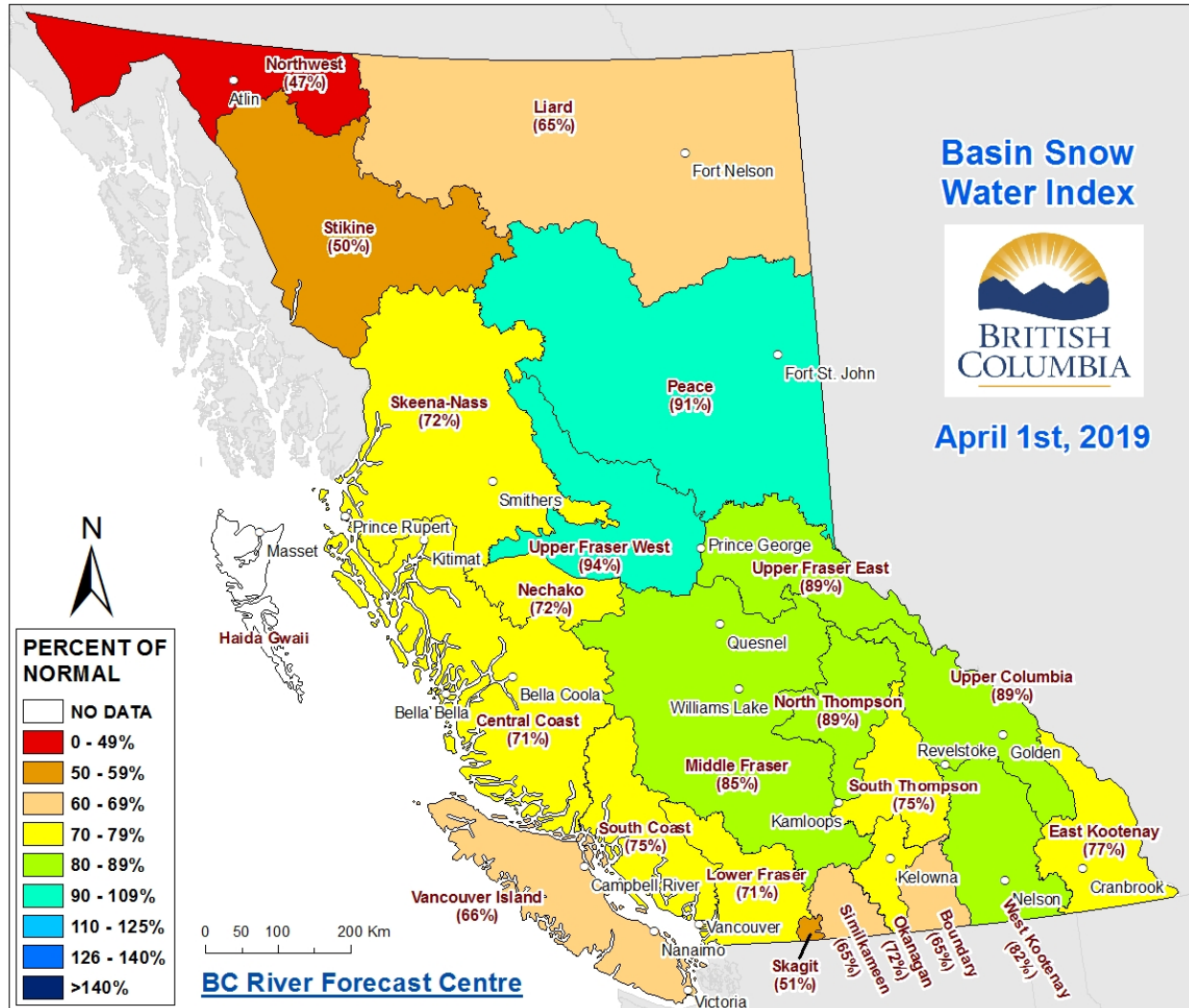
Hot weather in the second half of March has led to an early onset of the freshet season. Snowpacks at low elevation have melted, and snowmelt has been observed at mid-elevation (<1500m). Snow density has been increasing over the past couple of weeks at higher elevations, and melt is expected to occur soon at higher elevation, unless a significant cold weather pattern emerges in the next couple of weeks. Current conditions indicate the potential for an extremely early spring melt and freshet season; these current conditions typically occur 2-6 weeks from now. With an increased likelihood of above normal temperatures persisting through the spring, the trend of early melt is expected to continue. This suggests that the next 2-4 weeks may be the critical window for freshet for medium-sized and mid-elevation rivers across the province, and early-to-mid-May for larger rivers. This is much earlier than is typically experienced, and with previously experienced warm spells in March and associated low snowpacks throughout the province, there is the potential that snowmelt will be unprecedentedly early this season.

The River Forecast Centre will continue to monitor snowpack conditions and will provide an updated seasonal flood risk forecast in the May 1st, 2019 bulletin, which is scheduled for release on May 8th.

BC River Forecast Centre
April 8, 2019

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Figure 1: Basin Snow Water Index – April 1st, 2019



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Ministry of Forests, Lands and Natural Resource Operations
River Forecast Centre
Volume Runoff Forecast April 2019

Location	Apr - Jun Runoff				Apr - Jul Runoff				Apr - Sep Runoff			
	Forecast (kdam ³)	Normal (1981-2010) (kdam ³)	% of Normal	Std. Error (kdam ³)	Forecast (kdam ³)	Normal (1981-2010) (kdam ³)	% of Normal	Std. Error (kdam ³)	Forecast (kdam ³)	Normal (1981-2010) (kdam ³)	% of Normal	Std. Error (kdam ³)
Upper Fraser Basin	Fraser at McBride				3576	3699	97%	307	5058	5166	98%	381
	McGregor at Lower Canyon				3485	3964	88%	428	4527	5010	90%	564
	Fraser at Shelley				14090	15670	90%	1179	18128	19730	92%	1562
Middle Fraser Basin	Quesnel River at Quesnel				4437	4541	98%	418	5779	5872	98%	568
Thompson Basin	N. Thompson at McLure				7665	8916	86%	481	9637	11085	87%	753
	S. Thompson at Chase				4519	5792	78%	448	5705	7359	78%	686
	Thompson at Spences Bridge				12377	15114	82%	973	15658	19094	82%	1560
Bulkley and Skeena	Bulkley at Quick				2093	2625	80%	236	2641	3222	82%	272
	Skeena at Usk				16211	18673	87%	1173	20299	23017	88%	1698
Nicola Lake	Inflows	83	121	69%	30	96	138	70%	35			
Nicola River	at Spences Bridge	326	486	67%	82	356	554	64%	101			
Okanagan and Kalamalka-Wood Lake	Okanagan Lake Inflow	365	440	83%	88	379	465	82%	108			
	Kalamalka-Wood Lake Inflow	19	28	67%	11	21	29	72%	13			
Similkameen River	Similkameen at Nighthawk	977	1273	77%	128				1172	1583	74%	156
	Similkameen at Hedley	750	989	76%	96				858	1177	73%	96
Cowichan River	Cowichan Lake Inflows	201	248	81%	65				231	290	80%	84

1 kdam³=1,000,000 m³

Note that missing values reflect that forecasts were not made for that time interval

Disclaimer: Seasonal forecasts were developed using a Principle Component Analysis of snow pack, climate and streamflow data.

Cowichan Lake Inflows are based on a multi-variate regression analysis and reflects a normal scenario for summer weather conditions

The Standard Error in the Cowichan forecast reflects model error, and does not capture uncertainty over seasonal weather

There is inherent uncertainty in runoff forecasts including potential errors in data and the unpredictable nature of seasonal weather

Use at your own risk

2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
1A01P	Yellowhead Lake	Upper Fraser East	1847	2019-04-01	137				560	458	254	784	541	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-04-01	124	420		95%	479	391	198	693	442	26
1A03P	Barkerville	Upper Fraser East	1483	2019-04-01	91	332		91%	382	296	123	524	364	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693	2019-03-27	206	846		110%	952		296	1234	768	63
1A05P	Longworth Upper	Upper Fraser East	1740	2019-04-01	214	762			787	523	523	523		1
1A06A	HANSARD	Upper Fraser East	622	2019-04-02	48	156		89%	194		72	442	176	20
1A10	PRINCE GEORGE A	Upper Fraser East	684	2019-04-01	18	70		71%		0	0	313	98	56
1A11	PACIFIC LAKE	Upper Fraser East	756	2019-03-27	153	564		93%	851	423	165	1060	608	55
1A12	KAZA LAKE	Upper Fraser West	1247	2019-03-28	94	294		86%	346	251	132	476	341	55
1A12P	Kaza Lake	Upper Fraser West	1248	2019-04-01	101	297			323	269	269	290		2
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-04-01	169	578		72%	796	482	214	1288	801	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598	2019-03-27	166	673		84%	885	605	506	1346	801	51
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-04-01	141	462			658	499	499	499		1
1A16	BURNS LAKE	Upper Fraser West	820	2019-04-04	26	78		66%	204	60	0	264	119	48
1A17P	Revolution Creek	Upper Fraser East	1676	2019-04-01	184	711		91%	856	562	326	1292	783	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-04-01	183	637		87%	673	577	298	1069	732	12
1A23	BIRD CREEK	Upper Fraser West	1196	2019-04-01	52	190		136%	320	104	84	270	140	28
1B01	MOUNT WELLS	Nechako	1489	2019-04-01	109	373		76%	660	525	273	690	490	63
1B01P	Mount Wells	Nechako	1489	2019-04-01		454		82%	674	563	227	869	557	26
1B02	TAHTSA LAKE	Nechako	1319	2019-04-01	209	851		71%	1006	1239	775	1972	1202	65
1B02P	Tahtsa Lake	Nechako	1319	2019-04-01		889		70%	1231	1335	464	2227	1278	26
1B05	SKINS LAKE	Nechako	877	2019-04-01	6	17		19%	233	68	0	203	90	54
1B06	MOUNT SWANNELL	Nechako	1596	2019-04-01	81	268		95%	413	261	148	490	282	29
1B07	NUTLI LAKE	Nechako	1502	2019-04-01	109	367		71%	549	556	301	834	518	27
1B08P	Mount Pondosy	Nechako	1413	2019-04-01		556		70%	819	886	363	1152	790	26
1C01	BROOKMERE	Middle Fraser	994	2019-03-30	37	95		56%	223	182	45	399	171	73
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2019-03-29	117	428		75%	513	566	239	1118	572	66
1C05P	McGillivray Pass	Middle Fraser	1766	2019-04-01		478			619					
1C06	PAVILION	Middle Fraser	1209	2019-03-30	0	0		0%	84		0	147	22	60
1C08	NAZKO	Middle Fraser	1029	2019-03-28	9	27		59%	132		0	142	46	59
1C09A	HIGHLAND VALLEY	Middle Fraser	1547	2019-04-02	24	77		93%	N	144	3	249	83	51
1C12P	Green Mountain	Middle Fraser	1766	2019-04-01		683		78%	732	729	429	1408	878	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612	2019-03-29	128	510		109%	542	422	282	716	466	48
1C14	BRALORNE	Middle Fraser	1382	2019-03-29	38	125		82%	197	241	0	389	153	55
1C14P	Bralorne	Middle Fraser	1382	2019-04-01		249			270					
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-04-01	81	278		94%	338	237	161	533	296	57
1C18P	Mission Ridge	Middle Fraser	1903	2019-04-01		393		71%	614	653	157	1012	550	48

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617	2019-04-02	28	101		95%		163	21	307	106	51
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-04-01	127	517		88%	649	496	255	866	585	24
1C21	BIG CREEK	Middle Fraser	1130	2019-03-30	0	0		0%	68	0	0	119	14	48
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	2019-03-28	0	0		0%	84	0	0	91	19	48
1C23	PENFOLD CREEK	Middle Fraser	1687	2019-03-29	204	857		88%		888	525	1285	979	46
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2019-04-01	27	68		54%	264	211	0	228	127	45
1C28	DUFFEY LAKE	Middle Fraser	1253	2019-03-29	107	430		90%	581	491	212	866	480	40
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	2019-04-01	33	107		48%	313	275	16	442	222	39
1C29P	Shovelnose Moutain	Middle Fraser		2019-04-01	55	176								
1C32	DEADMAN RIVER	Middle Fraser	1463	2019-04-02	21	11		11%			30	196	104	33
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2019-03-27	56	193		103%	274		93	272	188	11
1C37	BRALORNE(UPPER)	Middle Fraser	1980	2019-03-29	143	506		76%		734	290	1010	665	23
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	2019-03-29	189	754		89%		890	422	1416	847	23
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-04-01		713			681	810	781	810		2
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2019-03-29	150	546		94%	622	616	240	1086	580	23
1C40	TYAUGHTON	Middle Fraser	1946	2019-03-29	120	382		87%	504	372	198	844	440	23
1C40P	North Tyaughton	Middle Fraser	1969	2019-04-01		332			456	310	310	375		2
1C41P	Yanks Peak East	Middle Fraser	1683	2019-04-01	181	890		112%	979	668	365	1013	794	21
1C42	CAVERHILL LAKE	Middle Fraser	1400	2019-03-28	49	160			290	218	174	284		13
1D06P	Tenquille Lake	Lower Fraser	1669	2019-04-01	207	890		88%	1112	1242	526	1587	1014	17
1D08	STAVE LAKE	Lower Fraser	1211	2019-03-27	238	1030		71%	1597		98	2750	1448	49
1D09	WAHLEACH LAKE	Lower Fraser	1395	2019-03-27	97	386	A	66%	596		33	1270	588	49
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-04-01		630		61%	1108	668	265	1640	1026	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	2019-03-27	230	1051		81%	1377		468	2410	1296	49
1D16	DICKSON LAKE	Lower Fraser	1147	2019-03-27	187	778		52%	1913	1626	56	2990	1497	25
1D17P	Chilliwack River	Lower Fraser	1621	2019-04-01	237	1216		85%	1746	1592	590	2418	1435	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-04-01	217	819								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-04-01	209	1072		67%	1575	1738	166	2745	1600	19
1E01B	BLUE RIVER	North Thompson	673	2019-03-31	73	276		101%	338	290	154	425	272	35
1E02P	Mount Cook	North Thompson	1574	2019-04-01	266	1153		95%	1296	1155	684	1480	1209	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	2019-03-28	134	458		85%	634	590	332	888	537	43
1E05	KNOUFF LAKE	North Thompson	1189		NS	NS			NS	160	0	274	134	63
1E07	ADAMS RIVER	North Thompson	1769	2019-03-31	156	598		89%	786	750	435	1069	673	48
1E08P	Azure River	North Thompson	1625	2019-04-01	197	963		85%	959	1180	528	1538	1135	21
1E10P	Kostal Lake	North Thompson	1760	2019-04-01	157	733		86%	865	850	417	1169	850	33
1E14P	Cook Creek	North Thompson	1280	2019-04-01	94	526			622		409	769	575	11
1F01A	ABERDEEN LAKE	South Thompson	1262	2019-04-01	30	90		73%	213	145	6	259	124	76

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1F02	ANGLEMONT	South Thompson	1168	2019-04-01	56	224		70%	486	300	142	561	321	61
1F03P	Park Mountain	South Thompson	1857	2019-04-01	139	611		72%	1030		379	1207	852	32
1F04P	Enderby	South Thompson	1950	2019-04-01	216	697			1008					0
1F06P	Celista Mountain	South Thompson	1533	2019-04-01	174	764		88%	1031	879	506	1117	867	13
2A01A	CANOE RIVER	Upper Columbia	866		NS	NS			NS	116	0	262	65	76
2A02	GLACIER	Upper Columbia	1249	2019-03-25	150	630		94%	709	611	362	1161	670	81
2A03A	FIELD	Upper Columbia	1310	2019-03-28	48	153	B	112%	204	134	8	251	137	79
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-04-01		997		82%	1272	1199	595	1686	1210	25
2A07	KICKING HORSE	Upper Columbia	1648	2019-03-27	101	293	B	92%	394	301	160	589	317	70
2A11	BEAVERFOOT	Upper Columbia	1924	2019-03-29	59	166		87%	236	226	105	460	191	70
2A14	MOUNT ABBOT	Upper Columbia	2031	2019-03-26	251	1095		91%	1300	1300	600	1849	1199	59
2A16	GOLDSTREAM	Upper Columbia	1914	2019-03-30	234	983		87%	1058	1221	584	1638	1133	55
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2019-03-25	250	1132		94%	1248	1128	590	1951	1210	55
2A18	KEYSTONE CREEK	Upper Columbia	1839	2019-03-30	164	647		82%	827		414	1388	788	51
2A18P	Keystone Creek	Upper Columbia	1850	2019-04-01		772			998	1066	966	1066		2
2A19	VERMONT CREEK	Upper Columbia	1533	2019-03-29	102	368		93%	476	490	190	843	397	52
2A21P	Molson Creek	Upper Columbia	1930	2019-04-01		922		90%	1081	1017	481	1551	1029	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	2019-03-30	193	755		85%	969	955	469	1384	885	51
2A23	BUSH RIVER	Upper Columbia	1982	2019-03-30	191	743		92%		875	455	1331	809	51
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2019-03-30	246	1047		90%	1173	1360	671	1816	1163	46
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2019-03-30	134	548		83%	720	644	338	1032	664	40
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2019-03-30	270	1166		87%	1320	1474	335	2360	1334	40
2A30P	Colpitti Creek	Upper Columbia	2131	2019-04-01		666			957	907	803	907		2
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-04-01		771			1034	1053	946	1053		2
2A32P	Wildcat Creek	Upper Columbia	2122	2019-04-01		573			646	635	523	635		2
2B02A	FARRON	Lower Columbia	1229	2019-03-29	79	287		96%	465	350	127	480	300	45
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	2019-03-28	107	417		65%	780	588	350	964	638	60
2B06P	Barnes Creek	Lower Columbia	1595	2019-04-01		413		78%	774	428	272	773	530	25
2B07	KOCH CREEK	Lower Columbia	1813	2019-03-28	171	599		83%	810	819	397	1156	722	58
2B08P	St. Leon Creek	Lower Columbia	1822	2019-04-01		937		87%	1317	1189	536	1553	1072	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-04-01	136	512		72%	822	905	315	1307	708	43
2C01	SINCLAIR PASS	East Kootenay	1374	2019-03-27	41	114		105%	161	96	36	262	109	81
2C04	SULLIVAN MINE	East Kootenay	1580	2019-03-31	70	218		80%	347	326	114	538	272	72
2C07	FERNIE EAST	East Kootenay	1213	2019-03-31	70	218	N	76%	398	348	24	605	286	67
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-04-01		407		58%	683	689	308	1224	704	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-04-01	67	280		68%	518	561	184	679	412	39
2C14P	Floe Lake	East Kootenay	2110	2019-04-01		566		81%	828	850	331	983	695	25

2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2019-03-29	156	481		94%		673	252	816	514	49
2C16	MOUNT JOFFRE	East Kootenay	1763	2019-03-29	84	256		73%	444	358	179	711	349	49
2C17	THUNDER CREEK	East Kootenay	2062	2019-03-29	77	224		86%	368	312	140	475	259	49
2D02	FERGUSON	West Kootenay	929	2019-04-03	119	542		99%	669		142	881	550	79
2D03	SANDON	West Kootenay	1072	2019-04-01	59	230	B	70%	447	375	71	585	330	75
2D04	NELSON	West Kootenay	952	2019-03-28	79	301		90%	410	283	5	622	334	80
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	2019-03-27	102	348		79%	579		276	688	440	69
2D06	CHAR CREEK	West Kootenay	1290	2019-03-30	104	395		75%	684	557	214	940	525	52
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	2019-03-29	21	60		72%		180	0	223	83	26
2D08P	East Creek	West Kootenay	2004	2019-04-01		837		97%	905	1044	442	1245	863	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	2019-03-28	211	803		79%			520	1608	1013	46
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	2019-03-27	150	543		75%	920		492	1123	722	48
2D14P	Redfish Creek	West Kootenay	2086	2019-04-01	222	1027		86%	1477	1687	751	1755	1188	16
2E01	MONASHEE PASS	Kettle	1387	2019-03-28	66	233		72%	440	283	165	517	324	69
2E02	CARMI	Kettle	1254	2019-04-03	15	35		30%	210	88	0	290	115	55
2E03	BIG WHITE MOUNTAIN	Kettle	1672	2019-04-03	100	322	B	68%	671	396	319	762	476	52
2E07P	Grano Creek	Kettle	1874	2019-04-01	113	321		62%	714	479	285	791	516	20
2F01A	TROUT CREEK (West)	Okanagan	1430	2019-03-24	39	124	B	63%	336	163	93	272	196	8
2F01P	Trout Creek West	Okanagan	1420	2019-04-01	34	157			268					0
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2019-03-26	51	143		73%	360	227	96	389	197	82
2F03	MC CULLOCH	Okanagan	1266	2019-03-27	33	90		68%	265	144	6	249	132	83
2F04	GRAYSTOKE LAKE	Okanagan	1818	2019-04-01	77	290		86%	552		168	828	339	43
2F05P	Mission Creek	Okanagan	1794	2019-04-01	112	356		74%	705	432	242	728	478	48
2F07	POSTILL LAKE	Okanagan	1358	2019-03-29	49	136		67%	284		90	348	202	67
2F08P	Greyback Reservoir	Okanagan	1550	2019-04-01	39	148			283	257	257	257		1
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2019-03-31	115	435		83%	670	555	318	1021	521	65
2F10P	Silver Star Mountain	Okanagan	1839	2019-04-01	181	623			754	649	649	786		2
2F11	ISINTOK LAKE	Okanagan	1651	2019-03-29	32	77		52%	273	141	66	340	148	53
2F12	MOUNT KOBAN	Okanagan	1817	2019-03-29	71	202		66%	549	375	105	602	304	52
2F13	ESPERON CR (UPPER)	Okanagan	1634	2019-03-30	73	250		65%	478	386	244	805	383	52
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	2019-03-30	61	206		63%	404	318	196	607	328	52
2F18P	Brenda Mine	Okanagan	1453	2019-04-01		201		58%	389	308	190	497	345	25
2F19	OOYAMA LAKE	Okanagan	1365	2019-03-29	43	116		75%	236	182	61	255	154	48
2F20	VASEUX CREEK	Okanagan	1403	2019-03-30	45	61		46%	238	100	40	239	132	47
2F21	BOULEAU LAKE	Okanagan	1405	2019-03-26	57	170		56%	396	252	160	564	306	47
2F23	MACDONALD LAKE	Okanagan	1742	2019-03-29	101	351		82%	598	45	45	677	428	40
2F24	ISLAHT LAKE	Okanagan	1492	2019-04-01	71	224		72%	440		145	501	309	35

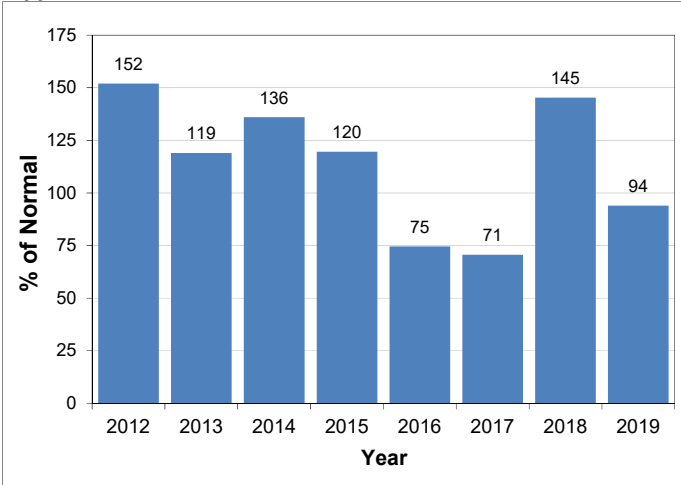
2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2F25	POSTILL LAKE UPPER	Okanagan	1500	2019-04-05			N				38	281		7
2G03P	Blackwall Peak	Similkameen	1934	2019-04-01	149	567		74%	944	754	403	1497	770	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-03-31	68	166		77%	408	181	138	533	216	57
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2019-03-31	34	103		52%	284	208	90	361	197	57
2G06	HAMILTON HILL	Similkameen	1477	2019-03-29	40	121		42%	354	265	83	851	291	58
3A01	GROUSE MOUNTAIN	South Coast	1126	2019-03-28	217	960		83%	1750	1694	0	2670	1160	82
3A02	POWELL RIVER (UPPER)	South Coast	1002	2019-03-27	185	708	B	73%			15	1813	969	65
3A05	POWELL RIVER (LOWER)	South Coast	882	2019-03-27	106	408	B	63%			8	1554	651	58
3A09	PALISADE LAKE	South Coast	898	2019-03-27	175	808		61%	1720	1620	0	3560	1322	71
3A09P	Palisade Lake	South Coast	900	2019-04-01	141	497								
3A10	DOG MOUNTAIN	South Coast	1007	2019-03-29	182	890		78%	1470	1496	0	2720	1137	73
3A19	ORCHID LAKE	South Coast	1178	2019-03-27	299	1420		80%	2134	1970	90	3770	1769	45
3A20	CALLAGHAN CREEK	South Coast	1009	2019-03-28	164	706		86%	981	940	24	1604	820	41
3A22P	Nostetuko River	South Coast	1457	2019-04-01	113	435		77%	589	516	233	1074	568	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-04-01	75	202		70%	383	269	147	567	288	29
3A25P	Squamish River Upper	South Coast	1387	2019-04-01	297	1373		87%	1744	1595	715	2760	1584	28
3A26	CHAPMAN CREEK	South Coast	1022	2019-03-27	224	923			1770	318	318	1728	308	10
3A27	EDWARDS LAKE	South Coast	1070	2019-03-27	134	548		255%			398	1286	215	6
3A28P	Tetrahedron	South Coast	1420	2019-04-01		960								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2019-03-29	243	1118		75%	1394	1432	30	3550	1485	63
3B02A	MOUNT COKELY	Vancouver Island	1267								0	2100	831	36
3B04	ELK RIVER	Vancouver Island	270	2019-03-29	0	0		0%	0	55	0	607	34	62
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	2019-03-29	195	894		61%	1214	1436	0	3200	1455	60
3B17P	Wolf River Upper	Vancouver Island	1422	2019-04-01		960		73%	1202	1162	305	2600	1320	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2019-03-29	86	362		59%	430	560	0	1706	618	48
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2019-03-29	38	192		61%	246	312	0	1198	315	48
3B23P	Jump Creek	Vancouver Island	1134	2019-04-01	122	652		60%	1440	1334	0	3040	1088	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-04-01	162	818			1741	1745	1429	1745		2
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-04-01	178	840			1232					0
3C07	WEDEENE RIVER SOUTH	Central Coast	196	2019-04-01	67	264		69%	520	380	96	981	383	32
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-04-01	136	576		72%	771	740	382	1402	802	20
3D01C	SUMALLO RIVER WEST	Skagit	801	2019-03-27	28	85		45%	337		0	461	191	25
3D02	LIGHTNING LAKE	Skagit	1254	2019-03-30	61	180		65%	344	262	60	622	278	71
3D03A	KLESILKWA	Skagit	1134	2019-03-27	31	90		39%	345	293	0	792	231	70
4A02P	Pine Pass	Peace	1386	2019-04-01	221	967		94%	1030	859	363	1550	1026	29
4A03	WARE (UPPER)	Peace	1563	2019-03-29	85	223		86%	286	198	90	390	258	56
4A03P	Ware Upper	Peace	1565	2019-04-01	84	214			260	203	203	203		1

2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
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4A04	WARE (LOWER)	Peace	969	2019-03-29	62	190		98%	225	143	89	316	194	56
4A04P	Ware Lower	Peace	971	2019-04-01	50	203			235	150	150	150		1
4A05	GERMANSEN (UPPER)	Peace	1489	2019-03-28	110	364		105%	368	253	156	523	348	57
4A06	TUTIZZI LAKE	Peace	1043	2019-03-28	68	226		87%	291	188	106	406	259	55
4A07	LADY LAURIER LAKE	Peace	1460	2019-03-30	124	437		83%	465	436	194	854	529	55
4A09	PULPIT LAKE	Peace	1331	2019-03-29	115	371		87%	403	329	152	618	425	55
4A09P	Pulpit Lake	Peace	1331	2019-04-01	91	314		72%	316	282	133	620	439	28
4A10	FREDRICKSON LAKE	Peace	1323	2019-03-28	80	233		94%	235	149	93	351	247	55
4A11	TRYGVE LAKE	Peace	1409	2019-03-29	101	302		82%		285	119	511	370	55
4A12	TSAYDAYCHI LAKE	Peace	1173	2019-03-28	116	398		100%	417	346	166	639	398	55
4A13	PHILIP LAKE	Peace	1013	2019-03-28	81	275		99%	252	133	133	449	279	55
4A16	MORFEE MOUNTAIN	Peace	1427	2019-03-28	181	763		92%	749		265	1158	833	48
4A18	MOUNT SHEBA	Peace	1480	2019-03-27	203	852		104%	893		369	1294	823	48
4A20	MONKMAN CREEK	Peace	1566	2019-03-27	131	481		89%	714	535	190	1067	540	44
4A20P	Monkman Creek	Peace	1570	2019-04-01		411								
4A21	MOUNT STEARNS	Peace	1514	2019-03-30	47	132		90%	168	180	41	239	147	44
4A25	FORT ST. JOHN A	Peace	692	2019-03-29	32	81		84%	164	105	0	226	97	43
4A27P	Kwadacha North	Peace	1554	2019-04-01	98	241			301	227	227	227		1
4A30P	Aiken Lake	Peace	1061	2019-04-01	56	212		79%	218	191	90	371	268	33
4A31P	Crying Girl Prairie	Peace	1358	2019-04-01		190			314	278	173	278		2
4A33P	Muskwa-Kechika	Peace	1196	2019-04-01		52			117	129	46	129		2
4A34P	Dowling Creek	Peace	1456	2019-04-01		1471			1254	444	444	444		1
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2019-04-01	154	645		69%	845	999	622	1781	931	64
4B02	JOHANSON LAKE	Skeena-Nass	1480	2019-03-28	86	262		87%	279	226	108	417	301	55
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-03-27	119	425		85%	530	408	168	846	499	46
4B04	CHAPMAN LAKE	Skeena-Nass	1485	2019-03-27	116	412		90%	586	422	315	762	457	53
4B06	TACHEK CREEK	Skeena-Nass	1133	2019-04-04	68	216		97%	244	178	112	362	223	50
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	2019-03-27	81	250		92%	421	199	183	427	271	50
4B08	MOUNT CRONIN	Skeena-Nass	1491	2019-03-27	129	457		80%	714	549	433	1097	570	49
4B10	NINGUNSAW PASS	Nass	647	2019-03-28	69	234		54%	251		220	730	434	42
4B11A	BEAR PASS	Nass	437	2019-03-30	100	350		55%	460	430	330	1013	642	31
4B12P	Granduc Mine	Skeena-Nass	790	2019-04-01						82	82	82		1
4B13A	TERRACE A	Skeena-Nass	219	2019-04-01	0	0		0%	182	60	0	333	84	38
4B14	EQUITY MINE	Skeena-Nass	1434	2019-03-29	103	354		92%	546	406	258	640	385	41
4B15	LU LAKE	Skeena-Nass	1296	2019-03-29	83	266		91%	420	252	162	504	291	41
4B15P	Lu Lake	Skeena-Nass	1308	2019-04-01	77	244		92%	469	285	119	478	264	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-04-01	137	493		55%	563	532	195	1096	896	22

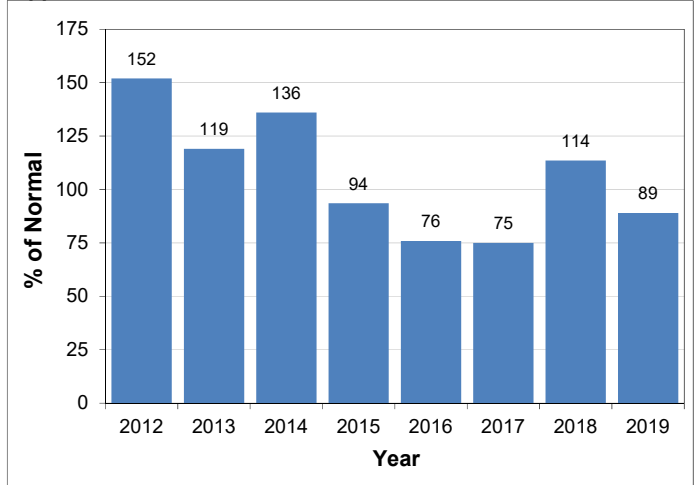
2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-04-01	201	876		75%	1025	934	302	1825	1165	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-04-01	94	401		56%	NA	472	178	1126	712	17
4C01	SIKANNI LAKE	Liard	1390	2019-03-29	70	199		72%	251	171	78	380	276	55
4C01P	Sikanni Lake	Liard	1400	2019-04-01	78	191			304	171	171	171		1
4C02	SUMMIT LAKE	Liard	1291	2019-04-03	38	99		88%	90	95	0	240	113	54
4C03	DEASE LAKE	Liard	805	2019-04-01	25	75		57%	99		50	259	132	50
4C05	FORT NELSON AIRPORT	Liard	368	2019-04-02	13	28		30%	52	96	23	198	94	51
4C15	JADE CITY	Liard	943						NS		156	340	238	15
4D01	TELEGRAPH CREEK	Stikine	490						72		37	343	146	40
4D02	ISKUT	Stikine	931	2019-04-01	0	0		0%	72		0	180	98	41
4D11P	Kinaskan Lake	Stikine	1020	2019-04-01	45	208		51%	167	330	94	330	405	22
4E02B	ATLIN LAKE	Yukon	730	2019-03-27	0	0				92	76	243		12
Code	Description													
A	Sampling problems were encountered													
B	Early or late sampling													
C	Early or late sampling w/problems encountered													
E	Estimate													
N	Scheduled, but not sampled													
NA	Not available													
NS	Not scheduled													
SD	Snow Depth													
SWE	Snow Water Equivalent													
T	Trace Amount													

Snow Basin Index Graphs - April 1, 2019

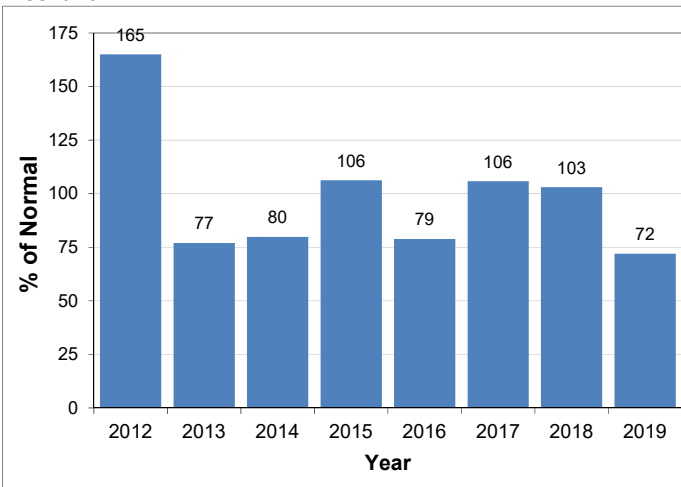
Upper Fraser West



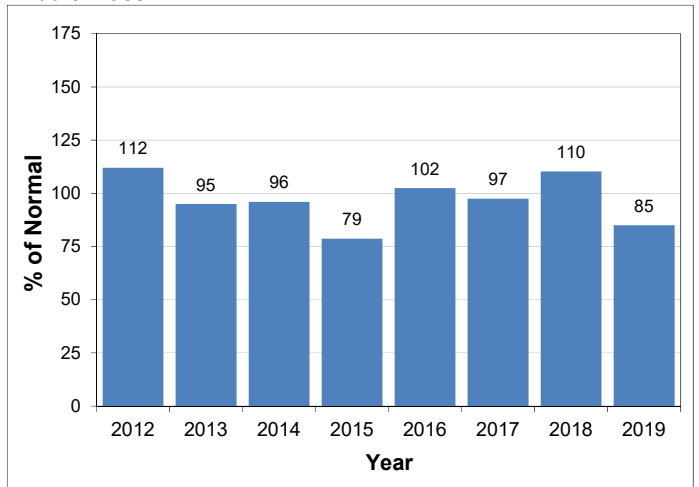
Upper Fraser East



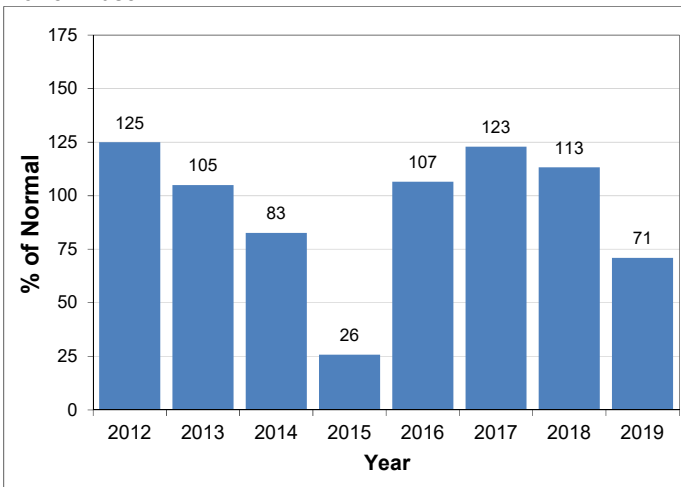
Nechako



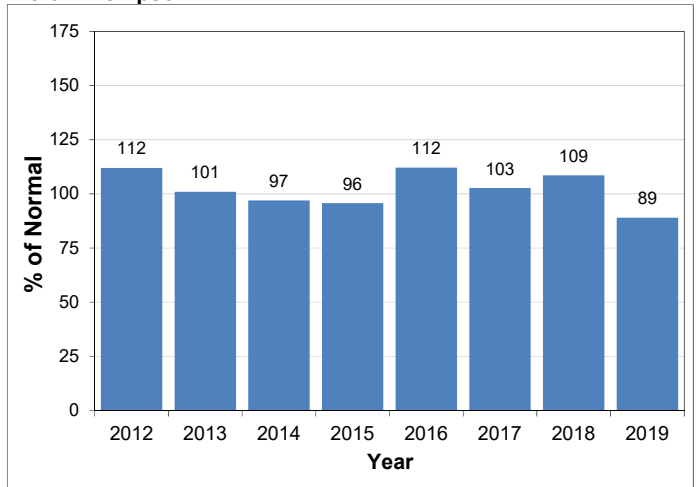
Middle Fraser



Lower Fraser

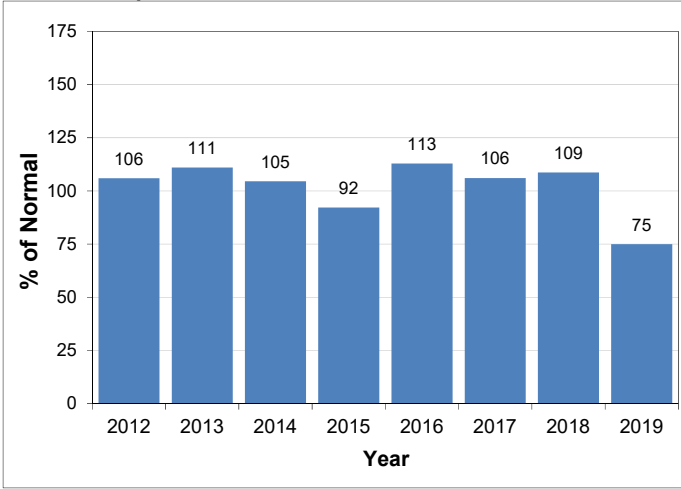


North Thompson

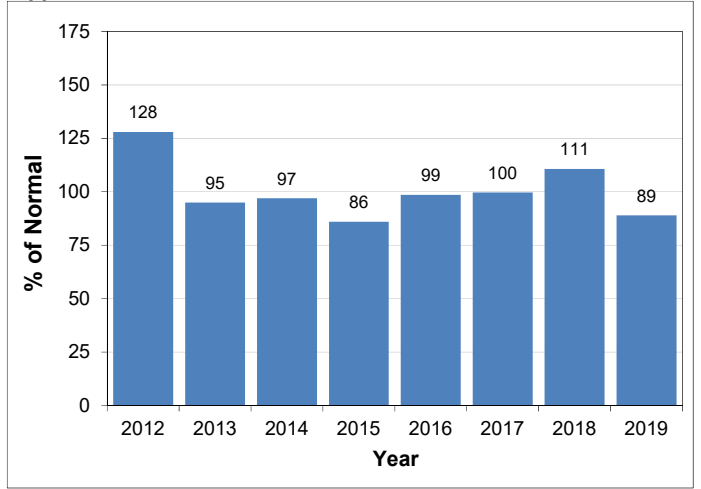


Snow Basin Index Graphs - April 1, 2019

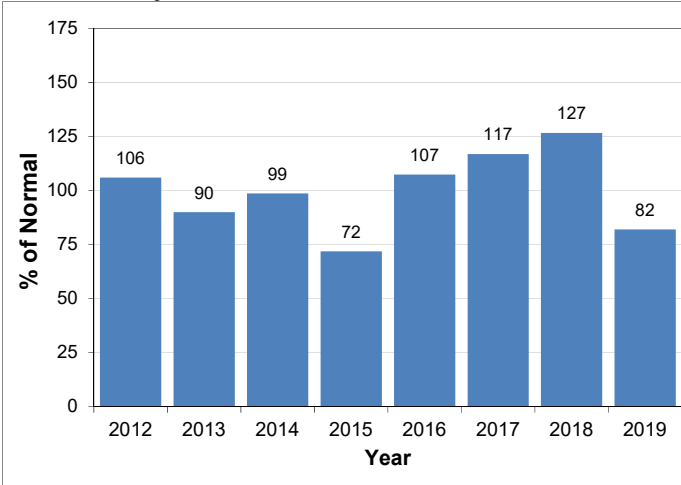
South Thompson



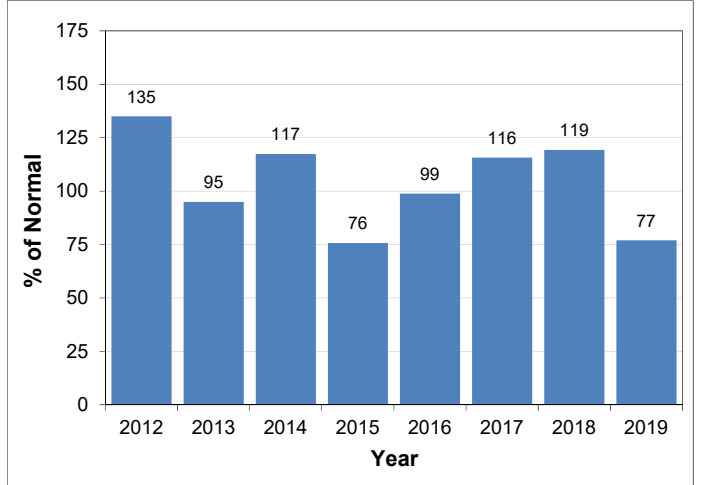
Upper Columbia



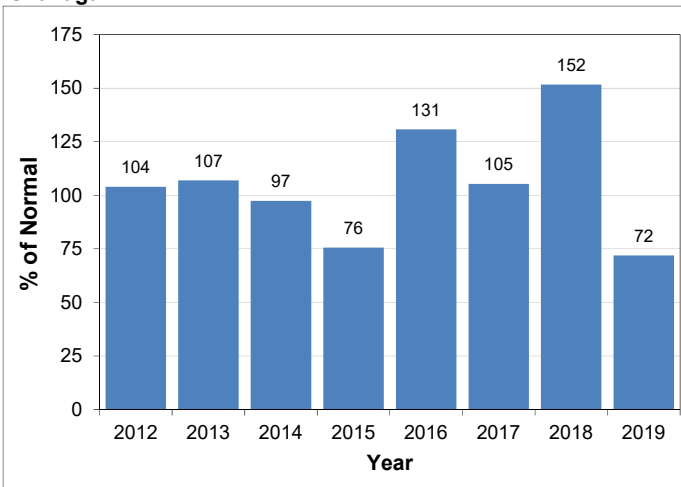
West Kootenay



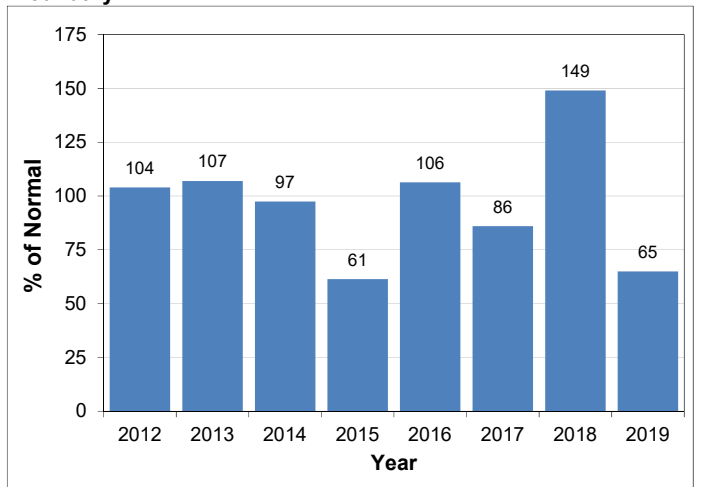
East Kootenay



Okanagan

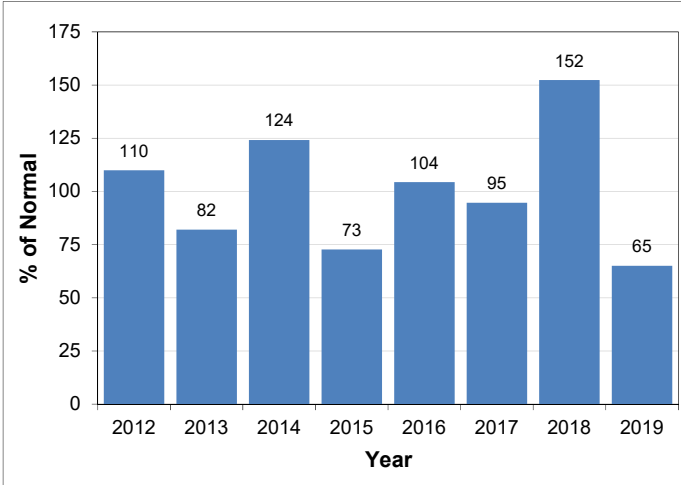


Boundary

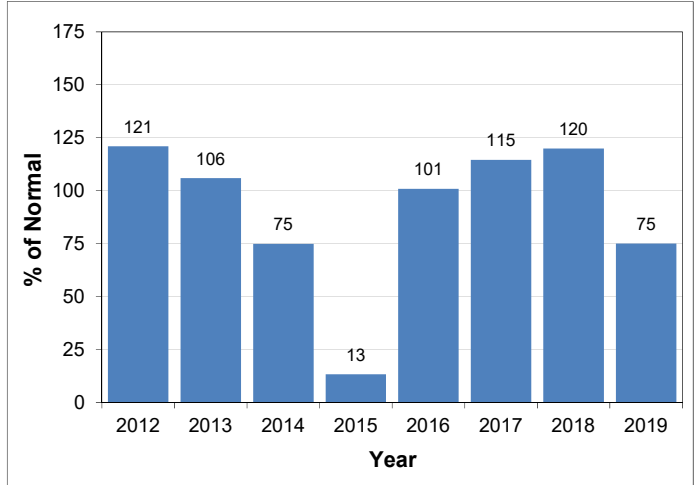


Snow Basin Index Graphs - April 1, 2019

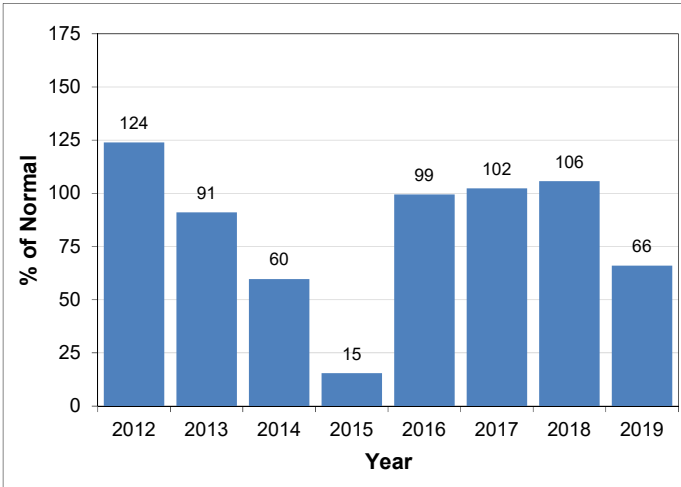
Similkameen



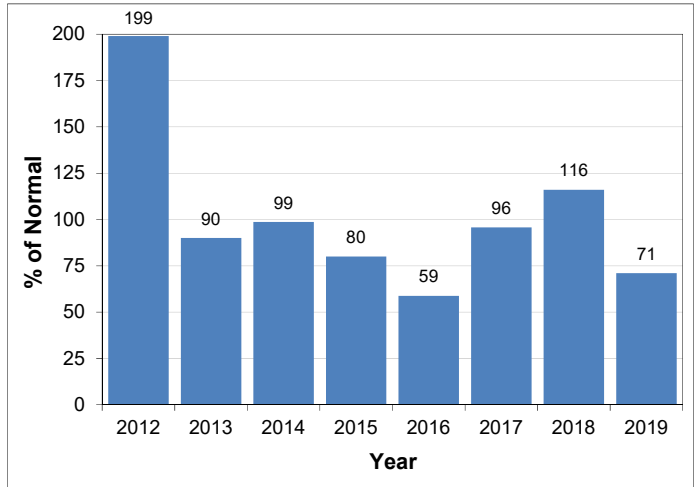
South Coast



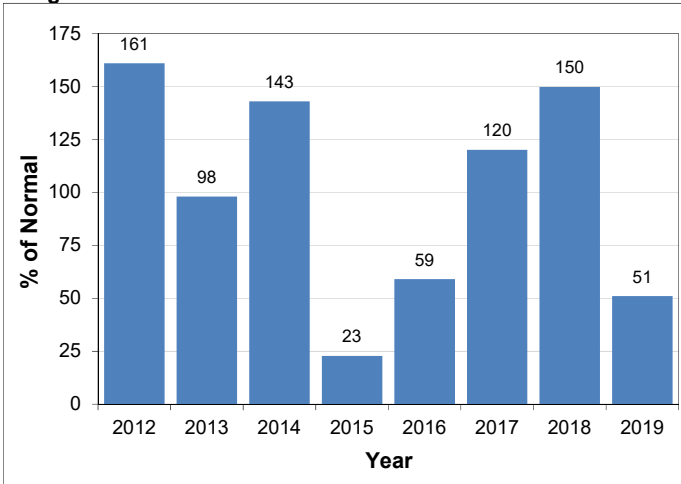
Vancouver Island



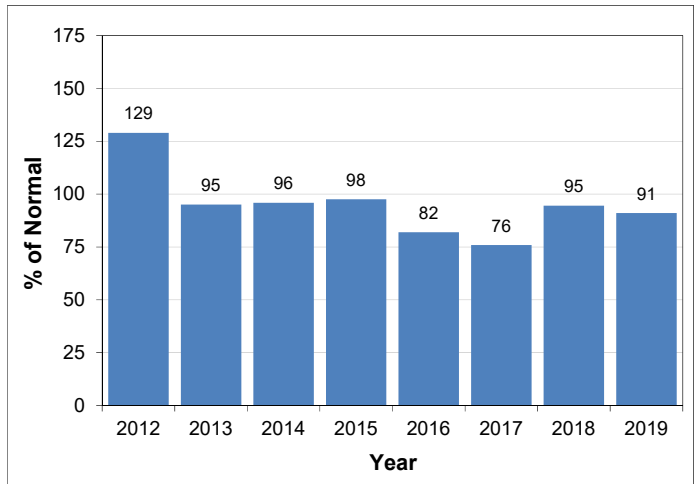
Central Coast



Skagit

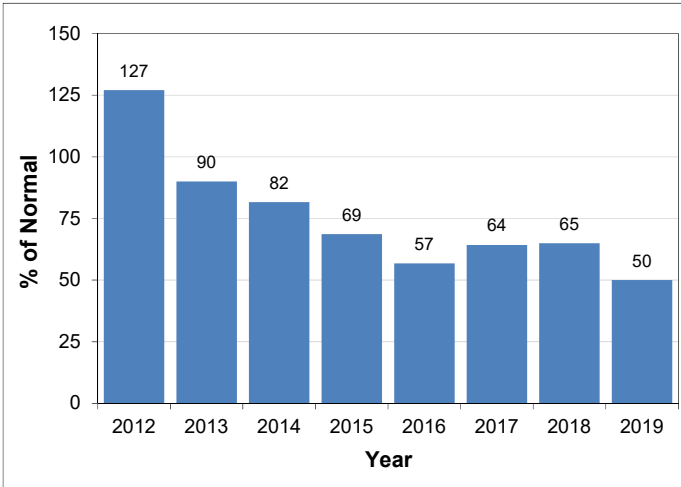


Peace

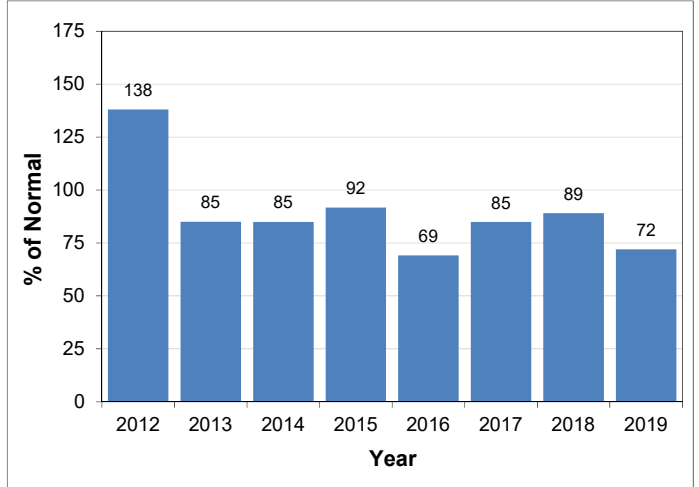


Snow Basin Index Graphs - April 1, 2019

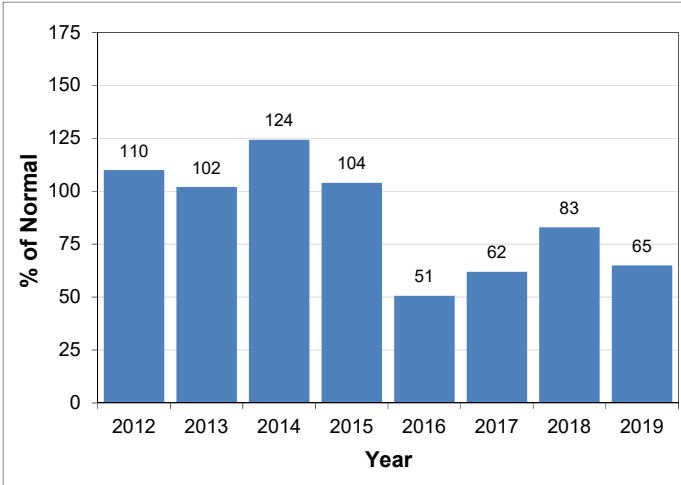
Stikine



Skeena-Nass



Liard



Northwest

