

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

The January 1st snow survey is now complete. Data from 69 manual snow courses and 80 automated snow weather stations around the province (collected by the Ministry of Environment 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

Fall and early winter weather had been variable across the province. October featured near normal (-0.5 to 0.5 °C) temperatures across most of the province, with areas in south-west BC reaching between 1 to 2 °C above normal. Except for the Okanagan and South Interior, the province generally experienced below normal precipitation in October.

In early November, a series of storm events impacted south-west BC with heavy rain. The second half of the month featured more stable weather with less precipitation. Total monthly precipitation was generally near normal across the province. Temperatures were generally above normal (+1 to +2 °C) for southern BC, and well above normal (+1 to +5 °C) in central and northern BC.

A dramatic shift in weather patterns occurred in early/mid-December, bringing a series of Pacific storms. These caused significant precipitation across much of the province, particularly south-west BC. Precipitation anomalies for December were in the 120-160% of normal range in southern BC, and closer to normal in other areas of the province. Temperatures remained well above normal through December, with more modest temperature anomalies in south-west BC (+0.5 to +1.5 °C) and more significant anomalies in the BC Interior (+2 to +5 °C).

Snowpack

Snow basin indices for January 1st 2019 range from a low of 61% of normal in the Stikine to a high of 109% in the Upper Fraser West, Upper Fraser East and North Thompson (Table 1 and Figure 1). Generally, the province has near normal snow pack for January 1st, with the average of all snow measurements across the province at 96%. Below normal snowpack (60-80% of normal) is present in the Stikine, Nicola, and Liard. Near normal snowpacks (80-110%) are present throughout the rest of the province.

Early season snowpack was slow to develop this year, with near record low snowpack being observed at automated snow weather stations on December 1st. Rapid snow accumulation has occurred since mid-December in the wake of numerous storm events that have impacted the province. Much of the current snowpack has developed over the past 4 weeks.

Warmer temperatures in November and December created high freezing levels during several storm events. This led to precipitation as rain and in-season snowmelt in low- to

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

mid-elevation areas. As a result, snowpack in low- to mid-elevations (<1100m) are proportionately lower than upper elevation locations.

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

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	109	Boundary	82
Upper Fraser East	109	Similkameen	93
Nechako	83	South Coast	94
Middle Fraser	102	Vancouver Island	89
Lower Fraser	92	Central Coast	99
North Thompson	109	Skagit	92
South Thompson	99	Peace	97
Upper Columbia	102	Skeena-Nass	87
West Kootenay	103	Stikine	61
East Kootenay	89	Liard	78
Okanagan	94	Fraser	95
Nicola	72	British Columbia	96

A note on Snow Basin Index calculations – In 2019, the River Forecast Centre is using a new method for calculating snow basin indices. The new method provides greater consistency in the calculations between basins, better utilizes all of the snow measurements that are taken during a survey period, and reduces the bias created from extremely high or low percent of normal values at individual survey locations that occur during the snow melt season. New snow basin indices are calculated based on the basin-average snow water equivalent value derived from the average of all measurements made within a basin, divided by the basin-averaged normal snow water equivalent for the same stations. The new calculation method may lead to slight differences in snow basin index values compared to values reported historically; these differences may be more significant in basins with limited measurements, in drier areas with less overall snowpack, and during the melt season when a shift in the timing of melt can lead to very large or small index values. The River Forecast Centre is re-analysing historic snow basin index values using the new method

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

to allow for inter-annual comparison; these will be posted on the River Forecast Centre website when the analysis is complete.

Outlook

The Climate Prediction Centre (CPC) at the U.S. National Weather Service/NOAA has issued an El Niño watch and is forecasting a high likelihood of El Niño developing through this winter and continuing into the spring. Typically, El Niño is linked to warmer winters across British Columbia. During El Niño, snowpacks tend to be lower than normal; however, there has been a large range of variability in snowpack in BC during El Niño winters in the past (for example 2007 was following an El Niño winter and had significant snowpack across the province). Warm sea surface temperature anomalies have also persisted in the Pacific Ocean off the BC/Alaska coast, with a general weakening in the anomaly since mid-November. Warm temperature anomalies in the Pacific often have a similar or enhancing effect when they occur in phase with El Niño, as was the case in 2014-15 and 2015-16.

Seasonal weather forecasts from Environment and Climate Change Canada are indicating an increased likelihood of warmer than normal temperatures through the winter period.

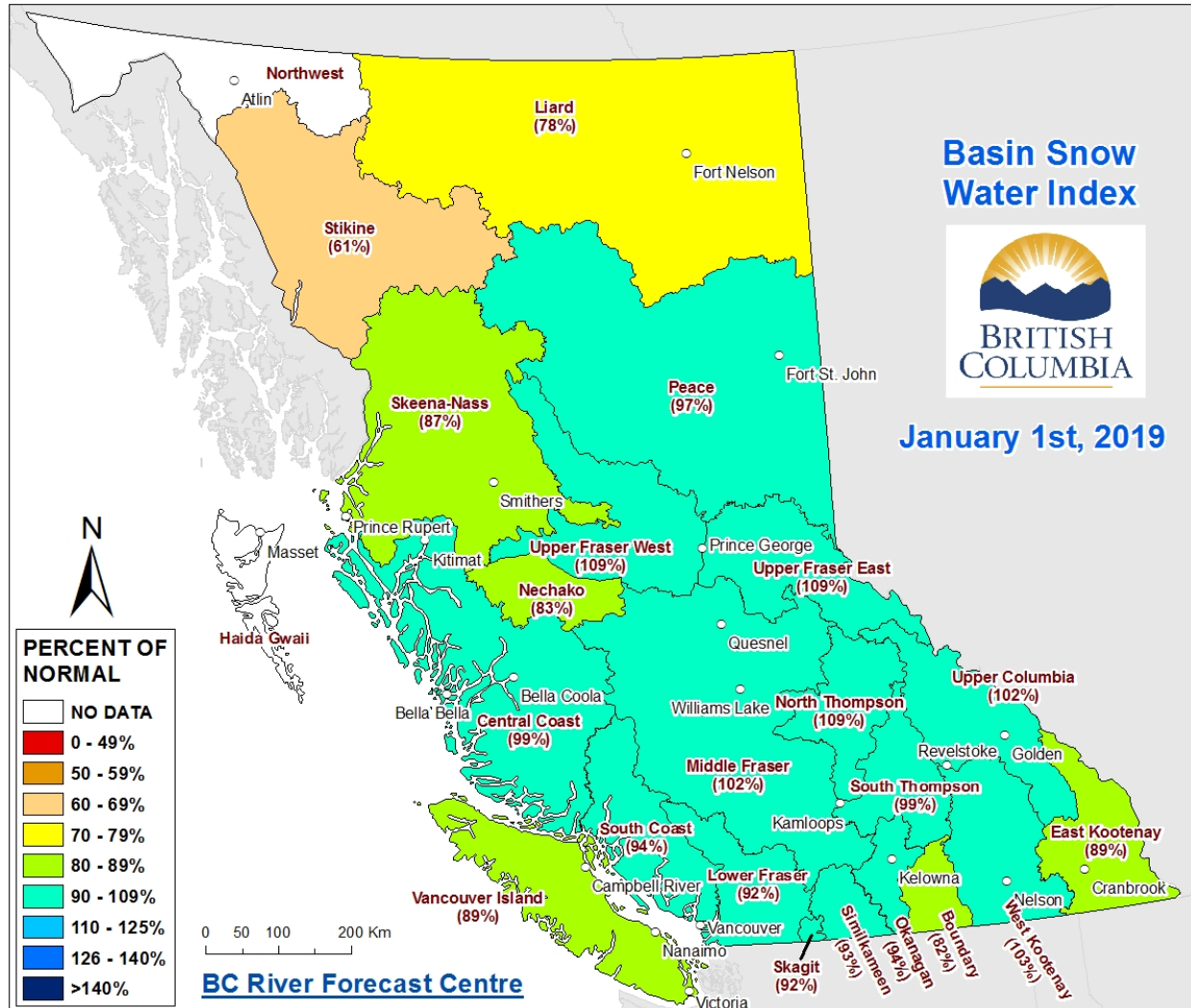
By early January, nearly half of the annual BC snowpack has typically accumulated. At this early stage in the season snow accumulation is looking typical across the province. With three or more months left for snow accumulation, seasonal snowpacks can still change significantly.

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

BC River Forecast Centre
January 8, 2019

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

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



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2019 Automated Snow Weather Station/Manual Snow Survey Data				January					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	2019-01-01	111				350	204	184	428	296	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-01-01	98	219		111%	228	142	121	387	198	26
1A03P	Barkerville	Upper Fraser East	1483	2019-01-01	85	173		112%	121	114	21	312	154	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693		N	N	N	N		202	114	422	411	22
1A05P	Longworth Upper	Upper Fraser East	1740	2019-01-01	194	485			347	192				2
1A06A	HANSARD	Upper Fraser East	622		NS	NS	NS	NS						
1A10	PRINCE GEORGE A	Upper Fraser East	684	2019-01-03	38	86		146%	45	31	0	156	59	49
1A11	PACIFIC LAKE	Upper Fraser East	756		N	N	N	N	358	186	56	577	303	30
1A12	KAZA LAKE	Upper Fraser West	1247		N	N	N	N		96	92	371	182	34
1A12P	Kaza Lake	Upper Fraser West	1248	2019-01-01	77	209			174	116	136	174		2
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-01-01	135	359		103%	330	234	143	641	348	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598		N	N	N	N		261	125	821	427	23
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-01-01	126	270			363	311	311	363		2
1A16	BURNS LAKE	Upper Fraser West	820	2019-01-07	48	68		96%	74	46	10	192	71	37
1A17P	Revolution Creek	Upper Fraser East	1676	2019-01-01	156	399		106%	373	203	184	814	377	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-01-01	131	337		91%	248	215	171	581	372	12
1A23	BIRD CREEK	Upper Fraser West	1196		NS	NS	NS	NS			72	174	174	4
1B01	MOUNT WELLS	Nechako	1489		NS	NS	NS	NS			220	465	465	4
1B01P	Mount Wells	Nechako	1489	2019-01-01		276		87%	290	330	131	516	316	26
1B02	TAHTSA LAKE	Nechako	1319		NS	NS	NS	NS			444	1084	1084	4
1B02P	Tahtsa Lake	Nechako	1319	2019-01-01		572		83%	617	704	369	1168	693	26
1B05	SKINS LAKE	Nechako	877	2019-01-02	28	53		98%	72	48	0	127	54	27
1B06	MOUNT SWANNELL	Nechako	1596		NS	NS	NS	NS			134	247	247	4
1B07	NUTLI LAKE	Nechako	1502		NS	NS	NS	NS			173	527	527	4
1B08P	Mount Pondosy	Nechako	1413	2019-01-01		355		79%	340	293	204	670	448	26
1C01	BROOKMERE	Middle Fraser	994		NS	NS	NS	NS			22	170	97	12
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2018-12-31	114	273		100%	257	250	140	458	274	20
1C05P	McGillivray Pass	Middle Fraser	1766	2019-01-01		285			271		271	271		1
1C06	PAVILION	Middle Fraser	1209		NS	NS	NS	NS			0	80	32	9
1C08	NAZKO	Middle Fraser	1029		NS	NS	NS	NS			0	92	41	27
1C09A	HIGHLAND VALLEY	Middle Fraser	1547		NS	NS	NS	NS			12	104	51	12
1C12P	Green Mountain	Middle Fraser	1766	2019-01-01		492		105%	392	336	268	780	469	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612		NS	NS	NS	NS						
1C14	BRALORNE	Middle Fraser	1382	2018-12-31	31	72		89%	90	70	0	158	81	19
1C14P	Bralorne	Middle Fraser	1382	2019-01-01	46	110			119		119	119		1
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-01-01	39	68		43%		90	38	350	160	17
1C18P	Mission Ridge	Middle Fraser	1903	2019-01-01		210		80%	280	259	148	659	261	48

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617	NS	NS	NS	NS				24	93	53	6
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-01-01	129	321		100%	169	225	191	495	322	24
1C21	BIG CREEK	Middle Fraser	1130	NS	NS	NS	NS				10	68	32	27
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	NS	NS	NS	NS		36	26	0	106	36	38
1C23	PENFOLD CREEK	Middle Fraser	1687	NS	NS	NS	NS				525	525		1
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2019-01-02	29	54		78%	84	80	10	146	69	40
1C28	DUFFEY LAKE	Middle Fraser	1253	NS	NS	NS	NS							
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	NS	NS	NS	NS							
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-01-01	38	108								
1C32	DEADMAN RIVER	Middle Fraser	1463	NS	NS	NS	NS				30	141	65	7
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2018-12-31	40	97		104%	62	60	46	124	93	10
1C37	BRALORNE(UPPER)	Middle Fraser	1980	N	N	N	N		338	328	116	504	309	19
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	N	N	N	N		396	434	272	690	489	19
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-01-01		487			390	419	390	451		2
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2018-12-31	141	388		130%	306	276	74	466	298	19
1C40	TYAUGHTON	Middle Fraser	1946	2018-12-31	101	264		108%	264	206	92	418	244	18
1C40P	North Tyaughton	Middle Fraser	1969	2019-01-01		224			239	184	174	239		2
1C41P	Yanks Peak East	Middle Fraser	1683	2019-01-01	154	508		128%	319	304	207	510	397	21
1C42	CAVERHILL LAKE	Middle Fraser	1400	NS	NS	NS	NS							
1D06P	Tenquille Lake	Lower Fraser	1669	2019-01-01	211	552		114%	503	532	285	817	485	17
1D08	STAVE LAKE	Lower Fraser	1211	2018-12-31	173	600		104%	602	646	112	976	578	21
1D09	WAHLEACH LAKE	Lower Fraser	1395	2018-12-31	63	180		75%		250	46	417	240	22
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-01-01		314		71%	648	308	214	650	442	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	N	N	N	N		504	438	219	975	585	22
1D16	DICKSON LAKE	Lower Fraser	1147	2018-12-31	137	430		70%	604	806	274	1196	616	19
1D17P	Chilliwack River	Lower Fraser	1621	2019-01-01	187	691		105%	662	620	353	1165	658	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-01-01	172	501								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-01-01	170	598		90%	613	595	198	1268	662	19
1E01B	BLUE RIVER	North Thompson	673	2018-12-31	78	135		91%	86	122	0	263	149	26
1E02P	Mount Cook	North Thompson	1574	2019-01-01	248	723		116%	510	513	420	901	621	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	NS	NS	NS	NS							
1E05	KNOUFF LAKE	North Thompson	1189	NS	NS	NS	NS							
1E07	ADAMS RIVER	North Thompson	1769	NS	NS	NS	NS				205	475	324	13
1E08P	Azure River	North Thompson	1625	2019-01-01	204				567	538	356	780	593	21
1E10P	Kostal Lake	North Thompson	1760	2019-01-01	144	472		105%	322	398	271	615	448	33
1E14P	Cook Creek	North Thompson	1280	2019-01-01	125									1
1F01A	ABERDEEN LAKE	South Thompson	1262	2018-12-27	30	38		40%			61	106	94	5

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1F02	ANGLEMONT	South Thompson	1168	NS	NS	NS	NS				164	164	164	2
1F03P	Park Mountain	South Thompson	1857	2019-01-01	128	389		92%	340		256	632	421	33
1F04P	Enderby	South Thompson	1950	2019-01-01	182	500			448	552	448	552		2
1F06P	Celista Mountain	South Thompson	1533	2019-01-01	165	482		103%	363	357	307	577	468	13
2A01A	CANOE RIVER	Upper Columbia	866	NS	NS	NS	NS				29	86	48	5
2A02	GLACIER	Upper Columbia	1249	2018-12-28	107	330		109%	234	208	147	519	304	39
2A03A	FIELD	Upper Columbia	1310	NS	NS	NS	NS				38	127	80	11
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-01-01		616		105%	488	600	303	861	587	25
2A07	KICKING HORSE	Upper Columbia	1648	2018-12-27	69	159		108%	130	90	66	257	147	35
2A11	BEAVERFOOT	Upper Columbia	1924	2018-12-28	41	70		65%	96	80	52	215	108	29
2A14	MOUNT ABBOT	Upper Columbia	2031	2019-01-02	222	710		122%	568	522	298	1065	584	27
2A16	GOLDSTREAM	Upper Columbia	1914	2018-12-27	192	546		93%	530	626	355	906	588	29
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2018-12-26	197	625		105%	530	490	331	1228	596	37
2A18	KEYSTONE CREEK	Upper Columbia	1839	2018-12-27	141	366		90%	370	385	217	577	405	28
2A18P	Keystone Creek	Upper Columbia	1850	2019-01-01		500			415	518	415	518		2
2A19	VERMONT CREEK	Upper Columbia	1533	2018-12-28	85	184		89%	207	185	91	328	207	28
2A21P	Molson Creek	Upper Columbia	1930	2019-01-01		602		107%	625	484	286	1072	563	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	2018-12-27	158	435		92%	493	466	243	1131	471	29
2A23	BUSH RIVER	Upper Columbia	1982	2018-12-27	145	393		94%	408	399	216	940	417	29
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2018-12-27	218	607		99%	525	620	273	1472	613	30
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2018-12-27	116	308		103%	194	230	166	504	298	28
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2018-12-27	245	734		104%	642	664	335	1022	706	28
2A30P	Colpitti Creek	Upper Columbia	2131	2019-01-01		438			491	465	465	491		2
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-01-01		446			511	484	484	511		2
2A32P	Wildcat Creek	Upper Columbia	2122	2019-01-01		370			295	258	271	271		2
2B02A	FARRON	Lower Columbia	1229	2018-12-27	63	142		97%	148	110	40	330	146	26
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	2018-12-31	105	255		79%	267	191	169	543	323	29
2B06P	Barnes Creek	Lower Columbia	1595	2019-01-01		180		68%	250	130	158	405	265	25
2B07	KOCH CREEK	Lower Columbia	1813	2018-12-31	140	348		101%	307	336	170	473	346	28
2B08P	St. Leon Creek	Lower Columbia	1822	2019-01-01		548		112%	475	501	221	855	488	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-01-04	114	338		106%	318	324	134	575	319	27
2C01	SINCLAIR PASS	East Kootenay	1374	NS	NS	NS	NS				25	107	54	12
2C04	SULLIVAN MINE	East Kootenay	1580	2018-12-30	54	182		146%	152	84	29	226	125	30
2C07	FERNIE EAST	East Kootenay	1213	2018-12-30	58	123		93%	149	112	28	330	132	32
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-01-01		215		70%	200	212	124	706	306	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-01-01	56	153		89%	193	180	76	354	172	39
2C14P	Floe Lake	East Kootenay	2110	2019-01-01		327		93%	325	396	173	503	352	25

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2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2018-12-28	107	251		94%	331	286	111	567	267	29
2C16	MOUNT JOFFRE	East Kootenay	1763	2018-12-28	58	107		64%	160	98	73	364	166	29
2C17	THUNDER CREEK	East Kootenay	2062	2018-12-28	52	99		79%	154	115	61	276	126	29
2D02	FERGUSON	West Kootenay	929	2019-01-02	115	300		117%	199	125	93	409	256	34
2D03	SANDON	West Kootenay	1072	NS	NS	NS	NS				157	157	157	2
2D04	NELSON	West Kootenay	952	2018-12-27	58	144		86%	108	87	61	366	167	51
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	NS	NS	NS	NS				69	372	205	23
2D06	CHAR CREEK	West Kootenay	1290	2019-01-01	82	221		92%	264	118	110	480	239	30
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	NS	NS	NS	NS							0
2D08P	East Creek	West Kootenay	2004	2019-01-01		503		114%	411	443	206	858	442	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	N	N	N	N			447	277	902	496	29
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	NS	NS	NS	NS				222	612	358	16
2D14P	Redfish Creek	West Kootenay	2086	2019-01-01	200	624		121%	551	704	401	751	514	16
2E01	MONASHEE PASS	Kettle	1387	2018-12-31	69	140		86%	152	92	84	239	163	34
2E02	CARMI	Kettle	1254	NS	NS	NS	NS				86	102		3
2E03	BIG WHITE MOUNTAIN	Kettle	1672	NS	NS	NS	NS				112	326	235	17
2E07P	Grano Creek	Kettle	1874	2019-01-01	88	177		79%	229	189	143	315	225	20
2F01A	TROUT CREEK (West)	Okanagan	1430	NS	NS	NS	NS				68	140		3
2F01P	Trout Creek West	Okanagan	1420	2019-01-01	37	83			126		126	126		1
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2019-01-02	39	102		102%	147	104	42	198	100	48
2F03	MC CULLOCH	Okanagan	1266	NS	NS	NS	NS				28	144	78	28
2F04	GRAYSTOKE LAKE	Okanagan	1818	2019-01-03	70	162		110%	202	128	96	282	147	13
2F05P	Mission Creek	Okanagan	1794	2019-01-01	90	219		96%	221	176	104	398	227	48
2F07	POSTILL LAKE	Okanagan	1358	NS	NS	NS	NS							0
2F08P	Greyback Reservoir	Okanagan	1550	2019-01-01	42	81			137	102	102	137		2
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	NS	NS	NS	NS				122	447	271	20
2F10P	Silver Star Mountain	Okanagan	1839	2019-01-01	146	418			359	314	314	359		2
2F11	ISINTOK LAKE	Okanagan	1651	2019-01-02	26	58		84%	117	77	16	196	69	48
2F12	MOUNT KOBAN	Okanagan	1817	2018-12-30	47	87		63%	170	70	28	261	139	38
2F13	ESPERON CR (UPPER)	Okanagan	1634	NS	NS	NS	NS							
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	NS	NS	NS	NS							
2F18P	Brenda Mine	Okanagan	1453	2019-01-01		130		70%	151	125	85	304	185	25
2F19	OOYAMA LAKE	Okanagan	1365	NS	NS	NS	NS							
2F20	VASEUX CREEK	Okanagan	1403	NS	NS	NS	NS				32	117	56	19
2F21	BOULEAU LAKE	Okanagan	1405	NS	NS	NS	NS				160	351		2
2F23	MACDONALD LAKE	Okanagan	1742	NS	NS	NS	NS				81	328	189	16
2F24	ISLAHT LAKE	Okanagan	1492	NS	NS	NS	NS							

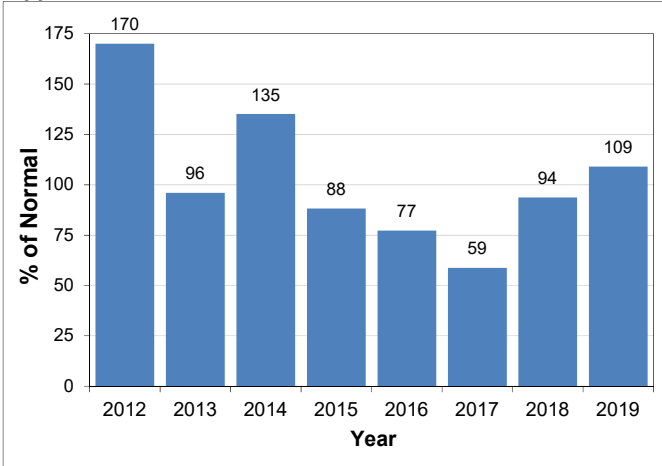
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Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2F25	POSTILL LAKE UPPER	Okanagan	1500	NS	NS	NS	NS							
2G03P	Blackwall Peak	Similkameen	1934	2019-01-01	133	353		93%	426	333	108	923	379	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	NS	NS	NS	NS				54	120	93	7
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	NS	NS	NS	NS				21	197	96	15
2G06	HAMILTON HILL	Similkameen	1477	NS	NS	NS	NS				55	313	168	15
3A01	GROUSE MOUNTAIN	South Coast	1126	2018-12-28	153	476		98%	566	732	24	878	485	29
3A02	POWELL RIVER (UPPER)	South Coast	1002	NS	NS	NS	NS							
3A05	POWELL RIVER (LOWER)	South Coast	882	NS	NS	NS	NS							
3A09	PALISADE LAKE	South Coast	898	NS	NS	NS	NS				86	334	334	3
3A09P	Palisade Lake	South Coast	900	2019-01-01	130	475								
3A10	DOG MOUNTAIN	South Coast	1007	2018-12-28	144	414		85%	520	754	78	879	488	24
3A19	ORCHID LAKE	South Coast	1178	2018-12-27	225	660		89%	829	808	180	1360	739	27
3A20	CALLAGHAN CREEK	South Coast	1009	NS	NS	NS	NS				100	638	289	13
3A22P	Nostetuko River	South Coast	1457	2019-01-01	76	221		86%	254	169	32	544	258	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-01-01	69	178		92%	216	181	85	491	194	29
3A25P	Squamish River Upper	South Coast	1387	2019-01-01	266	789		106%	740	584	391	1160	742	28
3A26	CHAPMAN CREEK	South Coast	1022	NS	NS	NS	NS							
3A27	EDWARDS LAKE	South Coast	1070	NS	NS	NS	NS							
3A28P	Tetrahedron	South Coast	1420	2019-01-01	216	601								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2018-12-30	195	640		103%	535	619	0	1287	621	31
3B02A	MOUNT COKELY	Vancouver Island	1267	NS	NS	NS	NS							
3B04	ELK RIVER	Vancouver Island	270	2018-12-30	5	18		37%	65	123	0	264	49	30
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	NS	NS	NS	NS				546	734	587	5
3B17P	Wolf River Upper	Vancouver Island	1422	2019-01-01		540		97%	584	518	43	1057	555	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2018-12-30	77	224		85%	68	310	0	774	262	24
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2018-12-30	54	134		83%		204	0	388	161	23
3B23P	Jump Creek	Vancouver Island	1134	2019-01-01	97	325		71%		460	63	1025	459	21
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-01-01	108	434			558	661	558	661		2
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-01-01	148	402			376	373	373	376		2
3C07	WEDEENE RIVER SOUTH	North Coast	196	NS	NS	NS	NS				242	242	242	2
3C08P	Burnt Bridge Creek	North Coast	1329	2019-01-01	137	427		100%	337	279	139	702	429	20
3D01C	SUMALLO RIVER WEST	Skagit	801	N	N	N	N				47	82		2
3D02	LIGHTNING LAKE	Skagit	1254	NS	NS	NS	NS							
3D03A	KLESILKWA	Skagit	1134	2018-12-31	42	113		92%	78	135	0	386	123	21
4A02P	Pine Pass	Peace	1386	2019-01-01	190	540		98%	472	101	241	1016	549	29
4A03	WARE (UPPER)	Peace	1563	2019-01-03	67	128		85%	161	92	64	248	151	29
4A03P	Ware Upper	Peace	1565	2019-01-01	67	127			139	68	68	139		2

2019 Automated Snow Weather Station/Manual Snow Survey Data				January					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
4A04	WARE (LOWER)	Peace	969	2019-01-03	56	100		91%	115	46	52	240	110	27
4A04P	Ware Lower	Peace	971	2019-01-01	54	116			117	134	117	134		2
4A05	GERMANSEN (UPPER)	Peace	1489	2019-01-04	93	231		124%	184	115	93	364	186	36
4A06	TUTIZZI LAKE	Peace	1043	2019-01-04	70	140		99%	144	69	72	223	142	28
4A07	LADY LAURIER LAKE	Peace	1460	2019-01-03	94	223		76%	260	178	140	472	295	35
4A09	PULPIT LAKE	Peace	1331		N	N	N		170	136	130	398	235	29
4A09P	Pulpit Lake	Peace	1331	2019-01-01	74	187		75%	129	110	110	344	250	28
4A10	FREDRICKSON LAKE	Peace	1323	2019-01-04	68	146		114%	65	70	54	250	128	29
4A11	TRYGVE LAKE	Peace	1409	2019-01-03	83	177		86%	158	121	119	299	207	33
4A12	TSAYDAYCHI LAKE	Peace	1173	2019-01-04	105	256		118%	245	148	128	393	217	36
4A13	PHILIP LAKE	Peace	1013	2019-01-04	86	209		136%	128		48	288	154	36
4A16	MORFEE MOUNTAIN	Peace	1427	2019-01-04	153	434		102%	299	239	199	710	425	29
4A18	MOUNT SHEBA	Peace	1480		N	N	N		444	279	106	793	438	24
4A20	MONKMAN CREEK	Peace	1566	2018-12-27	90	218		79%	381		107	546	277	24
4A20P	Monkman Creek	Peace	1570	2019-01-01		240								
4A21	MOUNT STEARNS	Peace	1514	2019-01-03	46	79		96%	87	92	14	151	82	29
4A25	FORT ST. JOHN A	Peace	692	2019-01-07	53	84		162%	82	50	0	134	52	33
4A27P	Kwadacha North	Peace	1554	2019-01-01	73	146			173	80	80	173		2
4A30P	Aiken Lake	Peace	1061	2019-01-01	48	129		93%	96	117	71	262	138	33
4A31P	Crying Girl Prairie	Peace	1358	2019-01-01		133			125	75	75	125		2
4A33P	Muskwa-Kechika	Peace	1196	2019-01-01		69			69	301	69	301		2
4A34P	Dowling Creek	Peace	1456	2019-01-01		210			461	78	78	461		2
4B01	KIDPRICE LAKE	Skeena-Nass	1415		NS	NS	NS				369	894	894	4
4B02	JOHANSON LAKE	Skeena-Nass	1480	2019-01-04	75	164		98%	121	103	84	282	167	33
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-01-03	104	274		104%	290	218	135	470	264	35
4B04	CHAPMAN LAKE	Skeena-Nass	1485		NS	NS	NS							
4B06	TACHEK CREEK	Skeena-Nass	1133		NS	NS	NS							
4B07	MCKENDRICK CREEK	Skeena-Nass	1048		NS	NS	NS							
4B08	MOUNT CRONIN	Skeena-Nass	1491		NS	NS	NS							
4B10	NINGUNSAW PASS	Nass	647		NS	NS	NS				277	277		2
4B11A	BEAR PASS	Nass	437		NS	NS	NS		170					1
4B12P	Granduc Mine	Skeena-Nass	790	2019-01-01	281					157	157	157		1
4B13A	TERRACE A	Skeena-Nass	219		NS	NS	NS		58	46	0	264	73	32
4B14	EQUITY MINE	Skeena-Nass	1434		NS	NS	NS				118	228	166	11
4B15	LU LAKE	Skeena-Nass	1296		NS	NS	NS				96	182	130	11
4B15P	Lu Lake	Skeena-Nass	1308	2019-01-01	66	153		109%	163	204	41	291	141	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-01-01	126	317		75%	279	441	195	598	425	22

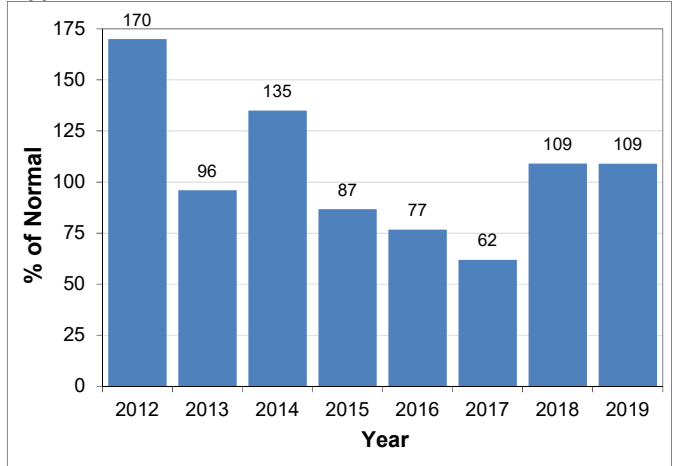
2019 Automated Snow Weather Station/Manual Snow Survey Data				January					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-01-01	209	532		89%	456	165	302	983	599	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-01-01	108	218		71%		72	72	568	307	16
4C01	SIKANNI LAKE	Liard	1390	2019-01-03	64	113		78%	140	71	44	257	145	34
4C01P	Sikanni Lake	Liard	1400	2019-01-01	60	119			161	109	109	161		2
4C02	SUMMIT LAKE	Liard	1291		NS	NS	NS				58	58		3
4C03	DEASE LAKE	Liard	805		NS	NS	NS				20	168	68	38
4C05	FORT NELSON AIRPORT	Liard	368		NS	NS	NS				15	112	57	45
4C15	JADE CITY	Liard	943		NS	NS	NS							
4D01	TELEGRAPH CREEK	Stikine	490		NS	NS	NS							
4D02	ISKUT	Stikine	931		NS	NS	NS				76	76		2
4D11P	Kinaskan Lake	Stikine	1020	2019-01-01	43	123		61%	96		94	97	202	22
4E02B	ATLIN LAKE	Yukon	730		NS	NS	NS							1
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 - January 1, 2019

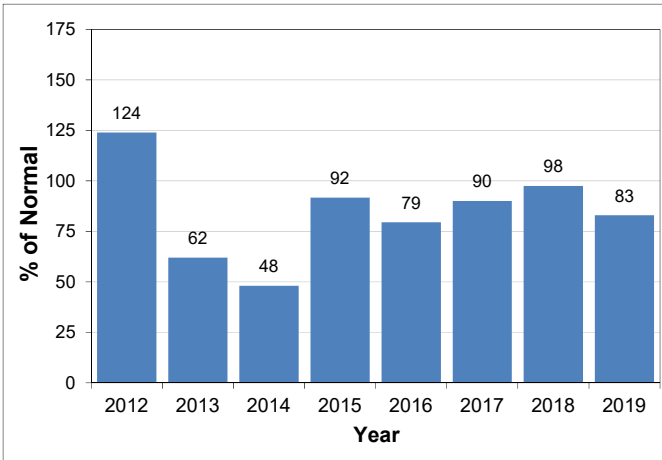
Upper Fraser West



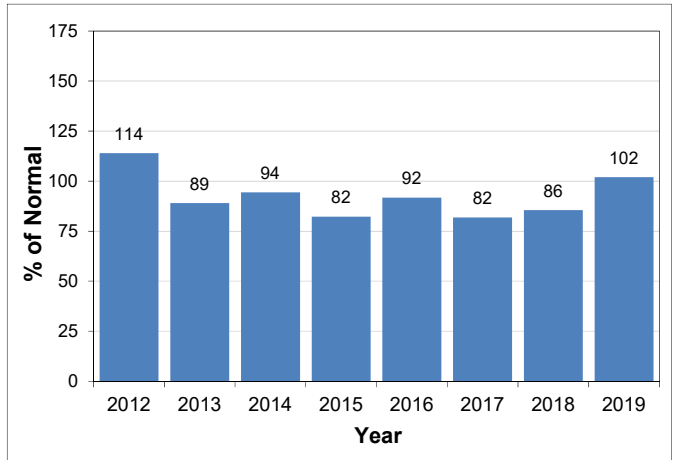
Upper Fraser East



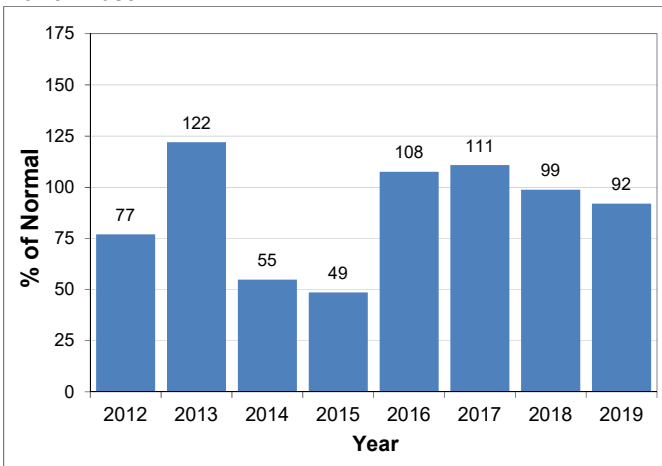
Nechako



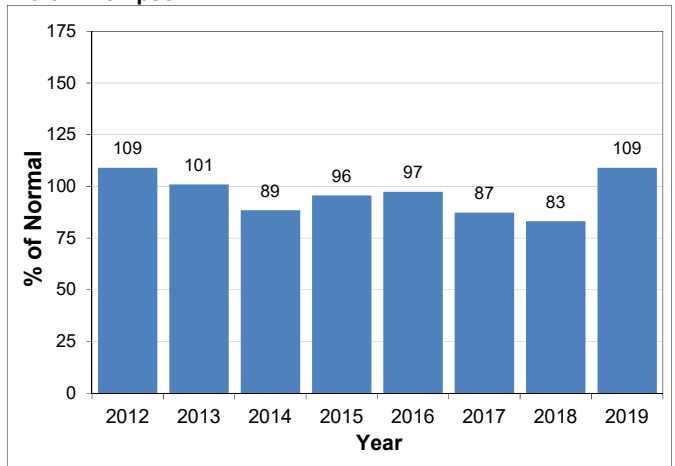
Middle Fraser



Lower Fraser

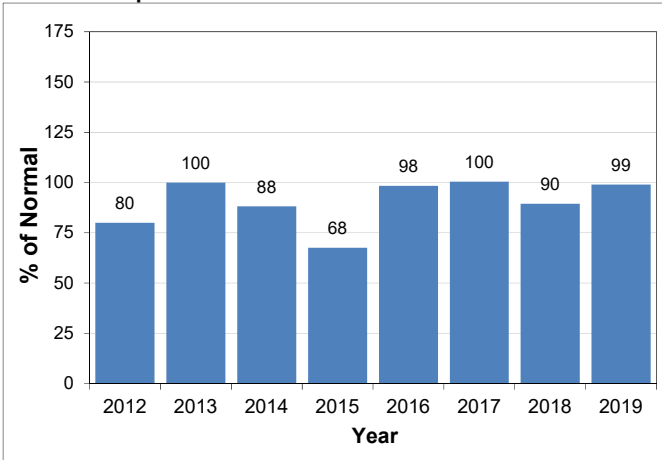


North Thompson

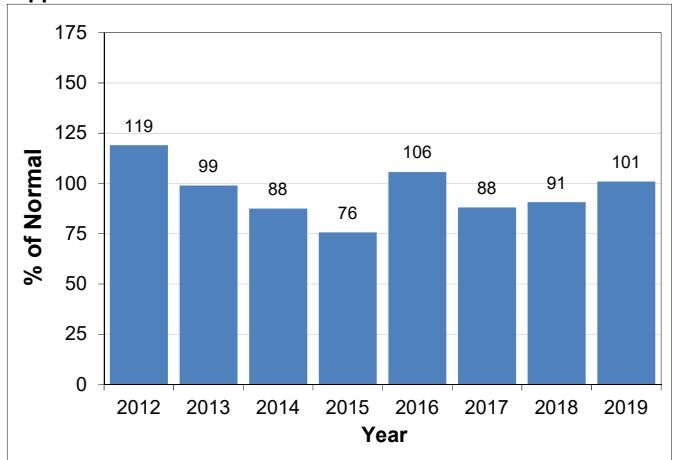


Snow Basin Index Graphs - January 1, 2019

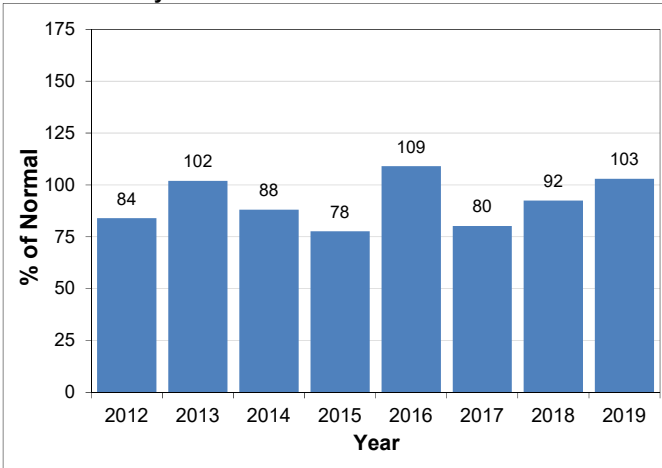
South Thompson



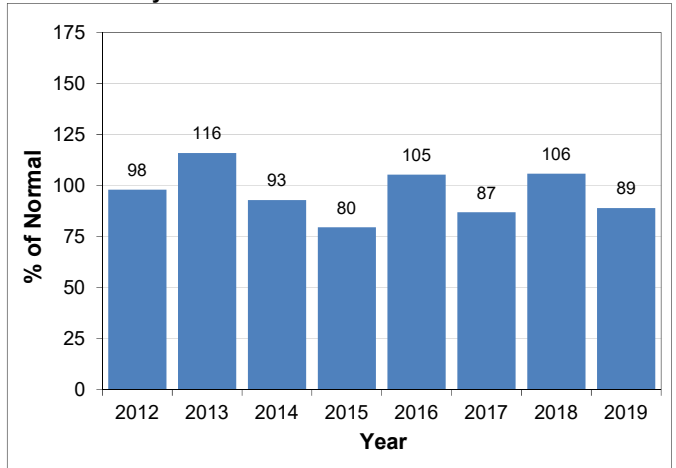
Upper Columbia



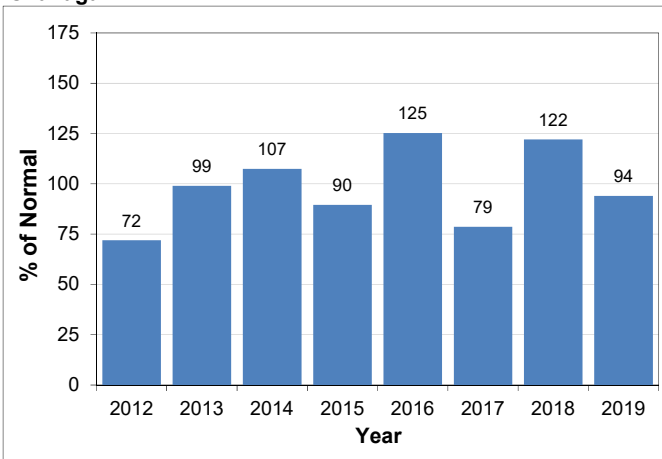
West Kootenay



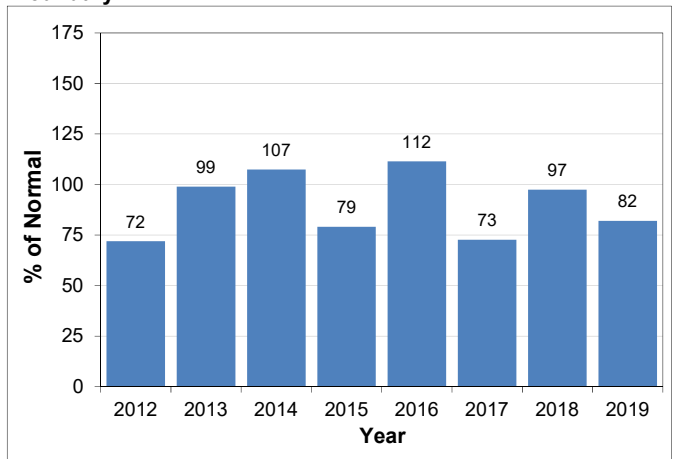
East Kootenay



Okanagan

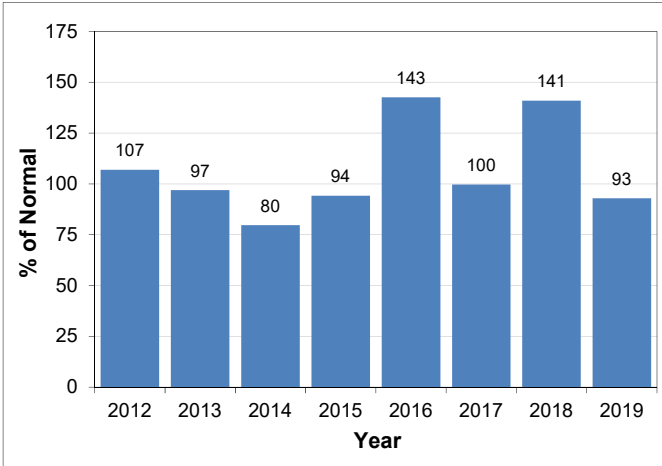


Boundary

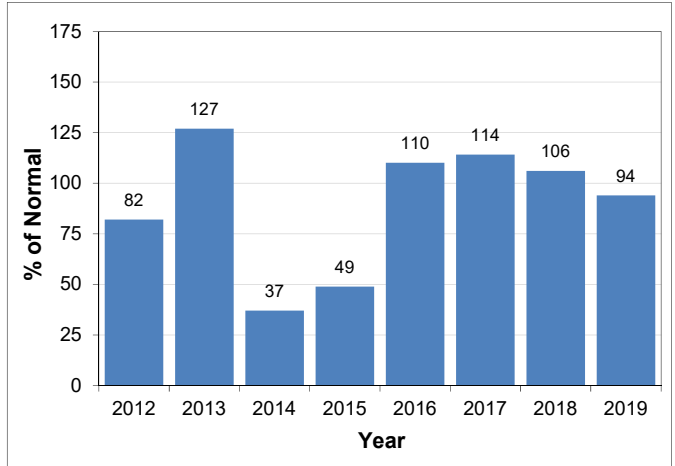


Snow Basin Index Graphs - January 1, 2019

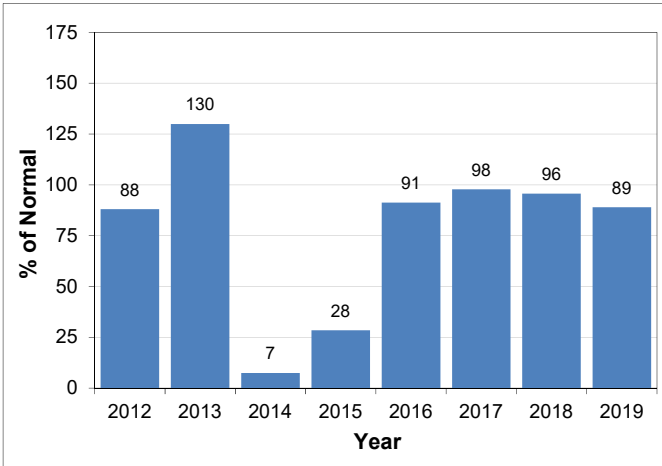
Similkameen



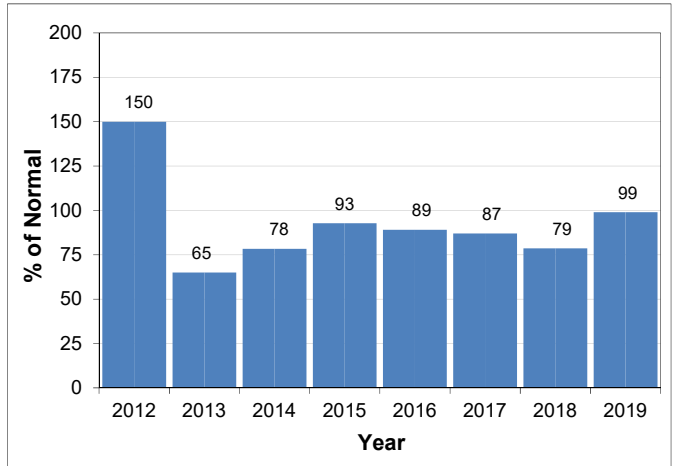
South Coast



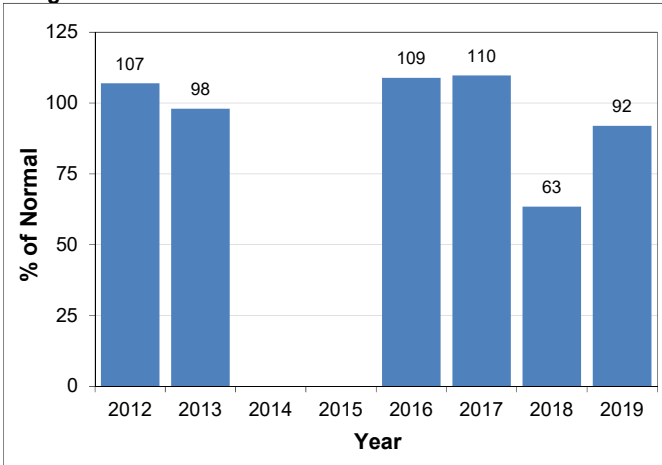
Vancouver Island



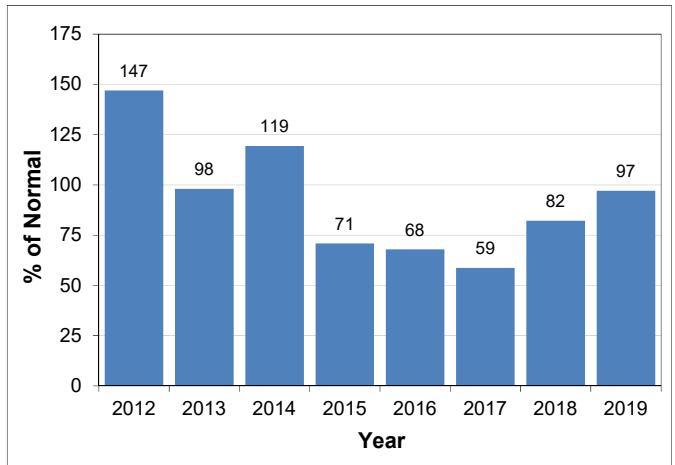
Central Coast



Skagit

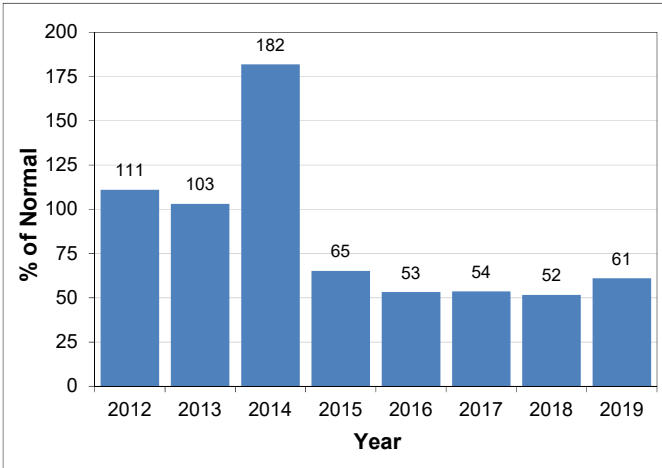


Peace

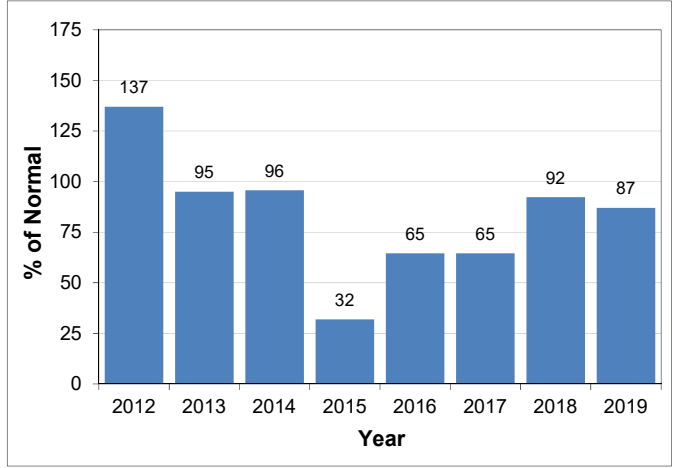


Snow Basin Index Graphs - January 1, 2019

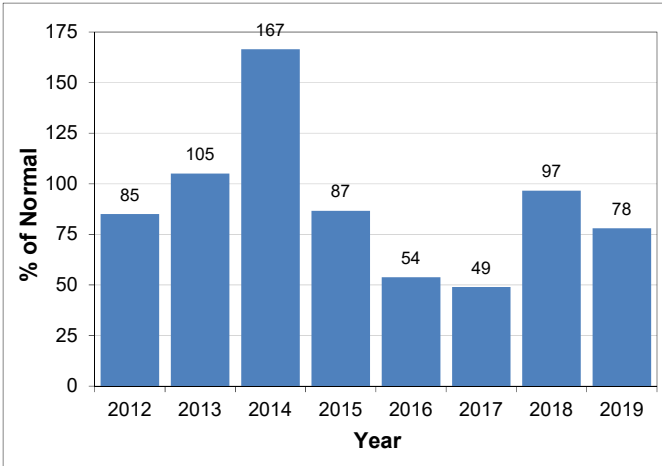
Stikine



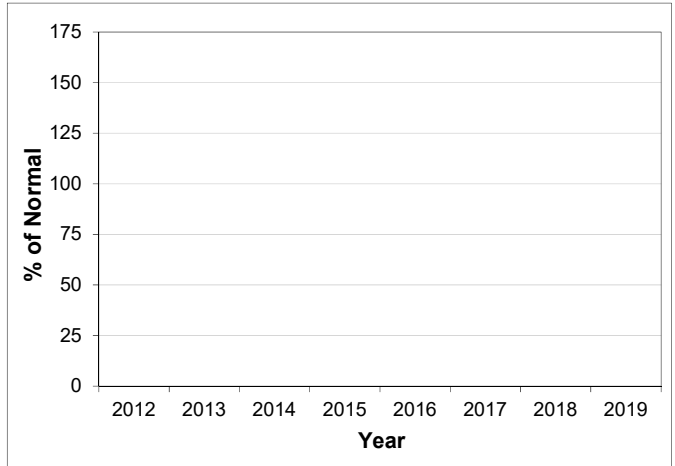
Skeena-Nass



Liard



Northwest



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

The February 1st snow survey is now complete. Data from 114 manual snow courses and 78 automated snow weather stations around the province (collected by the Ministry of Environment 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

Weather through the first week of January was stormy, resulting in high precipitation throughout most of the province. In higher elevations, precipitation fell as snow, increasing the snowpack considerably. Over the following three weeks, British Columbia was primarily under the influence of a high-pressure ridge, resulting in limited precipitation, clear skies and in some areas, inversions. Generally, temperatures were above-normal (+1.0 to 4.0°C) across most of the province. The largest temperature anomalies occurred in northern regions.

Snowpack

Snow basin indices for February 1st, 2019 range from a low of 63% of normal in the Stikine to a high of 114% in the Upper Fraser West (Table 1 and Figure 1). Generally, the province has near normal snowpack for February 1st, with the average of all snow measurements across the province at 97%. Below normal snowpack (60-80% of normal) is present in the Stikine, Skagit, Similkameen and Liard. Above normal snowpack (110-125% of normal) exists in the Peace, North Thompsons and Upper Fraser West. Near normal snowpacks (80-110%) are present throughout the rest of the province. Currently, there are no regions of the province with exceptionally high snowpacks.

The February 1st snow basin index for the entire Fraser River is 99% of normal. Lower elevations snow sites (<1200m) in the Fraser River watershed are at 85% of normal, likely the result of warmer temperatures so far this winter. This is similar at low to mid-elevation sites across the province, with the provincial average for measurements below 1200m being 93% of normal. Field observations, particularly from south-west BC, indicate a sharp transition from limited snow at low elevation, to deeper snowpack at elevation.

So far this season, snow accumulation has been dominated by persistent weather patterns. Most of this year's snowpack built up rapidly over a 5-6 week period from early-December to early-January. Weather into February has shifted again into the dominance of Arctic air across the province, with extremely cold temperatures and limited snow accumulation. This pattern is expected to continue at least into the middle of February.

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

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

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	114	Boundary	80
Upper Fraser East	108	Similkameen	74
Nechako	90	South Coast	100
Middle Fraser	105	Vancouver Island	96
Lower Fraser	91	Central Coast	93
North Thompson	112	Skagit	65
South Thompson	89	Peace	112
Upper Columbia	107	Skeena-Nass	84
West Kootenay	92	Stikine	63
East Kootenay	83	Liard	75
Okanagan	86	Fraser	99
Nicola	88	British Columbia	97

Outlook

The Climate Prediction Centre (CPC) at the U.S. National Weather Service/NOAA has issued an El Niño watch and is forecasting a high likelihood of El Niño developing through the rest of this winter and continuing into the spring. Temperature anomalies in the equatorial Pacific Ocean have been easing since December. Typically, El Niño is linked to warmer winters across British Columbia, with a trend towards lower than normal snowpacks. However, the impact of El Niño on winter snowpacks in BC is highly variable and does not always mean lower snowpacks - for example, 2007 had significant snowpack across the province, despite being an El Niño winter. Additionally, warm sea surface temperature anomalies persist in the Pacific Ocean off the BC/Alaska coast, though they have generally weakened since mid-November. Warm temperature anomalies in the Pacific often have a similar or enhancing effect when they occur in phase with El Niño, as was the case in 2014-15 and 2015-16.

Seasonal weather forecasts from Environment and Climate Change Canada have shifted over the past month, with a transition to an increased likelihood of below normal

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

temperatures forecasted over February to April. NOAA seasonal forecasts for the contiguous United States indicate an increased likelihood of above normal temperature across Washington, Idaho, Montana and Alaska. However, the lack of a strong El Niño signal may increase the uncertainty of longer term seasonal weather forecasting.

By early February, nearly two-thirds of the annual BC snowpack has typically accumulated. At this stage in the season, snow accumulation is currently typical for February 1st across the province, with a few regions slightly above or below normal. Seasonal snowpacks can still change significantly with two or more months of possible snow accumulation left.

At this stage in the season there is no significant elevated flood risk present in the current snowpack regionally across the province. 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 normal snowpack. For example, peak flows at the Fraser River at Hope during normal snowpack years ranges between 7,000 and 12,000 m³/s.

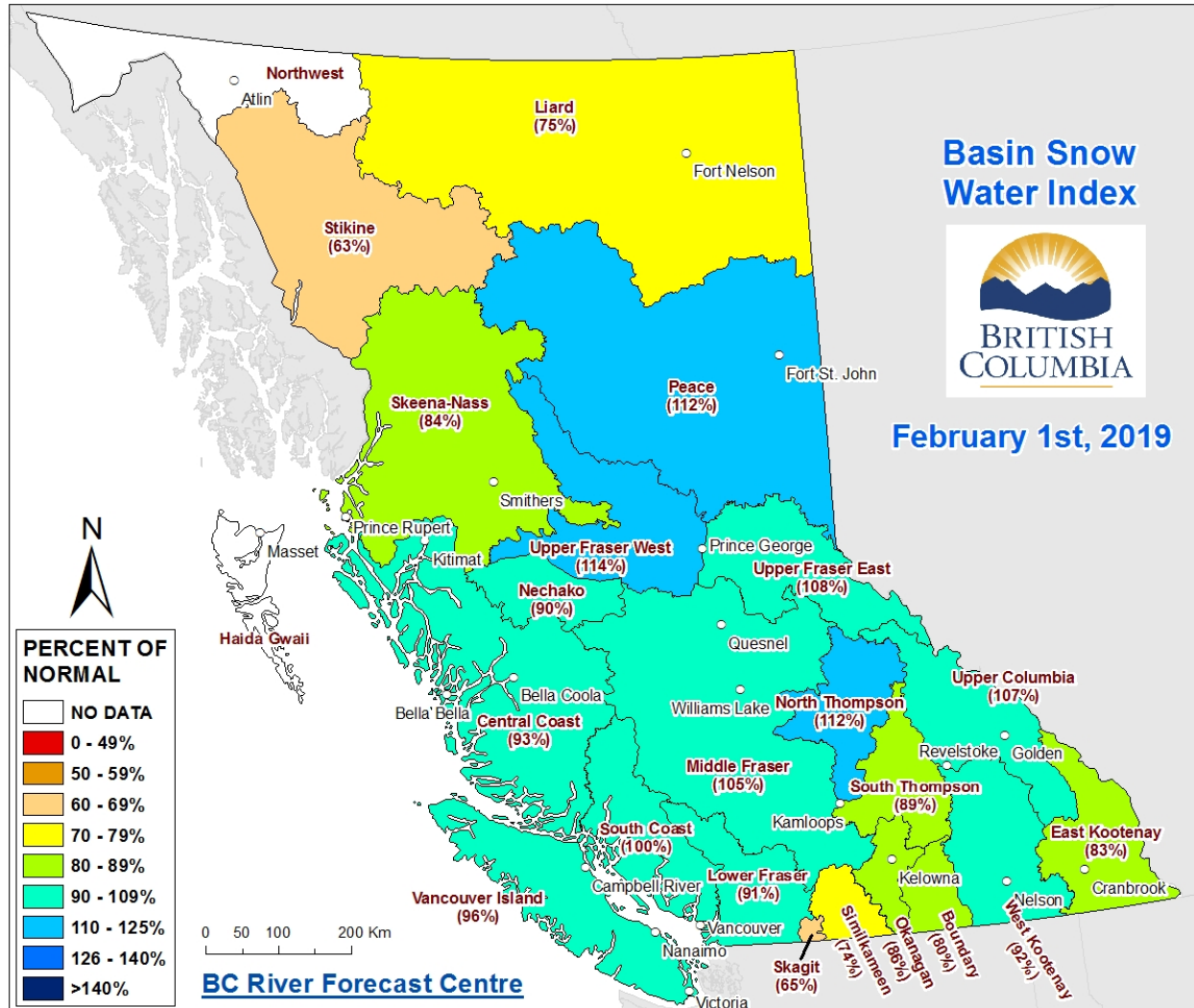
Seasonal volume runoff forecasts (see below) are near-normal (85-105%) for the Upper Fraser, Thompson, Skeena/Bulkley, Nicola River, and Okanagan Lake basins, and above-normal (~120%) for the Quesnel River. Below-normal (<85%) seasonal volume runoff forecasts are expected for the Similkameen, Nicola Lake and Kalamlaka-Wood Lake basins. The snowmelt component of seasonal runoff on Vancouver Island, South Coast, and Lower Fraser is near normal. Well below normal snowpacks in the North-west and Stikine are an early indication of the potential for below normal seasonal runoff.

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

BC River Forecast Centre
February 8, 2019

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

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



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

Location		Feb - Jun Runoff				Feb - Jul Runoff				Feb - 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					4071	3858	106	333	5643	5325	106	396
	McGregor at Lower Canyon					4010	4185	96	553	5080	5231	97	672
	Fraser at Shelley					17606	16786	105	1716	21819	20845	105	2033
Middle Fraser Basin	Quesnel River at Quesnel					5833	4930	118	551	7509	6261	120	661
Thompson Basin	N. Thompson at McLure					9675	9411	103	710	11384	11580	98	925
	S. Thompson at Chase					5569	6389	87	650	6963	7956	88	940
	Thompson at Spences Bridge					14768	16353	90	1381	18211	20333	90	1775
Bulkley and Skeena	Bulkley at Quick					2542	2784	91	1655	3128	3381	93	2173
	Skeena at Usk					18503	19604	94	1553	22786	23948	95	2123
Nicola Lake	Inflows	86	131	66	33	126	148	85	38				
Nicola River	at Spences Bridge	515	549	94	100	579	616	94	123				
Okanagan and Kalamalka-Wood Lake	Okanagan Lake with Greyback (2F08)	424	488	87	99	440	515	85	120				
	Kalamalka-Wood Lake	23.1	33.1	70	12.8	23.1	34.5	67	15.1				
Similkameen River	at Nighthawk	1185	1391	85	166					1411	1701	83	196
	at Hedley	905	1080	84	139					1033	1268	81	148

Note: 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.

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				February					Historic Snow Water Equivalent (mm)					
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1A01P	Yellowhead Lake	Upper Fraser East	1847	2019-02-01	146				397	258	233	596	396	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-02-01	128	337		110%	275	212	195	522	306	26
1A03P	Barkerville	Upper Fraser East	1483	2019-02-01	111	287		134%	173	168	116	368	214	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693		N	N	N			346	236	1042	559	45
1A05P	Longworth Upper	Upper Fraser East	1740	2019-02-01	250	657			444	296	296	444		2
1A06A	HANSARD	Upper Fraser East	622		NS	NS	NS				112	326	180	20
1A10	PRINCE GEORGE A	Upper Fraser East	684	2019-02-02	68	106		110%	61	44	0	224	96	56
1A11	PACIFIC LAKE	Upper Fraser East	756	2019-02-06	161	446		104%	521	312	165	679	430	50
1A12	KAZA LAKE	Upper Fraser West	1247	2019-02-05	104	264		110%		147	125	440	240	49
1A12P	Kaza Lake	Upper Fraser West	1248	2019-02-01	105	334			228	169	164	228		3
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-02-01	198	538		103%	435		214	934	524	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598		N	N	N		687	367	284	899	554	47
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-02-01	183	394			415	445	415	445		2
1A16	BURNS LAKE	Upper Fraser West	820	2019-01-31	48	92		83%	104	60	44	232	111	48
1A17P	Revolution Creek	Upper Fraser East	1676	2019-02-01	200	594		103%	498	330	295	1042	574	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-02-01	170	487		97%	328	308	298	853	501	12
1A23	BIRD CREEK	Upper Fraser West	1196	2019-02-02	78	160		155%		82	56	220	103	27
1B01	MOUNT WELLS	Nechako	1489	2019-01-30	102	312		85%		364	188	606	365	33
1B01P	Mount Wells	Nechako	1489	2019-02-01		351		85%	363	408	210	656	411	26
1B02	TAHTSA LAKE	Nechako	1319	2019-01-30	223	796		93%	530	875	508	1442	853	66
1B02P	Tahtsa Lake	Nechako	1319	2019-02-01		855		92%	894	979	464	1532	929	26
1B05	SKINS LAKE	Nechako	877	2019-02-02	39	78		94%		67	35	224	83	50
1B06	MOUNT SWANNELL	Nechako	1596	2019-02-02	87	205		97%		199	88	353	211	28
1B07	NUTLI LAKE	Nechako	1502	2019-01-30	100	302		80%		414	218	729	378	26
1B08P	Mount Pondosy	Nechako	1413	2019-02-01		520		90%	526	655	273	877	578	26
1C01	BROOKMERE	Middle Fraser	994		NS	NS	NS				41	297	142	46
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2019-01-26	134	393		99%	453	346	150	645	397	66
1C05P	McGillivray Pass	Middle Fraser	1766	2019-02-01		425			484					1
1C06	PAVILION	Middle Fraser	1209		NS	NS	NS				0	130	49	38
1C08	NAZKO	Middle Fraser	1029	2019-02-06	30	75		132%	52	38	6	132	57	41
1C09A	HIGHLAND VALLEY	Middle Fraser	1547		NS	NS	NS				20	188	67	26
1C12P	Green Mountain	Middle Fraser	1766	2019-02-01		651		105%	654	409	278	985	620	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612		NS	NS	NS				204	475	310	12
1C14	BRALORNE	Middle Fraser	1382	2019-01-26	54	138		110%	166	92	0	338	125	47
1C14P	Bralorne	Middle Fraser	1382	2019-02-01	71	188			222					1
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-01-30	87	242		110%	186	160	92	384	221	56
1C18P	Mission Ridge	Middle Fraser	1903	2019-02-01		334		84%	451	341	185	794	398	48

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617	NS	NS	NS	NS				18	198	76	25
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-02-01	161	488		119%	323	271	255	611	411	24
1C21	BIG CREEK	Middle Fraser	1130	2019-01-27	6	10		20%	57	16	0	94	49	46
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	2019-01-28	5	28		54%	64	32	0	126	52	47
1C23	PENFOLD CREEK	Middle Fraser	1687	NS	NS	NS	NS				525	663	663	3
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2019-01-31	33	66		67%	151	117	13	177	98	45
1C28	DUFFEY LAKE	Middle Fraser	1253	NS	NS	NS	NS						0	1
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	2019-01-31	58	129		76%	241	130	48	307	169	37
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-02-01	44	157								0
1C32	DEADMAN RIVER	Middle Fraser	1463	NS	NS	NS	NS				50	130	81	8
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2019-01-31	55	150		108%	124	79	97	175	139	12
1C37	BRALORNE(UPPER)	Middle Fraser	1980	2019-01-26	156	486		112%		416	178	724	434	22
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	N	N	N	N		654	588	208	980	646	23
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-02-01		622			560	537	616	616		3
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2019-01-26	168	506		114%	560	416	112	688	444	23
1C40	TYAUGHTON	Middle Fraser	1946	2019-01-26	111	328		99%		244	128	654	331	21
1C40P	North Tyaughton	Middle Fraser	1969	2019-02-01		275			355	211	211	355		3
1C41P	Yanks Peak East	Middle Fraser	1683	2019-02-01	215	782		138%	443	405	312	803	565	21
1C42	CAVERHILL LAKE	Middle Fraser	1400	NS	NS	NS	NS							
1D06P	Tenquille Lake	Lower Fraser	1669	2019-02-01	264	814		115%	871	712	344	1092	708	17
1D08	STAVE LAKE	Lower Fraser	1211	2019-01-28	236	869		99%		815	163	2010	881	48
1D09	WAHLEACH LAKE	Lower Fraser	1395	2019-01-28	82	237		65%		286	33	665	364	50
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-02-01		439		68%	683	338	246	1061	644	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	2019-01-28	264	948		114%		765	262	1359	833	45
1D16	DICKSON LAKE	Lower Fraser	1147	2019-01-28	159	568		62%		950	122	1538	918	24
1D17P	Chilliwack River	Lower Fraser	1621	2019-02-01	229	999		101%	1105	750	368	1659	992	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-02-01	224	675								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-02-01	242	972		91%	1181	797	300	1902	1074	19
1E01B	BLUE RIVER	North Thompson	673	2019-01-27	76	242		99%	172	202	98	380	245	33
1E02P	Mount Cook	North Thompson	1574	2019-02-01	322	1055		119%	817	642	684	1098	890	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	NS	NS	NS	NS						0	
1E05	KNOUFF LAKE	North Thompson	1189	NS	NS	NS	NS			82	38	229	109	61
1E07	ADAMS RIVER	North Thompson	1769	2019-01-27	137	524		115%	455	450	285	654	457	37
1E08P	Azure River	North Thompson	1625	2019-02-01	241				802	722	506	1043	814	21
1E10P	Kostal Lake	North Thompson	1760	2019-02-01	196	672		110%	483	509	417	790	611	33
1E14P	Cook Creek	North Thompson	1280	2019-02-01	180									1
1F01A	ABERDEEN LAKE	South Thompson	1262	2019-01-29	45	91		85%	147	108	48	193	107	61

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1F02	ANGLEMONT	South Thompson	1168	2019-02-01	81	229		84%	332	167	130	483	272	59
1F03P	Park Mountain	South Thompson	1857	2019-02-01	132	477		80%	623		331	867	593	33
1F04P	Enderby	South Thompson	1950	2019-02-01	191	591			712	607	607	712		2
1F06P	Celista Mountain	South Thompson	1533	2019-02-01	198	658		102%	638	421	506	788	643	13
2A01A	CANOE RIVER	Upper Columbia	866		NS	NS	NS			72	17	140	74	42
2A02	GLACIER	Upper Columbia	1249	2019-02-02	191	599		128%	434	289	241	828	468	77
2A03A	FIELD	Upper Columbia	1310	2019-01-29	55	121		98%	116	87	46	233	123	78
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-02-01		827		101%	822	695	464	1190	819	25
2A07	KICKING HORSE	Upper Columbia	1648	2019-01-30	90	232		102%	254	131	102	384	227	71
2A11	BEAVERFOOT	Upper Columbia	1924	2019-01-29	57	148		104%		118	78	244	142	67
2A14	MOUNT ABBOT	Upper Columbia	2031	2019-01-26	254	950		116%	840	692	396	1209	822	59
2A16	GOLDSTREAM	Upper Columbia	1914	2019-01-28	235	824		101%	781	708	460	1136	816	51
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2019-01-27	255	917		107%	750	638	430	1376	854	55
2A18	KEYSTONE CREEK	Upper Columbia	1839	2019-01-28	167	559		102%	577	485	290	866	548	51
2A18P	Keystone Creek	Upper Columbia	1850	2019-02-01		643			652	608	638	652		3
2A19	VERMONT CREEK	Upper Columbia	1533	2019-01-29	98	299		104%		252	102	574	287	50
2A21P	Molson Creek	Upper Columbia	1930	2019-02-01		832		110%	812	619	417	1155	759	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	2019-01-28	193	634		101%	716	559	348	886	629	51
2A23	BUSH RIVER	Upper Columbia	1982	2019-01-28	185	619		107%		525	292	902	577	49
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2019-01-28	253	892		108%	862	739	381	1472	827	46
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2019-01-28	157	494		99%	486	324	256	740	501	41
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2019-01-28	278	1040		108%	1022	804	335	1422	965	40
2A30P	Colpitti Creek	Upper Columbia	2131	2019-02-01		599			682	523	403	682		3
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-02-01		634			739	570	465	739		3
2A32P	Wildcat Creek	Upper Columbia	2122	2019-02-01		508			428	325	271	428		3
2B02A	FARRON	Lower Columbia	1229	2019-01-28	78	231		105%	318	178	63	346	219	45
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	2019-01-26	118	365		77%	517	242	249	759	475	49
2B06P	Barnes Creek	Lower Columbia	1595	2019-02-01		348		94%	418	150	195	566	369	25
2B07	KOCH CREEK	Lower Columbia	1813	2019-01-26	144	463		93%	550	418	203	708	497	57
2B08P	St. Leon Creek	Lower Columbia	1822	2019-02-01		699		91%	803	579	311	1130	767	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-01-29	130	396		82%	565	440	117	802	481	42
2C01	SINCLAIR PASS	East Kootenay	1374		NS	NS	NS				33	208	77	45
2C04	SULLIVAN MINE	East Kootenay	1580	2019-01-30	54	124		66%	237	128	46	397	187	72
2C07	FERNIE EAST	East Kootenay	1213	2019-01-31	68	192		91%	269	158	51	467	212	66
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-02-01		319		69%	411	249	173	886	463	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-02-01	68	223		78%	319	216	104	518	286	39
2C14P	Floe Lake	East Kootenay	2110	2019-02-01		435		92%	563	457	221	746	471	25

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2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2019-01-29	128	353		101%		336	140	592	351	48
2C16	MOUNT JOFFRE	East Kootenay	1763	2019-01-29	75	194		81%		146	96	439	240	47
2C17	THUNDER CREEK	East Kootenay	2062	2019-01-29	64	135		77%		134	69	335	175	46
2D02	FERGUSON	West Kootenay	929	2019-01-29	133	390		96%	443	280	237	616	407	45
2D03	SANDON	West Kootenay	1072	NS	NS	NS	NS				328	328	0	3
2D04	NELSON	West Kootenay	952	2019-01-30	81	198		75%	296	142	79	508	264	80
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	2019-01-28	88	265		87%	364	185	127	511	304	69
2D06	CHAR CREEK	West Kootenay	1290	2019-02-01	99	312		84%	481	218	117	650	371	52
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	2019-02-06	24	70	A	53%	166	104	60	283	132	27
2D08P	East Creek	West Kootenay	2004	2019-02-01		719		117%	659	518	274	1012	616	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	2019-01-29	204	717		102%		605	409	1115	701	49
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	2019-01-28	128	382		77%		413	268	792	497	48
2D14P	Redfish Creek	West Kootenay	2086	2019-02-01	223	835		102%	939	791	667	1067	821	16
2E01	MONASHEE PASS	Kettle	1387	2019-01-26	71	184		78%	244	103	122	364	236	58
2E02	CARMI	Kettle	1254	2019-01-30	39	86		89%			51	196	97	29
2E03	BIG WHITE MOUNTAIN	Kettle	1672	2019-01-30	94	284		88%	411	179	178	483	322	50
2E07P	Grano Creek	Kettle	1874	2019-02-01	85	234		71%	382	245	156	476	330	20
2F01A	TROUT CREEK (West)	Okanagan	1430	2019-01-28	50	90		61%	181		93	212	147	8
2F01P	Trout Creek West	Okanagan	1420	2019-02-01					193					1
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2019-01-30	61	137		88%	219		65	307	156	54
2F03	MC CULLOCH	Okanagan	1266	2019-01-30	48	96		82%	167	91	63	196	117	81
2F04	GRAYSTOKE LAKE	Okanagan	1818	2019-02-01	60	200		91%	248		128	324	219	18
2F05P	Mission Creek	Okanagan	1794	2019-02-01	87	264		83%	378	200	164	503	320	48
2F07	POSTILL LAKE	Okanagan	1358	2019-01-31	46	96		70%		97	73	243	138	67
2F08P	Greyback Reservoir	Okanagan	1550	2019-02-01	43	111			222	119	119	222		2
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2019-01-27	119	392		107%	435	274	135	693	366	46
2F10P	Silver Star Mountain	Okanagan	1839	2019-02-01	148	508			530	359	483	530		3
2F11	ISINTOK LAKE	Okanagan	1651	2019-01-31	34	66		61%	172		26	307	109	52
2F12	MOUNT KOBAN	Okanagan	1817	2019-01-27	64	135		69%	269	204	43	400	196	51
2F13	ESPERON CR (UPPER)	Okanagan	1634	NS	NS	NS	NS				156	457	156	6
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	NS	NS	NS	NS				146	399	208	12
2F18P	Brenda Mine	Okanagan	1453	2019-02-01		184		74%	252	159	148	368	249	25
2F19	OOYAMA LAKE	Okanagan	1365	2019-01-31	44	78		66%	157	80	31	193	119	49
2F20	VASEUX CREEK	Okanagan	1403	2019-01-27	40	70		80%	122	54	44	208	87	30
2F21	BOULEAU LAKE	Okanagan	1405	NS	NS	NS	NS				168	396	216	10
2F23	MACDONALD LAKE	Okanagan	1742	2019-01-30	99	290		106%	410		132	411	273	19
2F24	ISLAHT LAKE	Okanagan	1492	2019-01-30	83	222		99%	230	119	123	364	225	35

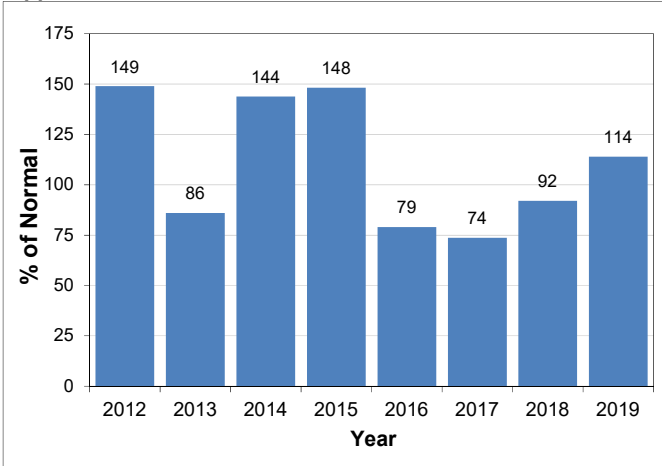
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2F25	POSTILL LAKE UPPER	Okanagan	1500	2019-01-31	47	111					120	210		5
2G03P	Blackwall Peak	Similkameen	1934	2019-02-01	141	460		83%	639	398	158	1076	553	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-01-27	58	114	B	82%	225	108	70	335	139	57
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2019-01-27	47	85	B	59%	184	106	60	284	144	56
2G06	HAMILTON HILL	Similkameen	1477	2019-01-26	57	119	B	56%	241	150	91	411	213	58
3A01	GROUSE MOUNTAIN	South Coast	1126	2019-01-30	173	668		88%	1224	988	50	1530	761	68
3A02	POWELL RIVER (UPPER)	South Coast	1002	NS	NS	NS	NS							0
3A05	POWELL RIVER (LOWER)	South Coast	882	NS	NS	NS	NS				620	620	620	3
3A09	PALISADE LAKE	South Coast	898	NS	NS	NS	NS				318	914	616	4
3A09P	Palisade Lake	South Coast	900	2019-02-01	145	622								0
3A10	DOG MOUNTAIN	South Coast	1007	2019-01-29	154	578		81%	1033	842	77	1243	715	34
3A19	ORCHID LAKE	South Coast	1178	2019-01-28	286	1054		95%	1495	998	273	1855	1114	40
3A20	CALLAGHAN CREEK	South Coast	1009	2019-01-29	186	672		124%	836		50	1040	542	35
3A22P	Nostetuko River	South Coast	1457	2019-02-01	106	380		103%	485	266	120	780	368	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-02-01	74	205		85%	308	198	106	509	242	29
3A25P	Squamish River Upper	South Coast	1387	2019-02-01	363	1241		114%	1350	858	503	1543	1087	28
3A26	CHAPMAN CREEK	South Coast	1022	2019-01-29	198	780		92%	1306	830	540	1306	844	8
3A27	EDWARDS LAKE	South Coast	1070	2019-01-29	137	540		321%			410	944	168	5
3A28P	Tetrahedron	South Coast	1420	2019-02-01	288	857								0
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2019-01-28	249	980		106%	1257	791	42	1640	922	64
3B02A	MOUNT COKELY	Vancouver Island	1267	NS	NS	NS	NS				234	1050	586	7
3B04	ELK RIVER	Vancouver Island	270	2019-01-28	11	36		59%	76	102	0	544	61	62
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	NS	NS	NS	NS				28	1534	285	24
3B17P	Wolf River Upper	Vancouver Island	1422	2019-02-01		879		102%	1065	689	162	1383	858	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2019-01-28	112	340		85%		336	0	742	400	46
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2019-01-28	77	228		93%		178	0	572	244	46
3B23P	Jump Creek	Vancouver Island	1134	2019-02-01	110	516		84%	1122	466	0	1367	616	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-02-01	126	593			1282	878	859	1282		3
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-02-01	199	690			886					1
3C07	WEDEENE RIVER SOUTH	North Coast	196	NS	NS	NS	NS				105	497	304	14
3C08P	Burnt Bridge Creek	North Coast	1329	2019-02-01	136	536		93%	475	515	248	1124	577	20
3D01C	SUMALLO RIVER WEST	Skagit	801	2019-01-28	37	84		52%	265	182	0	368	161	26
3D02	LIGHTNING LAKE	Skagit	1254	NS	NS	NS	NS				67	242	154	5
3D03A	KLESILKWA	Skagit	1134	2019-01-28	50	136		76%		153	0	508	180	69
4A02P	Pine Pass	Peace	1386	2019-02-01	248	822		110%	700	525	363	1250	745	29
4A03	WARE (UPPER)	Peace	1563	2019-02-04	85	189		103%	195	130	90	289	184	55
4A03P	Ware Upper	Peace	1565	2019-02-01	80	182			182	130				2

2019 Automated Snow Weather Station/Manual Snow Survey Data				February					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
4A04	WARE (LOWER)	Peace	969	N	N	N	N		142		63	286	143	55
4A04P	Ware Lower	Peace	971	2019-02-01	67	163			168	89				2
4A05	GERMANSEN (UPPER)	Peace	1489	2019-02-05	116	329		139%	263	144	140	371	237	51
4A06	TUTIZZI LAKE	Peace	1043	2019-02-05	89	205		110%	206	95	106	348	186	50
4A07	LADY LAURIER LAKE	Peace	1460	2019-02-03	128	342		93%	314	275	194	679	369	50
4A09	PULPIT LAKE	Peace	1331	2019-02-04	117	320		103%	256	208	152	530	312	50
4A09P	Pulpit Lake	Peace	1331	2019-02-01	102	281		87%	218	183	133	405	324	28
4A10	FREDRICKSON LAKE	Peace	1323	2019-02-05	83	187		104%	131	105	93	309	179	50
4A11	TRYGVE LAKE	Peace	1409	N	N	N	N		210	175	119	434	264	50
4A12	TSAYDAYCHI LAKE	Peace	1173	2019-02-05	124	360		130%	307		146	507	277	51
4A13	PHILIP LAKE	Peace	1013	2019-02-05	100	261		131%	180		118	355	199	51
4A16	MORFEE MOUNTAIN	Peace	1427	2019-02-05	204	723		121%	466	373	265	952	597	50
4A18	MOUNT SHEBA	Peace	1480	2019-02-06	232	783		138%	617	447	299	932	566	49
4A20	MONKMAN CREEK	Peace	1566	2019-01-30	117	377		100%	500	344	163	775	376	42
4A20P	Monkman Creek	Peace	1570	2019-02-01		339								0
4A21	MOUNT STEARNS	Peace	1514	2019-02-03	60	103		100%	94	117	40	196	103	44
4A25	FORT ST. JOHN A	Peace	692	2019-02-07	64	96		120%	70	72	22	154	80	43
4A27P	Kwadacha North	Peace	1554	2019-02-01	99	212			221	137				2
4A30P	Aiken Lake	Peace	1061	2019-02-01	76	198		103%	124	122	90	330	193	33
4A31P	Crying Girl Prairie	Peace	1358	2019-02-01		182			190	165	100	190		3
4A33P	Muskwa-Kechika	Peace	1196	2019-02-01		93			81	84	23	84		3
4A34P	Dowling Creek	Peace	1456	2019-02-01		1096			574	661				2
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2019-02-02	192	595		90%		725	420	1220	664	63
4B02	JOHANSON LAKE	Skeena-Nass	1480	2019-02-05	91	229		109%	176	133	108	355	211	50
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-02-04	133	363		101%	364	326	168	665	361	46
4B04	CHAPMAN LAKE	Skeena-Nass	1485	NS	NS		NS							0
4B06	TACHEK CREEK	Skeena-Nass	1133							120	99	298	156	19
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	NS	NS		NS				264	264	0	2
4B08	MOUNT CRONIN	Skeena-Nass	1491	NS	NS		NS						0	
4B10	NINGUNSAW PASS	Nass	647	2019-02-04	85	220		71%		178	171	603	312	41
4B11A	BEAR PASS	Nass	437	2019-02-04	101	220		48%	340	270	192	821	455	31
4B12P	Granduc Mine	Skeena-Nass	790	2019-02-01						80				1
4B13A	TERRACE A	Skeena-Nass	219	2019-01-29	24	86		67%	146	22	0	330	128	37
4B14	EQUITY MINE	Skeena-Nass	1434	NS	NS		NS				174	444	265	15
4B15	LU LAKE	Skeena-Nass	1296	NS	NS		NS				134	352	214	15
4B15P	Lu Lake	Skeena-Nass	1308	2019-02-01	80	206		107%	218	213	90	351	192	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-02-01	171	474		77%	384	324	195	878	617	22

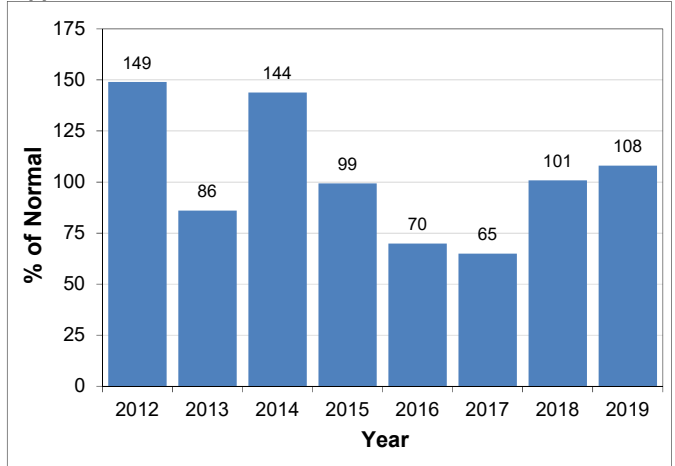
2019 Automated Snow Weather Station/Manual Snow Survey Data				February					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-02-01	236	772		93%	644	640	302	1489	827	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-02-01	139	395		81%		297	178	856	486	16
4C01	SIKANNI LAKE	Liard	1390	2019-02-04	78	160		83%	162	95	78	325	193	50
4C01P	Sikanni Lake	Liard	1400	2019-02-01	89	182			237	93	93	237		2
4C02	SUMMIT LAKE	Liard	1291	NS	NS		NS			60	36	146	91	20
4C03	DEASE LAKE	Liard	805	2019-02-05	44	68		67%			36	218	101	51
4C05	FORT NELSON AIRPORT	Liard	368	2019-01-29	44	51		67%	51	60	35	128	76	51
4C15	JADE CITY	Liard	943	NS	NS		NS				102	260	165	14
4D01	TELEGRAPH CREEK	Stikine	490	NS	NS		NS				51	244	110	22
4D02	ISKUT	Stikine	931	2019-02-05	28	48		59%			30	162	82	41
4D11P	Kinaskan Lake	Stikine	1020	2019-02-01	65	182		63%	113	188	94	194	288	22
4E02B	ATLIN LAKE	Yukon	730	1900-01-00										
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 - February 1, 2019

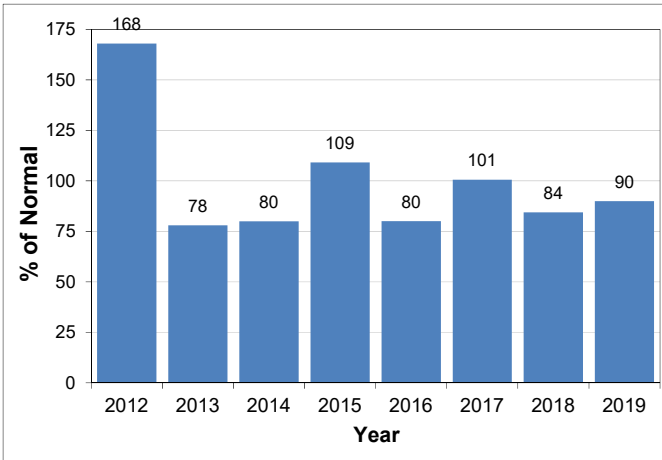
Upper Fraser West



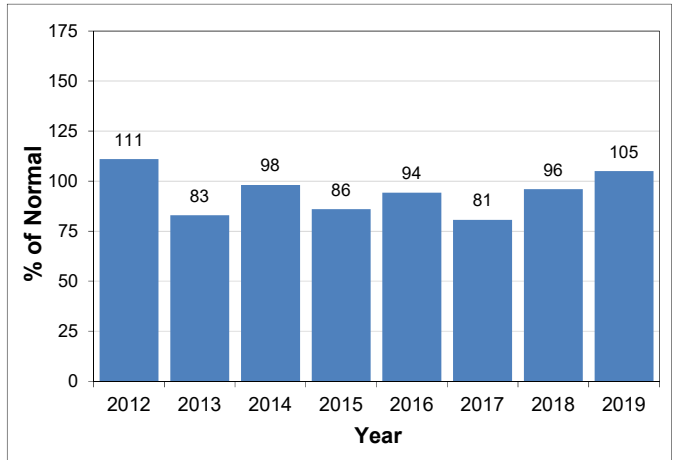
Upper Fraser East



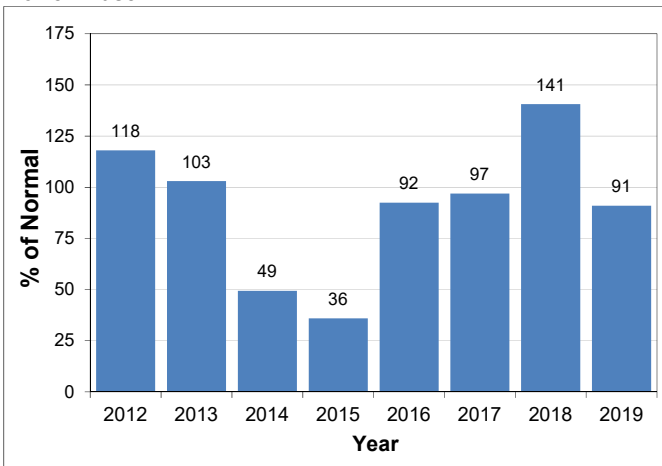
Nechako



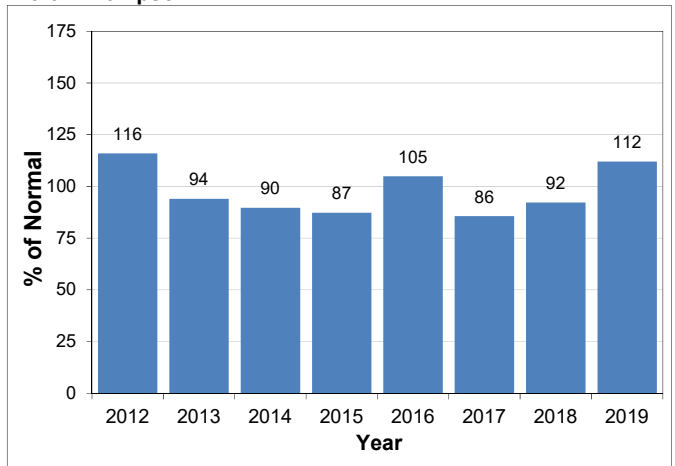
Middle Fraser



Lower Fraser

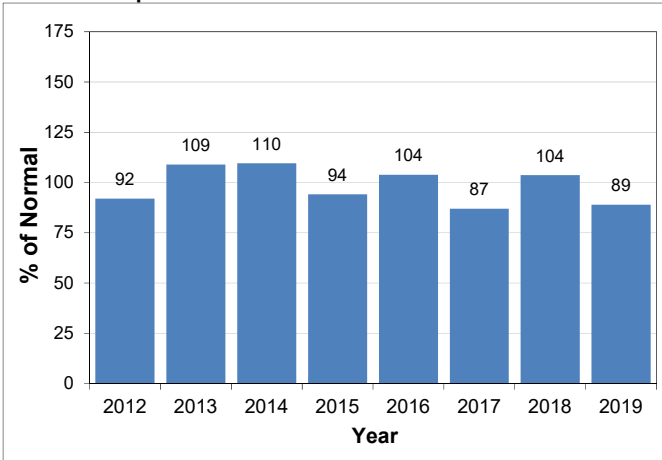


North Thompson

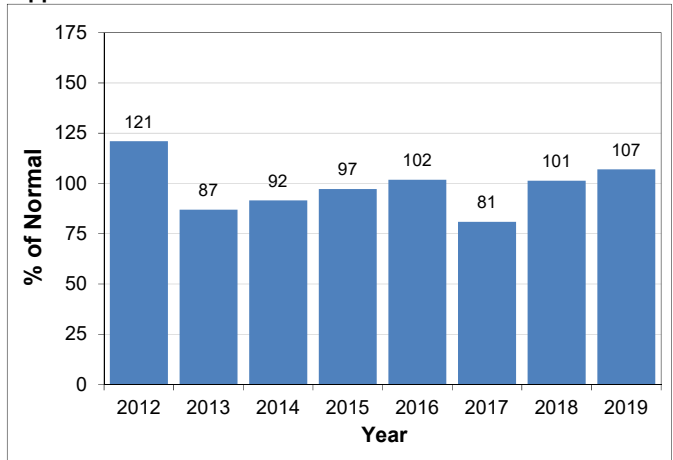


Snow Basin Index Graphs - February 1, 2019

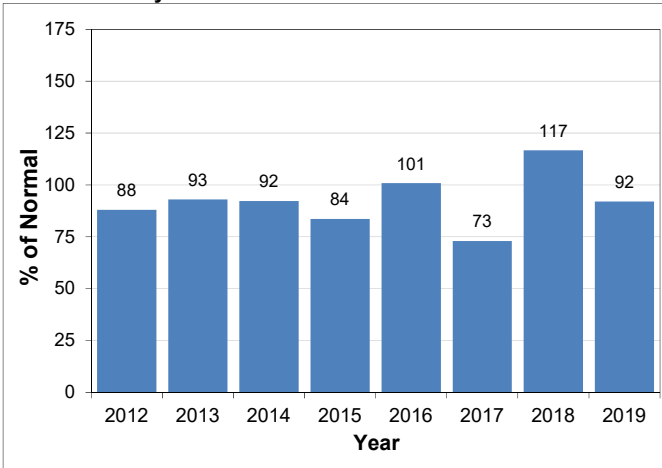
South Thompson



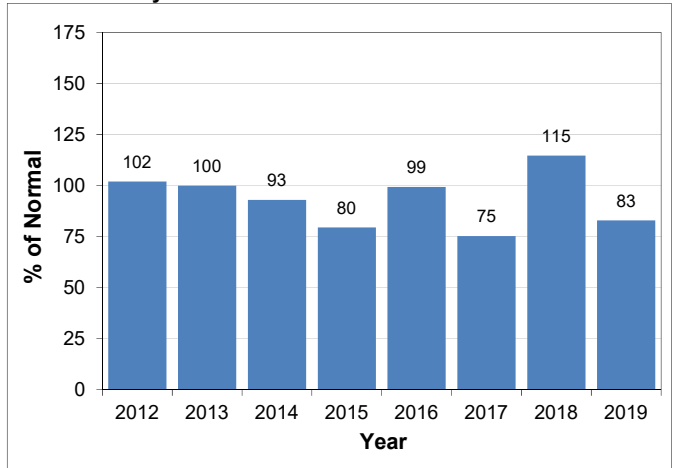
Upper Columbia



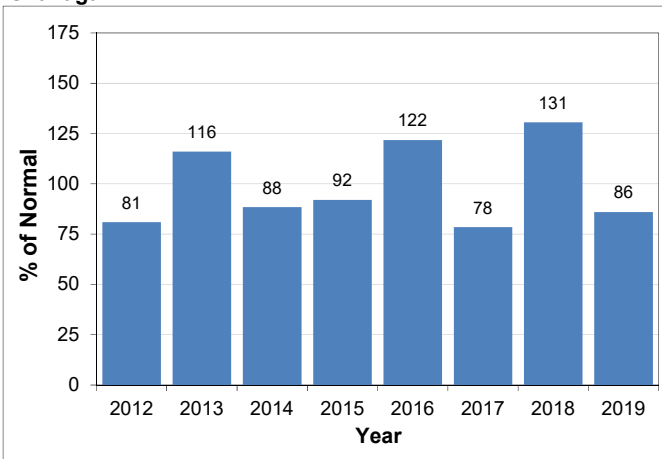
West Kootenay



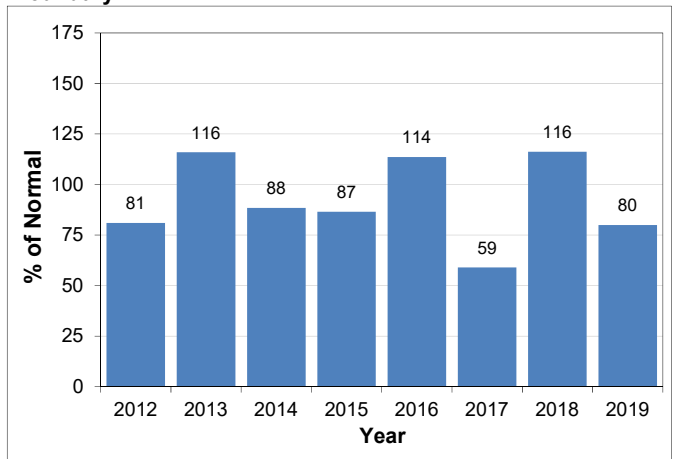
East Kootenay



Okanagan

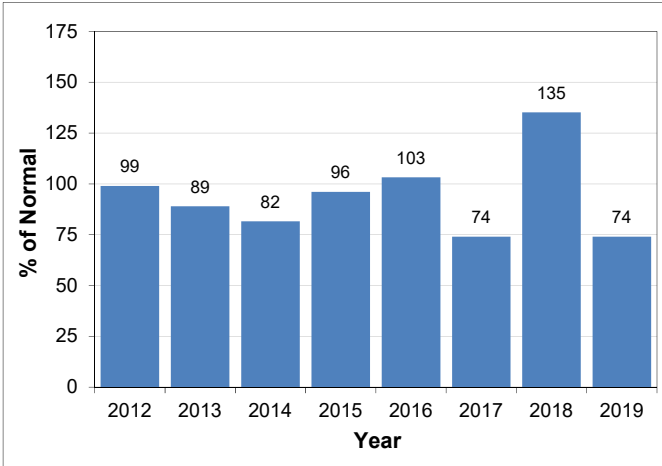


Boundary

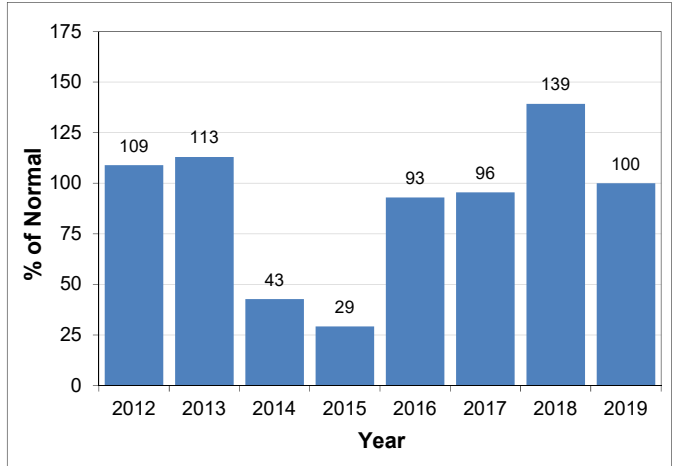


Snow Basin Index Graphs - February 1, 2019

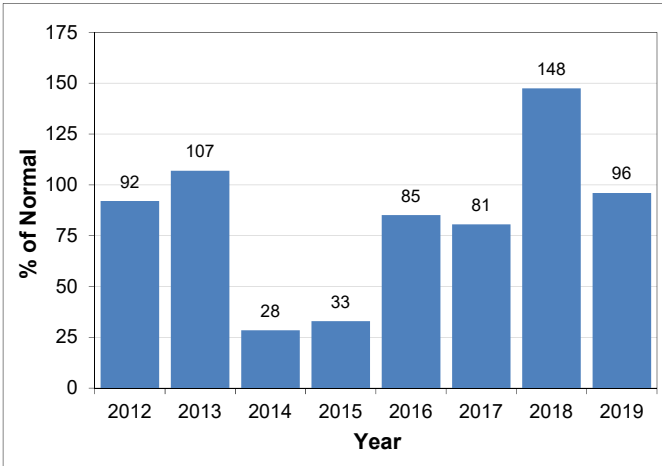
Similkameen



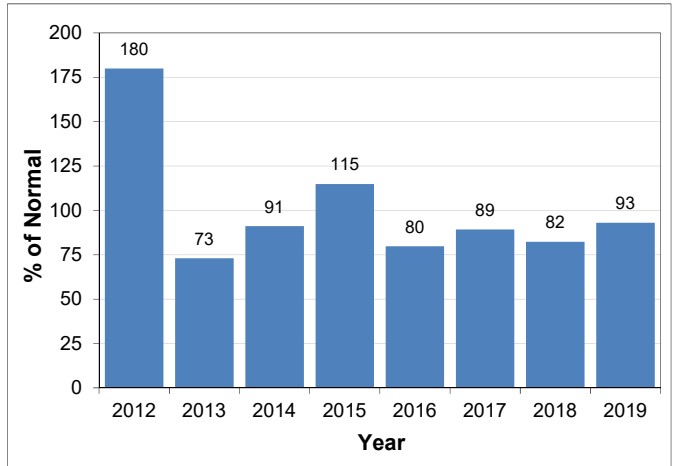
South Coast



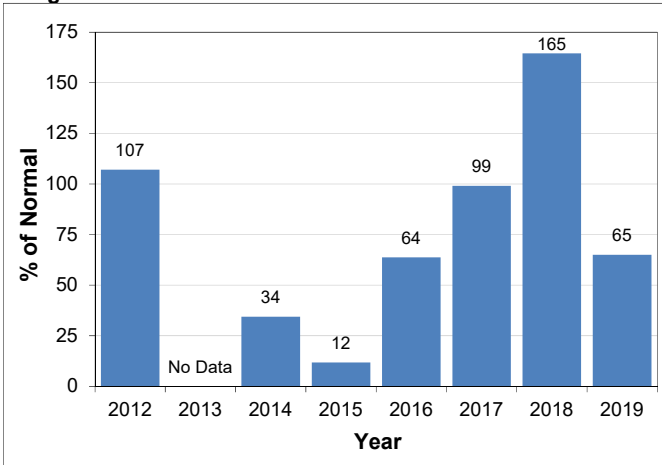
Vancouver Island



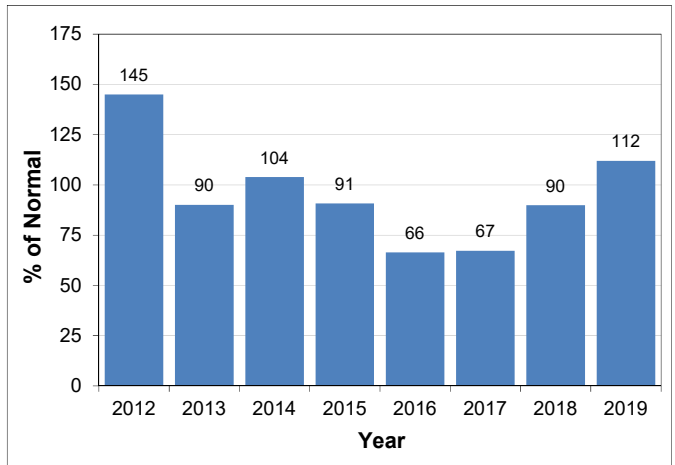
Central Coast



Skagit

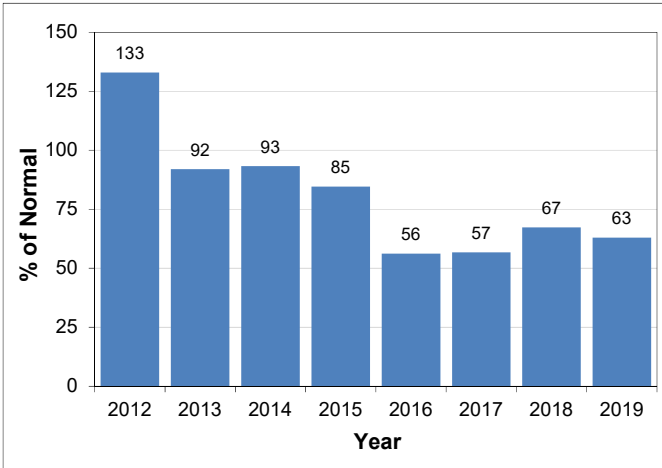


Peace

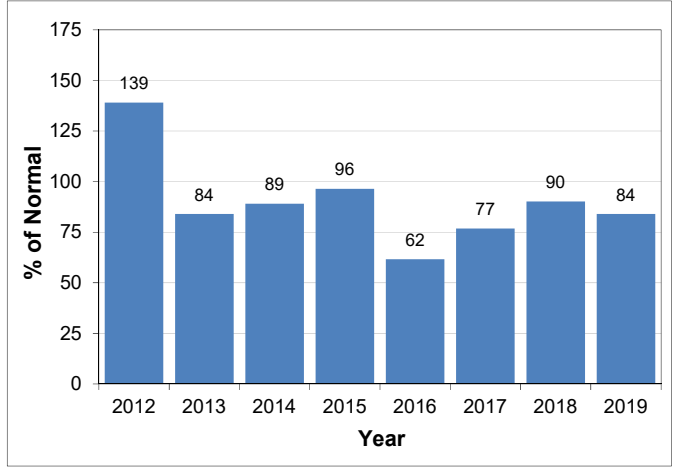


Snow Basin Index Graphs - February 1, 2019

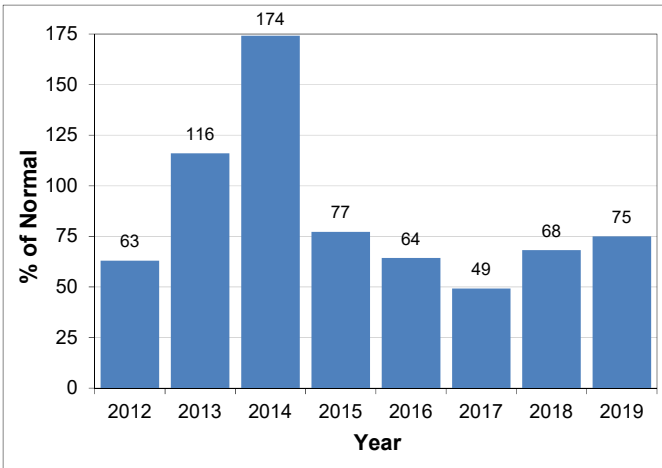
Stikine



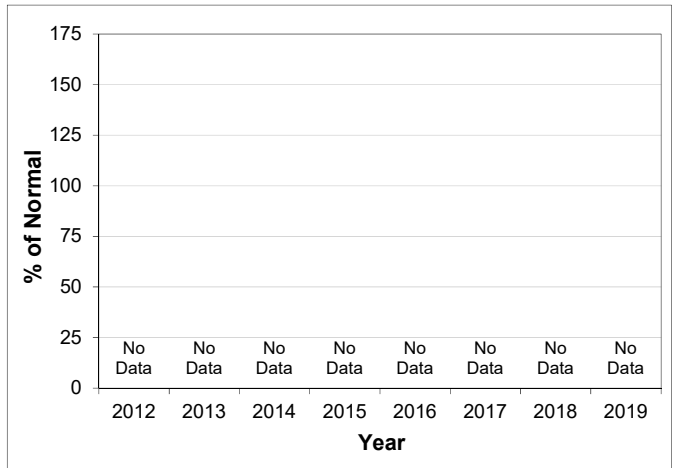
Skeena-Nass



Liard



Northwest



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

The March 1st snow survey is now complete. Data from 141 manual snow courses and 80 automated snow weather stations around the province (collected by the Ministry of Environment 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

February was very cold through the entire province as a stable arctic airmass remained in place for most of the month. Many cities recorded the coldest or second coldest average temperature for February. Temperature anomalies along the coast were -4 to -5 °C below normal; anomalies in the southern interior were -6 to -9 °C below normal, and weather stations in the north were up to -12.5 °C below normal.

Precipitation was variable in February throughout Environment and Climate Change Canada's provincial climate stations. Some stations were dry (e.g. Terrace) and some had greater than normal precipitation (e.g. Williams Lake). However, higher elevation automated snow weather stations recorded very low precipitation relative to normal conditions. Many sites along the Coast and Vancouver Island also recorded much lower than normal precipitation amounts during February.

Snowpack

Snow basin indices for March 1st, 2019 range from a low of 59% of normal in the Stikine to a high of 106% in the Upper Fraser West (Table 1 and Figure 1). The province ranges from well below normal snowpack to normal snowpack for March 1st, with the average of all snow measurements across the province calculated to be 89% of normal. Well below normal snowpack (<60% of normal) is present in the Stikine, while below normal snowpack (60-80% of normal) exists in the Similkameen, Skagit, Central Coast and Nechako. The rest of the province has slightly below normal to normal snowpack (80-110% of normal). There are no regions of the province with exceptionally high snowpack. The March 1st snow basin index for the entire Fraser River is 91% of normal.

So far this season, snow accumulation has been dominated by persistent weather patterns. Most of this year's snowpack built up rapidly over a five to six-week period from early-December to early-January. Weather through February shifted into the dominance of Arctic air across the province, with extremely cold temperatures and limited snow accumulation. This pattern has continued into the beginning of March. Snowpack throughout the province remained relatively level through February. Most basins dropped by 5 to 15% relative to normal compared to February 1 due to the dry and cold conditions.

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

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

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	106	Boundary	68
Upper Fraser East	96	Similkameen	72
Nechako	79	South Coast	89
Middle Fraser	100	Vancouver Island	85
Lower Fraser	86	Central Coast	78
North Thompson	100	Skagit	75
South Thompson	83	Peace	103
Upper Columbia	100	Skeena-Nass	82
West Kootenay	90	Stikine	59
East Kootenay	88	Liard	76
Okanagan	81	Northwest	71
Nicola	81	Fraser	91

Outlook

The Climate Prediction Centre (CPC) at the U.S. National Weather Service/NOAA has declared that El Niño conditions are present and is forecasting a high likelihood of El Niño continuing through spring 2019. Sea surface temperature anomalies in the equatorial Pacific Ocean have strengthened since the beginning of February. Typically, El Niño is linked to warmer winters across British Columbia, with a trend towards lower than normal snowpack. Warmer temperatures were present throughout the province in December and January. However, a strong arctic airmass significantly influenced British Columbia in February and offset these typical El Niño impacts. February temperatures through the province were much lower than normal, reaching record lows in several regions. The impact of El Niño on winter snowpack in BC is highly variable and does not always mean lower snowpack - for example, 2006-07 had significant snowpack across the province. Seasonal weather forecasts from Environment and Climate Change Canada show an increased likelihood of below normal temperatures for most of the province over March to May. NOAA seasonal forecasts for the contiguous United States indicate an increased likelihood of above normal temperatures across Washington, Idaho, Montana and Alaska.

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

By early March, nearly 80% of the annual BC snowpack has typically accumulated. Currently, the snow accumulation ranges from well below normal to normal for March 1st across the province. However, seasonal snowpack can still change significantly with one to two more months of possible snow accumulation left in winter/spring 2019.

At this stage in the season there is no elevated flood risk present in the current snowpack across the province. For example, peak flows at the Fraser River at Hope during normal snowpack years range between 7,000 and 12,000 m³/s. 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 snowpack.

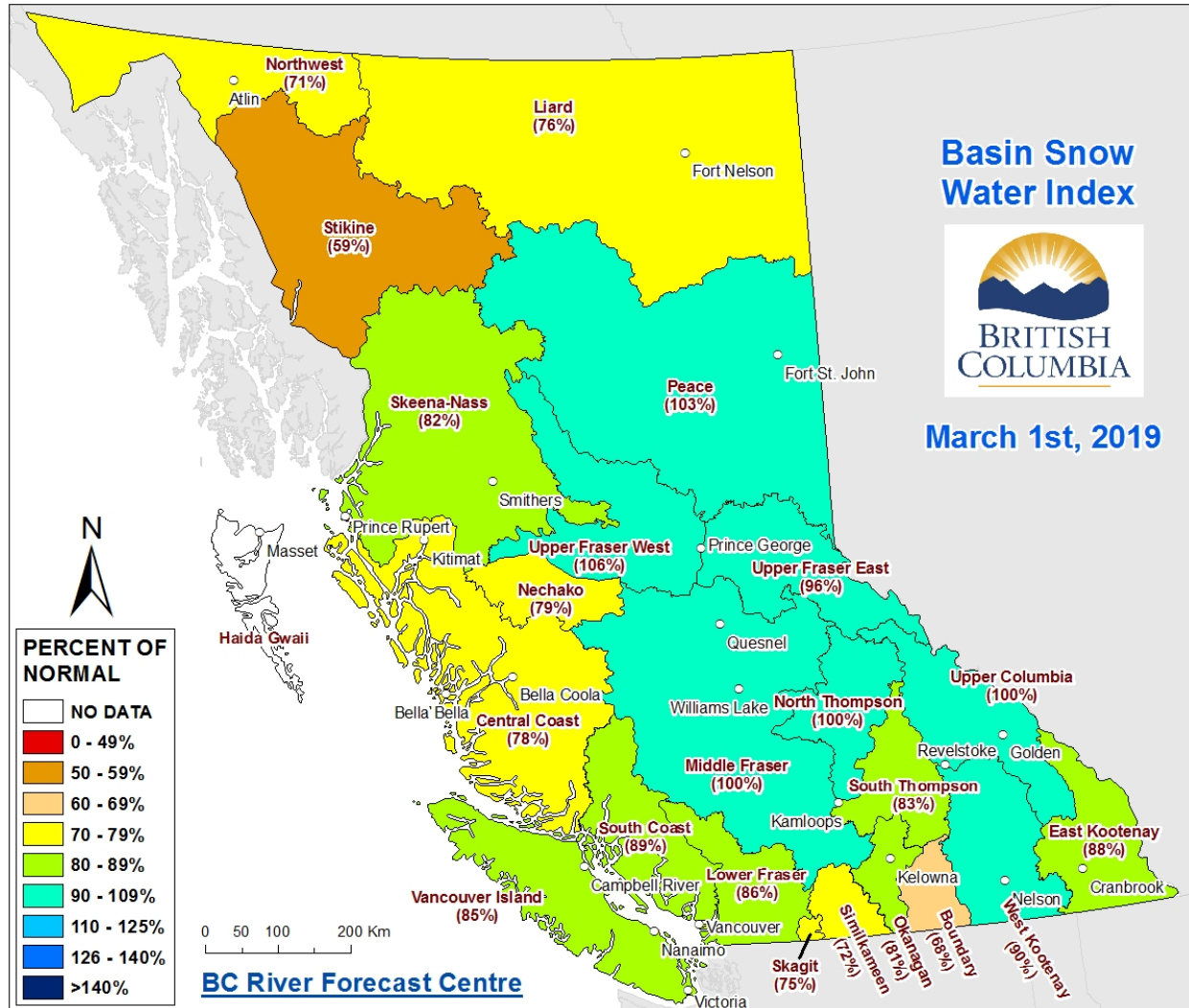
Seasonal volume runoff forecasts (see below) are near-normal (85-105%) for the Upper Fraser, Middle Fraser Thompson, Skeena/Bulkley, and Okanagan Lake basins, and below-normal (<85%) for the Similkameen, Nicola Lake and Kalamalka-Wood Lake. The snowmelt component of seasonal runoff for Vancouver Island, South Coast, and Lower Fraser is near normal. Well below normal snowpack in the Northwest and Stikine is an early indication of the potential for below normal seasonal runoff.

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

BC River Forecast Centre
March 8, 2019

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

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



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

Location	Mar - Jun Runoff				Mar - Jul Runoff				Mar - 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				3721	3786	98	331	5290	5252	101	390	
	McGregor at Lower Canyon				3797	4087	93	490	4871	5132	95	639	
	Fraser at Shelley				16021	16310	98	1494	20164	20369	99	1832	
Middle Fraser Basin	Quesnel River at Quesnel				5003	4747	105	510	6446	6078	106	670	
Thompson Basin	N. Thompson at McLure				8776	9190	95	536	10981	11359	97	826	
	S. Thompson at Chase				5123	6111	84	566	6435	7678	84	832	
	Thompson at Spences Bridge				13850	15775	88	1174	17481	19755	88	1814	
Bulkley and Skeena	Bulkley at Quick				2268	2709	84	1361	2822	3306	85	1939	
	Skeena at Usk				17646	19187	92	1335	21968	23531	93	1809	
Nicola Lake	Inflows	99	126	79	31	112	143	79	35				
Nicola River	at Spences Bridge	408	523	78	82	453	591	77	103				
Similkameen River	at Nighthawk	1085	1342	81	158					1291	1652	78	184
	at Hedley	770	1045	74	134					869	1233	71	151
Okanagan and Kalamalka-Wood Lake	Okanagan Lake Inflow	432	470	92	89	455	497	92	110				
	Kalamalka-Wood Lake Inflow	23	31	73	12	23	33	71	15				

Note: 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.

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				March					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	2019-03-01	140				495	321	254	720	445	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-03-01	120	360		97%	398	275	198	562	372	26
1A03P	Barkerville	Upper Fraser East	1483	2019-03-01	112	302		103%	290	203	123	479	292	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693	2019-02-25	213	744		110%			296	1104	676	63
1A05P	Longworth Upper	Upper Fraser East	1740	2019-03-01	240	705			654	379	379	654		2
1A06A	HANSARD	Upper Fraser East	622	2019-03-04	78	148		87%	191	101	44	396	170	45
1A10	PRINCE GEORGE A	Upper Fraser East	684	2019-03-01	67	144		123%		55	0	296	117	55
1A11	PACIFIC LAKE	Upper Fraser East	756	2019-02-25	184	530		97%	660	341	165	866	546	55
1A12	KAZA LAKE	Upper Fraser West	1247	2019-02-26	104	300		102%	287	162	132	478	295	54
1A12P	Kaza Lake	Upper Fraser West	1248	2019-03-01	108	288			269	199	257	257		3
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-03-01	183	550		84%	627		214	1066	654	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598	2019-02-25	186	657		95%	787	457	404	1098	692	48
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-03-01	171	444			541	599	541	599		2
1A16	BURNS LAKE	Upper Fraser West	820	2019-02-28	58	116		89%	200	72	50	250	130	48
1A17P	Revolution Creek	Upper Fraser East	1676	2019-03-01	188	633		94%	679	398	326	1133	674	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-03-01	161	531		87%	534	405	298	912	611	12
1A23	BIRD CREEK	Upper Fraser West	1196	2019-02-27	78	174		133%	296	98	72	296	131	28
1B01	MOUNT WELLS	Nechako	1489	2019-02-27	125	339		75%	531	426	244	954	452	66
1B01P	Mount Wells	Nechako	1489	2019-03-01		409		87%	533	475	227	739	470	26
1B02	TAHTSA LAKE	Nechako	1319	2019-02-27	226	780		75%	865	961	571	1777	1034	66
1B02P	Tahtsa Lake	Nechako	1319	2019-03-01		868		78%	1113	1076	464	1725	1108	26
1B05	SKINS LAKE	Nechako	877	2019-02-27	48	107		104%	176	75	53	226	103	53
1B06	MOUNT SWANNELL	Nechako	1596	2019-02-27	98	245		97%	314	222	132	446	252	29
1B07	NUTLI LAKE	Nechako	1502	2019-02-27	117	324		70%	444	483	229	779	460	27
1B08P	Mount Pondosy	Nechako	1413	2019-03-01		523		76%	692	699	363	995	686	26
1C01	BROOKMERE	Middle Fraser	994	2019-02-28	58	116		69%	229	174	53	351	167	73
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2019-03-01	143	445		90%	467	468	222	1016	492	66
1C05P	McGillivray Pass	Middle Fraser	1766	2019-03-01		464								
1C06	PAVILION	Middle Fraser	1209	2019-03-01	15	40		69%	94	70	0	168	58	61
1C08	NAZKO	Middle Fraser	1029	2019-02-26	37	81		127%	112	45	0	142	64	43
1C09A	HIGHLAND VALLEY	Middle Fraser	1547	2019-02-28	49	90		117%	156		25	229	77	51
1C12P	Green Mountain	Middle Fraser	1766	2019-03-01		684		91%	685	574	429	1265	751	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612	2019-02-28	147	552		129%		280	238	624	428	46
1C14	BRALORNE	Middle Fraser	1382	2019-03-01	57	149		100%	171	169	0	363	149	54
1C14P	Bralorne	Middle Fraser	1382	2019-03-01	86	210								
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-03-03	102	280		105%	258	181	141	468	266	57
1C18P	Mission Ridge	Middle Fraser	1903	2019-03-01		392		83%	557	481	160	866	475	48

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617	2019-02-28	59	130		135%	191		15	259	96	50
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-03-01	157	500		103%	504	327	255	739	487	24
1C21	BIG CREEK	Middle Fraser	1130	2019-02-25	20	31		65%	94	40	0	112	48	47
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	2019-02-27	24	44		80%	72	46	0	128	55	48
1C23	PENFOLD CREEK	Middle Fraser	1687	2019-03-01	49	91		11%			453	1132	807	42
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2019-02-25	130	423		353%	194	132	13	213	120	45
1C28	DUFFEY LAKE	Middle Fraser	1253	2019-02-27	67	164		38%	680	366	194	762	428	40
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	2019-03-01	52	110		51%	298	221	100	398	216	37
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-03-01	95	181								
1C32	DEADMAN RIVER	Middle Fraser	1463	2019-02-28	73	198		198%		110	44	220	100	33
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2019-03-01	158	526		304%	196		116	211	173	12
1C37	BRALORNE(UPPER)	Middle Fraser	1980	2019-03-01	201	768		141%		550	268	944	543	22
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	2019-03-01	161	556		75%	652	654	302	1250	737	23
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-03-01		672			626	667	626	685		3
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2019-03-01	124	392		77%	576	516	146	954	508	23
1C40	TYAUGHTON	Middle Fraser	1946	2019-02-28	84	210		53%	454	332	138	916	399	23
1C40P	North Tyaughton	Middle Fraser	1969	2019-03-01		316			422	291	267	422		3
1C41P	Yanks Peak East	Middle Fraser	1683	2019-03-01	201	834		127%	727	488	365	904	655	21
1C42	CAVERHILL LAKE	Middle Fraser	1400	2019-03-01	279	1091			280	148	60	280		13
1D06P	Tenquille Lake	Lower Fraser	1669	2019-03-01	339	853		105%	1003	912	518	1227	810	17
1D08	STAVE LAKE	Lower Fraser	1211	2019-03-01	121	421	A	36%	1417	1030	120	2500	1178	51
1D09	WAHLEACH LAKE	Lower Fraser	1395	2019-03-01	253	1071		229%	463	368	37	1072	468	51
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-03-01		562		66%	927	430	251	1320	846	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	2019-03-01	216	728		67%		939	400	2380	1092	48
1D16	DICKSON LAKE	Lower Fraser	1147	2019-02-26	281	1056		89%	1715	1160	22	1814	1186	27
1D17P	Chilliwack River	Lower Fraser	1621	2019-03-01	270	1148		95%	1502	1022	506	2353	1208	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-03-01	270	780								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-03-01	273	1083		83%	1388	1076	265	2615	1312	19
1E01B	BLUE RIVER	North Thompson	673	2019-02-24	106	276		99%	336	280	160	411	280	34
1E02P	Mount Cook	North Thompson	1574	2019-03-01	286	1090		106%	1072	787	684	1319	1028	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	2019-02-23	136	430		95%	532	420	216	778	452	44
1E07	ADAMS RIVER	North Thompson	1769	2019-02-24	160	524		94%	628	534	262	892	560	47
1E08P	Azure River	North Thompson	1625	2019-03-01	212					848	528	1339	934	20
1E10P	Kostal Lake	North Thompson	1760	2019-03-01	176	724		102%	706	607	417	1023	712	33
1E14P	Cook Creek	North Thompson	1280	2019-03-01	151									1
1F01A	ABERDEEN LAKE	South Thompson	1262	2019-02-26	64	114		86%	250	140	51	231	133	61
1F02	ANGLEMONT	South Thompson	1168	2019-03-04	97	275		85%	445		160	635	323	60

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1F03P	Park Mountain	South Thompson	1857	2019-03-01	162	554		78%	869		379	1021	714	33
1F04P	Enderby	South Thompson	1950	2019-03-01	227	648			882	712	712	882		2
1F06P	Celista Mountain	South Thompson	1533	2019-03-01	198	702		95%		545	506	923	739	12
2A02	GLACIER	Upper Columbia	1249	2019-02-26	158	612		105%	682	417	251	952	585	80
2A03A	FIELD	Upper Columbia	1310	2019-02-27	66	163		111%	183	113	53	248	147	78
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-03-01		898		91%	1089	862	537	1487	992	25
2A07	KICKING HORSE	Upper Columbia	1648	2019-02-27	102	292		105%	367	216	140	462	279	71
2A11	BEAVERFOOT	Upper Columbia	1924	2019-02-27	69	172		103%	198	160	80	333	167	69
2A14	MOUNT ABBOT	Upper Columbia	2031	2019-02-25	260	110		11%	1077	892	508	1448	1000	59
2A16	GOLDSTREAM	Upper Columbia	1914	2019-02-28	237	953		100%	974	895	553	1351	954	55
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2019-02-24	262	995		95%	1146	824	534	1703	1043	55
2A18	KEYSTONE CREEK	Upper Columbia	1839	2019-02-28	169	626		93%	712	649	357	1277	671	52
2A18P	Keystone Creek	Upper Columbia	1850	2019-03-01		733			821	762	779	821		3
2A19	VERMONT CREEK	Upper Columbia	1533	2019-02-27	110	355		100%	408	355	152	643	356	52
2A21P	Molson Creek	Upper Columbia	1930	2019-03-01		880		99%	961	755	437	1215	887	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	2019-02-28	196	728		97%	922	713	389	1117	751	51
2A23	BUSH RIVER	Upper Columbia	1982	2019-02-28	192	699		102%	715	676	281	1078	682	50
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2019-02-28	256	1031		104%	1059	952	526	1476	990	46
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2019-02-28	163	590		95%	646	422	338	1018	618	41
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2019-02-28	280	1168		102%	1190	990	335	2120	1146	40
2A30P	Colpitti Creek	Upper Columbia	2131	2019-03-01		641			836	650	403	836		3
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-03-01		717			890	740	465	890		3
2A32P	Wildcat Creek	Upper Columbia	2122	2019-03-01		542			526	434	271	526		3
2B02A	FARRON	Lower Columbia	1229	2019-02-26	104	292		106%	442	276	79	450	276	45
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	2019-02-25	132	412		72%	730	351	285	918	570	57
2B06P	Barnes Creek	Lower Columbia	1595	2019-03-01		410		94%	632	227	229	690	437	25
2B07	KOCH CREEK	Lower Columbia	1813	2019-02-25	N	N	N		736	531	269	996	601	57
2B08P	St. Leon Creek	Lower Columbia	1822	2019-03-01		845		94%	1114	780	416	1392	900	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-03-03	164	490		82%	734	710	147	1136	601	43
2C01	SINCLAIR PASS	East Kootenay	1374	2019-02-28	52	123		119%	134	96	44	262	103	70
2C04	SULLIVAN MINE	East Kootenay	1580	2019-02-28	84	210		89%	318	230	53	465	235	72
2C07	FERNIE EAST	East Kootenay	1213	2019-02-28	86	217		80%	334	302	61	584	270	67
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-03-01		405		71%	545	463	233	1074	571	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-03-01	100	298		89%	430	381	149	653	333	39
2C14P	Floe Lake	East Kootenay	2110	2019-03-01		510		88%	698	601	257	889	581	25
2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2019-02-27	149	448		106%	506	437	185	680	421	49
2C16	MOUNT JOFFRE	East Kootenay	1763	2019-02-27	92	242		83%	308	243	122	551	291	49

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2C17	THUNDER CREEK	East Kootenay	2062	2019-02-27	76	192		90%	256	226	91	378	214	49
2D02	FERGUSON	West Kootenay	929							400	283	796	502	63
2D03	SANDON	West Kootenay	1072	2019-03-01	87	285		89%	438	295	196	475	319	38
2D04	NELSON	West Kootenay	952	2019-02-27	103	185	A	56%	362	264	118	558	328	78
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	2019-02-25	106	304		80%	494	316	201	663	378	69
2D06	CHAR CREEK	West Kootenay	1290	2019-03-02	137	400		89%	537	418	221	754	447	52
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	2019-03-04	38	91		63%		188	52	322	144	25
2D08P	East Creek	West Kootenay	2004	2019-03-01		806		110%	803	716	312	1167	732	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	2019-02-25	223	843		98%	1007	775	490	1534	859	51
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	2019-02-25	159	487	A	80%	739	570	343	955	607	49
2D14P	Redfish Creek	West Kootenay	2086	2019-03-01	267	968		101%	1231	1093	751	1256	954	16
2E01	MONASHEE PASS	Kettle	1387	2019-02-25	85	221		78%	406	158	149	442	282	59
2E02	CARMI	Kettle	1254	2019-03-01	53	76	A	58%	191	47	56	274	130	55
2E03	BIG WHITE MOUNTAIN	Kettle	1672	2019-03-01	127	272		68%	514	208	213	676	402	52
2E07P	Grano Creek	Kettle	1874	2019-03-01	119	263		64%	504	338	206	679	411	20
2F01A	TROUT CREEK (West)	Okanagan	1430	2019-02-28	59	99		51%	271	120	93	271	196	7
2F01P	Trout Creek West	Okanagan	1420	2019-03-01	68	156								
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2019-02-28	78	171		90%	311	178	97	381	190	57
2F03	MC CULLOCH	Okanagan	1266	2019-02-27	63	112		77%	238	117	71	249	146	78
2F04	GRAYSTOKE LAKE	Okanagan	1818	2019-03-01	101	270		95%		216	128	605	285	34
2F05P	Mission Creek	Okanagan	1794	2019-03-01	125	312		80%	552	274	208	608	392	48
2F07	POSTILL LAKE	Okanagan	1358	2019-02-27	72	160		92%	252		98	274	173	68
2F08P	Greyback Reservoir	Okanagan	1550	2019-03-01	69	158			298	159	159	298		2
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2019-02-24	134	428		95%	538	362	180	809	450	63
2F10P	Silver Star Mountain	Okanagan	1839	2019-03-01	177	569			659	445	445	659		3
2F11	ISINTOK LAKE	Okanagan	1651	2019-02-28	51	92		70%	245	117	53	358	132	53
2F12	MOUNT KOBAN	Okanagan	1817	2019-02-24	73	172		68%	336	270	61	488	253	52
2F13	ESPERON CR (UPPER)	Okanagan	1634	2019-02-24	91	248		75%	382	270	157	635	330	49
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	2019-02-24	85	234		82%	348	206	132	513	287	26
2F18P	Brenda Mine	Okanagan	1453	2019-03-01		214		68%	331	212	184	431	315	25
2F19	OOYAMA LAKE	Okanagan	1365	2019-03-01	65	114		79%	238	124	73	241	144	49
2F20	VASEUX CREEK	Okanagan	1403	2019-02-24	53	114		101%	180	60	52	284	113	46
2F21	BOULEAU LAKE	Okanagan	1405	2019-02-25	75	176		66%	318	212	165	432	267	47
2F23	MACDONALD LAKE	Okanagan	1742	2019-03-05	112	322		88%	508	310	170	583	368	41
2F24	ISLAHT LAKE	Okanagan	1492						184	183	161	497	285	36
2F25	POSTILL LAKE UPPER	Okanagan	1500						274		112	242		8
2G03P	Blackwall Peak	Similkameen	1934	2019-03-01	165	532		80%	832	544	228	1323	665	50

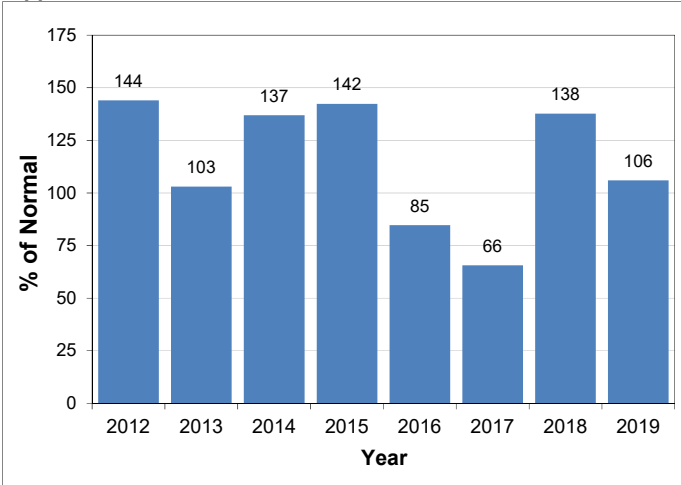
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2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-02-26	68	135	B	76%	301	139	92	508	178	58
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2019-02-26	58	119	B	65%	238	158	76	363	182	57
2G06	HAMILTON HILL	Similkameen	1477	2019-02-25	63	142	B	53%	289	219	102	676	267	56
3A01	GROUSE MOUNTAIN	South Coast	1126	2019-02-25	248	840		87%	1425	1036		2320	966	68
3A02	POWELL RIVER (UPPER)	South Coast	1002		NS	NS	NS				868	868	868	1
3A05	POWELL RIVER (LOWER)	South Coast	882		NS	NS	NS				588	588	588	1
3A09	PALISADE LAKE	South Coast	898	2019-02-26	231	910		82%	1485	952	0	3150	1106	66
3A09P	Palisade Lake	South Coast	900	2019-03-01	211	585								
3A10	DOG MOUNTAIN	South Coast	1007	2019-02-28	209	672		71%	1250	1029	0	2146	952	34
3A19	ORCHID LAKE	South Coast	1178	2019-02-26	338	1364		93%	1805	1142	190	2960	1467	44
3A20	CALLAGHAN CREEK	South Coast	1009	2019-02-25	204	738		105%	951	632	40	1260	702	41
3A22P	Nostetuko River	South Coast	1457	2019-03-01	115	403		87%	527	357	165	876	462	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-03-01	93	218		82%	358	227	98	555	266	29
3A25P	Squamish River Upper	South Coast	1387	2019-03-01	343	1335		102%	1567	1101	558	2301	1303	28
3A26	CHAPMAN CREEK	South Coast	1022	2019-02-26	254	940	A		1360	956	662	1412		8
3A27	EDWARDS LAKE	South Coast	1070	2019-02-26	167	540		269%			380	944	201	5
3A28P	Tetrahedron	South Coast	1420	2019-03-01	325	953								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2019-02-25	297	1169		97%	1353	927	101	2730	1203	63
3B02A	MOUNT COKELY	Vancouver Island	1267								14	1034	662	34
3B04	ELK RIVER	Vancouver Island	270	2019-02-25	16	39		67%	56	136	0	546	58	62
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	2019-02-25	220	820		73%	1016	868	0	2440	1128	60
3B17P	Wolf River Upper	Vancouver Island	1422	2019-03-01		959		88%	1149	864	195	2085	1085	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2019-02-25	84	240		47%	382	438	0	1344	509	48
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2019-02-25	123	390		130%	286		0	1064	301	48
3B23P	Jump Creek	Vancouver Island	1134	2019-03-01	158	741		87%	1246	494	20	2228	849	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-03-01	184	651			1557	1097	1062	1557		2
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-03-01	199				1169		1169	1169		1
3C07	WEDEENE RIVER SOUTH	Central Coast	196	2019-02-28	83	318		76%	527		45	945	418	31
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-03-01	151	546		79%	694	583	282	1245	691	20
3D01C	SUMALLO RIVER WEST	Skagit	801	2019-03-01	59	141		65%	307	251	0	442	218	26
3D02	LIGHTNING LAKE	Skagit	1254	2019-03-03	76	186	B	74%	322	186	36	497	250	45
3D03A	KLESILKWA	Skagit	1134	2019-03-01	64	192		84%		236	0	759	228	69
4A02P	Pine Pass	Peace	1386	2019-03-01	253	890		101%	881	636	363	1485	880	29
4A03	WARE (UPPER)	Peace	1563	2019-02-27	89	216		98%	233	136	90	360	220	57
4A03P	Ware Upper	Peace	1565	2019-03-01	90	204			223	145	145	223		2
4A04	WARE (LOWER)	Peace	969	2019-02-27	77	184		110%	177	66	89	246	167	57
4A04P	Ware Lower	Peace	971	2019-03-01	73	185			196	91	91	196		2

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4A05	GERMANSEN (UPPER)	Peace	1489	2019-02-26	113	363		124%	287	184	156	520	293	57
4A06	TUTIZZI LAKE	Peace	1043	2019-02-26	91	240		104%	244	102	106	386	230	54
4A07	LADY LAURIER LAKE	Peace	1460	2019-02-28	127	390		86%	399		194	662	452	55
4A09	PULPIT LAKE	Peace	1331	2019-02-27	123	361		97%	345	239	152	531	372	54
4A09P	Pulpit Lake	Peace	1331	2019-03-01	103	305		80%	287	200	133	471	381	28
4A10	FREDRICKSON LAKE	Peace	1323	2019-02-26	90	235		110%	179	86	93	315	213	54
4A11	TRYGVE LAKE	Peace	1409	2019-02-27	103	296		93%	267	186	119	453	319	54
4A12	TSAYDAYCHI LAKE	Peace	1173	2019-02-26	125	395		116%	333	267	166	540	340	54
4A13	PHILIP LAKE	Peace	1013	2019-02-26	100	292		121%	227	118	137	400	242	54
4A16	MORFEE MOUNTAIN	Peace	1427	2019-02-26	224	816		113%	623	460	265	1166	725	50
4A18	MOUNT SHEBA	Peace	1480	2019-02-25	229	808		113%	733	536	369	1123	712	49
4A20	MONKMAN CREEK	Peace	1566	2019-02-25	144	468		99%	554	396	190	925	472	43
4A20P	Monkman Creek	Peace	1570	2019-03-01		390								
4A21	MOUNT STEARNS	Peace	1514	2019-02-28	66	150		121%	122	137	41	227	124	44
4A25	FORT ST. JOHN A	Peace	692	2019-03-04	69	124		125%	152	81	34	191	99	43
4A27P	Kwadacha North	Peace	1554	2019-03-01	102	234			258	158	158	258		2
4A30P	Aiken Lake	Peace	1061	2019-03-01	80	211		91%	166	136	90	363	232	33
4A31P	Crying Girl Prairie	Peace	1358	2019-03-01		209			220	206	124	220		3
4A33P	Muskwa-Kechika	Peace	1196	2019-03-01		92			74	96	23	96		3
4A34P	Dowling Creek	Peace	1456	2019-03-01		1288			1199	836	836	1199		2
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2019-02-27	172	645		79%	697	807	429	1320	817	66
4B02	JOHANSON LAKE	Skeena-Nass	1480	2019-02-26	N	N	N		202	160	108	368	253	54
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-02-28	135	419		95%	478	369	168	719	443	46
4B04	CHAPMAN LAKE	Skeena-Nass	1485	2019-02-27	134	421		103%	482	339	266	691	407	52
4B06	TACHEK CREEK	Skeena-Nass	1133	2019-02-28	82	196		101%	224	140	117	332	195	49
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	2019-02-27	94	242		98%	326	158	155	391	246	48
4B08	MOUNT CRONIN	Skeena-Nass	1491	2019-02-27	147	486		98%	557	420	345	869	498	48
4B10	NINGUNSAW PASS	Nass	647	2019-02-25	93	296		75%	239		210	629	397	43
4B11A	BEAR PASS	Nass	437	2019-02-28	105	290		51%	383	350	87	824	574	32
4B12P	Granduc Mine	Skeena-Nass	790							80	80	80		1
4B13A	TERRACE A	Skeena-Nass	219	2019-02-28	27	88		62%	194		0	407	141	36
4B14	EQUITY MINE	Skeena-Nass	1434						424	346	190	546	333	40
4B15	LU LAKE	Skeena-Nass	1296						322	214	122	412	254	40
4B15P	Lu Lake	Skeena-Nass	1308	2019-03-01	89	236		107%	374	235	116	405	221	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-03-01	158	502		69%	479	393	195	957	723	22
4B17P	Tsai Creek	Skeena-Nass	1360	2019-03-01	222	821		85%	850	732	302	1618	969	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-03-01	132	420		72%		360	178	956	582	16

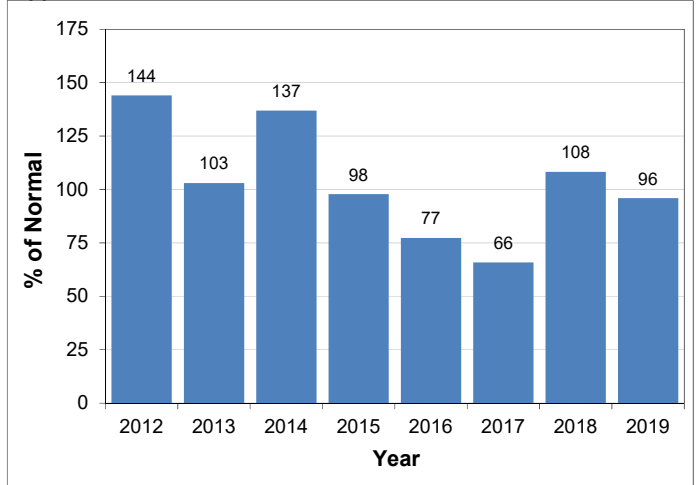
2019 Automated Snow Weather Station/Manual Snow Survey Data				March					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4C01	SIKANNI LAKE	Liard	1390	2019-02-27	83	200		84%	190	106	78	335	238	54
4C01P	Sikanni Lake	Liard	1400	2019-03-01	92	192			283	114	114	283		2
4C02	SUMMIT LAKE	Liard	1291	2019-03-06	62	114		103%	106	79	0	190	111	53
4C03	DEASE LAKE	Liard	805	2019-02-24	56	90		73%			45	229	124	52
4C05	FORT NELSON AIRPORT	Liard	368	2019-03-07	50	70		76%	69	57	38	177	92	50
4C15	JADE CITY	Liard	943								128	310	206	15
4D01	TELEGRAPH CREEK	Stikine	490								53	345	144	42
4D02	ISKUT	Stikine	931	2019-02-24	36	60		57%			33	176	105	42
4D11P	Kinaskan Lake	Stikine	1020	2019-03-01	69	201		58%	148	249	94	527	346	22
4E02B	ATLIN LAKE	Yukon	730						70	85	68	166		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 - March 1, 2019

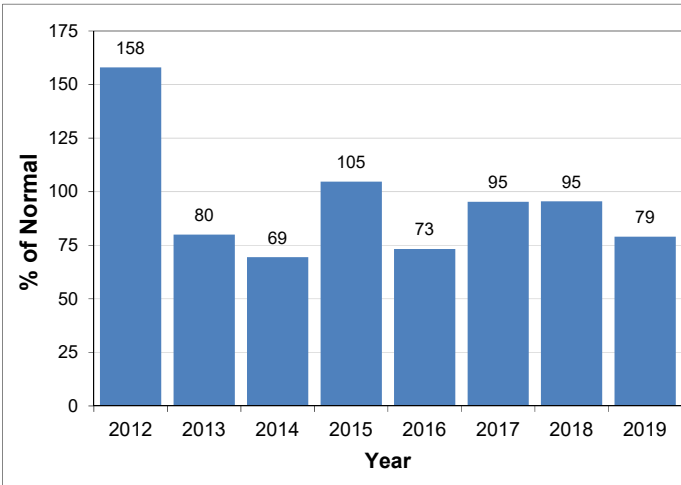
Upper Fraser West



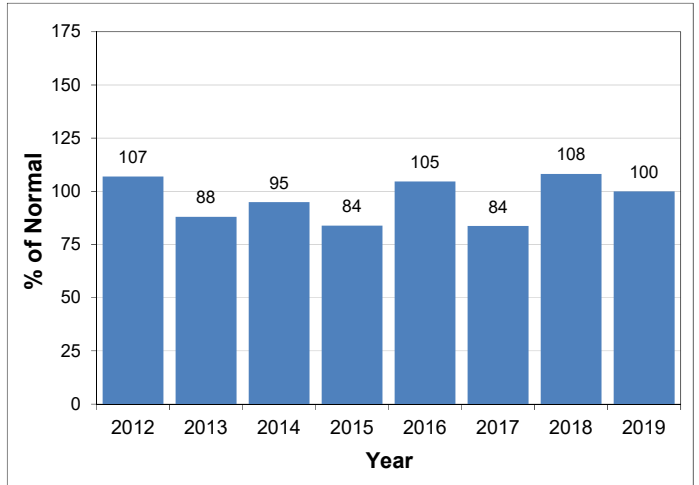
Upper Fraser East



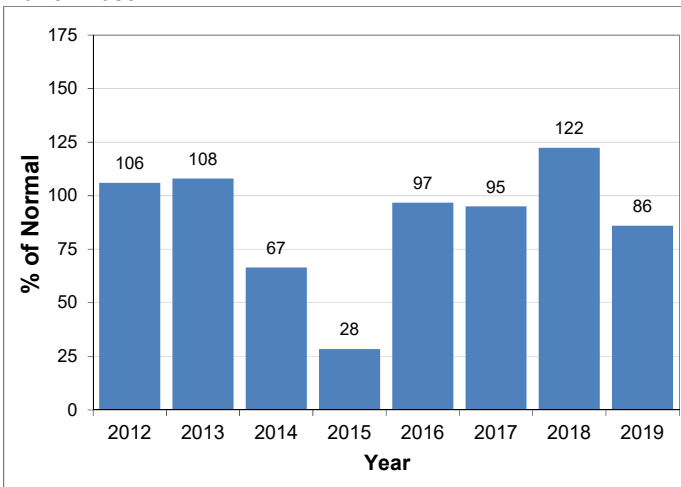
Nechako



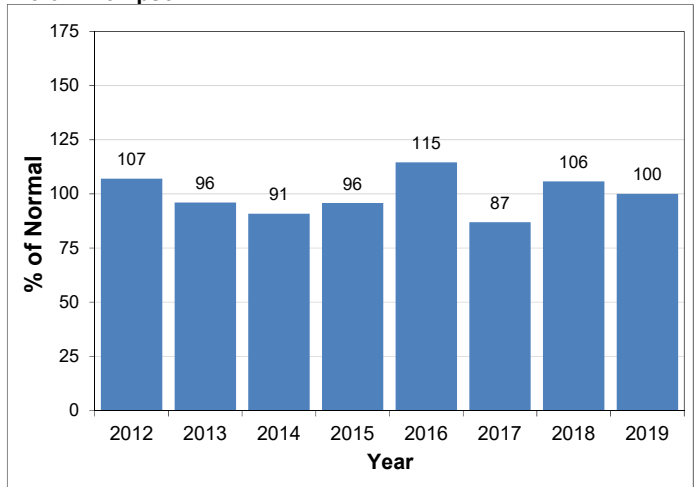
Middle Fraser



Lower Fraser

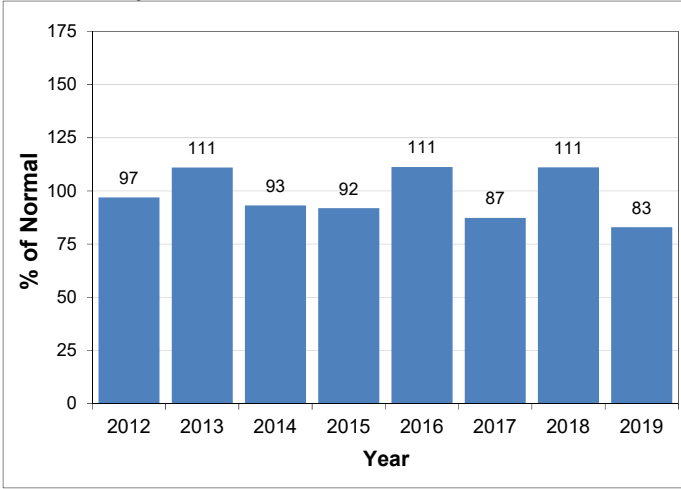


North Thompson

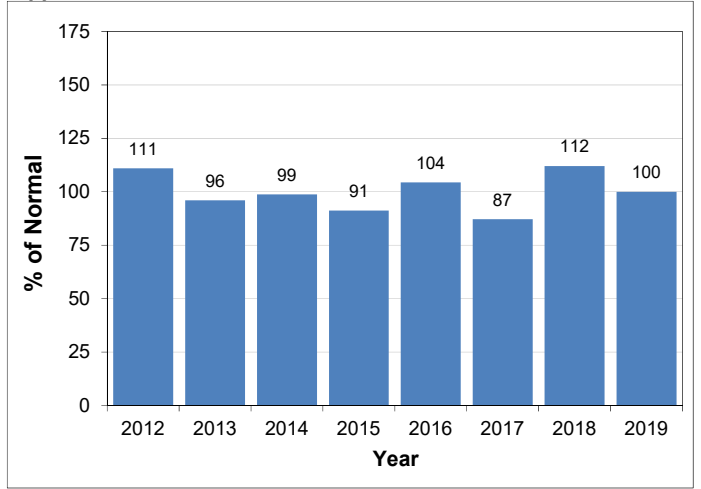


Snow Basin Index Graphs - March 1, 2019

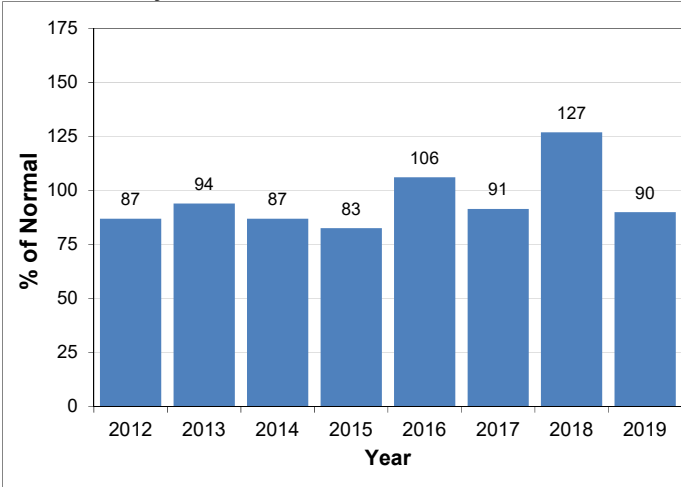
South Thompson



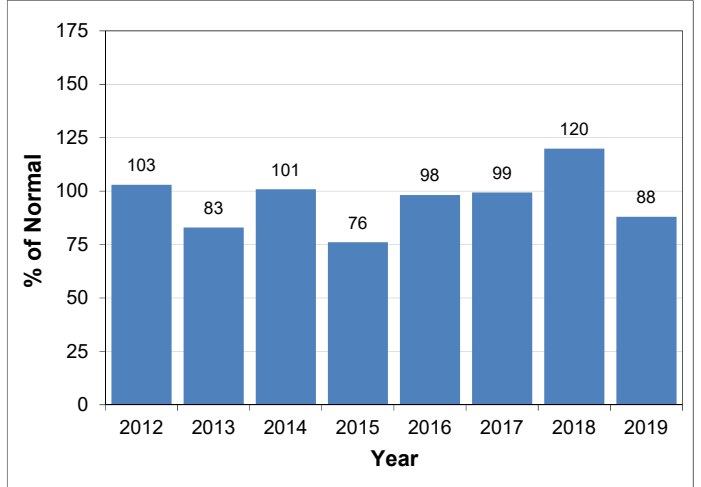
Upper Columbia



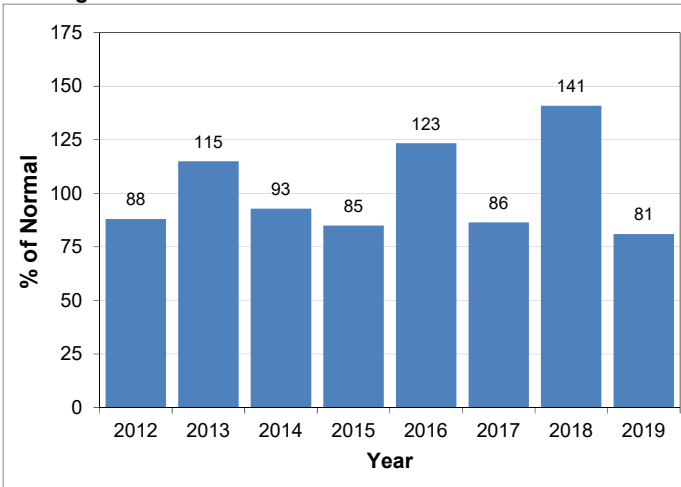
West Kootenay



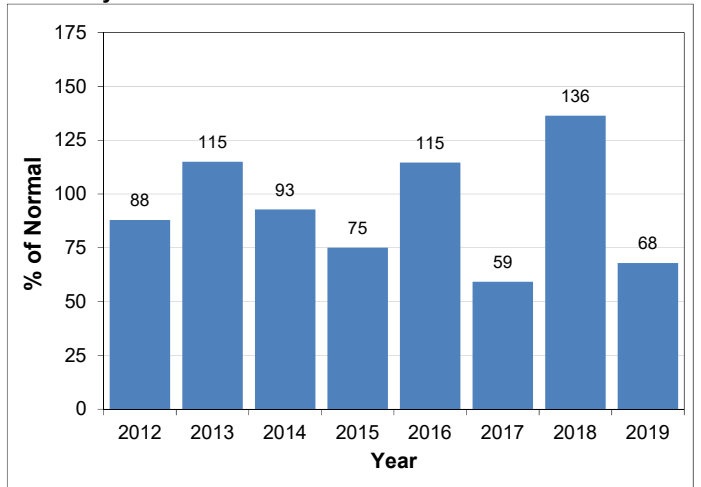
East Kootenay



Okanagan

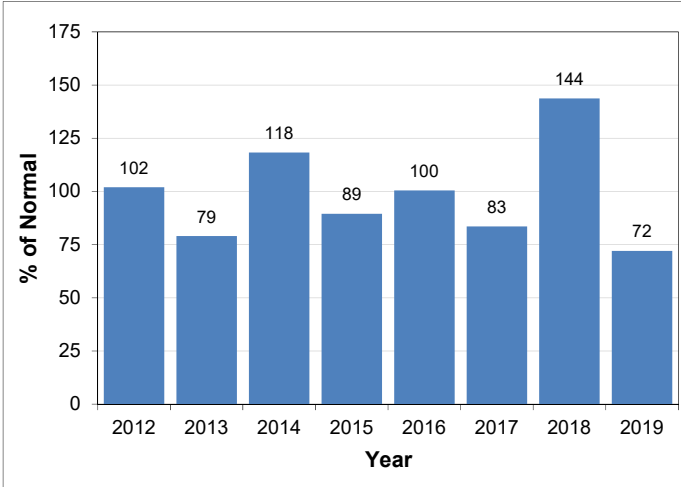


Boundary

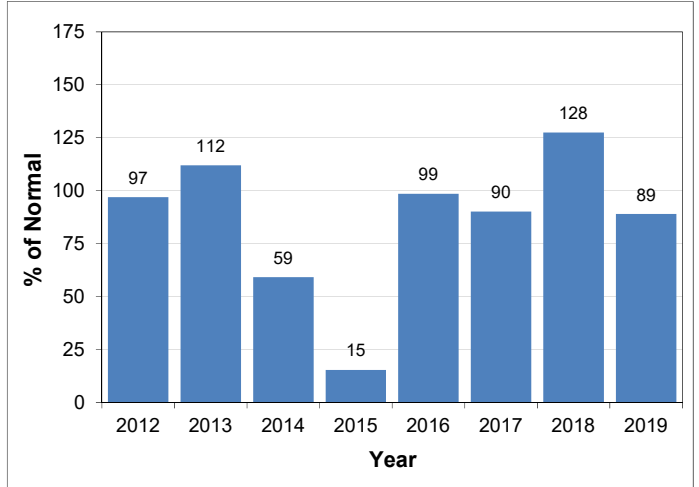


Snow Basin Index Graphs - March 1, 2019

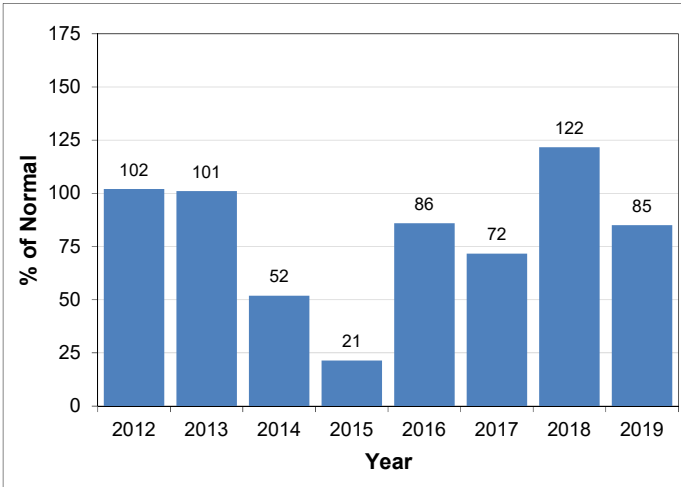
Similkameen



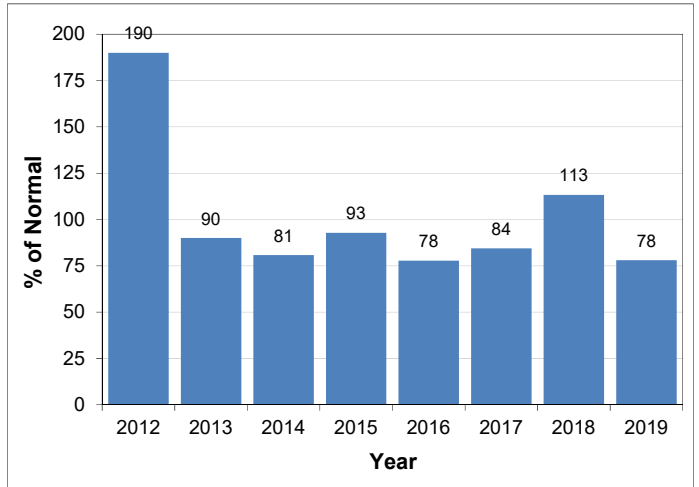
South Coast



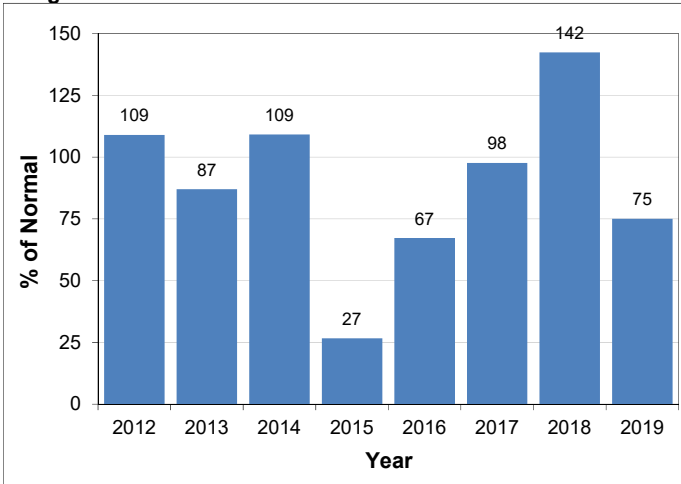
Vancouver Island



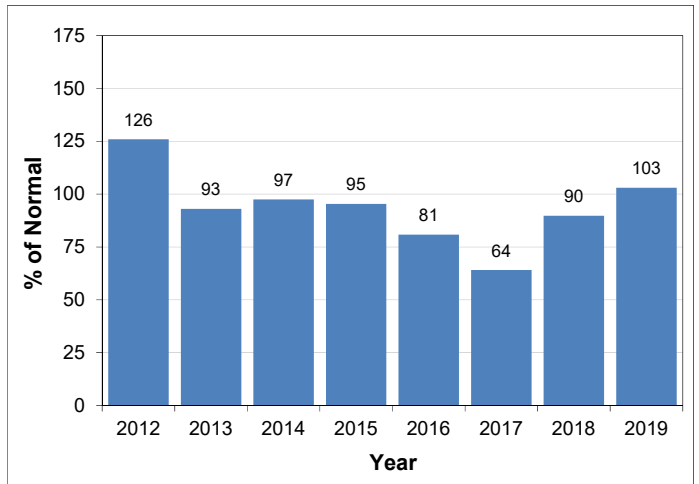
Central Coast



Skagit

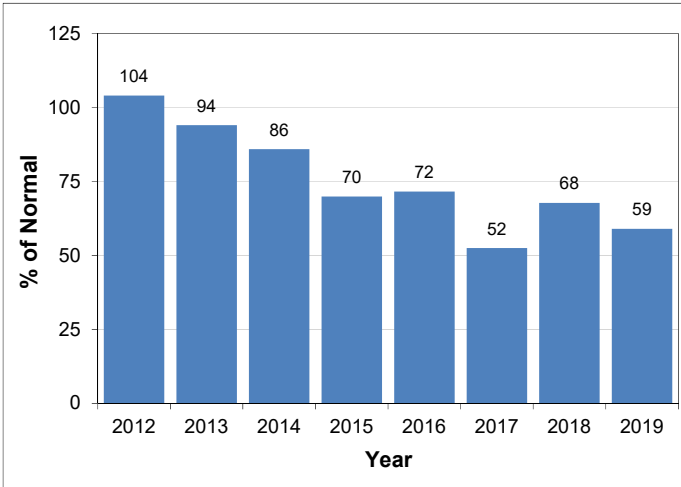


Peace

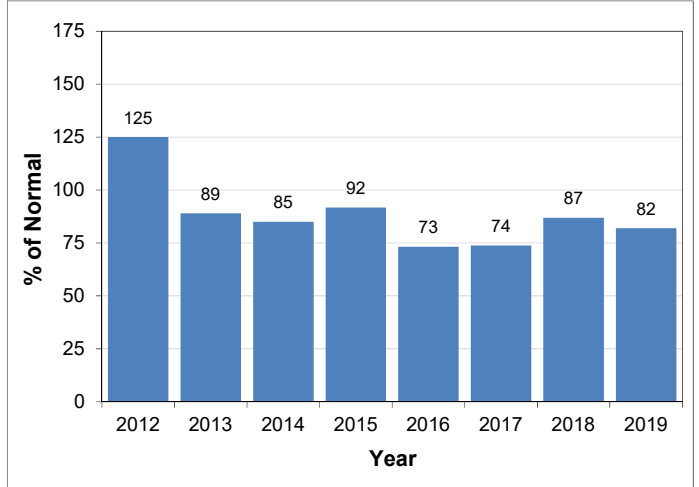


Snow Basin Index Graphs - March 1, 2019

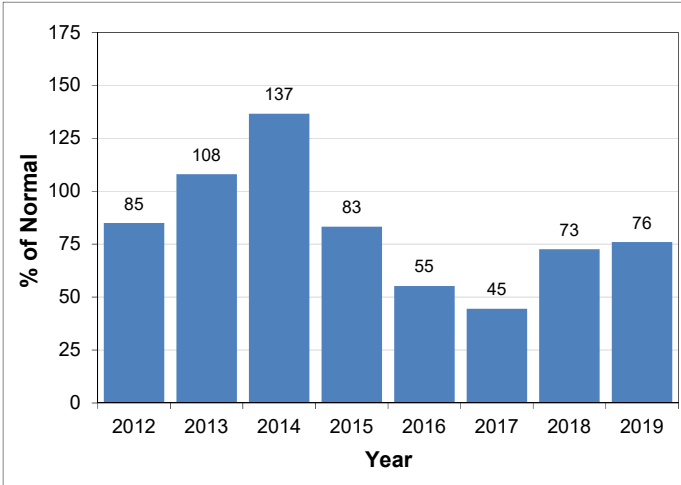
Stikine



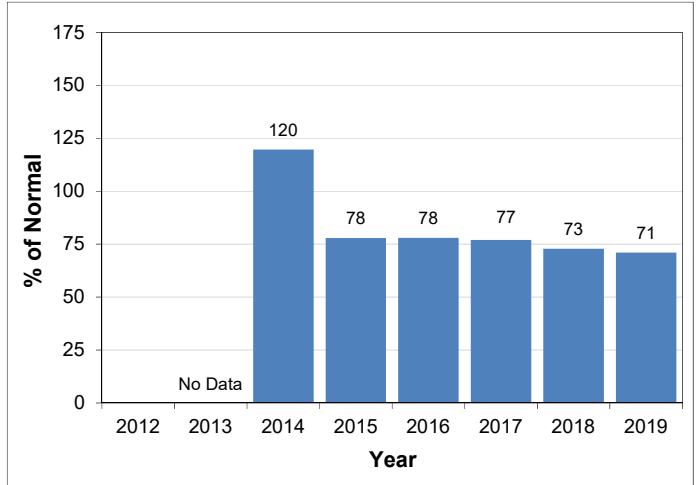
Skeena-Nass



Liard



Northwest



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

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

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

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

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

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

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.

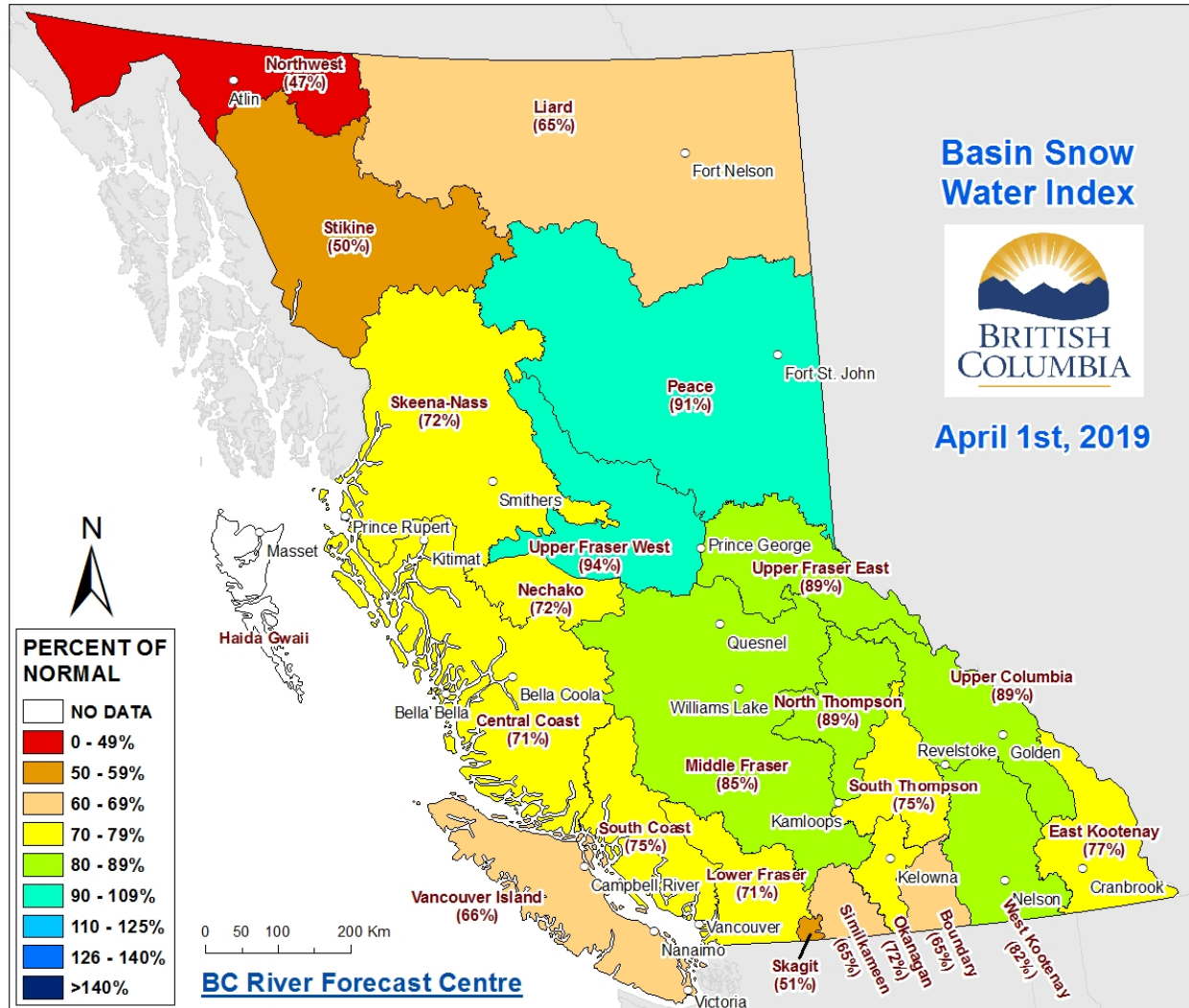
Hot weather in the second half of March has led to an early onset of the freshet season. Snowpacks at low elevation have melted, and snowmelt has been observed at mid-elevation (<1500m). Snow density has been increasing over the past couple of weeks at higher elevations, and melt is expected to occur 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

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

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

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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

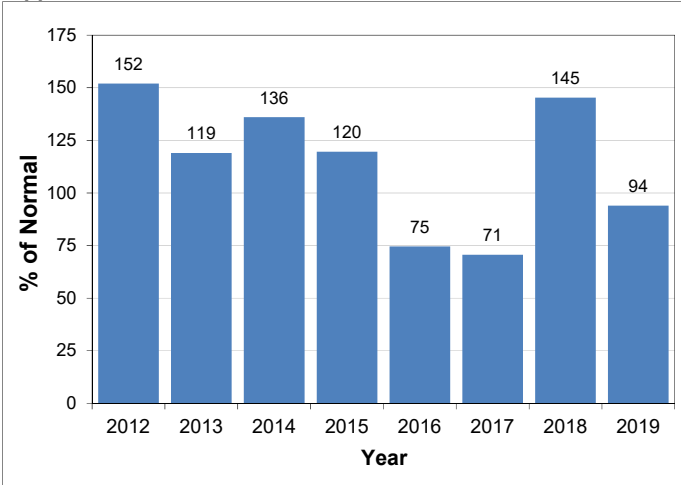
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2F25	POSTILL LAKE UPPER	Okanagan	1500	2019-04-05			N				38	281		7
2G03P	Blackwall Peak	Similkameen	1934	2019-04-01	149	567		74%	944	754	403	1497	770	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-03-31	68	166		77%	408	181	138	533	216	57
2G05	MISSEZULA 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

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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

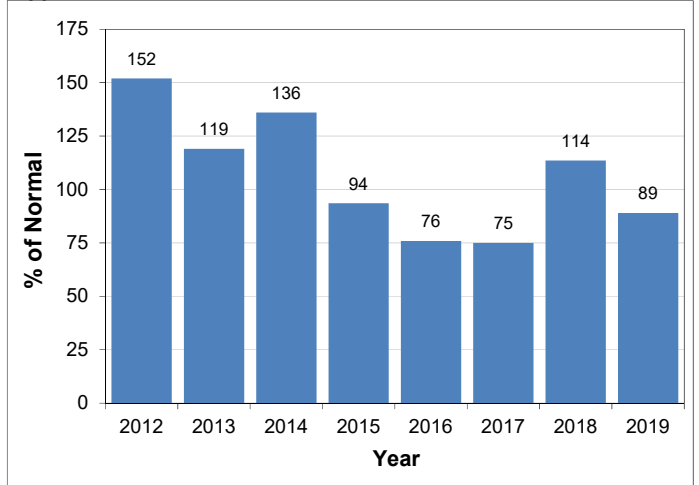
2019 Automated Snow Weather Station/Manual Snow Survey Data				April					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years 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

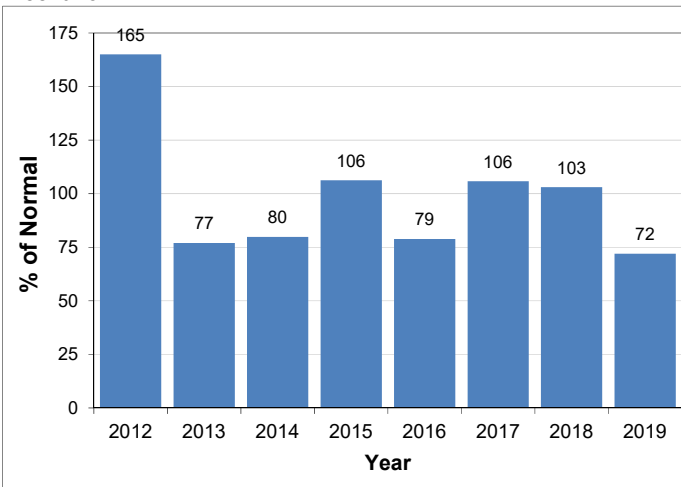
Upper Fraser West



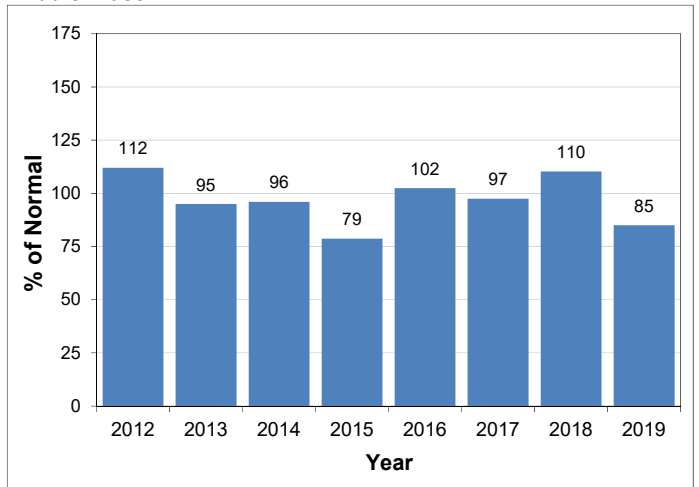
Upper Fraser East



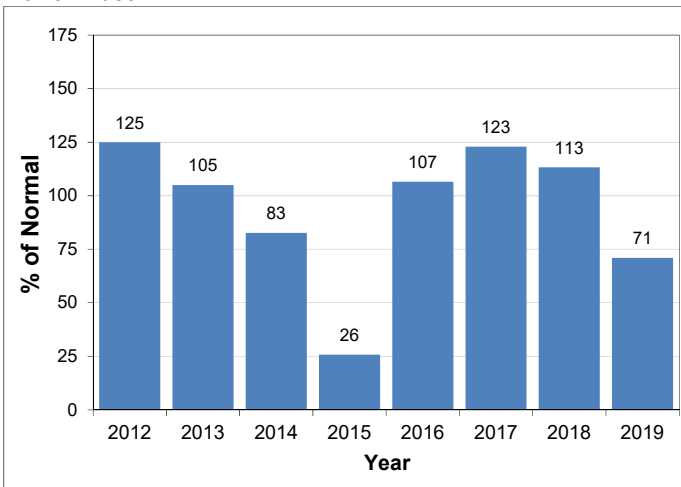
Nechako



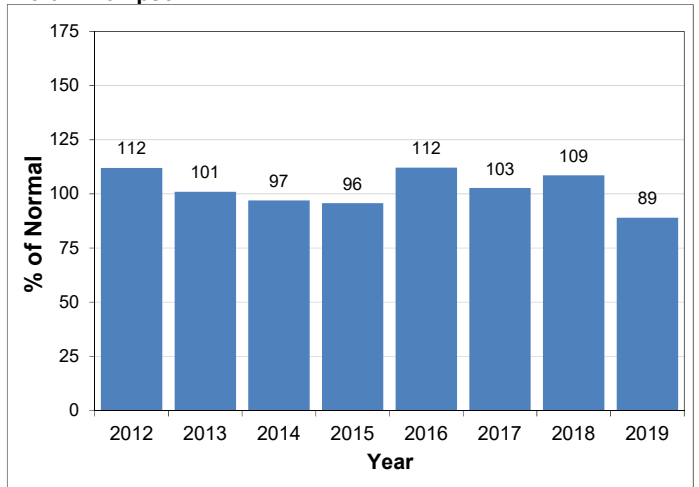
Middle Fraser



Lower Fraser

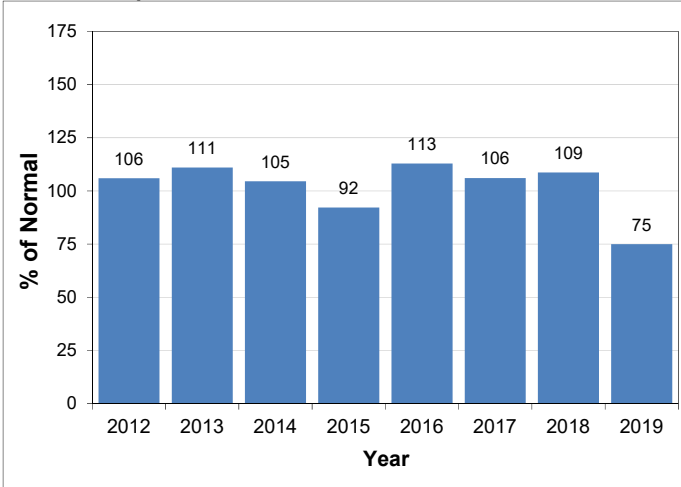


North Thompson

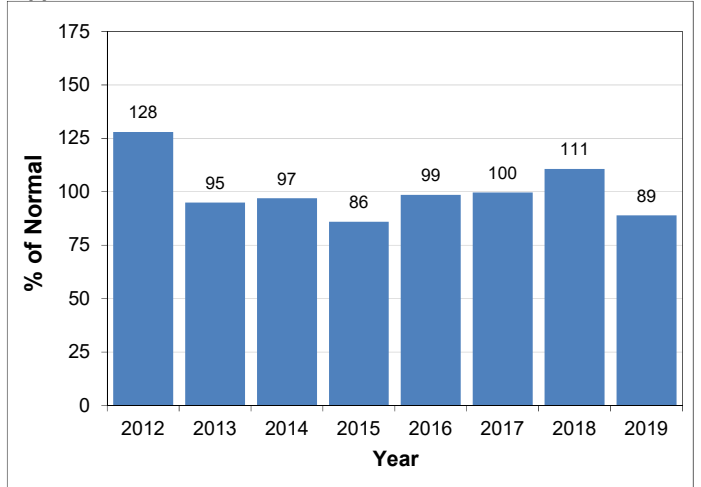


Snow Basin Index Graphs - April 1, 2019

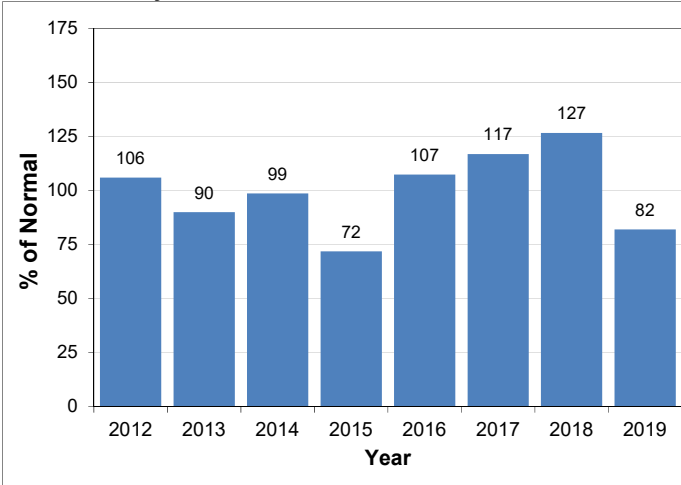
South Thompson



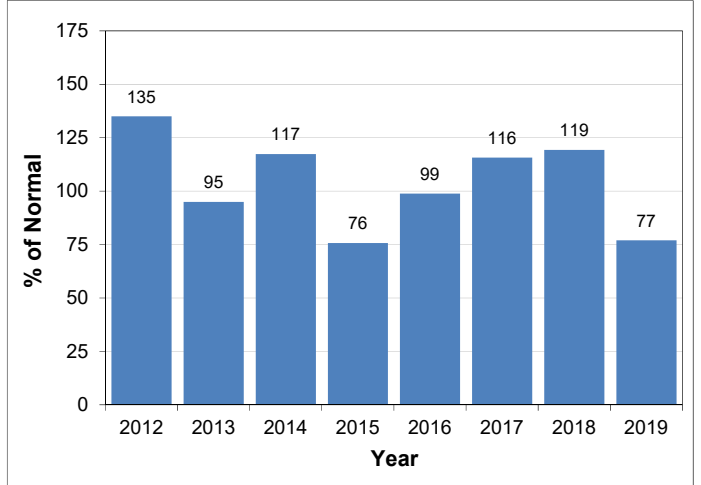
Upper Columbia



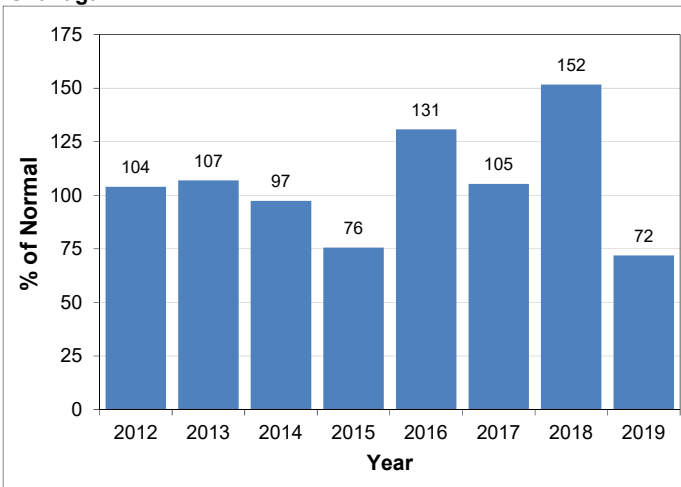
West Kootenay



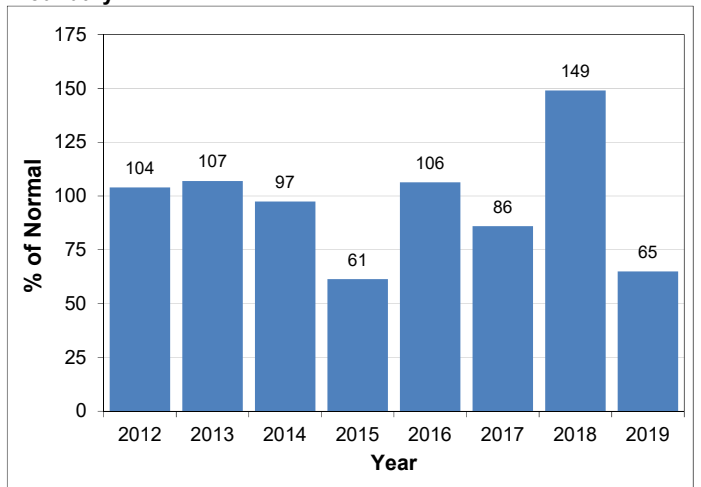
East Kootenay



Okanagan

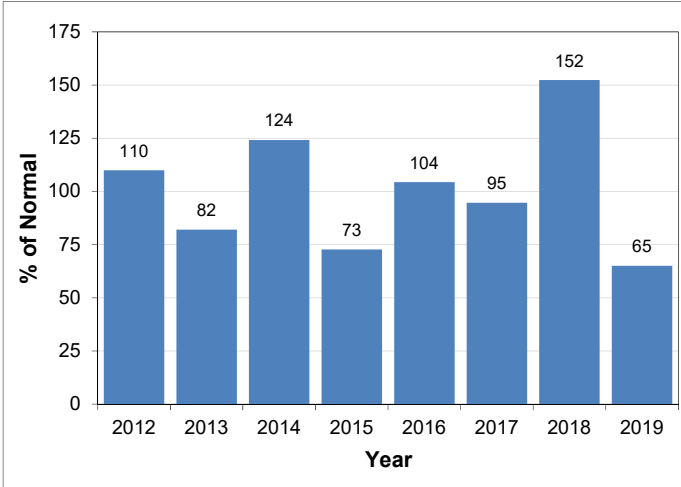


Boundary

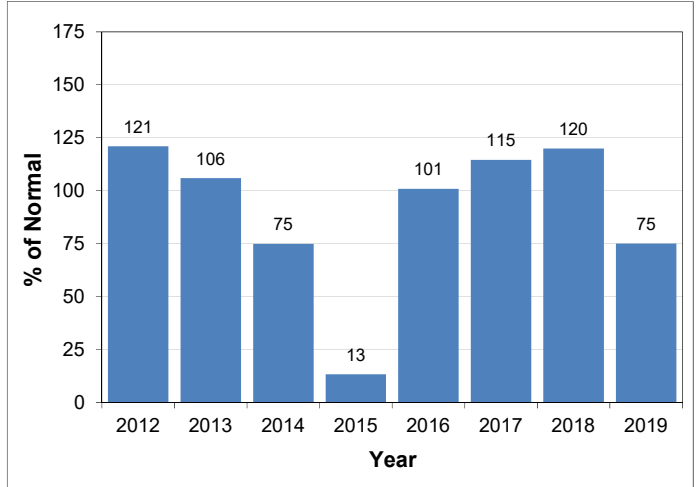


Snow Basin Index Graphs - April 1, 2019

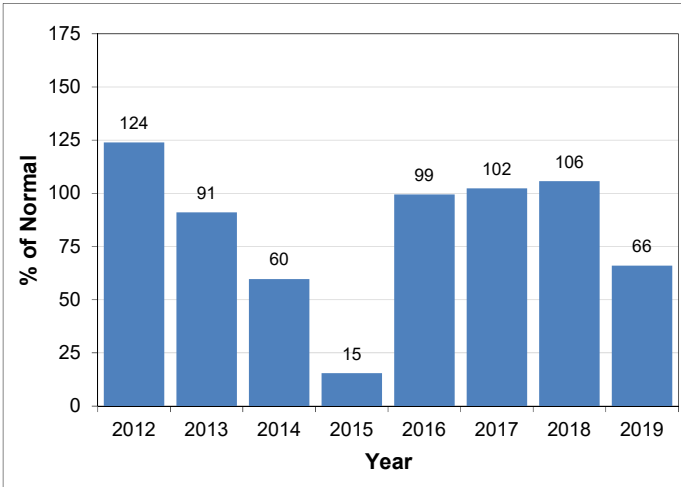
Similkameen



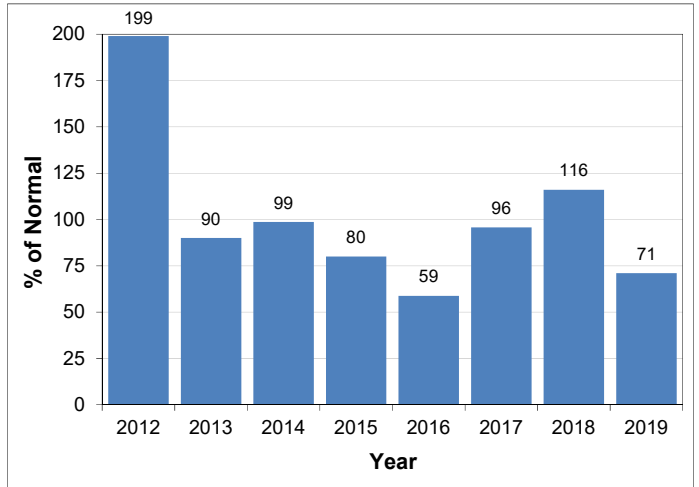
South Coast



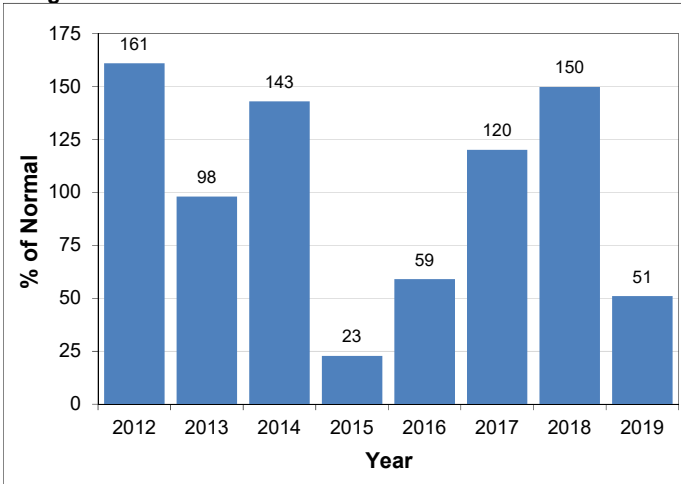
Vancouver Island



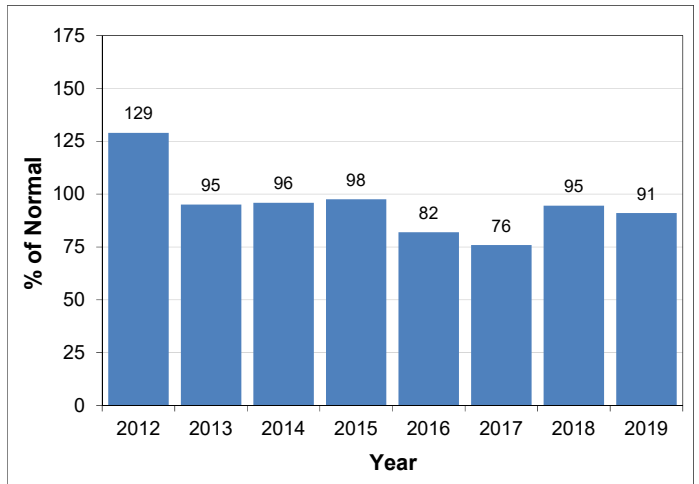
Central Coast



Skagit

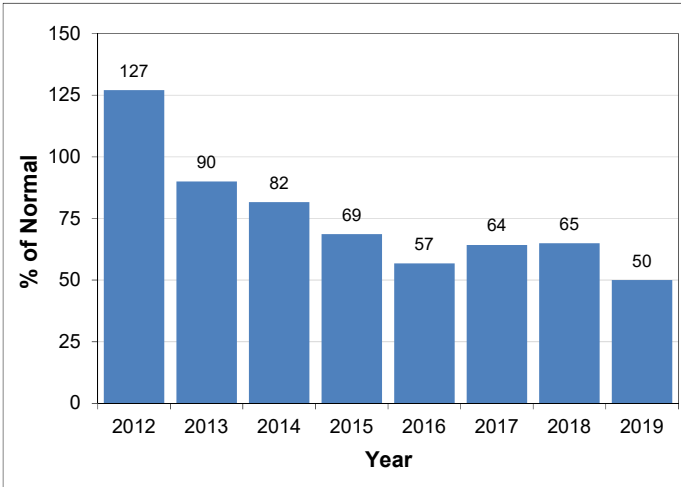


Peace

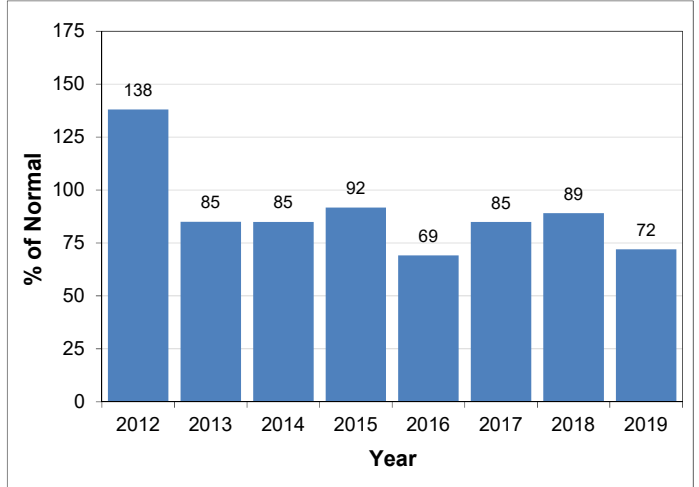


Snow Basin Index Graphs - April 1, 2019

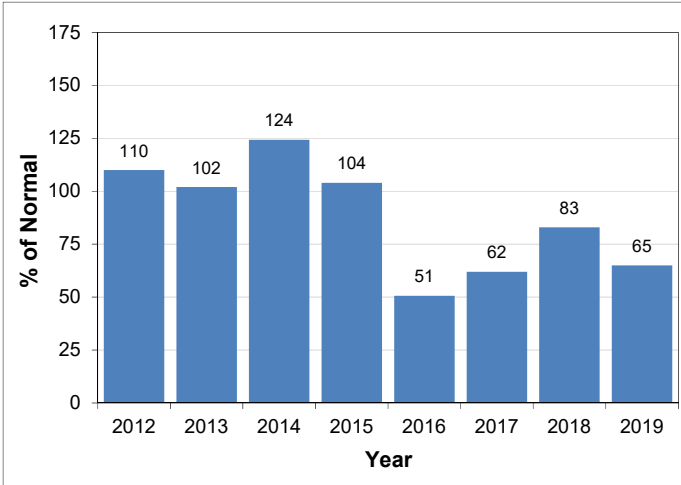
Stikine



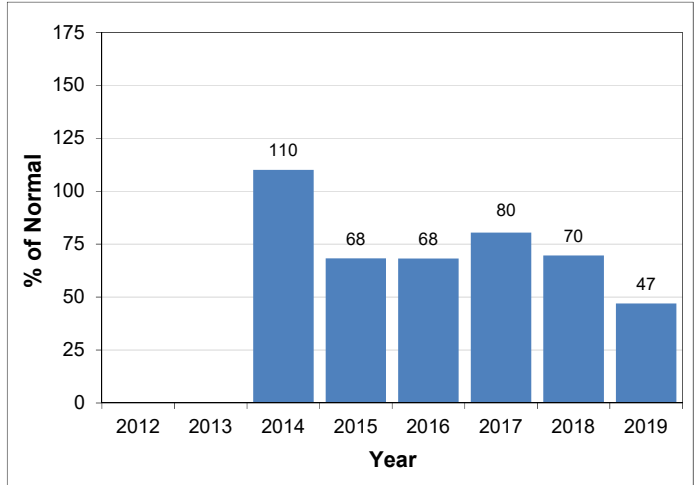
Skeena-Nass



Liard



Northwest



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

The May 1st snow survey is now complete. Data from 132 manual snow courses and 80 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 a warm spell in mid- to late-March, weather transitioned towards more seasonal for April. Weather was variable across the province through the month of April, with generally cooler and unsettled weather being dominant.

April temperatures were generally near normal across the province, with areas of coastal BC seeing slightly above normal temperatures, and areas in north-eastern and eastern BC experiencing slightly below normal temperatures.

Precipitation patterns were also near normal for most areas of the province through April, with areas in central, northern and eastern BC experiencing some below-normal precipitation.

Within the general seasonal weather through April, several cooler weather systems impacted many areas with late-season snow accumulation, particularly in the Rocky Mountains.

Snowpack

Snow basin indices for May 1st, 2019 range from a low of 15% of normal in the Skagit to a high of 101% in the Liard (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 Northwest, Vancouver Island, Similkameen, Nicola and Skagit. Below normal snowpack (60-80% of normal) exists in the Stikine, Skeena-Nass, Nechako, Central Coast, South Coast, Lower Fraser, Okanagan, 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 above normal snowpacks. The May 1st snow basin index for the entire Fraser River is 79% of normal.

Snow basin indices for May 1st are fairly similar to those for April 1st. One significant pattern this year is the difference between low-to-mid elevation and upper elevation snow. Particularly through the South Interior, snow below 1600m has almost completely disappeared as of early-May. This trend is 2-3 weeks ahead of when these regions would normally be snow-free (for many locations this was near-record early melt). Conversely, cooler weather patterns have led to very limited melt at higher elevations (>1600m); upper elevation melt is 1-2 weeks behind normal. Snowpack gradients across elevation is unusual

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

this year, with a rapid change from no snow to deeper snow packs occurring over a few hundred meters of elevation difference in many regions. These conditions have developed due to extremely warm weather in late-March which kicked off ripening of mid-elevation snowpack, followed by cooler weather which has provided insufficient energy delivery to upper elevation snow to fully ripen and begin melting. In central, eastern and northern BC, this gradient is less pronounced, with current snowlines around the 1000-1200 m elevation level.

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

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	98	Boundary	71
Upper Fraser East	92	Similkameen	52
Nechako	72	South Coast	72
Middle Fraser	87	Vancouver Island	58
Lower Fraser	68	Central Coast	69
North Thompson	91	Skagit	15
South Thompson	82	Peace	94
Upper Columbia	89	Skeena-Nass	75
West Kootenay	82	Stikine	60
East Kootenay	70	Liard	101
Okanagan	69	Northwest	44
Nicola	43	Fraser	79

Streamflow

Streamflow early in the month was above-normal across most of the province as early-season snowmelt from low-to-mid elevation snowpack led to unusually early runoff. With the transition to more seasonal, or cooler, weather patterns through the month, runoff has not kept pace with normal seasonal rises due to a lack of the onset of upper elevation snowmelt. As a result, most rivers across the province have seen steady flows, which have resulted in below-normal flows, relative to normal for this time of year.

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

In coastal areas which have less influence from snowmelt, such as Vancouver Island and Haida Gwaii, on-going drier weather has resulted in continued below normal streamflow.

Outlook

Seasonal forecasts from Environment and Climate Change Canada favor a high likelihood of above normal late-spring to early-summer temperatures (May-June-July) across western British Columbia, and no strong indication of favoured temperature patterns for elsewhere in the province. Forecasts have eased since last month which had been indicating a high likelihood of warmer spring and summer temperatures across the province. While warmer temperature patterns were not dominant in April, recent and current weather patterns have shifted towards ridging across BC, ushering in a period of warmer weather. This will see increased snowmelt, including the onset of melt from higher elevation areas across the province over the next week.

Annual snow accumulation in British Columbia usually reaches maximum levels in mid-April, therefore the May 1st survey usually provides a good snapshot of any anomalous late-season accumulation, or delays in the onset of freshet. This year, the May 1st surveys are indicating a slight delay in the melt at upper elevation locations, unseasonably early melt for low-to-mid elevation areas, and generally below normal snow pack across most of the province.

At this stage in the season there is no elevated flood risk present in the current snowpack across the province. Close to normal seasonal flood risk is expected in the Peace, Liard, Upper Fraser and North Thompson regions. Elsewhere, snowpacks pose below-normal risk for snowmelt driven flooding.

With diminished snowpack at low-to-mid elevation areas, seasonal flood risk is now subsiding in smaller and mid-elevation watersheds, particularly through the South Interior and Central Interior. In mid-sized watersheds in these regions, the peak of freshet season is expected over the next couple of weeks. This would include watersheds such as Mission Creek near Kelowna, Kettle River, and Similkameen River, and tributaries. Similarly, for medium-sized and mid-elevation watersheds through the Middle Fraser and west-central BC, including watersheds around Smithers, Burns Lake, Prince George, Quesnel and surrounding areas, snowmelt runoff is expected to peak around mid-May. For larger rivers, or watersheds with significant higher elevation terrain, peak freshet season is still expected to unfold over the next few weeks into early- to mid-June.

On the Fraser River, the overall basin index is 79% 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, particularly heavy rainfall, emerge in the spring. Historically, flows above 8500 m³/s at Hope have been rare with snowpack conditions similar to this season's.

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

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. 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.

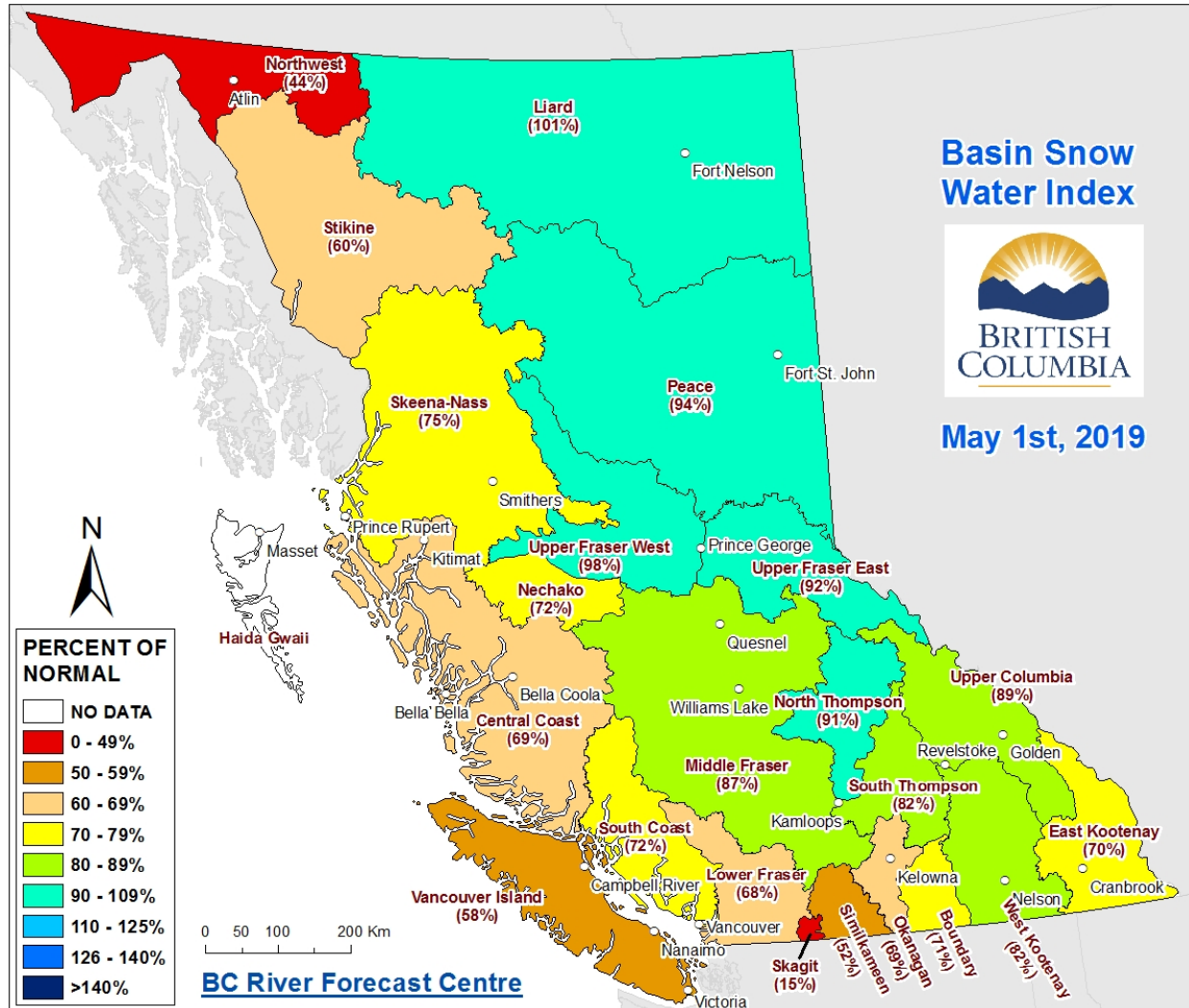
Seasonal volume runoff forecasts (see below) are near-normal (85-105%) for the Upper Fraser, Middle Fraser, North Thompson, Thompson, Bulkley and Skeena. Seasonal volume runoff forecasts are below-normal (<85%) for the South Thompson, Similkameen, Cowichan Lake, Okanagan Lake, Nicola Lake and Kalamalka-Wood 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.

The River Forecast Centre will continue to monitor snowpack conditions and will provide an updated seasonal flood risk forecast in the May 15th, 2019 bulletin, which is scheduled for release on May 22nd.

BC River Forecast Centre
May 8, 2019

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

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



1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

Location	May - Jun Runoff				May - Jul Runoff				May - 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				3177	3534	90%	297	4675	5000	93%	373
	McGregor at Lower Canyon				3252	3552	92%	376	4317	4598	94%	563
	Fraser at Shelley				12612	13672	92%	1070	16172	17732	91%	1657
Middle Fraser Basin	Quesnel River at Quesnel				4048	4117	98%	396	5405	5448	99%	574
Thompson Basin	N. Thompson at McLure				7275	8209	89%	425	9331	10379	90%	785
	S. Thompson at Chase				4284	5298	81%	403	5530	6865	81%	659
	Thompson at Spences Bridge				11936	13923	86%	825	15448	17903	86%	1510
Bulkley and Skeena	Bulkley at Quick				2026	2383	85%	185	2596	2980	88%	220
	Skeena at Usk				15278	17317	88%	964	19234	21661	89%	1463
Nicola Lake	Inflows	83	105	80%	28	112	122	92%	33			
Nicola River	at Spences Bridge	297	409	73%	76	338	476	71%	98			
Okanagan and Kalamalka-Wood Lake	Okanagan Lake Inflow	271	349	78%	81	280	376	75%	103			
	Kalamalka-Wood Lake Inflow	15	19	77%	8	15	20	73%	11			
Similkameen River	Similkameen at Nighthawk	741	1101	67%	152				902	1411	64%	193
	Similkameen at Hedley	576	827	70%	91				677	1015	67%	105
Cowichan River	Cowichan Lake Inflows	66	118	56%	32				90	153	58%	50

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				May 1					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	2019-05-01	140				648	564	254	833	565	21	
1A02P	McBride Upper	Upper Fraser East	1608	2019-05-01	126	487		105%	490	430	198	749	462	26	
1A03P	Barkerville	Upper Fraser East	1483	2019-05-01	63	274		79%	281	328	123	604	346	43	
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693	2019-04-29	219	988		119%	806		296	1370	830	64	
1A05P	Longworth Upper	Upper Fraser East	1740	2019-05-01	232	826			767	657	657	657		2	
1A06A	HANSARD	Upper Fraser East	622	2019-05-01	0	0	T		NS					0	2
1A10	PRINCE GEORGE A	Upper Fraser East	684	2019-05-02	0	0		0%	NS		0	216	10	41	
1A11	PACIFIC LAKE	Upper Fraser East	756	2019-04-29	100	419		83%	732	297	93	976	507	55	
1A12	KAZA LAKE	Upper Fraser West	1247	2019-04-28	86	298		91%	N	230	132	481	328	54	
1A12P	Kaza Lake	Upper Fraser West	1248	2019-05-01	94	331			334	241	193	241		3	
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-05-01	157	560		68%	786	427	214	1279	820	18	
1A15	KNUDSEN LAKE	Upper Fraser East	1598	2019-04-29	173	741		85%	1001	679	501	1346	868	50	
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-05-01	150	513			640	526	526	526		2	
1A16	BURNS LAKE	Upper Fraser West	820	2019-05-01	1	2		8%	124	0	0	148	26	40	
1A17P	Revolution Creek	Upper Fraser East	1676	2019-05-01	207	804		100%	871	673	326	1349	804	33	
1A19P	Dome Mountain	Upper Fraser East	1768	2019-05-01	200	728		90%	715	673	298	1163	810	12	
1A23	BIRD CREEK	Upper Fraser West	1196	2019-05-01	23	84		215%	218	58	0	204	39	27	
1B01	MOUNT WELLS	Nechako	1489	2019-05-01	108	380		78%	627	590	201	958	487	64	
1B01P	Mount Wells	Nechako	1489	2019-05-01		484		85%	725	672	227	919	569	26	
1B02	TAHTSA LAKE	Nechako	1319	2019-05-01	207	819		65%	1060	1265	701	2073	1256	65	
1B02P	Tahtsa Lake	Nechako	1319	2019-05-01		990		73%	1249	1359	464	2348	1362	26	
1B05	SKINS LAKE	Nechako	877	2019-05-01	0	0		0%	42	0	0	100	3	47	
1B06	MOUNT SWANNELL	Nechako	1596	2019-05-01	69	248		86%	337	312	109	499	287	28	
1B07	NUTLI LAKE	Nechako	1502	2019-05-01	92	349		68%	481	579	250	870	513	26	
1B08P	Mount Pondosy	Nechako	1413	2019-05-01		499		63%	824	1013	363	1277	794	26	
1C01	BROOKMERE	Middle Fraser	994	2019-04-30	0	0		0%	97	99	0	419	65	72	
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2019-04-26	92	414		72%	544	590	239	1118	573	66	
1C05P	McGillivray Pass	Middle Fraser	1766	2019-05-01		537			618					1	
1C06	PAVILION	Middle Fraser	1209						0		0	0	0	17	
1C08	NAZKO	Middle Fraser	1029	2019-05-01	0	0		0%	N		0	46	3	25	
1C09A	HIGHLAND VALLEY	Middle Fraser	1547	2019-05-01	0	0	T	0%	181	101	0	142	20	49	
1C12P	Green Mountain	Middle Fraser	1766	2019-05-01		740		81%	774	788	429	1373	909	24	
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612	2019-04-29	118	518		127%	612	460	136	676	408	48	
1C14	BRALORNE	Middle Fraser	1382	2019-04-26	11	38		66%	133	161	0	255	58	54	
1C14P	Bralorne	Middle Fraser	1382	2019-05-01	7				58					1	
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-05-03	58	232		90%	370	235	118	536	257	57	
1C18P	Mission Ridge	Middle Fraser	1903	2019-05-01		336		68%	646	659	147	1028	496	48	

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617	2019-05-01	0	0	T	0%	N	160	0	241	54	47
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-05-01	107	535		90%	619	574	255	821	597	24
1C21	BIG CREEK	Middle Fraser	1130	2019-04-29	0	0		0%	0	0	0	48	12	7
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	2019-04-29	0	0			0		0	22	0	12
1C23	PENFOLD CREEK	Middle Fraser	1687	2019-05-01			N		991		525	1420	1064	48
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2019-04-30	13	37		123%	162		0	168	30	45
1C28	DUFFEY LAKE	Middle Fraser	1253	2019-04-29	51	230		61%	NS		206	624	377	14
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	2019-04-30	0	0	T	0%	255		0	305	82	37
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-05-01	33	15								
1C32	DEADMAN RIVER	Middle Fraser	1463						N	0	0	194	32	33
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2019-04-30	13	53		60%	114		0	221	89	12
1C37	BRALORNE(UPPER)	Middle Fraser	1980	2019-04-26	144	550		81%	N	764	290	1092	676	22
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	2019-04-26	194	840		98%	N	888	450	1340	856	22
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-05-01		718			687	869	807	869		3
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2019-04-26	138	598		100%	654	612	244	1018	600	23
1C40	TYAUGHTON	Middle Fraser	1946	2019-04-26	115	398		90%	532	394	198	806	443	23
1C40P	North Tyaughton	Middle Fraser	1969	2019-05-01		387			439	354	180	354		3
1C41P	Yanks Peak East	Middle Fraser	1683	2019-05-01	190	972		118%	923	818	365	1058	825	21
1C42	CAVERHILL LAKE	Middle Fraser	1400						NS		172	172		2
1D06P	Tenquille Lake	Lower Fraser	1669	2019-05-01	201	920		88%	1192	1401	526	1705	1047	17
1D08	STAVE LAKE	Lower Fraser	1211	2019-04-30	212	1026		68%	1721	1918	62	3120	1513	51
1D09	WAHLEACH LAKE	Lower Fraser	1395	2019-04-30	84	326		53%	N		4	709	615	50
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-05-01		682		65%	1200	632	290	1757	1043	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	2019-04-30	201	1018		75%	N	1739	468	2720	1361	48
1D16	DICKSON LAKE	Lower Fraser	1147	2019-04-30	157	754		49%	2002		4	3180	1553	27
1D17P	Chilliwack River	Lower Fraser	1621	2019-05-01	229	1244		82%	1873	1769	675	2436	1513	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-05-01	180	630								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-05-01	182	1030		63%	1663	1881	162	2930	1635	19
1E01B	BLUE RIVER	North Thompson	673	2019-04-29	20	78		269%	186	146	0	265	29	34
1E02P	Mount Cook	North Thompson	1574	2019-05-01	264	1305		97%	1397	1327	684	1665	1346	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	2019-05-02	162	596		98%	654	664	417	960	607	43
1E05	KNOUFF LAKE	North Thompson	1189						NS		0	142	45	10
1E07	ADAMS RIVER	North Thompson	1769	2019-04-30	165	670		92%	864	934	396	1173	726	47
1E08P	Azure River	North Thompson	1625	2019-05-01	219	930		77%	1034	1338	528	1635	1214	21
1E10P	Kostal Lake	North Thompson	1760	2019-05-01	164	809		91%	911	974	417	1268	891	33
1E14P	Cook Creek	North Thompson	1280	2019-05-01	46	311			710	64	120	604	372	2
1F01A	ABERDEEN LAKE	South Thompson	1262	2019-05-01	0	0		0%	114	47	0	165	19	61

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1F02	ANGLEMONT	South Thompson	1168	2019-05-01	25	108		68%	376		0	496	160	59
1F03P	Park Mountain	South Thompson	1857	2019-05-01	158	712		75%	1175	993	379	1343	955	33
1F04P	Enderby	South Thompson	1950	2019-05-01	231	835			1195	1146	1146	1146		2
1F06P	Celista Mountain	South Thompson	1533	2019-05-01	181	895		98%	1229	1114	506	1187	914	13
2A01A	CANOE RIVER	Upper Columbia	866						NS		0	147	5	26
2A02	GLACIER	Upper Columbia	1249	2019-04-27	121	612		95%	676	614	320	1247	643	72
2A03A	FIELD	Upper Columbia	1310						NS		0	178	20	52
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-05-01		1105		87%	1316	1383	595	1625	1265	25
2A07	KICKING HORSE	Upper Columbia	1648	2019-04-29	75	265		90%	426	322	63	589	296	68
2A11	BEAVERFOOT	Upper Columbia	1924	2019-04-28	38	118		69%	238	238	0	495	170	69
2A14	MOUNT ABBOT	Upper Columbia	2031	2019-04-26	269	1143		85%	1460	1495	600	1885	1345	59
2A16	GOLDSTREAM	Upper Columbia	1914	2019-04-29	261	1114		93%	1193	1339	584	1781	1200	55
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2019-04-25	273	1210		93%	1420	1395	590	1986	1306	55
2A18	KEYSTONE CREEK	Upper Columbia	1839	2019-04-29	176	702		85%	903	1004	414	1421	823	51
2A18P	Keystone Creek	Upper Columbia	1850	2019-05-01		902			1069	1288	544	744		3
2A19	VERMONT CREEK	Upper Columbia	1533	2019-04-29	60	248		76%	449	424	0	1026	327	52
2A21P	Molson Creek	Upper Columbia	1930	2019-05-01		947		86%	1186	1144	481	1678	1100	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	2019-04-29	216	833		89%	1083	1045	469	1562	939	51
2A23	BUSH RIVER	Upper Columbia	1982	2019-04-29	200	782		94%	870	993	483	1392	834	51
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2019-04-29	263	1167		94%	1341	1540	671	1797	1243	46
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2019-04-29	91	404		78%	698	584	0	910	517	40
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2019-04-29	289	1330		95%	1564	1640	335	2242	1402	40
2A30P	Colpitti Creek	Upper Columbia	2131	2019-05-01		754			1106	1122	602	1122		3
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-05-01		862			1189	1214	795	1214		3
2A32P	Wildcat Creek	Upper Columbia	2122	2019-05-01		692			690	751	442	751		3
2B02A	FARRON	Lower Columbia	1229	2019-04-30	34	130		71%	437	309	0	406	183	45
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	2019-04-25	86	360		65%	831	596	255	983	557	57
2B06P	Barnes Creek	Lower Columbia	1595	2019-05-01		345		64%	794	549	272	821	541	25
2B07	KOCH CREEK	Lower Columbia	1813	2019-04-25	160	644		83%	974	971	391	1201	778	58
2B08P	St. Leon Creek	Lower Columbia	1822	2019-05-01		1017		91%	1403	1394	536	1501	1113	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-04-29	125	552		76%	914	1080	157	1278	727	43
2C01	SINCLAIR PASS	East Kootenay	1374	2019-04-29	0	0	T	0%	74	30	0	246	37	72
2C04	SULLIVAN MINE	East Kootenay	1580	2019-04-30	39	84		46%	416	288	0	518	182	71
2C07	FERNIE EAST	East Kootenay	1213	2019-04-28	0	0		0%	318	202	0	541	136	67
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-05-01		389		58%	735	812	308	1332	670	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-05-01	47	232		69%	534	583	18	689	338	39
2C14P	Floe Lake	East Kootenay	2110	2019-05-01		641		84%	951	994	331	1188	767	25

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2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2019-04-28	164	515		91%	650		270	930	566	48
2C16	MOUNT JOFFRE	East Kootenay	1763	2019-04-28	74	217	A	63%	447	362	36	772	346	49
2C17	THUNDER CREEK	East Kootenay	2062	2019-04-28	85	246	A	91%	362	360	163	556	271	49
2D02	FERGUSON	West Kootenay	929	2019-05-01			N		586		160	773	429	71
2D03	SANDON	West Kootenay	1072	2019-05-01	0	0	T	0%	266	132	0	399	45	68
2D04	NELSON	West Kootenay	952	2019-04-29	5	27		19%	299	67	0	508	143	60
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	2019-04-30	86	359		84%	600	512	229	726	429	69
2D06	CHAR CREEK	West Kootenay	1290	2019-04-30	72	320		71%	660	549	79	838	449	52
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662						NS		0	42	14	5
2D08P	East Creek	West Kootenay	2004	2019-05-01		961		106%	1033	1164	480	1346	910	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	2019-04-25			N		N	1240	520	1679	1075	50
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	2019-04-30	152	627		82%	987	946	505	1300	767	48
2D14P	Redfish Creek	West Kootenay	2086	2019-05-01	233	1165		90%	1770	2035	751	2035	1298	16
2E01	MONASHEE PASS	Kettle	1387	2019-04-25	49	189		71%	487	305	67	505	266	60
2E02	CARMI	Kettle	1254	2019-04-30	0	0	T	0%	63	0	0	173	12	54
2E03	BIG WHITE MOUNTAIN	Kettle	1672	2019-04-30	92	334		74%	723	547	237	762	451	52
2E07P	Grano Creek	Kettle	1874	2019-05-01	111	398		71%	878	708	285	814	561	20
2F01A	TROUT CREEK (West)	Okanagan	1430	2019-04-24	6	20		18%	298	160	93	292	112	7
2F01P	Trout Creek West	Okanagan	1420	2019-05-01	1	0			302					1
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2019-04-26	0	0		0%	305	185	0	368	84	53
2F03	MC CULLOCH	Okanagan	1266	2019-05-01	0	0		0%	82	42	0	188	12	70
2F04	GRAYSTOKE LAKE	Okanagan	1818	2019-05-01	91	308		90%	564	450	120	940	343	44
2F05P	Mission Creek	Okanagan	1794	2019-05-01	126	411		85%	804	590	141	784	481	48
2F07	POSTILL LAKE	Okanagan	1358	2019-05-01	0	0	T	0%	268	191	0	282	121	66
2F08P	Greyback Reservoir	Okanagan	1550	2019-05-01	0	52			270	270	270	270		2
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2019-04-28	100	415		88%	647	708	175	1013	470	47
2F10P	Silver Star Mountain	Okanagan	1839	2019-05-01	183	711			1238	809	784	809		3
2F11	ISINTOK LAKE	Okanagan	1651	2019-04-26	0	0		0%	318	174	0	437	98	53
2F12	MOUNT KOBAN	Okanagan	1817	2019-04-28	50	168		54%	568	468	53	597	309	52
2F13	ESPERON CR (UPPER)	Okanagan	1634	2019-04-26	65	256		74%	464	456	119	805	346	48
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	2019-04-26	43	198		92%	390	372	0	551	216	32
2F18P	Brenda Mine	Okanagan	1453	2019-05-01		2		2%	260	288	0	342	128	25
2F19	OOYAMA LAKE	Okanagan	1365	2019-05-01	0	0		0%	154	84	0	185	55	48
2F20	VASEUX CREEK	Okanagan	1403	2019-04-27	12	38		93%	186	96	0	192	41	46
2F21	BOULEAU LAKE	Okanagan	1405	2019-04-30			N		476	344	40	488	251	47
2F23	MACDONALD LAKE	Okanagan	1742	2019-05-01			N		N	590	198	650	421	39
2F24	ISLAHT LAKE	Okanagan	1492	2019-05-01	42	143		61%	428	320	64	433	234	36

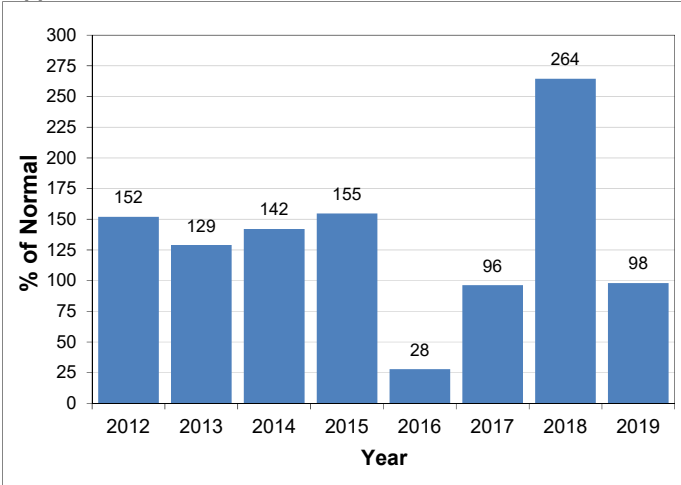
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2F25	POSTILL LAKE UPPER	Okanagan	1500						N		0	0		3
2G03P	Blackwall Peak	Similkameen	1934	2019-05-01	129	548		71%	1000	812	375	1569	768	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-05-01			N		455	236	64	554	215	58
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2019-05-01	0	0	B	0%	229	206	0	323	102	58
2G06	HAMILTON HILL	Similkameen	1477	2019-04-30	0	0	B	0%	304	254	0	838	190	58
3A01	GROUSE MOUNTAIN	South Coast	1126	2019-04-29	183	858		73%	1730	1730	0	2870	1170	68
3A02	POWELL RIVER (UPPER)	South Coast	1002						1110		533	1712	783	10
3A05	POWELL RIVER (LOWER)	South Coast	882						679		181	426	349	8
3A09	PALISADE LAKE	South Coast	898	2019-04-30	105	632		49%	1524	1648	0	3600	1291	68
3A09P	Palisade Lake	South Coast	900	2019-05-01	67	316								
3A10	DOG MOUNTAIN	South Coast	1007	2019-04-30	153	702		62%	1514	1762	0	2760	1137	34
3A19	ORCHID LAKE	South Coast	1178	2019-04-30	266	1350		72%	2240	2423	100	3845	1866	46
3A20	CALLAGHAN CREEK	South Coast	1009	2019-04-29	107	486		68%	990		0	1568	711	41
3A22P	Nostetuko River	South Coast	1457	2019-05-01	91	457		84%	609	527	201	1053	542	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-05-01	47	203		80%	384	319	143	532	254	29
3A25P	Squamish River Upper	South Coast	1387	2019-05-01	284	1573		98%	1802	1775	695	2910	1597	28
3A26	CHAPMAN CREEK	South Coast	1022	2019-04-26	210	940			1873		756	1710	262	9
3A27	EDWARDS LAKE	South Coast	1070	2019-04-26	116	512		291%	NS		400	1180		6
3A28P	Tetrahedron	South Coast	1420	2019-05-01	317	1101								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2019-04-26	225	1114		74%	1562	1507	0	3500	1507	61
3B02A	MOUNT COKELY	Vancouver Island	1267	2019-04-25	128	590		73%	962		0	2062	813	36
3B04	ELK RIVER	Vancouver Island	270	2019-04-26	0	0	E		0	0	0	40	0	34
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	2019-04-26	152	716		48%	1248	1460	0	3560	1484	60
3B17P	Wolf River Upper	Vancouver Island	1422	2019-05-01		1040		77%	1300	1373	374	2691	1356	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2019-04-26	66	226		41%	422	586	0	1652	546	48
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2019-04-26	0	0	E	0%	54	62	0	1118	134	48
3B23P	Jump Creek	Vancouver Island	1134	2019-05-01	80	415		35%	1320	1432	0	3485	1180	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-05-01	144	822			1893	1933	1248	1933		3
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-05-01	154	781			1265					1
3C07	WEDEENE RIVER SOUTH	Central Coast	196	2019-04-26	7	30		22%	280	36	0	749	136	30
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-05-01	122	602		78%	620	729	382	1464	776	20
3D01C	SUMALLO RIVER WEST	Skagit	801	2019-04-30	0	0	E	0%	N	96	0	371	66	25
3D02	LIGHTNING LAKE	Skagit	1254	2019-04-27	17	57	B	26%	332	213	7	599	223	46
3D03A	KLESILKWA	Skagit	1134	2019-04-30	0	0		0%	254	105	0	752	103	45
4A02P	Pine Pass	Peace	1386	2019-05-01	238	1072		100%	1052	959	363	1704	1072	29
4A03	WARE (UPPER)	Peace	1563	2019-04-27	90	241		88%	237	213	90	402	274	57
4A03P	Ware Upper	Peace	1565	2019-05-01	86	236			255	216	216	216		2

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4A04	WARE (LOWER)	Peace	969	2019-04-27	44	150		121%	104	71	0	229	124	56
4A04P	Ware Lower	Peace	971	2019-05-01	17	154			114	36	36	36		2
4A05	GERMANSEN (UPPER)	Peace	1489	2019-04-28	116	393		111%	295	238	156	597	355	57
4A06	TUTIZZI LAKE	Peace	1043	2019-04-28	23	86		55%	134	83	0	325	155	55
4A07	LADY LAURIER LAKE	Peace	1460	2019-04-26	131	450		81%	501	439	194	926	555	55
4A09	PULPIT LAKE	Peace	1331	2019-04-27	126	399		95%	N	325	152	623	418	54
4A09P	Pulpit Lake	Peace	1331	2019-05-01	96	360		88%	308	258	133	633	407	28
4A10	FREDRICKSON LAKE	Peace	1323	2019-04-28	79	236		102%	155	131	93	358	231	55
4A11	TRYGVE LAKE	Peace	1409	2019-04-27	106	335		88%	282	267	119	599	381	55
4A12	TSAYDAYCHI LAKE	Peace	1173	2019-04-28	100	402		104%	349	328	166	700	386	55
4A13	PHILIP LAKE	Peace	1013	2019-04-28	42	172		88%	109	89	0	406	196	55
4A16	MORFEE MOUNTAIN	Peace	1427	2019-04-29	166	788		97%	674	606	265	1181	812	49
4A18	MOUNT SHEBA	Peace	1480	2019-04-29	219	920		103%	958	805	369	1371	891	49
4A20	MONKMAN CREEK	Peace	1566	2019-04-29			N		768	603	190	1042	580	44
4A20P	Monkman Creek	Peace	1570	2019-05-01		467								
4A21	MOUNT STEARNS	Peace	1514	2019-04-26	52	148		101%	135	206	0	271	146	44
4A25	FORT ST. JOHN A	Peace	692						NS	0	0	56	0	27
4A27P	Kwadacha North	Peace	1554	2019-05-01	103	259			306	267	267	267		2
4A30P	Aiken Lake	Peace	1061	2019-05-01	23	143		79%	143	123	71	313	181	33
4A31P	Crying Girl Prairie	Peace	1358	2019-05-01		186			229	313	0	313		2
4A33P	Muskwa-Kechika	Peace	1196	2019-05-01		0			37	101	0	101		2
4A34P	Dowling Creek	Peace	1456	2019-05-01		1425			1254	444	444	444		2
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2019-05-01	152	634		67%	913	997	551	1591	951	65
4B02	JOHANSON LAKE	Skeena-Nass	1480	2019-04-28	89	267		89%	187	226	108	433	301	55
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-05-01	117	478	B	94%	585	443	168	795	509	46
4B04	CHAPMAN LAKE	Skeena-Nass	1485	2019-05-01	106	416	B	88%	630	463	308	749	473	51
4B06	TACHEK CREEK	Skeena-Nass	1133	2019-05-02	50	166		95%	288	130	55	363	175	49
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	2019-05-01	65	233	B	104%	453	158	80	422	223	50
4B08	MOUNT CRONIN	Skeena-Nass	1491	2019-05-01	133	491	B	80%	789	595	422	1125	616	49
4B10	NINGUNSAW PASS	Nass	647	2019-05-02	0	0		0%	164		0	676	263	40
4B11A	BEAR PASS	Nass	437						N		256	860	541	25
4B12P	Granduc Mine	Skeena-Nass	790							82	82	82		1
4B13A	TERRACE A	Skeena-Nass	219	2019-04-26	0	0		0%	N	0	0	68	14	7
4B14	EQUITY MINE	Skeena-Nass	1434	2019-04-26	95	326		87%	N	434	212	690	373	40
4B15	LU LAKE	Skeena-Nass	1296	2019-04-26	78	258		97%	N	276	144	528	267	39
4B15P	Lu Lake	Skeena-Nass	1308	2019-05-01	71	278		122%	441	320	79	517	227	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-05-01	155	611		63%	593	514	195	1310	972	22

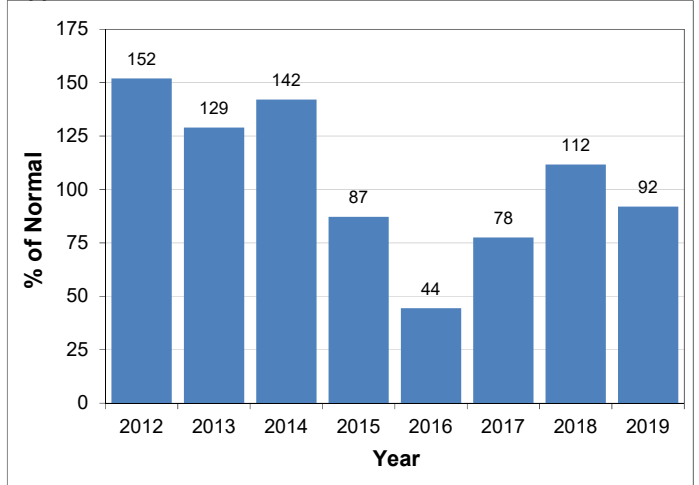
2019 Automated Snow Weather Station/Manual Snow Survey Data				May 1					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-05-01	224	1026		79%	1185	1053	302	2081	1307	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-05-01	63	295		48%		267	178	1075	612	17
4C01	SIKANNI LAKE	Liard	1390	2019-04-27	86	246		92%	145	171	78	404	266	55
4C01P	Sikanni Lake	Liard	1400	2019-05-01	93	231			275	159	159	159		2
4C02	SUMMIT LAKE	Liard	1291	2019-05-01	46	116		264%	115	120	0	200	44	53
4C03	DEASE LAKE	Liard	805	2019-05-01	0	0		0%	NS		0	178	38	50
4C05	FORT NELSON AIRPORT	Liard	368	2019-05-01	0	0		0%	24		0	103	12	33
4C15	JADE CITY	Liard	943						NS		28	350	189	15
4D01	TELEGRAPH CREEK	Stikine	490						NS		0	163	23	42
4D02	ISKUT	Stikine	931						N		0	146	18	25
4D11P	Kinaskan Lake	Stikine	1020	2019-05-01	32	184		52%	112	262	0	305	352	22
4E02B	ATLIN LAKE	Yukon	730	2019-04-30	0	0			37		0	140		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 - May 1, 2019

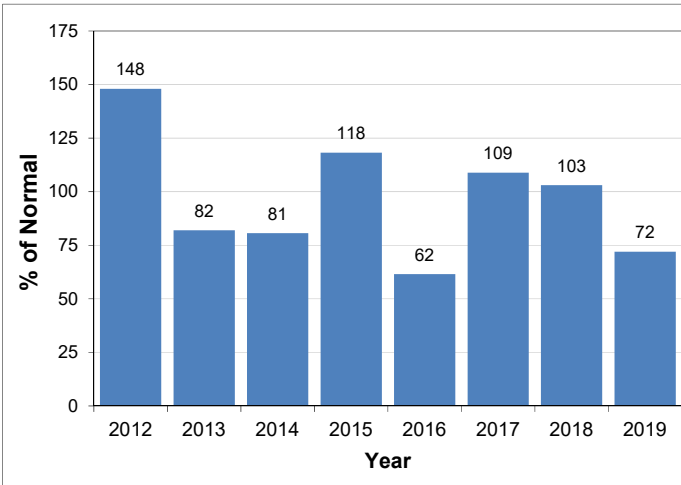
Upper Fraser West



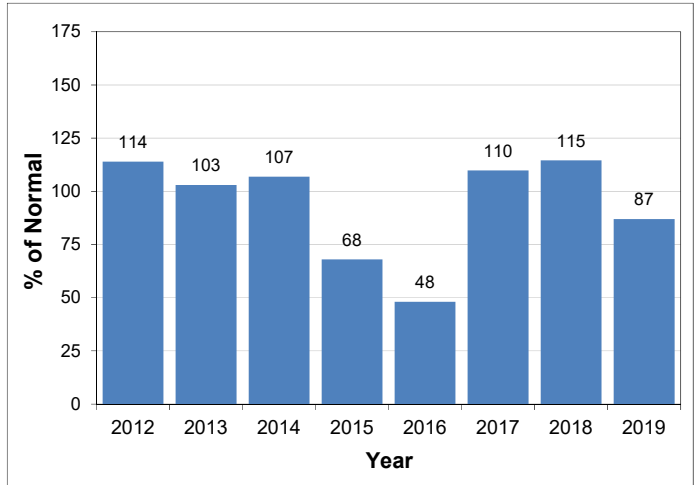
Upper Fraser East



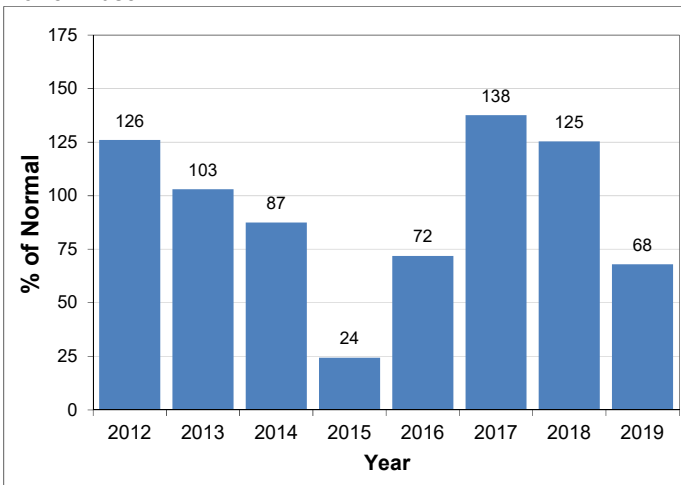
Nechako



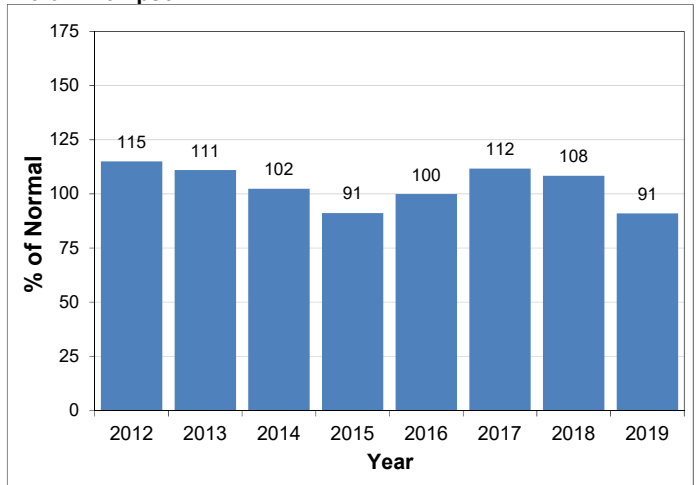
Middle Fraser



Lower Fraser

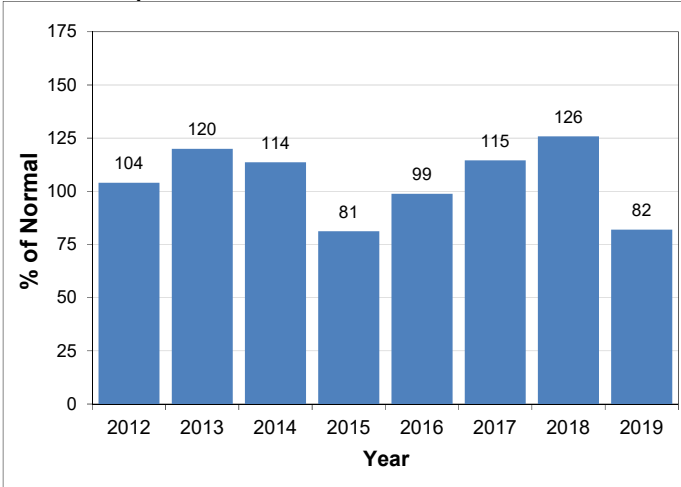


North Thompson

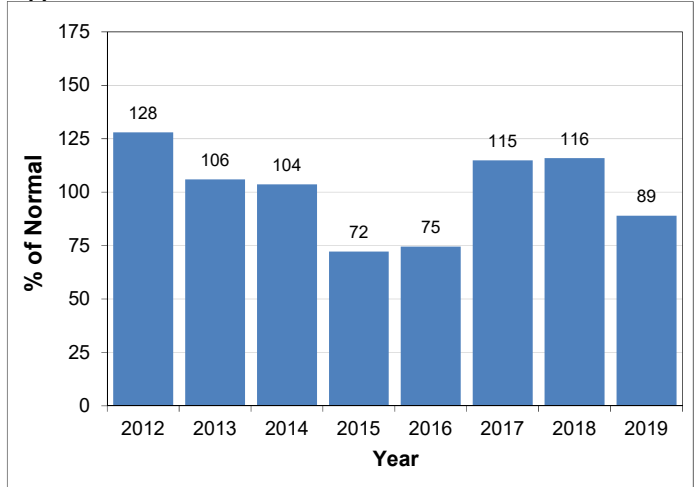


Snow Basin Index Graphs - May 1, 2019

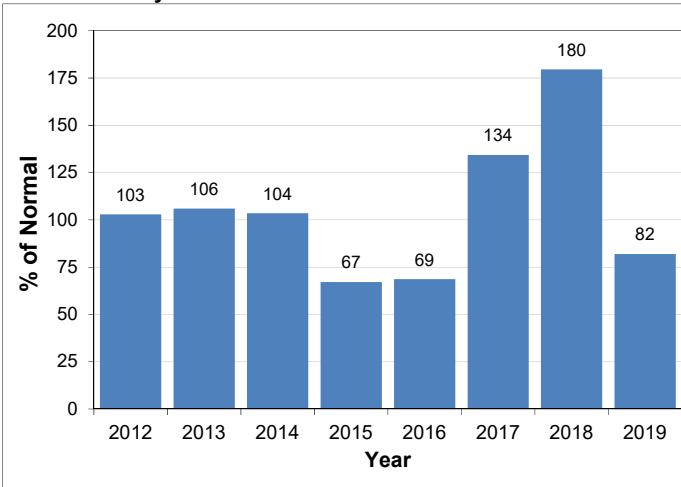
South Thompson



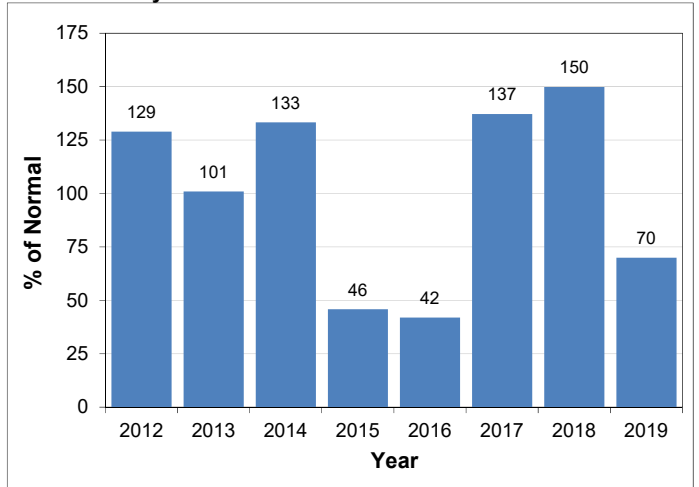
Upper Columbia



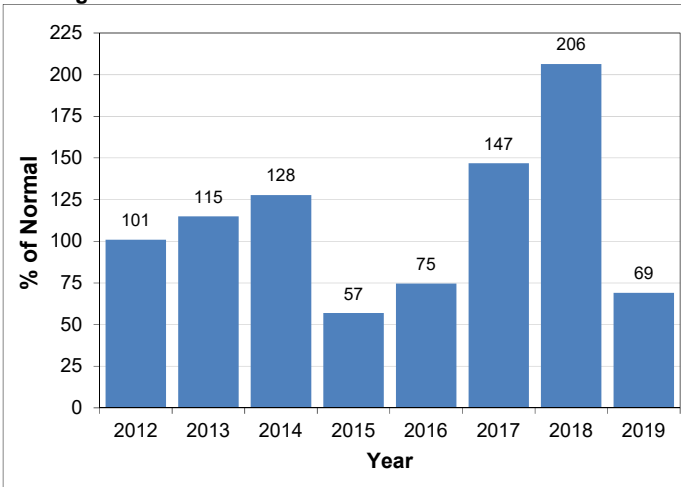
West Kootenay



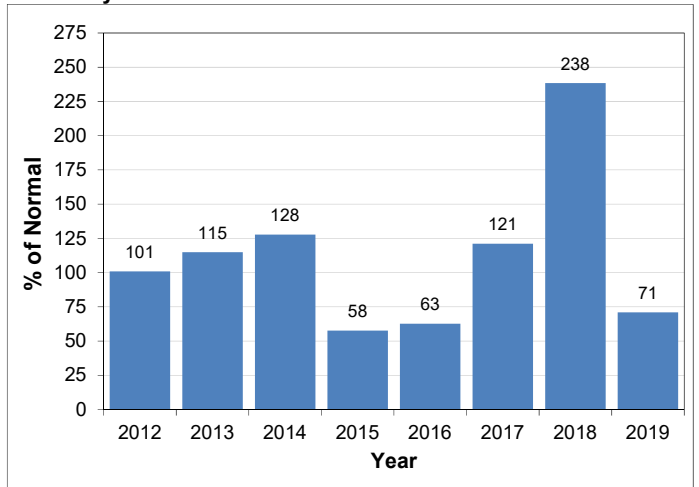
East Kootenay



Okanagan

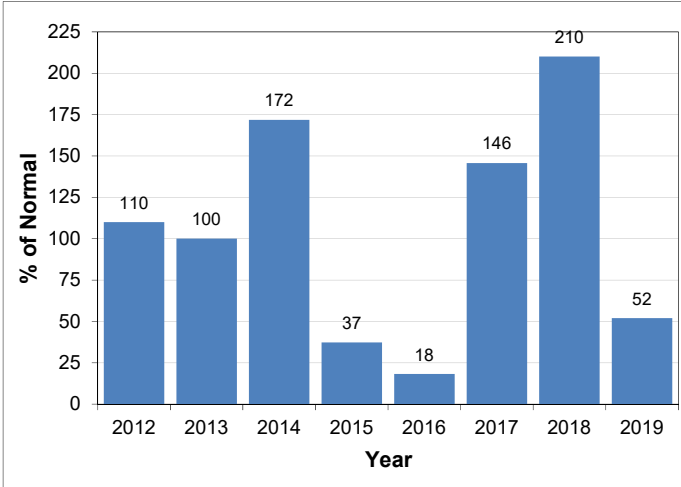


Boundary

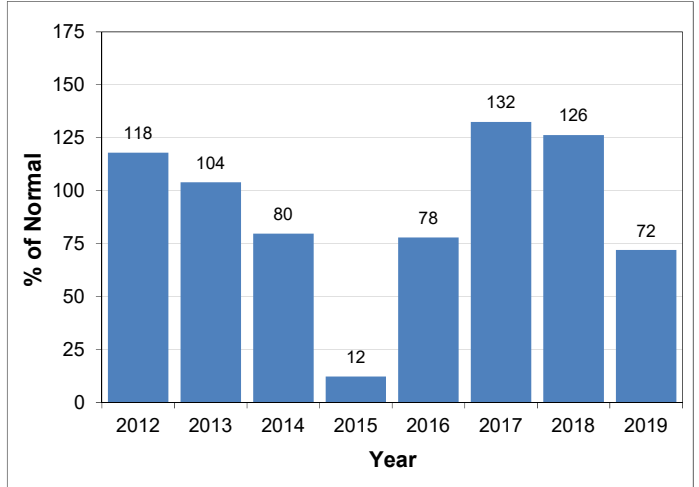


Snow Basin Index Graphs - May 1, 2019

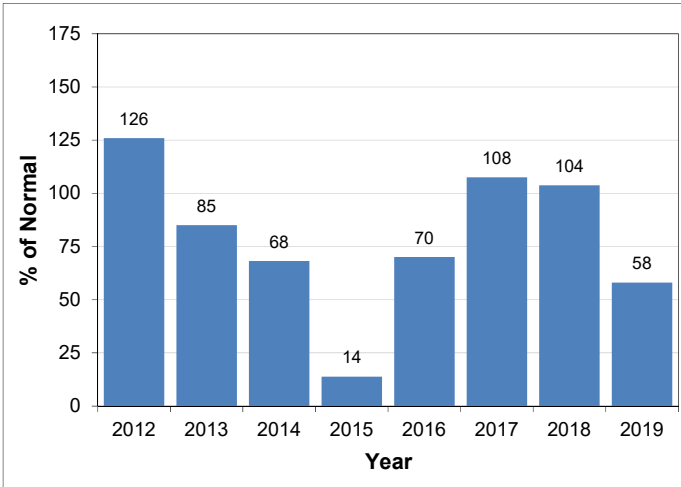
Similkameen



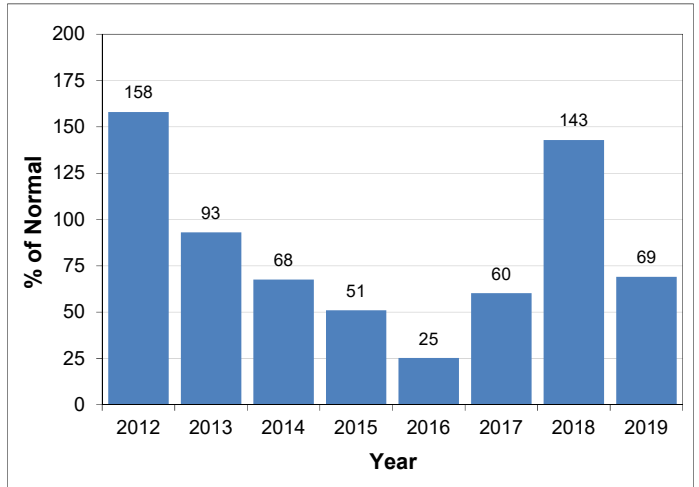
South Coast



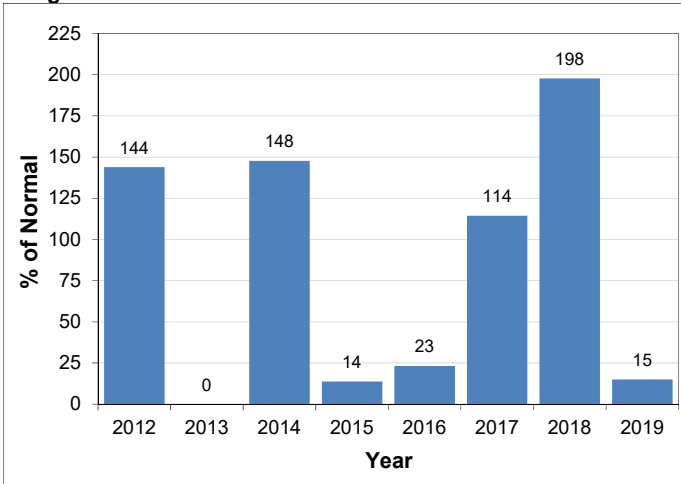
Vancouver Island



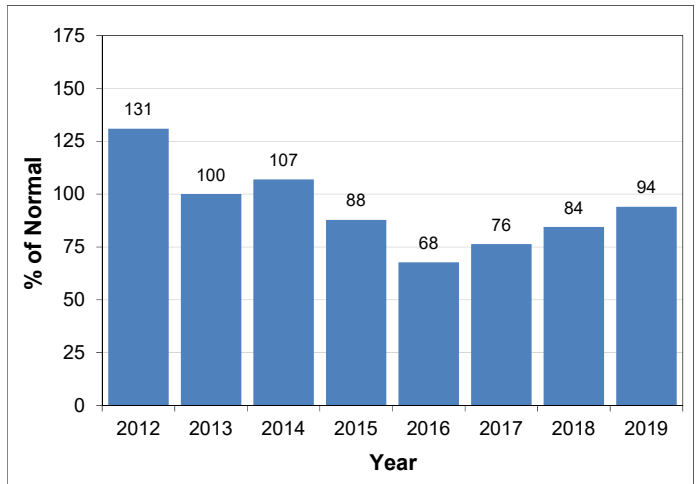
Central Coast



Skagit

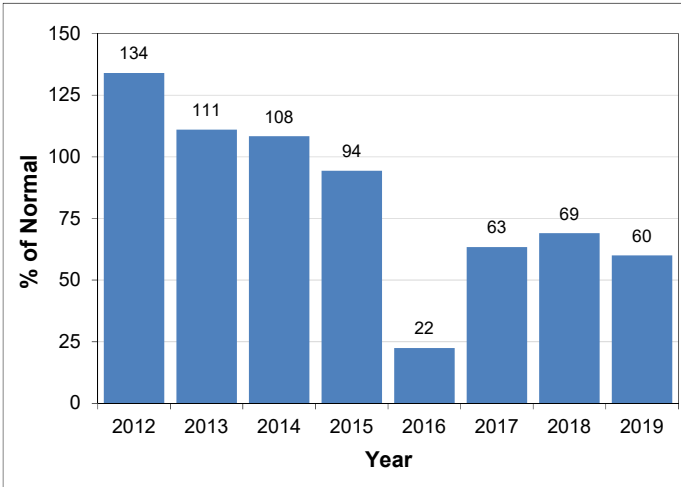


Peace

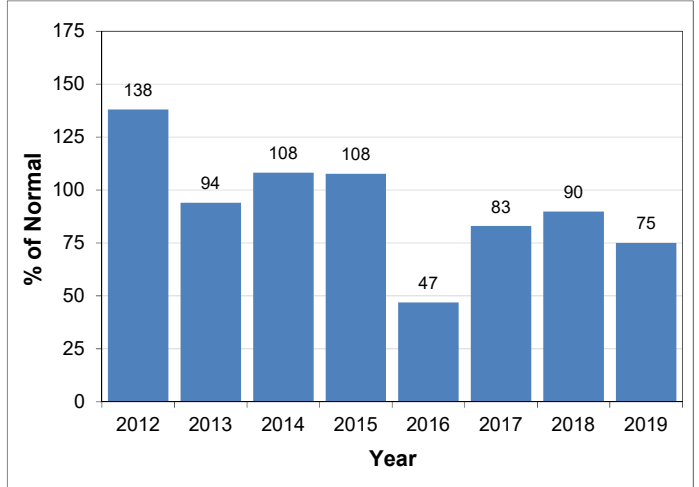


Snow Basin Index Graphs - May 1, 2019

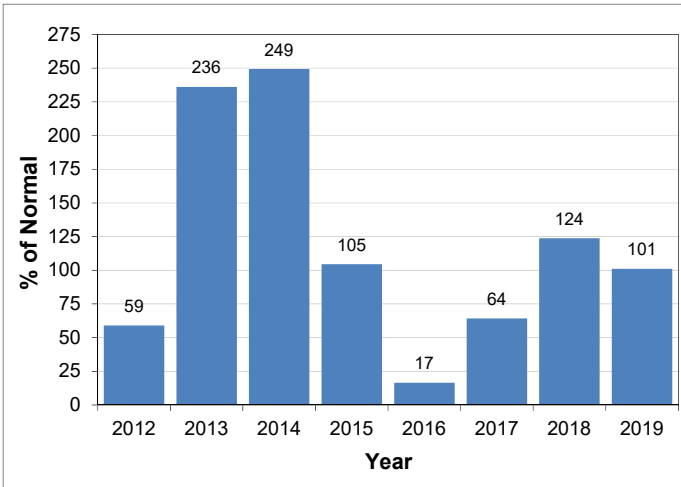
Stikine



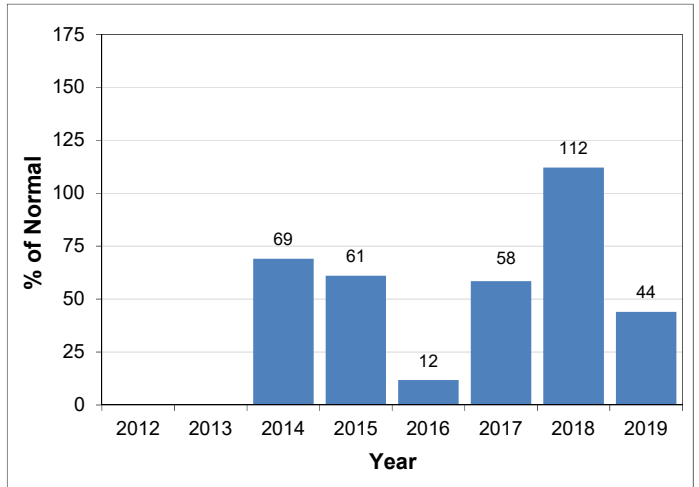
Skeena-Nass



Liard



Northwest



Snow Survey and Water Supply Bulletin – May 15th, 2019

The May 15th snow survey is now complete. Data from 19 manual snow courses and 80 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

Weather in the first half of May has generally been warm and dry across BC. Weather included a period in the second week of May with extremely warm, and in many areas record-breaking, temperatures. Overall, temperature anomalies over the first half of the month have generally been in the 2-5 °C above normal range across the province.

Precipitation has been limited across the province, with 30-day precipitation (mid-April to mid-May) generally being below 30-50% of normal for most areas.

Over the past week weather has transitioned to a more seasonal pattern, with cooler temperatures and increased precipitation.

Snowpack

Snow basin indices for May 15th have dropped significantly since May 1st in response to persistent hot weather and rapid snowmelt. Snow basin indices for May 15th, 2019 range from a low of 32% of normal on Vancouver Island to a high of 85% in the North Thompson (Table 1 and Figure 1) with the average of all snow measurements across the province calculated to be 64% of normal. A well-below normal snowpack (<65% of normal) is present in the Upper Fraser West, Nechako, Lower Fraser, East Kootenay, Okanagan, Boundary, Similkameen, South Coast, Vancouver Island, Central Coast and Skeena-Nass. The May 15th snow basin index for the entire Fraser River is 69% of normal.

By mid-May generally 15-25% of the accumulated snowpack has melted. Early melt this season has meant that most sites have melted between 50-60% of their snowpack as of current conditions. Most mid-elevation areas are now snow-free (approximately below 800-1000m in coastal BC, below 1600m in southern BC and below 1200-1300m in northern BC).

Snowmelt observations from automated snow weather stations over the past week (since May 15th) indicate further progression of the trend in early melt, with the average of all real-time stations moving to below 50% of average for May 21st.

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

Snow Survey and Water Supply Bulletin – May 15th, 2019

Table 1 - BC Snow Basin Indices – May 15, 2019

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	61	Boundary	58
Upper Fraser East	77	Similkameen	41
Nechako	52	South Coast	65
Middle Fraser	66	Vancouver Island	32
Lower Fraser	60	Central Coast	41
North Thompson	85	Skagit	NA
South Thompson	72	Peace	85
Upper Columbia	82	Skeena-Nass	56
West Kootenay	69	Stikine	NA
East Kootenay	54	Liard	NA
Okanagan	54	Northwest	NA
Nicola	NA	Fraser	69

Streamflow

With periods of warmer and wetter weather, streamflow is generally near-normal or above normal across most of the province.

In areas where snow has already melted, flows have begun to transition to below-normal. This includes areas in the South Interior, Interior Plateau and north-east BC.

In coastal areas which have less influence from snowmelt, including Vancouver Island and Haida Gwaii, on-going drier weather has resulted in continued well below normal streamflow. Current streamflow conditions in these regions are similar to flows experienced in 2015 and 2016, with many monitored streams flowing below 10th percentile levels for this time of year. While spring and summer rainfall is still an important factor for drought in these regions, the current low trend in flows is of concern given that climatologically summers are typically the dry season.

Snow Survey and Water Supply Bulletin – May 15th, 2019

Outlook

Seasonal forecasts from Environment and Climate Change Canada favor an increased likelihood of above normal late-spring to early-summer temperatures (May-June-July) across western British Columbia, and no strong indication of favoured temperature patterns for elsewhere in the province. Forecasts for summer (June-July-August) indicate an increased likelihood of warmer than normal temperatures across the province. The late-May to early-June monthly temperature forecast indicates an increased likelihood of above normal temperatures across western BC. In the short-term, BC is expected to see mixed weather patterns over the next week, with some off-shore ridging and near-seasonal temperatures and potential for occasional showers followed by the potential for a building ridge and period of increased temperatures.

Flood risk remains low this season due to low snowpacks. Through most small and mid-sized watersheds around southern BC, the peak of the melt season has passed. In larger watersheds, and in mountainous areas in northern BC, rivers are expected to be at or near their peak levels from snowmelt runoff. Warmer temperatures later this week may lead to increased flows, particularly in areas around the upper Fraser River, North Thompson, South Thompson, Kootenays, and Skeena regions (and tributaries). For higher elevation watersheds, including the South Thompson River, peak flow may not occur until early-June. Flood risk from extreme rainfall events remains a possibility throughout the BC Interior.

With diminished snowpacks and early melt this year, risks have shifted towards the increased likelihood of low flow conditions this summer in most areas of the province. Along with 2015 and 2016, this year is amongst the lowest May 15th snowpacks that have been observed in BC over the past 40 years. Spring and summer weather will continue to play a key role in whether or not low flows emerge through the summer.

The River Forecast Centre will continue to monitor snowpack conditions and will provide an updated seasonal flood risk forecast in the June 1st, 2019 bulletin, which is scheduled for release on June 7th.

BC River Forecast Centre
May 21, 2019

2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					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	2019-05-15	104				360	556	143	833	522	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-05-15	89	363		90%	266	317	65	656	403	26
1A03P	Barkerville	Upper Fraser East	1483	2019-05-15	7	42		20%	13	220	0	503	213	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693	NS					NS		292	1219	798	56
1A05P	Longworth Upper	Upper Fraser East	1740	2019-05-15	192	767			554	633	554	633		2
1A06A	HANSARD	Upper Fraser East	622	NS					NS				0	
1A10	PRINCE GEORGE A	Upper Fraser East	684	NS					NS		0	81	5	25
1A11	PACIFIC LAKE	Upper Fraser East	756	NS					NS		0	728	339	37
1A12	KAZA LAKE	Upper Fraser West	1247	NS					NS		132	212	212	3
1A12P	Kaza Lake	Upper Fraser West	1248	2019-05-15	36	130				174	174	174		1
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-05-15	109	406		54%	533	320	214	1277	754	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598	NS					NS		359	1271	836	36
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-05-15	118	440			455	455	455	455		2
1A16	BURNS LAKE	Upper Fraser West	820	NS					NS		0	50	0	18
1A17P	Revolution Creek	Upper Fraser East	1676	2019-05-15	159	732		102%	658	604	228	1307	716	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-05-15	165	708		86%	623	643	298	1215	828	12
1A23	BIRD CREEK	Upper Fraser West	1196	NS					NS		0	0	0	2
1B01	MOUNT WELLS	Nechako	1489	NS					NS		164	869	280	8
1B01P	Mount Wells	Nechako	1489	2019-05-15		296		60%	536	661	171	946	491	26
1B02	TAHTSA LAKE	Nechako	1319	NS					NS		924	1687	924	7
1B02P	Tahtsa Lake	Nechako	1319	2019-05-15		710		55%	1003	1342	464	2340	1287	26
1B05	SKINS LAKE	Nechako	877	NS					NS		0	53	0	3
1B06	MOUNT SWANNELL	Nechako	1596	NS					NS		0	331	166	3
1B07	NUTLI LAKE	Nechako	1502	NS					NS		197	197	197	3
1B08P	Mount Pondosy	Nechako	1413	2019-05-15		234		37%	523	888	216	1198	628	26
1C01	BROOKMERE	Middle Fraser	994	NS					NS		0	208	22	29
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	NS					NS		184	965	455	21
1C05P	McGillivray Pass	Middle Fraser	1766	2019-05-15		276			286		286	286		1
1C06	PAVILION	Middle Fraser	1209	NS					NS		0	0	0	7
1C08	NAZKO	Middle Fraser	1029	NS					NS		31	31	0	1
1C09A	HIGHLAND VALLEY	Middle Fraser	1547	NS					NS		0	30	3	26
1C12P	Green Mountain	Middle Fraser	1766	2019-05-15		421		52%	485	642	424	1369	803	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612	NS					NS		655	655	0	2
1C14	BRALORNE	Middle Fraser	1382	NS					NS		0	80	11	21
1C14P	Bralorne	Middle Fraser	1382	2019-05-15	1	0			0		0	0		1
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2019-05-16	22	78		43%	273	211	0	466	181	51
1C18P	Mission Ridge	Middle Fraser	1903	2019-05-15		50		15%	318	539	0	972	336	48

2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					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
1C19	GNAWED MOUNTAIN	Middle Fraser	1617	NS					NS		0	157	23	24
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-05-15	50	284		62%	342	454	176	746	455	24
1C21	BIG CREEK	Middle Fraser	1130	NS					NS		42	42	0	1
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	NS					NS		0	22	0	3
1C23	PENFOLD CREEK	Middle Fraser	1687	NS					NS		525	1400	1022	45
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	NS					NS		0	119	22	6
1C28	DUFFEY LAKE	Middle Fraser	1253	NS					NS				0	
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	NS					NS				0	
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-05-15	21	14								
1C32	DEADMAN RIVER	Middle Fraser	1463	NS					NS				0	
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	NS					NS		116	116	0	1
1C37	BRALORNE(UPPER)	Middle Fraser	1980	NS					NS		290	290	0	1
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	NS					NS				0	
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-05-15		636			519	811	700	700		3
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	NS					NS		300	300	0	1
1C40	TYAUGHTON	Middle Fraser	1946	NS					NS		198	198	0	1
1C40P	North Tyaughton	Middle Fraser	1969	2019-05-15		204			229	319	229	319		2
1C41P	Yanks Peak East	Middle Fraser	1683	2019-05-15	133	838		108%	785	772	365	1129	774	21
1C42	CAVERHILL LAKE	Middle Fraser	1400	NS					NS					
1D06P	Tenquille Lake	Lower Fraser	1669	2019-05-15	131	631		65%	907	1265	469	1693	973	17
1D08	STAVE LAKE	Lower Fraser	1211	NS					NS		584	2438	0	2
1D09	WAHLEACH LAKE	Lower Fraser	1395	NS					NS		102	656	428	12
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-05-15		506		51%	957	662	290	1793	1001	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530	NS					NS		634	2423	1467	6
1D16	DICKSON LAKE	Lower Fraser	1147	NS					NS		466	2070	2070	2
1D17P	Chilliwack River	Lower Fraser	1621	2019-05-15	171	1039		74%	1592	1636	405	2540	1398	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-05-15	106	428								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-05-15	126	750		49%	1359	1724	0	2900	1533	19
1E01B	BLUE RIVER	North Thompson	673	NS					NS		0	213	0	11
1E02P	Mount Cook	North Thompson	1574	2019-05-15	204	1205		90%	1317	1243	684	1793	1334	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907	2019-05-13	122	496		80%	590	730	301	1114	618	35
1E05	KNOUFF LAKE	North Thompson	1189	NS					NS				0	1
1E07	ADAMS RIVER	North Thompson	1769	2019-05-14	127	602		87%	705	950	280	1158	690	46
1E08P	Azure River	North Thompson	1625	2019-05-15	157	882		77%	918	1327	528	1684	1152	21
1E10P	Kostal Lake	North Thompson	1760	2019-05-15	112	766		88%	846	963	417	1358	870	33
1E14P	Cook Creek	North Thompson	1280	2019-05-15	1	21			203	65	0	203		3
1F01A	ABERDEEN LAKE	South Thompson	1262	NS					NS		0	85	14	14

2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					Historic Snow Water Equivalent (mm)					
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1F02	ANGLEMONT	South Thompson	1168	NS					NS	0	0	361	99	21
1F03P	Park Mountain	South Thompson	1857	2019-05-15	101	604		65%	1102	1104	315	1358	929	33
1F04P	Enderby	South Thompson	1950	2019-05-15	191	704			1197	1216	1197	1216		2
1F06P	Celista Mountain	South Thompson	1533	2019-05-15	124	728		87%	885	1088	420	1163	841	13
2A01A	CANOE RIVER	Upper Columbia	866	NS					NS		0	0	0	6
2A02	GLACIER	Upper Columbia	1249	NS					NS		114	1034	498	48
2A03A	FIELD	Upper Columbia	1310	NS					NS		0	0	0	4
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-05-15		959		78%	1207	1322	595	1777	1235	25
2A07	KICKING HORSE	Upper Columbia	1648	NS					NS		0	521	229	51
2A11	BEAVERFOOT	Upper Columbia	1924	NS					NS		0	399	0	5
2A14	MOUNT ABBOT	Upper Columbia	2031	NS					NS		600	1944	1319	38
2A16	GOLDSTREAM	Upper Columbia	1914	NS					NS		584	1055	1055	2
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	NS					NS		590	1950	1271	34
2A18	KEYSTONE CREEK	Upper Columbia	1839	NS					NS		414	683	683	2
2A18P	Keystone Creek	Upper Columbia	1850	2019-05-15		721			850	1205	552	1205		3
2A19	VERMONT CREEK	Upper Columbia	1533	NS					NS		225	813	225	3
2A21P	Molson Creek	Upper Columbia	1930	2019-05-15		935		86%	1042	1042	481	1707	1085	37
2A22	SUNBEAM LAKE	Upper Columbia	2066	NS					NS		469	863	863	2
2A23	BUSH RIVER	Upper Columbia	1982	NS					NS		483	766	766	2
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	NS					NS		671	1257	1194	3
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	NS					NS		0	522	297	11
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	NS					NS		335	1425	1284	10
2A30P	Colpitti Creek	Upper Columbia	2131	2019-05-15		637			873	1023	467	1023		3
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-05-15		757			1033	1087	656	1087		3
2A32P	Wildcat Creek	Upper Columbia	2122	2019-05-15		635			603	700	346	700		3
2B02A	FARRON	Lower Columbia	1229	2019-05-14	2	7		11%	154	157	0	222	63	38
2B05	WHATSHAN (UPPER)	Lower Columbia	1476	NS					NS		164	737	164	4
2B06P	Barnes Creek	Lower Columbia	1595	2019-05-15		31		7%	537	509	98	758	438	25
2B07	KOCH CREEK	Lower Columbia	1813	NS					NS		415	1148	675	3
2B08P	St. Leon Creek	Lower Columbia	1822	2019-05-15		837		83%	1297	1361	536	1568	1004	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-05-19	24	76		12%	660	935	83	1367	645	43
2C01	SINCLAIR PASS	East Kootenay	1374	NS					NS		0	107	0	33
2C04	SULLIVAN MINE	East Kootenay	1580	2019-05-15	0	0	T	0%	220	154	0	457	80	69
2C07	FERNIE EAST	East Kootenay	1213	NS					0		0	298	34	63
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-05-15					387	662	0	1102	484	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-05-15	1	0		0%	158	387	0	678	225	39
2C14P	Floe Lake	East Kootenay	2110	2019-05-15		568		76%	811	960	304	1101	752	25

2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					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	NS					NS		270	534	534	2
2C16	MOUNT JOFFRE	East Kootenay	1763	NS					NS		206	338	338	2
2C17	THUNDER CREEK	East Kootenay	2062	NS					NS		190	220	220	2
2D02	FERGUSON	West Kootenay	929	NS					NS		20	640	302	39
2D03	SANDON	West Kootenay	1072	NS					NS		0	218	0	11
2D04	NELSON	West Kootenay	952	NS					NS		0	243	46	42
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	NS					NS		0	709	330	55
2D06	CHAR CREEK	West Kootenay	1290	NS					N	416	221	221	272	49
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	NS					NS				0	1
2D08P	East Creek	West Kootenay	2004	2019-05-15		914		105%	923	1100	461	1387	874	37
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	NS					NS		520	978	978	2
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	NS					NS		311	1194	709	35
2D14P	Redfish Creek	West Kootenay	2086	2019-05-15	172	1117		85%	1510	2205	751	1771	1309	16
2E01	MONASHEE PASS	Kettle	1387	NS					NS		0	363	206	29
2E02	CARMI	Kettle	1254	NS					NS		0	0	0	15
2E03	BIG WHITE MOUNTAIN	Kettle	1672	2019-05-14	39	166		45%	444	474	0	732	366	51
2E07P	Grano Creek	Kettle	1874	2019-05-15	70	345		66%	581	756	285	881	520	20
2F01A	TROUT CREEK (West)	Okanagan	1430	2019-05-15	0	0		0%	30	61	0	243	58	8
2F01P	Trout Creek West	Okanagan	1420	2019-05-15	1	0			0		0	0		1
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	NS					0	0	0	218	13	51
2F03	MC CULLOCH	Okanagan	1266	NS					NS		0	102	0	40
2F04	GRAYSTOKE LAKE	Okanagan	1818	NS					432		0	742	360	19
2F05P	Mission Creek	Okanagan	1794	2019-05-15	81	298		77%	629	548	0	829	386	48
2F07	POSTILL LAKE	Okanagan	1358	NS					NS		71	180	143	8
2F08P	Greyback Reservoir	Okanagan	1550	2019-05-15	0	1			102	142	102	142		2
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2019-05-12	58	261		73%	415	502	0	968	357	47
2F10P	Silver Star Mountain	Okanagan	1839	2019-05-15	122	550	E		256	790	256	645		3
2F11	ISINTOK LAKE	Okanagan	1651	2019-05-15	0	0		0%	0	47	0	386	46	52
2F12	MOUNT KOBAN	Okanagan	1817	2019-05-14	5	12		5%	490	393	0	516	253	52
2F13	ESPERON CR (UPPER)	Okanagan	1634	NS					284		66	625	306	15
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	NS					172		0	380	164	16
2F18P	Brenda Mine	Okanagan	1453	2019-05-15		0		0%	0	90	0	217	20	25
2F19	OOYAMA LAKE	Okanagan	1365	NS					NS		97	97	0	3
2F20	VASEUX CREEK	Okanagan	1403	2019-05-14	0	0		0%	0		0	80	7	45
2F21	BOULEAU LAKE	Okanagan	1405	NS					NS		173	328	328	5
2F23	MACDONALD LAKE	Okanagan	1742	NS					37		0	652	334	22
2F24	ISLAHT LAKE	Okanagan	1492	2019-05-14	0	0		0%	NS		0	352	221	8

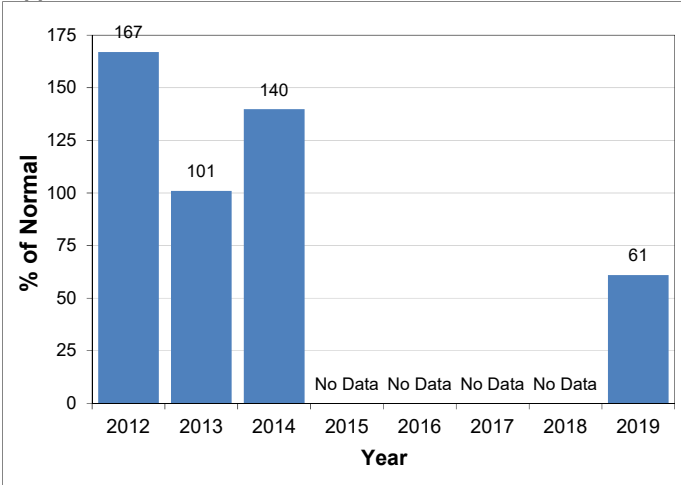
2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2F25	POSTILL LAKE UPPER	Okanagan	1500	NS					NS					0
2G03P	Blackwall Peak	Similkameen	1934	2019-05-15	69	331		49%	777	703	208	1481	671	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2019-05-15			N		N	193	0	577	169	55
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2019-05-15	0	0		0%	0	100	0	218	32	58
2G06	HAMILTON HILL	Similkameen	1477	2019-05-15	0	0		0%	120	125	0	434	110	39
3A01	GROUSE MOUNTAIN	South Coast	1126	NS					NS		528	1714	0	6
3A02	POWELL RIVER (UPPER)	South Coast	1002	NS					NS		816	816	816	2
3A05	POWELL RIVER (LOWER)	South Coast	882	NS					NS		378	378	378	2
3A09	PALISADE LAKE	South Coast	898	NS					NS		336	3600	1968	5
3A09P	Palisade Lake	South Coast	900	2019-05-15	0	0								
3A10	DOG MOUNTAIN	South Coast	1007	2019-05-13	97	471		45%	1220	1700	0	2920	1041	32
3A19	ORCHID LAKE	South Coast	1178	2019-05-13	204	1030		60%	1780	2330	0	3730	1729	38
3A20	CALLAGHAN CREEK	South Coast	1009	NS					NS		55	1311	444	17
3A22P	Nostetuko River	South Coast	1457	2019-05-15	44	256		72%	375	363	0	939	355	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-05-15	24	2		1%	113	195	0	467	149	29
3A25P	Squamish River Upper	South Coast	1387	2019-05-15	214	1312		88%	1566	1505	474	2980	1486	28
3A26	CHAPMAN CREEK	South Coast	1022	NS					NS	1450				
3A27	EDWARDS LAKE	South Coast	1070	NS					NS					
3A28P	Tetrahedron	South Coast	1420	2019-05-15	255	934								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	NS					NS		345	2631	1576	34
3B02A	MOUNT COKELY	Vancouver Island	1267	NS					NS				0	1
3B04	ELK RIVER	Vancouver Island	270	NS					NS		40	40	0	1
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	NS					NS		1364	2697	1731	10
3B17P	Wolf River Upper	Vancouver Island	1422	2019-05-15		723		59%	942	1241	137	2719	1229	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	NS					NS		0	1148	481	16
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	NS					NS		0	549	78	16
3B23P	Jump Creek	Vancouver Island	1134	2019-05-15	7	29		3%	893	1185	0	3500	1097	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-05-15	73	476			1590	1859	933	1859		3
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-05-15	79	449			1012		1012	1012		1
3C07	WEDEENE RIVER SOUTH	Central Coast	196	NS					NS		232	232	232	2
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-05-15	47	261		41%	590	579	184	1438	634	20
3D01C	SUMALLO RIVER WEST	Skagit	801	NS					NS		82	82	0	1
3D02	LIGHTNING LAKE	Skagit	1254	NS					NS		544	544	0	2
3D03A	KLESILKWA	Skagit	1134	NS					NS		0	490	11	5
4A02P	Pine Pass	Peace	1386	2019-05-15	188	945		95%	814	1036	363	1654	999	29
4A03	WARE (UPPER)	Peace	1563	NS					NS		90	114	114	2
4A03P	Ware Upper	Peace	1565	2019-05-15	35	146			0	215	0	215		2

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4A04	WARE (LOWER)	Peace	969	NS					NS		0	89	0	2
4A04P	Ware Lower	Peace	971	2019-05-15	0	0			0	0	0	0		2
4A05	GERMANSEN (UPPER)	Peace	1489	NS					NS		156	414	272	7
4A06	TUTIZZI LAKE	Peace	1043	NS					NS		0	106	0	2
4A07	LADY LAURIER LAKE	Peace	1460	NS					NS		194	420	420	2
4A09	PULPIT LAKE	Peace	1331	NS					NS		152	293	262	3
4A09P	Pulpit Lake	Peace	1331	2019-05-15	36	180		67%	25	146	14	562	267	28
4A10	FREDRICKSON LAKE	Peace	1323	NS					NS		74	93	74	2
4A11	TRYGVE LAKE	Peace	1409	NS					NS		119	269	269	2
4A12	TSAYDAYCHI LAKE	Peace	1173	NS					NS		166	302	302	2
4A13	PHILIP LAKE	Peace	1013	NS					NS		128	137	128	2
4A16	MORFEE MOUNTAIN	Peace	1427	NS					NS		265	1072	535	17
4A18	MOUNT SHEBA	Peace	1480	NS					NS		340	1179	794	13
4A20	MONKMAN CREEK	Peace	1566	NS					NS		0	912	478	13
4A20P	Monkman Creek	Peace	1570	2019-05-15		438								
4A21	MOUNT STEARNS	Peace	1514	NS					NS		41	45	45	2
4A25	FORT ST. JOHN A	Peace	692	NS					NS		0	34	0	5
4A27P	Kwadacha North	Peace	1554	2019-05-15	65	251			90	269	90	269		2
4A30P	Aiken Lake	Peace	1061	2019-05-15	0	0		0%	0	4	0	206	55	33
4A31P	Crying Girl Prairie	Peace	1358	2019-05-15		10			0	230	0	230		2
4A33P	Muskwa-Kechika	Peace	1196	2019-05-15		0			0	0	0	0		2
4A34P	Dowling Creek	Peace	1456	2019-05-15		1457			628	444	444	628		2
4B01	KIDPRICE LAKE	Skeena-Nass	1415	NS					NS		534	1278	534	6
4B02	JOHANSON LAKE	Skeena-Nass	1480	NS					NS		108	178	178	3
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-05-16	62	279		66%	398		160	822	424	45
4B04	CHAPMAN LAKE	Skeena-Nass	1485	NS					401		238	689	461	10
4B06	TACHEK CREEK	Skeena-Nass	1133	NS					NS		18	152	0	5
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	NS					251		0	320	127	23
4B08	MOUNT CRONIN	Skeena-Nass	1491	NS					592		481	927	660	16
4B10	NINGUNSAW PASS	Nass	647	NS					NS		0	208	27	16
4B11A	BEAR PASS	Nass	437	NS					NS		80	488	290	9
4B12P	Granduc Mine	Skeena-Nass	790	2019-05-15						627	627	627		1
4B13A	TERRACE A	Skeena-Nass	219	NS					NS		0	68	0	2
4B14	EQUITY MINE	Skeena-Nass	1434	NS					NS		0	396	274	15
4B15	LU LAKE	Skeena-Nass	1296	NS					NS		0	330	191	17
4B15P	Lu Lake	Skeena-Nass	1308	2019-05-15	0	21		15%	122	254	0	489	144	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-05-15	98	557		59%	463	554	195	1280	940	22

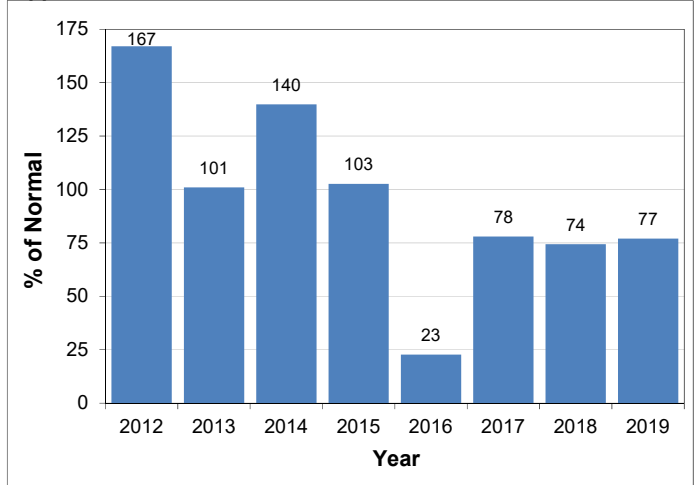
2019 Automated Snow Weather Station/Manual Snow Survey Data				May 15					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-05-15		948		74%	662	1069	302	2135	1275	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-05-15	5	5		1%	0	137	12	968	422	17
4C01	SIKANNI LAKE	Liard	1390	NS					NS		78	130	130	2
4C01P	Sikanni Lake	Liard	1400	2019-05-15	70	181			6	38	6	38		2
4C02	SUMMIT LAKE	Liard	1291	NS					NS		0	160	42	8
4C03	DEASE LAKE	Liard	805	NS					NS		0	0	0	7
4C05	FORT NELSON AIRPORT	Liard	368	NS					NS		0	38	1	14
4C15	JADE CITY	Liard	943	NS					NS		162	162	162	2
4D01	TELEGRAPH CREEK	Stikine	490	NS					NS		0	0	0	2
4D02	ISKUT	Stikine	931	NS					NS		0	0	0	16
4D11P	Kinaskan Lake	Stikine	1020	2019-05-15	0	0		0%	0	164	94	119	210	22
4E02B	ATLIN LAKE	Yukon	730	NS					NS					
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 - May 15, 2019

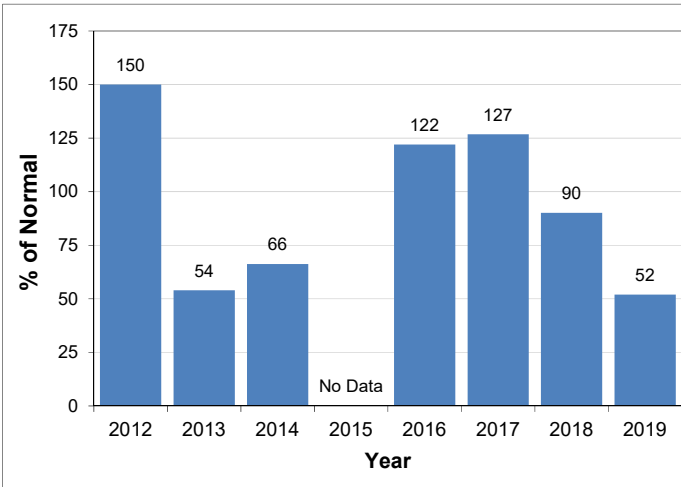
Upper Fraser West



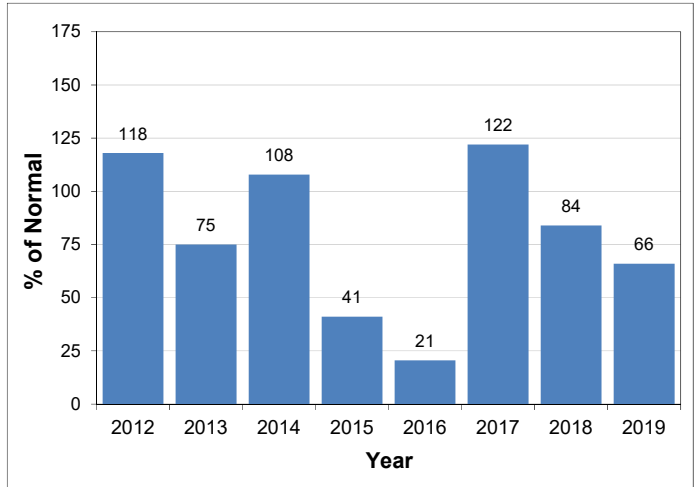
Upper Fraser East



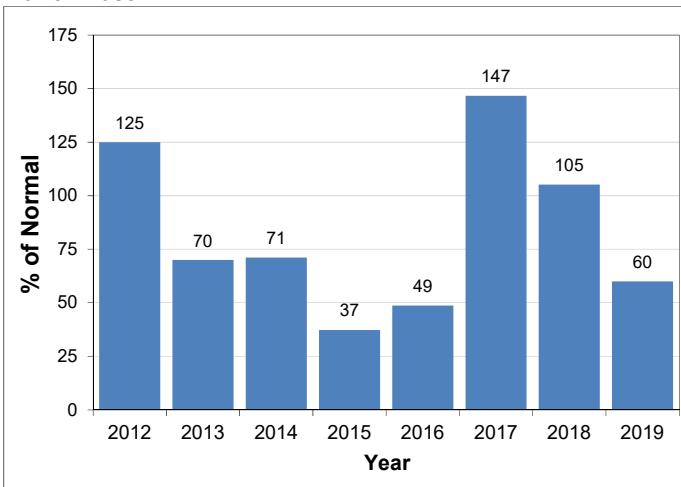
Nechako



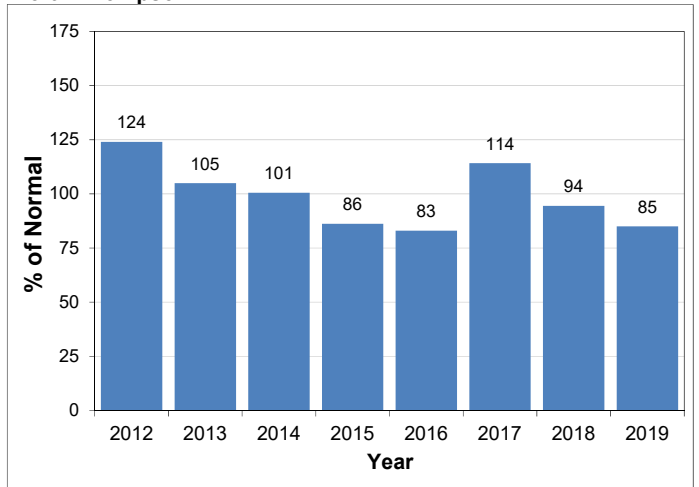
Middle Fraser



Lower Fraser

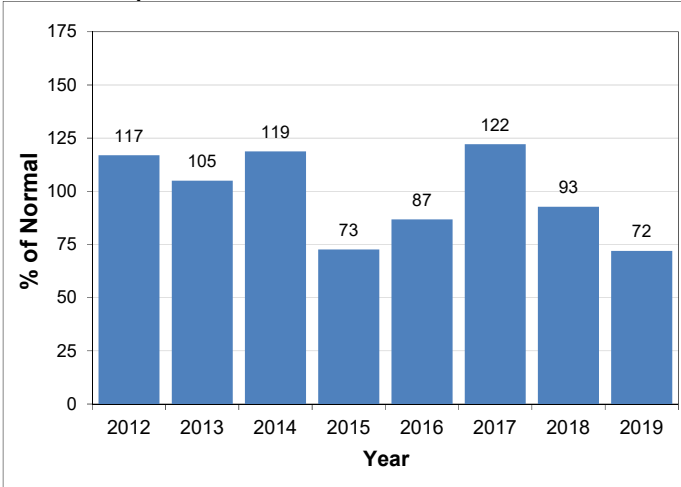


North Thompson

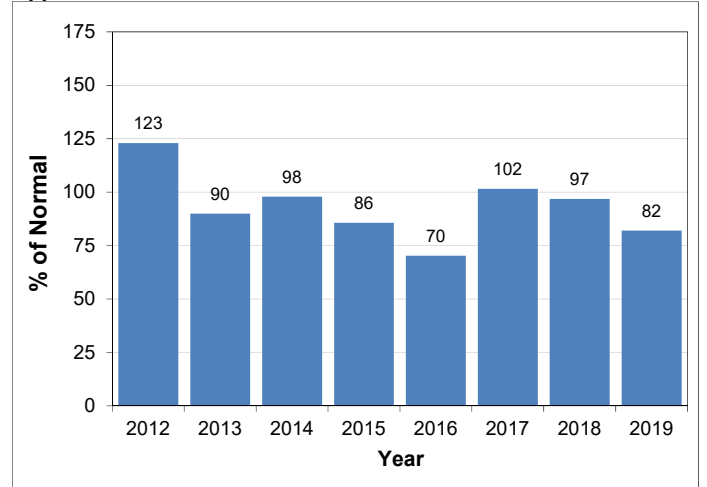


Snow Basin Index Graphs - May 15, 2019

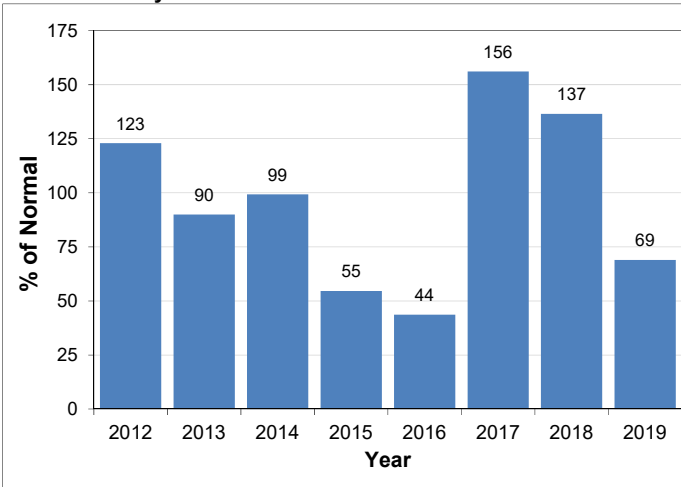
South Thompson



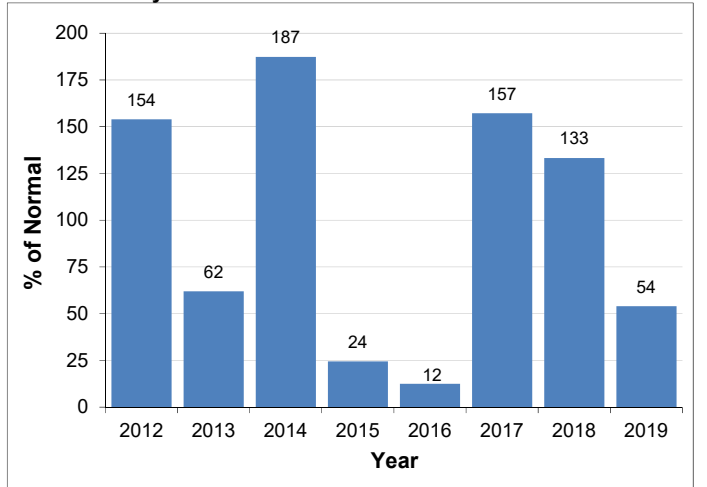
Upper Columbia



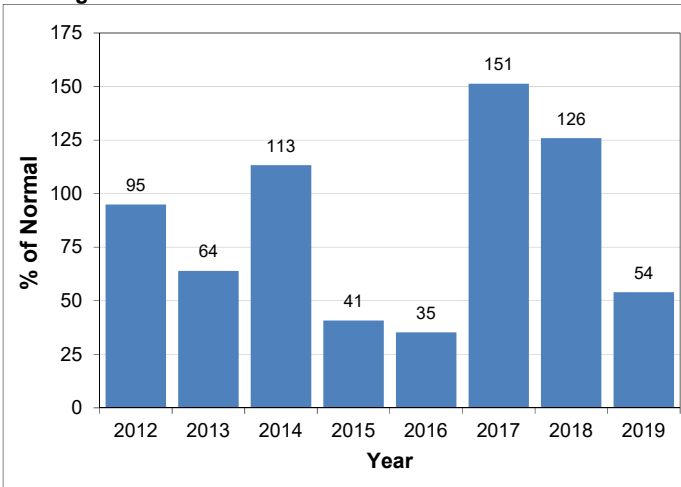
West Kootenay



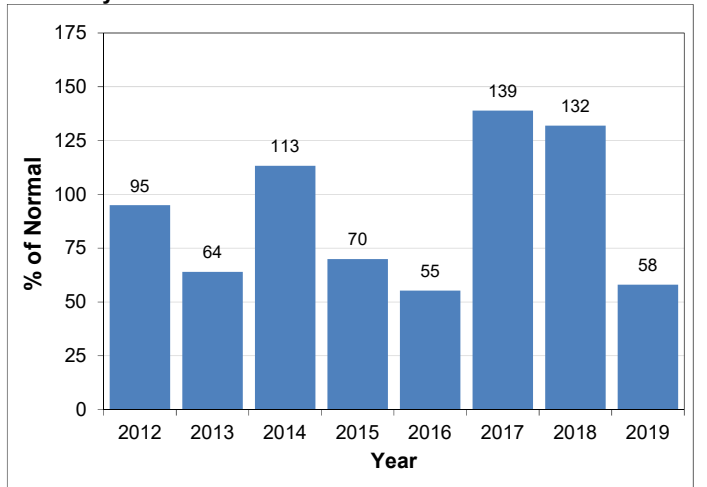
East Kootenay



Okanagan

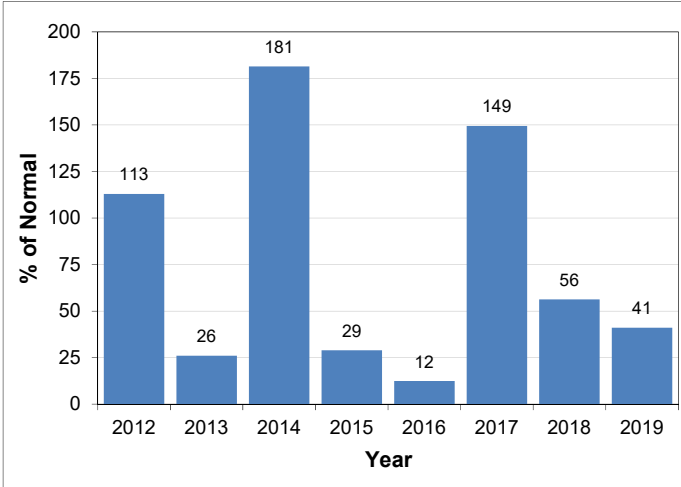


Boundary

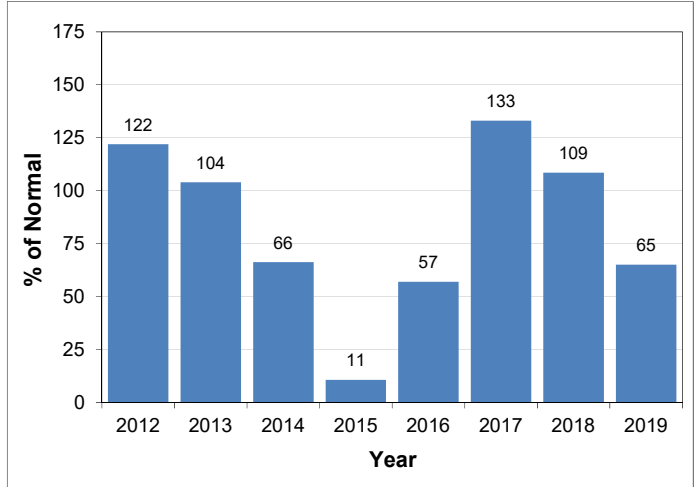


Snow Basin Index Graphs - May 15, 2019

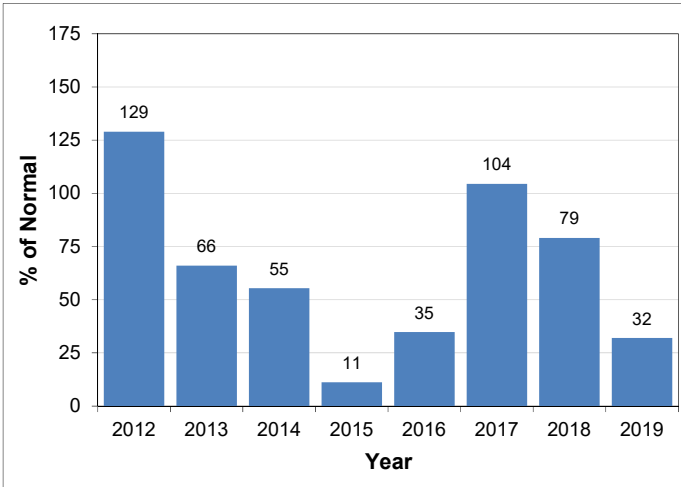
Similkameen



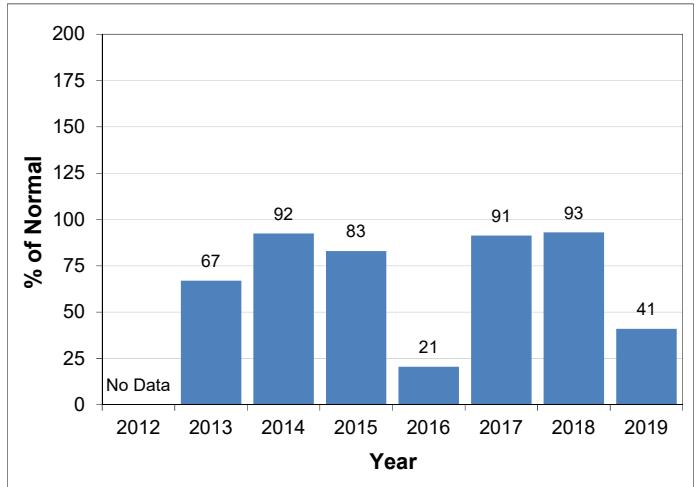
South Coast



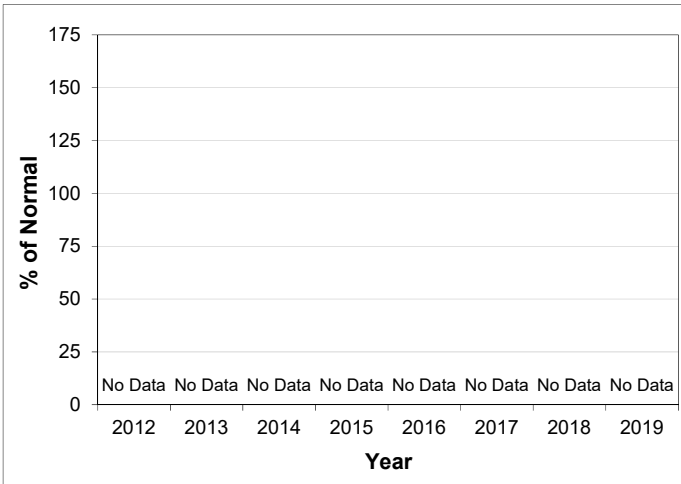
Vancouver Island



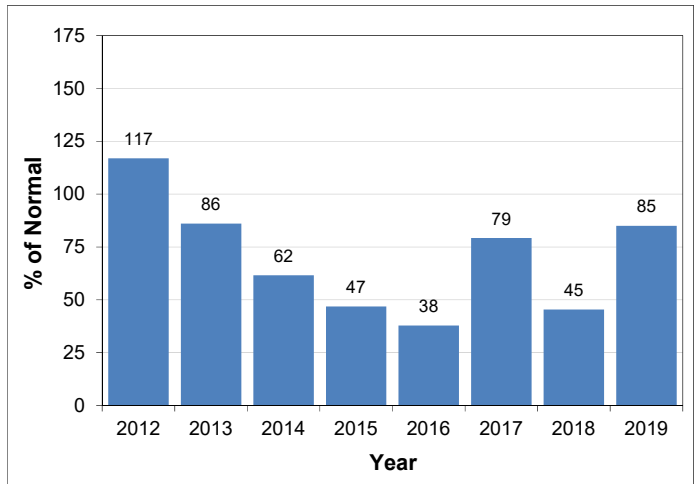
Central Coast



Northwest

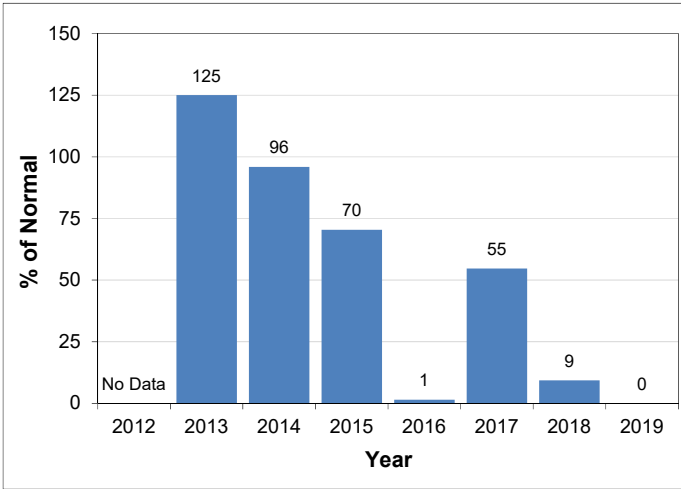


Peace

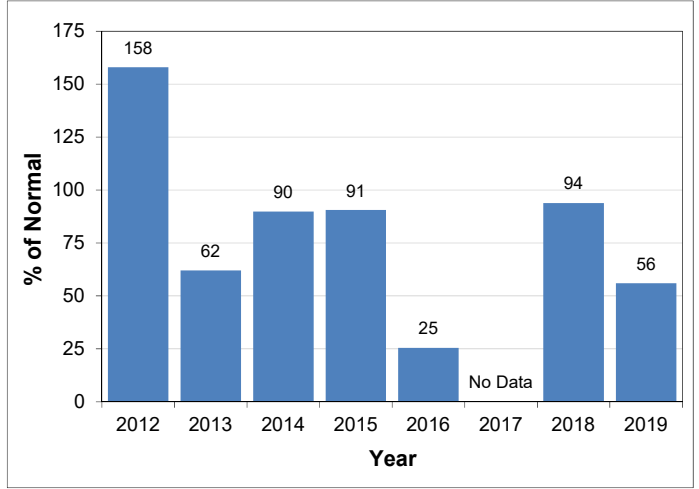


Snow Basin Index Graphs - May 15, 2019

Stikine



Skeena-Nass



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

The June 1st snow survey is now complete. Data from 12 manual snow courses and 80 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

Weather in May was generally warm and dry across BC. Monthly temperatures for May were typically 2-3 °C above normal across the province, with many daily temperature anomalies during hot spells reaching 5-8 °C above normal.

Precipitation was limited through May, with most areas of the province experiencing approximately 30-65% of normal rainfall amounts across the month. While some rainfall events occurred in April, the province has generally experienced very dry conditions throughout this spring (March-April-May).

As of early June, the development of a cold upper low across the province has ushered in a period of cooler weather and some more organized precipitation in areas of the province.

Snowpack

Snow basin indices for June 1st have continued to drop significantly as a result of warm temperatures and rapid snowmelt. Snow basin indices for June 1st, 2019 range from a low of 1% of normal to a high of 73% in the Upper Columbia (Table 1 and Figure 1) with the average of all snow measurements across the province calculated to be 39% of normal.

Snowpack is extremely low (<50% of normal) in most areas of the province. By June 1st, extremely low % of normal values can be affected by early snowmelt. This year, low June 1st snowpack reflects melt that is 1-3 weeks ahead of normal for most areas. This is the result of an early start of the melt season at low elevations from warm weather in late-March, and generally lower than normal seasonal snow accumulations (for example the average of April 1st snow water equivalent measurements was 79% of normal). In most areas of the province, this year's June 1st snowpack is similar to conditions that were experienced in 2015 and 2016; both years with early melt.

By early-June generally 40% of the accumulated seasonal snowpack in BC has melted. Early melt this season has meant that most sites have melted between 55-100% of their snowpack as of current conditions. Mid-elevation areas are now snow-free (approximately 1200-1400 m in coastal BC, below 1500-1600m in southern BC and below 1300-1400m in northern BC).

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

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

Table 1 - BC Snow Basin Indices – June 1st, 2019

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	NA	Boundary	3
Upper Fraser East	54	Similkameen	1
Nechako	19	South Coast	45
Middle Fraser	41	Vancouver Island	15
Lower Fraser	24	Central Coast	1
North Thompson	60	Skagit	NA
South Thompson	45	Peace	42
Upper Columbia	73	Skeena-Nass	22
West Kootenay	62	Stikine	1
East Kootenay	49	Liard	NA
Okanagan	4	Northwest	NA
Nicola	NA	Fraser	37

Streamflow

Current streamflow is variable across the province, depending on the location, size of watershed, and key hydrological processes of rivers.

In coastal British Columbia, including most areas of Vancouver Island, Haida Gwaii, and lowland rivers in the South Coast, streamflow is extremely low for this time of year. This is the result of rivers having minor influence from snowmelt, and both short-term and persistent long-term dry conditions. For example, most rivers on Vancouver Island are currently flowing at between 2nd and 5th percentile flows for early-June, and many rivers are beginning to approach or exceed record low for this time of year.

In the South Interior and part of northern BC, snowpacks have been depleted and rivers are on the receding limb of the seasonal freshet hydrograph. With the combination of low seasonal snowpack, dry spring weather, and early melt, current streamflow conditions in these areas is similar to conditions that are experienced in early-to-mid July, rather than

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

early June. In some areas streamflow is approaching or exceeding record lows for this time of year.

In large watersheds and areas draining from the mountainous regions of the province, current streamflow is closer to normal as rivers are approaching, at, or just past the peak of the seasonal freshet hydrograph. In most areas this represents a peak that is 2-3 weeks ahead of normal.

In areas on the falling limb of the seasonal hydrograph, many rivers are experiencing a rapid transition from near-normal conditions to flows that are well-below normal. In most of the snowmelt-dominated rivers of the province this rapid transition to below-normal flow is expected to occur over the next few weeks, if it hasn't begun to occur already.

Outlook

Seasonal forecasts from Environment and Climate Change Canada favor an increased likelihood of above normal summer temperatures (June-July-August) across British Columbia. In the short-term, BC forecast to see high pressure building into the second week of June, with temperatures expecting to rebound to seasonally hot conditions.

Flood risk from snowmelt is largely over for the season, as most rivers have experienced their peak flows and are now on or near the falling limb of the seasonal hydrograph. Flood risk from extreme rainfall events remains a possibility throughout the BC Interior. Eastern and north-eastern BC is particularly susceptible to extreme precipitation associated with cold upper low systems that are common in June and into July; these systems tend to drive extreme rainfall-driven flooding irrespective of snow cover.

With diminished snowpacks and early melt this year, risks have shifted towards the increased likelihood of low flow conditions this summer in all areas of the province. There are a few trends in current conditions that are particularly concerning. The first is extremely low seasonal flows in coastal lowland streams, particularly on Vancouver Island. Many gauged rivers are flowing in the 2nd to 5th percentile range, including some that are approaching or exceeding historic minimum flows for early-June (for example the San Juan River and Carnation Creek). If dry conditions persist, extremely low flows will emerge as the summer progresses. The second trend is the rapid transition that is occurring in rivers which are now on the receding limb of the snowmelt hydrograph. With lower starting snowpacks and dry spring weather, overall freshet volumes are well below normal this year. With the influence from snowmelt waning, rivers are vulnerable to extremely low flows this summer, particularly if dry weather persists through the summer.

While antecedent conditions are one important factor for summer low flows, summer weather is also of critical importance. Long-range precipitation is difficult to forecast accurately over long lead times, therefore creating uncertainty over how the 2019 summer



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

season will play out. While continued dry weather would drive extremely low flows this season, there is a similar chance that wet weather could dominate the summer season and at least partially ease the risk of low flows.

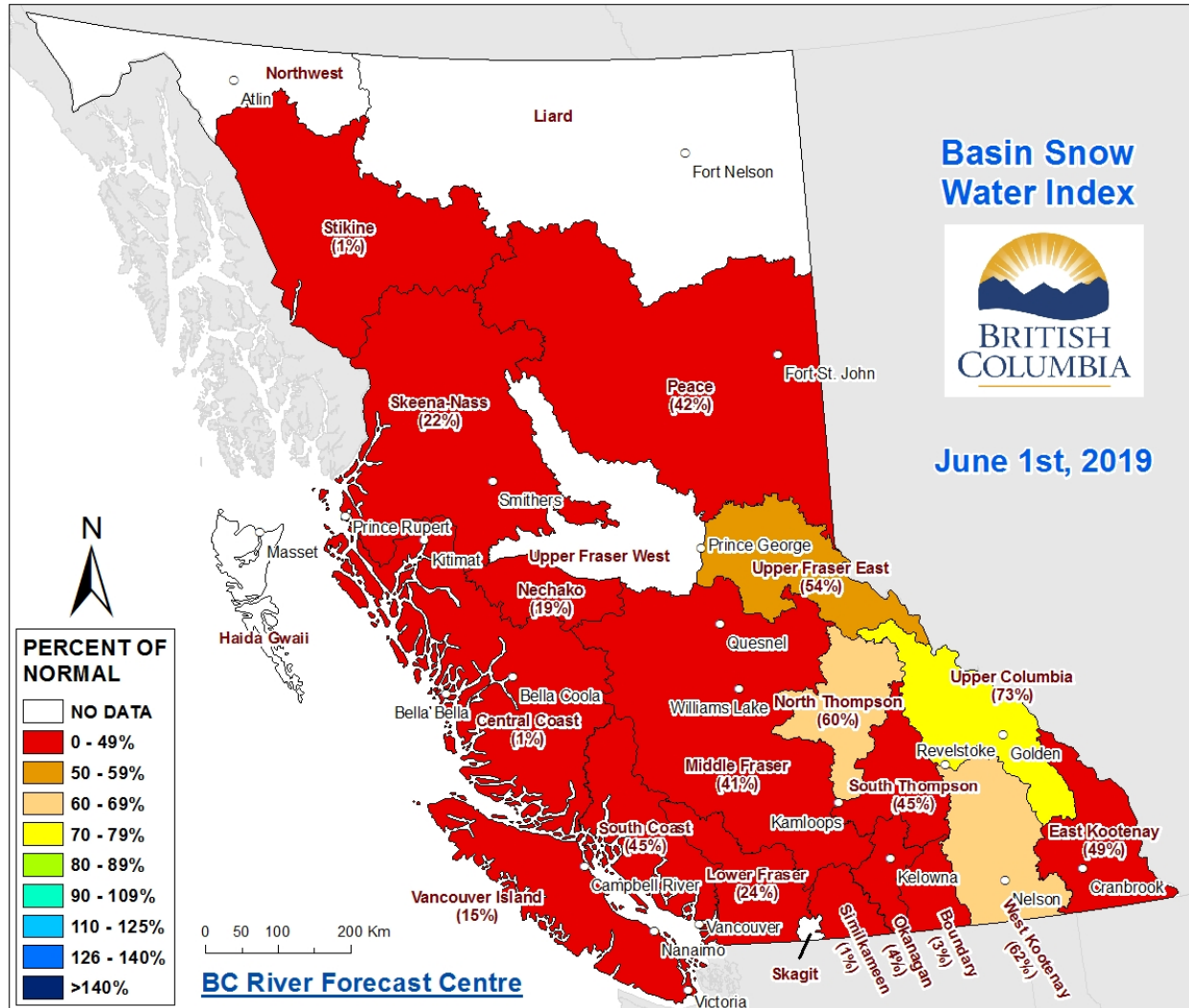
Current information on drought, including provincial drought levels, is available on the [British Columbia Drought Information Portal](#).

The River Forecast Centre will continue to monitor snowpack conditions and will provide final seasonal outlook in the June 15th, 2019 Snow Survey and Water Supply Bulletin, scheduled for release on June 21st.

BC River Forecast Centre
June 7, 2019

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

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



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2019 Automated Snow Weather Station/Manual Snow Survey Data				June 1					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	2019-06-01	25				568	416	0	857	20	20
1A02P	McBride Upper	Upper Fraser East	1608	2019-06-01	0	4		3%	0	2	0	412	25	25
1A03P	Barkerville	Upper Fraser East	1483	2019-06-01	2	1		2%	1	0	0	291	42	42
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693								0	1194	613	54
1A05P	Longworth Upper	Upper Fraser East	1740	2019-06-01	91	425			149	372	372	372		1
1A06A	HANSARD	Upper Fraser East	622											0
1A10	PRINCE GEORGE A	Upper Fraser East	684								81	81	0	3
1A11	PACIFIC LAKE	Upper Fraser East	756								165	165	96	35
1A12	KAZA LAKE	Upper Fraser West	1247								132	132	0	1
1A12P	Kaza Lake	Upper Fraser West	1248	2019-06-01	1	0			0	0	0	0		2
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-06-01	11	35		10%	208	10	0	1038	365	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598								0	1113	652	36
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-06-01	29	123			267	239	239	239		1
1A16	BURNS LAKE	Upper Fraser West	820								50	50	0	13
1A17P	Revolution Creek	Upper Fraser East	1676	2019-06-01	75	381		80%	352	339	0	1127	478	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-06-01	85	440		69%	383	438	255	1080	639	12
1A23	BIRD CREEK	Upper Fraser West	1196	2019-05-31	0	0			0	0	0	0	0	21
1B01	MOUNT WELLS	Nechako	1489	2019-05-31	0	0		0%	46	261	0	529	217	37
1B01P	Mount Wells	Nechako	1489	2019-06-01		68		29%	189	363	0	716	231	26
1B02	TAHTSA LAKE	Nechako	1319	2019-05-31	64	315		32%		930	406	1829	982	39
1B02P	Tahtsa Lake	Nechako	1319	2019-06-01		205		21%	621	1017	277	2157	992	26
1B05	SKINS LAKE	Nechako	877	2019-05-31	0	0			0	0	0	53	0	23
1B06	MOUNT SWANNELL	Nechako	1596	2019-05-31	0	0		0%	0	0	0	350	110	28
1B07	NUTLI LAKE	Nechako	1502	2019-05-31	0	0		0%	0	88	0	618	241	25
1B08P	Mount Pondosy	Nechako	1413	2019-06-01		28		9%	95	439	0	951	320	26
1C01	BROOKMERE	Middle Fraser	994											6
1C05	MCGILLIVRAY PASS	Middle Fraser	1715								239	239	264	23
1C05P	McGillivray Pass	Middle Fraser	1766	2019-06-01		134			0					
1C06	PAVILION	Middle Fraser	1209											0
1C08	NAZKO	Middle Fraser	1029								31	31	0	1
1C09A	HIGHLAND VALLEY	Middle Fraser	1547											9
1C12P	Green Mountain	Middle Fraser	1766	2019-06-01		8		1%	13	334	140	1186	537	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612											2
1C14	BRALORNE	Middle Fraser	1382								77	77	0	1
1C14P	Bralorne	Middle Fraser	1382	2019-06-01	0	0			0					
1C17	MOUNT TIMOTHY	Middle Fraser	1632						0	34	0	332	52	51
1C18P	Mission Ridge	Middle Fraser	1903	2019-06-01		0		0%	0	172	0	709	98	48

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1C19	GNAWED MOUNTAIN	Middle Fraser	1617										0	3
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-06-01	0	1		1%	0	64	0	401	126	24
1C21	BIG CREEK	Middle Fraser	1130								42	42	0	1
1C22	PUNTZI MOUNTAIN	Middle Fraser	939								22	22	0	3
1C23	PENFOLD CREEK	Middle Fraser	1687								353	1354	841	45
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471								119	119	0	1
1C28	DUFFEY LAKE	Middle Fraser	1253										0	
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456										0	
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-06-01	24	15								
1C32	DEADMAN RIVER	Middle Fraser	1463										0	
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175								116	116	0	1
1C37	BRALORNE(UPPER)	Middle Fraser	1980								290	290	0	1
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884										0	
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-06-01		302			279	656	603	656		2
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393								300	300	0	1
1C40	TYAUGHTON	Middle Fraser	1946								198	198	0	1
1C40P	North Tyaughton	Middle Fraser	1969	2019-06-01		6			11	0	0	0		2
1C41P	Yanks Peak East	Middle Fraser	1683	2019-06-01	57	444		93%	308	432	128	979	475	21
1C42	CAVERHILL LAKE	Middle Fraser	1400											
1D06P	Tenquille Lake	Lower Fraser	1669	2019-06-01	38	122		17%	496	972	204	1414	719	17
1D08	STAVE LAKE	Lower Fraser	1211								584	584	1872	7
1D09	WAHLEACH LAKE	Lower Fraser	1395								224	224	266	12
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-06-01		68		9%	477	358	0	1525	720	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530								634	634	1497	11
1D16	DICKSON LAKE	Lower Fraser	1147								466	466	0	1
1D17P	Chilliwack River	Lower Fraser	1621	2019-06-01	91	557		51%	1106	1327	0	2186	1082	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-06-01	2	51								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-06-01	29	149		12%	818	1366	0	2650	1248	19
1E01B	BLUE RIVER	North Thompson	673								160	160	0	6
1E02P	Mount Cook	North Thompson	1574	2019-06-01	114	797		74%	924	1103	593	1579	1071	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907										0	2
1E05	KNOUFF LAKE	North Thompson	1189										0	
1E07	ADAMS RIVER	North Thompson	1769						293	615	0	1155	540	45
1E08P	Azure River	North Thompson	1625	2019-06-01	75	407		45%	377	1083	473	1729	902	21
1E10P	Kostal Lake	North Thompson	1760	2019-06-01	25	386		57%	418	795	155	1386	683	33
1E14P	Cook Creek	North Thompson	1280	2019-06-01	1	19			684	65	0	8	1	11
1F01A	ABERDEEN LAKE	South Thompson	1262								85	85	0	2

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1F02	ANGLEMONT	South Thompson	1168										8	12
1F03P	Park Mountain	South Thompson	1857	2019-06-01	27	208		28%	622	870	0	1269	740	33
1F04P	Enderby	South Thompson	1950	2019-06-01	105	455			807	1045	1045	1045		1
1F06P	Celista Mountain	South Thompson	1533	2019-06-01		203		41%	265	681	53	894	495	13
2A01A	CANOE RIVER	Upper Columbia	866										0	1
2A02	GLACIER	Upper Columbia	1249								362	362	263	47
2A03A	FIELD	Upper Columbia	1310										0	3
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-06-01		676		66%	843	1137	240	2063	1025	25
2A07	KICKING HORSE	Upper Columbia	1648								160	160	66	38
2A11	BEAVERFOOT	Upper Columbia	1924								148	148	0	2
2A14	MOUNT ABBOT	Upper Columbia	2031								600	600	1162	35
2A16	GOLDSTREAM	Upper Columbia	1914								584	584	0	1
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852								590	590	1121	36
2A18	KEYSTONE CREEK	Upper Columbia	1839								414	414	0	1
2A18P	Keystone Creek	Upper Columbia	1850	2019-06-01		425			481	910	432	910		2
2A19	VERMONT CREEK	Upper Columbia	1533								286	286	0	2
2A21P	Molson Creek	Upper Columbia	1930	2019-06-01		678		80%	506	873	82	1462	849	37
2A22	SUNBEAM LAKE	Upper Columbia	2066								469	469	0	1
2A23	BUSH RIVER	Upper Columbia	1982								483	483	0	1
2A25	KIRBYVILLE LAKE	Upper Columbia	1739								671	671	969	2
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964								338	338	99	9
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628								335	335	1130	8
2A30P	Colpitti Creek	Upper Columbia	2131	2019-06-01		416			505	700	218	700		2
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-06-01		513			596	825	440	825		2
2A32P	Wildcat Creek	Upper Columbia	2122	2019-06-01		413			322	545	172	545		2
2B02A	FARRON	Lower Columbia	1229								157	157	3	19
2B05	WHATSHAN (UPPER)	Lower Columbia	1476										0	10
2B06P	Barnes Creek	Lower Columbia	1595	2019-06-01		0		0%	15	24	0	627	157	25
2B07	KOCH CREEK	Lower Columbia	1813								415	415	0	3
2B08P	St. Leon Creek	Lower Columbia	1822	2019-06-01		521		63%	866	1095	225	1560	830	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906						142	525	0	1073	384	43
2C01	SINCLAIR PASS	East Kootenay	1374										0	13
2C04	SULLIVAN MINE	East Kootenay	1580						0	0	0	137	6	35
2C07	FERNIE EAST	East Kootenay	1213								98	98	4	17
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-06-01		4		2%	3	159	0	874	171	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-06-01	1	0		0%	0	0	0	466	30	39
2C14P	Floe Lake	East Kootenay	2110	2019-06-01		357		63%	445	665	94	979	565	25

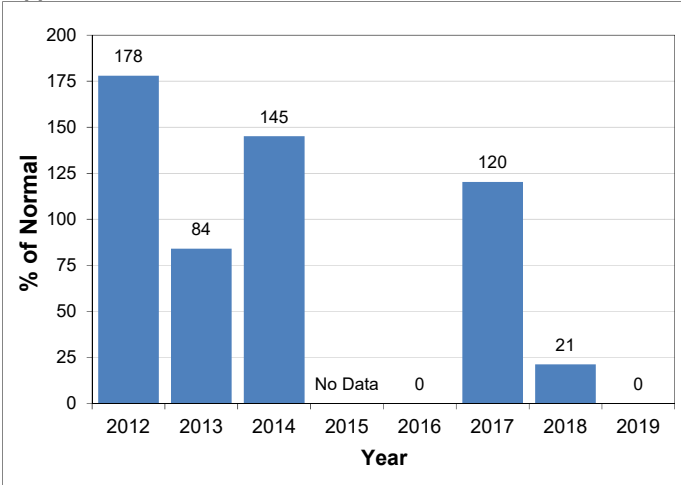
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2F25	POSTILL LAKE UPPER	Okanagan	1500											0
2G03P	Blackwall Peak	Similkameen	1934	2019-06-01	0	3		1%	348	414	0	1253	403	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988										106	37
2G05	MISSEZULA MOUNTAIN	Similkameen	1602										0	21
2G06	HAMILTON HILL	Similkameen	1477										2	24
3A01	GROUSE MOUNTAIN	South Coast	1126								596	596	0	2
3A02	POWELL RIVER (UPPER)	South Coast	1002										0	
3A05	POWELL RIVER (LOWER)	South Coast	882										0	
3A09	PALISADE LAKE	South Coast	898										350	2
3A09P	Palisade Lake	South Coast	900	2019-06-01	0	0								
3A10	DOG MOUNTAIN	South Coast	1007	2019-05-28	26	146		20%	744	1331	0	2480	714	32
3A19	ORCHID LAKE	South Coast	1178						1254	2010	0	3648	1409	39
3A20	CALLAGHAN CREEK	South Coast	1009						0	240	0	1228	233	33
3A22P	Nostetuko River	South Coast	1457	2019-06-01	0	6		6%	4	3	0	675	102	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-06-01	25	0		0%	0	0	0	236	27	29
3A25P	Squamish River Upper	South Coast	1387	2019-06-01	112	752		64%	1106	1277	0	2800	1184	28
3A26	CHAPMAN CREEK	South Coast	1022											
3A27	EDWARDS LAKE	South Coast	1070											
3A28P	Tetrahedron	South Coast	1420	2019-06-01	139	639								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110								660	660	1222	30
3B02A	MOUNT COKELY	Vancouver Island	1267										0	
3B04	ELK RIVER	Vancouver Island	270								40	40	0	1
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014										995	14
3B17P	Wolf River Upper	Vancouver Island	1422	2019-06-01		245		25%	506	796	33	2466	981	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050								230	230	237	17
3B19	WOLF RIVER (LOWER)	Vancouver Island	615								160	160	0	17
3B23P	Jump Creek	Vancouver Island	1134	2019-06-01	4	10		1%	193	698	0	3142	694	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-06-01	1	0			963	1574	513	1574		2
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-06-01	0	0			549					0
3C07	WEDEENE RIVER SOUTH	Central Coast	196										0	
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-06-01	3	1		0%	0	134	0	1116	304	20
3D01C	SUMALLO RIVER WEST	Skagit	801								82	82	0	1
3D02	LIGHTNING LAKE	Skagit	1254										0	2
3D03A	KLESILKWA	Skagit	1134								134	134	0	3
4A02P	Pine Pass	Peace	1386	2019-06-01	89	387		54%	298	528	183	1658	713	29
4A03	WARE (UPPER)	Peace	1563								90	90	0	1
4A03P	Ware Upper	Peace	1565	2019-06-01	0	0			0	0	0	0		1

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4A04	WARE (LOWER)	Peace	969								89	89	0	1
4A04P	Ware Lower	Peace	971	2019-06-01	0	0			0	0	0	0		1
4A05	GERMANSEN (UPPER)	Peace	1489								156	156	0	2
4A06	TUTIZZI LAKE	Peace	1043								106	106	0	1
4A07	LADY LAURIER LAKE	Peace	1460								194	194	0	1
4A09	PULPIT LAKE	Peace	1331								152	152	0	1
4A09P	Pulpit Lake	Peace	1331	2019-06-01	0	4		9%	3	3	0	225	43	28
4A10	FREDRICKSON LAKE	Peace	1323								93	93	0	1
4A11	TRYGVE LAKE	Peace	1409								119	119	0	1
4A12	TSAYDAYCHI LAKE	Peace	1173								166	166	0	1
4A13	PHILIP LAKE	Peace	1013								137	137	0	1
4A16	MORFEE MOUNTAIN	Peace	1427								265	265	249	15
4A18	MOUNT SHEBA	Peace	1480								369	369	663	12
4A20	MONKMAN CREEK	Peace	1566								190	190	491	12
4A20P	Monkman Creek	Peace	1570	2019-06-01		158								
4A21	MOUNT STEARNS	Peace	1514								41	41	0	1
4A25	FORT ST. JOHN A	Peace	692								34	34	0	2
4A27P	Kwadacha North	Peace	1554	2019-06-01	0	0			0	0	0	0		1
4A30P	Aiken Lake	Peace	1061	2019-06-01	0	0		0%	0	3	0	90	5	33
4A31P	Crying Girl Prairie	Peace	1358	2019-06-01		0			0	0	0	0		2
4A33P	Muskwa-Kechika	Peace	1196	2019-06-01		0			0	0	0	0		2
4A34P	Dowling Creek	Peace	1456	2019-06-01		1457			0	0	0	0		1
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2019-05-31	6	40		6%	114	672	0	1359	630	40
4B02	JOHANSON LAKE	Skeena-Nass	1480								108	108	0	1
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-05-29	0	0		0%	106	76	0	729	259	46
4B04	CHAPMAN LAKE	Skeena-Nass	1485										455	8
4B06	TACHEK CREEK	Skeena-Nass	1133										0	
4B07	MCKENDRICK CREEK	Skeena-Nass	1048										22	16
4B08	MOUNT CRONIN	Skeena-Nass	1491										646	11
4B10	NINGUNSAW PASS	Nass	647										0	5
4B11A	BEAR PASS	Nass	437										33	6
4B12P	Granduc Mine	Skeena-Nass	790							381	381	381		1
4B13A	TERRACE A	Skeena-Nass	219								68	68	0	1
4B14	EQUITY MINE	Skeena-Nass	1434										81	14
4B15	LU LAKE	Skeena-Nass	1296										28	14
4B15P	Lu Lake	Skeena-Nass	1308	2019-06-01	0	0		0%	0	1	0	180	24	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-06-01	4	11		2%	180	244	98	1261	703	22

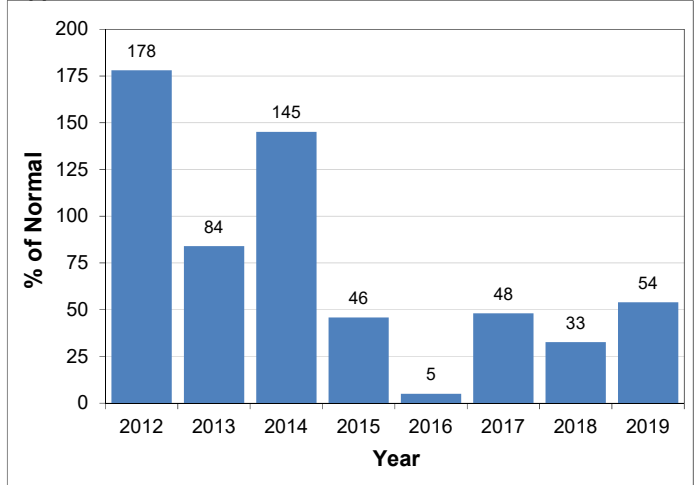
2019 Automated Snow Weather Station/Manual Snow Survey Data				June 1					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-06-01	550	514		50%	631	773	302	2103	1028	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-06-01	9	0		0%	2	1	0	640	166	17
4C01	SIKANNI LAKE	Liard	1390								78	78	0	1
4C01P	Sikanni Lake	Liard	1400	2019-06-01	1	2			7	3	3	3		1
4C02	SUMMIT LAKE	Liard	1291										0	
4C03	DEASE LAKE	Liard	805										0	11
4C05	FORT NELSON AIRPORT	Liard	368								38	38	0	1
4C15	JADE CITY	Liard	943										0	2
4D01	TELEGRAPH CREEK	Stikine	490										0	2
4D02	ISKUT	Stikine	931										0	5
4D11P	Kinaskan Lake	Stikine	1020	2019-06-01	0	0		0%	0	0	0	94	28	22
4E02B	ATLIN LAKE	Yukon	730											
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 - June 1, 2019

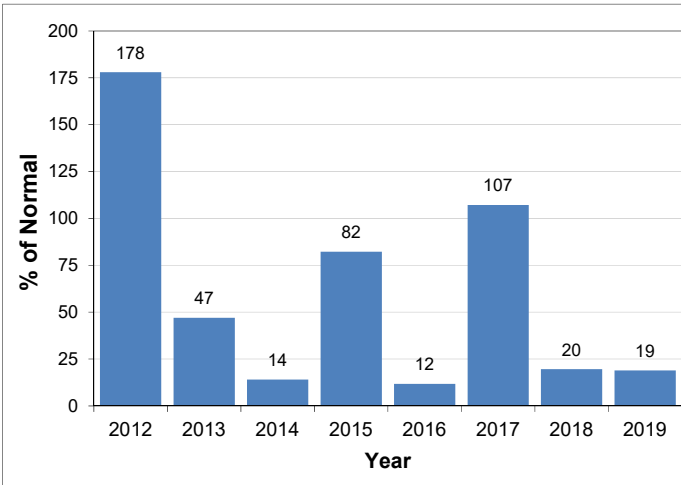
Upper Fraser West



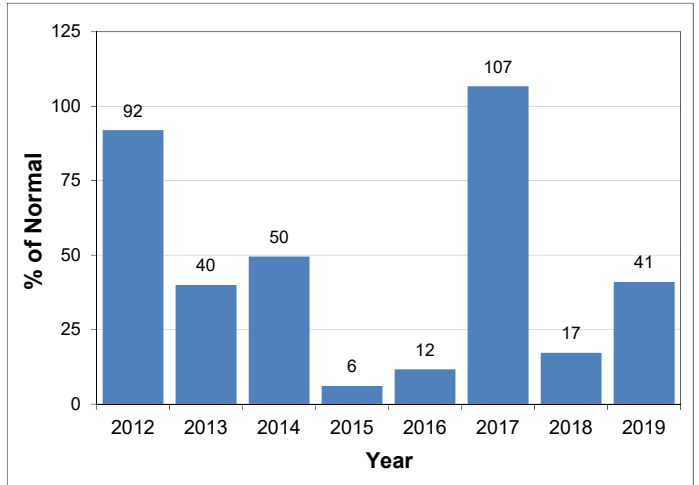
Upper Fraser East



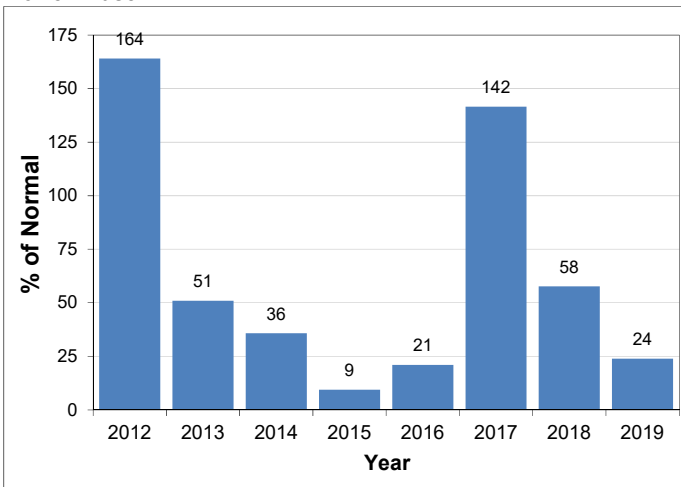
Nechako



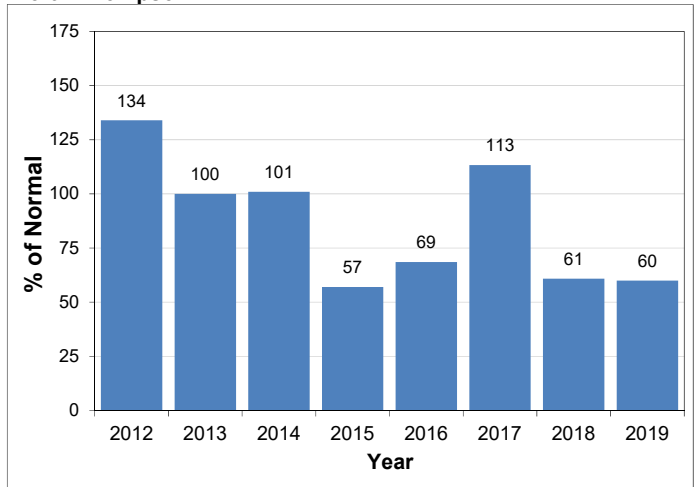
Middle Fraser



Lower Fraser

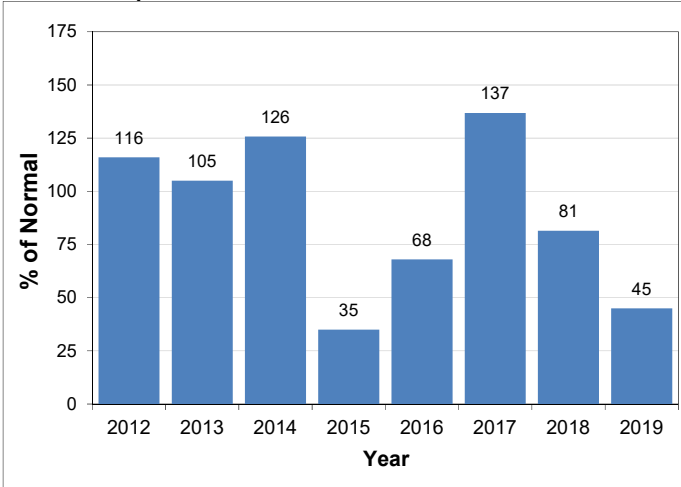


North Thompson

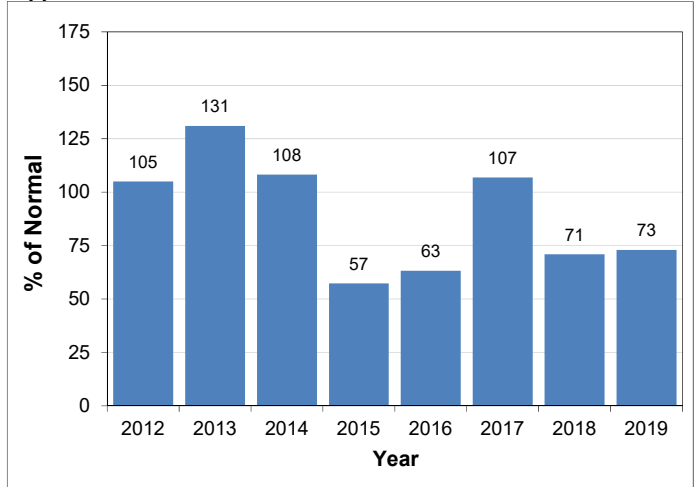


Snow Basin Index Graphs - June 1, 2019

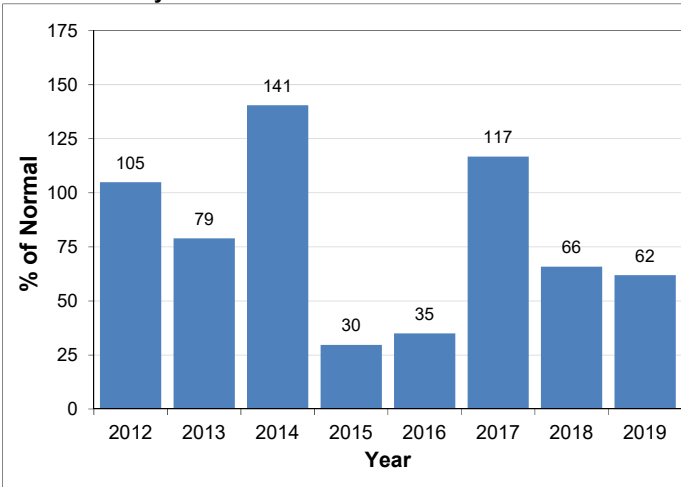
South Thompson



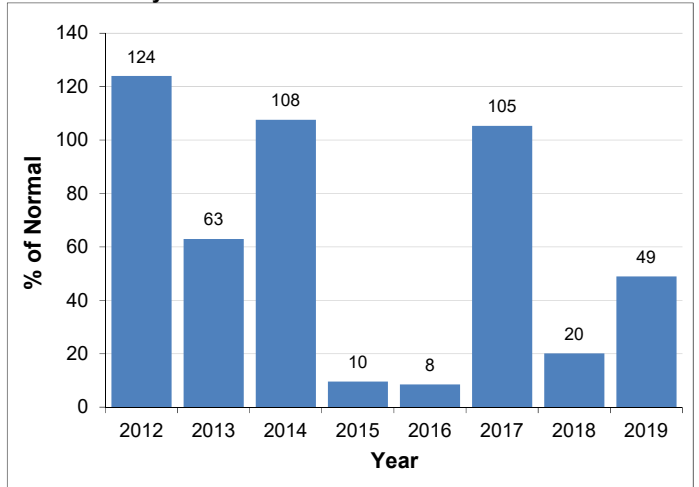
Upper Columbia



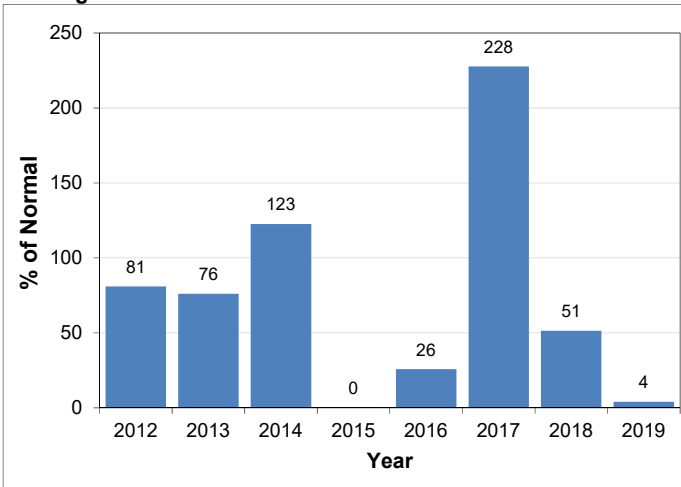
West Kootenay



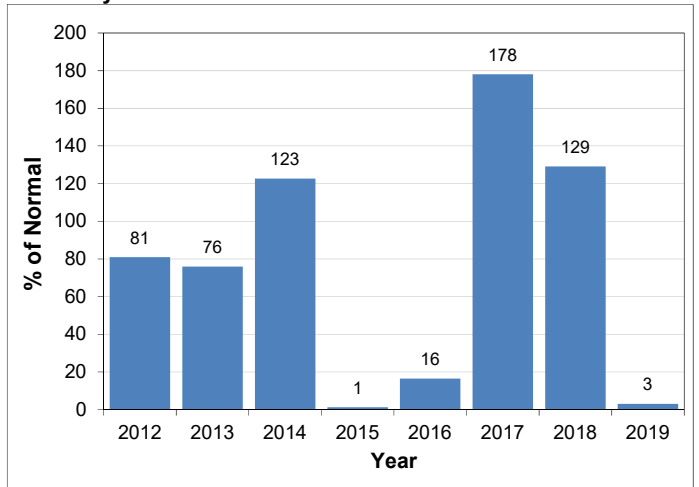
East Kootenay



Okanagan

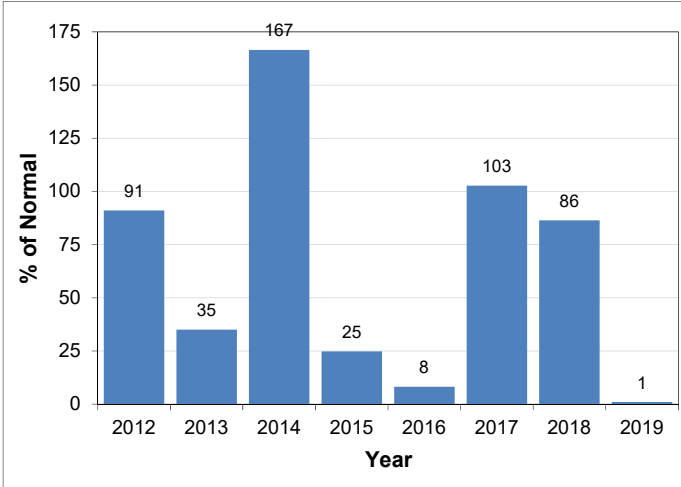


Boundary

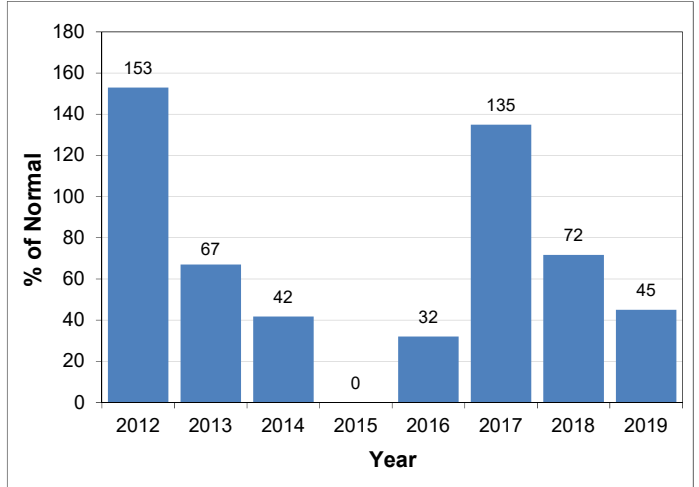


Snow Basin Index Graphs - June 1, 2019

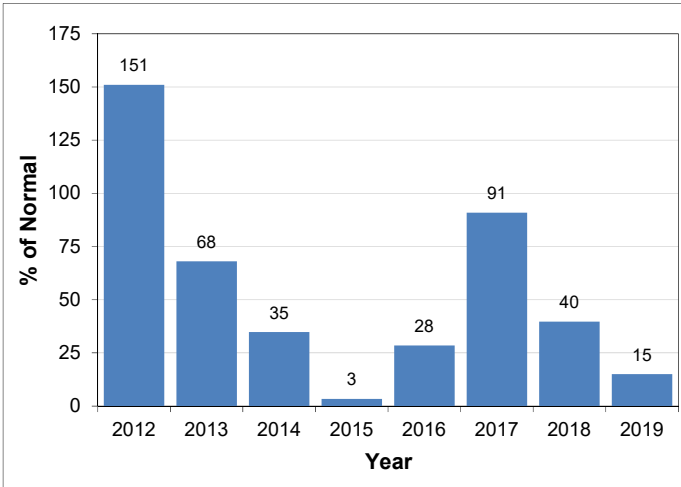
Similkameen



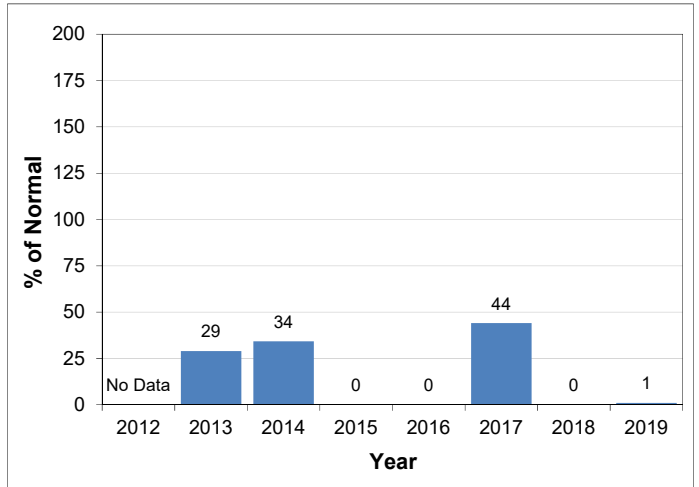
South Coast



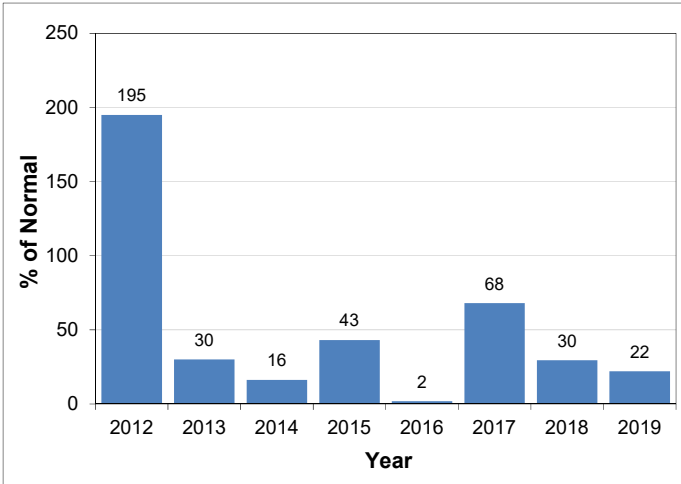
Vancouver Island



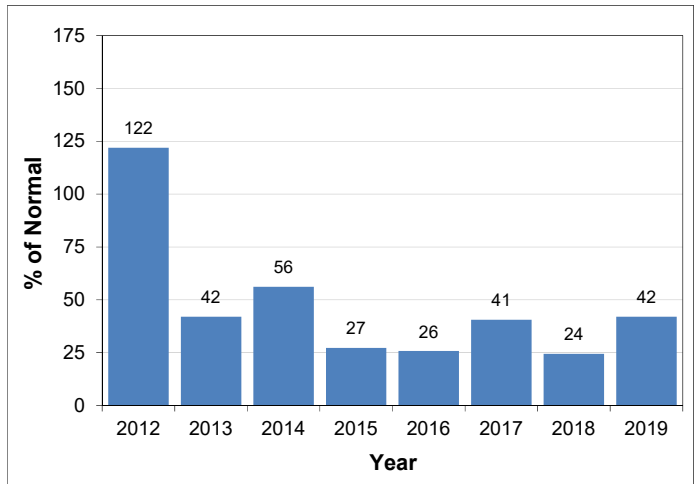
Central Coast



Skeena-Nass



Peace



Snow Survey and Water Supply Bulletin – June 15th, 2019

The June 15th snow survey is now complete. Data from four manual snow courses and 80 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

Weather through early-June has been mixed across the province. Temperatures in southern BC have generally been above normal, particularly in the South Interior and Kootenays. Central BC has had closer to normal temperatures, while areas in the central-west and north-west have been below normal.

A number of typical seasonal precipitation events have occurred in June, and have brought some rainfall to the province, particularly along the Central and North Coast areas. Other areas of the province have generally been drier than normal, including well below normal precipitation in the South Coast, Vancouver Island and South Interior.

Snowpack

Snow basin indices for June 15th have continued to drop significantly as a result of warm temperatures and rapid snowmelt; few snow courses still indicate the presence of snow as of June 15th. Snow basin indices for June 15th, 2019 range from a low of 0% of normal to a high of 44% in Upper Fraser East (Table 1 and Figure 1), with the average of all snow measurements across the province calculated to be 21% of normal.

Snowpack is extremely low (<50% of normal) in all areas of the province. Extremely low % of normal values in June usually stem from early snowmelt. This is the case for 2019, where low snowpack during June (both the June 1st and 15th bulletins) reflects melt that is 1-3 weeks ahead of normal for most areas. The early melt season began with two weeks of above normal temperatures in mid-March, which melted low elevation snow and primed snowpacks at all elevations to melt. This warm period was followed by lower than normal seasonal snow accumulations - for example, the average snow water equivalent measurement on April 1st was 79% of normal. This year's June 15th snowpack across the province is like conditions experienced in 2015 and 2016 - both years with early melt.

Typically, two-thirds of the accumulated seasonal snowpack in BC has melted by June 15th. This season's early melt means that 55-100% of the snowpack at most sites has already melted. Indeed, many sites across the province indicate that 100% of the snow has melted, with snow present only at select sites across the province; these sites tend to be at high elevations (>1700 m).

Note that in the later part of the snow season, basin indices can become extremely low due to early melt, and comparison of little or now snow relative to a normal snow water

1. Every effort is made to ensure that data reported on these pages are accurate. However, in order to update the graphs and indices as quickly as possible, some data may have been estimated. Please note that data provided on these pages are preliminary and subject to revision upon review.

Snow Survey and Water Supply Bulletin – June 15th, 2019

equivalent that is also low relative to the annual accumulation. Caution should be exercised when interpreting snow basin indices at this time of year.

Table 1 - BC Snow Basin Indices – June 15st, 2019

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	No data	Boundary	0
Upper Fraser East	44	Similkameen	0
Nechako	0	South Coast	20
Middle Fraser	18	Vancouver Island	2
Lower Fraser	3	Central Coast	1
North Thompson	31	Skagit	No data
South Thompson	19	Peace	14
Upper Columbia	39	Skeena-Nass	16
West Kootenay	37	Stikine	No data
East Kootenay	10	Liard	No data
Okanagan	0	Northwest	No data
Nicola	No data	Fraser	19

Streamflow

Current streamflow is variable across the province, depending on the location, size of watershed, and key hydrological processes of rivers. Rivers that depend on snowmelt across the province have recently peaked and are receding as snowmelt contributions to streamflow decreases.

In coastal British Columbia, including most areas of Vancouver Island, Haida Gwaii, and lowland rivers in the South Coast, streamflow is extremely low for this time of year. This is the result of rivers having minor influence from snowmelt, and both short-term and persistent long-term dry conditions. For example, most rivers on Vancouver Island are currently flowing below 5th percentile flows for mid-June, and several rivers are at record low flows for this time of year.

Snow Survey and Water Supply Bulletin – June 15th, 2019

In most areas of the BC Interior, snowpacks have been depleted and rivers are on the receding limb of the seasonal freshet hydrograph. With the combination of low seasonal snowpack, dry spring weather, and early melt, current streamflow conditions in these areas is similar to conditions that are experienced late-July or early-August, rather than mid-June. In some areas streamflow is approaching or exceeding record lows for this time of year.

Outlook

Seasonal forecasts from Environment and Climate Change Canada favor an increased likelihood of above normal summer temperatures (June-July-August and July-August-September periods) across British Columbia. In the short-term, BC is forecast to experience seasonal conditions, which include the potential for more organized rainfall.

With diminished snowpacks and early melt this year, risks have shifted towards the increased likelihood of low flow conditions this summer in all areas of the province. Given generally drier weather, warmer temperatures, low snowpacks and early melt this season, risks of low flows this year are significant across the province.

In most areas of the province, continued decline in flows are expected in the short-term, driven by drier weather (particularly on Vancouver Island and the South Coast) and the waning influence of snowmelt runoff (in the BC Interior). More organized rainfall may lead to improvement in streamflow in some areas of the north-east.

While antecedent conditions are one important factor for summer low flows, summer weather is also of critical importance. Long-range precipitation is difficult to forecast accurately over long lead times, therefore creating uncertainty over how the 2019 summer season will play out. While continued dry weather would drive extremely low flows this season, there is a similar chance that wet weather could dominate the summer season and at least partially ease the risk of low flows.

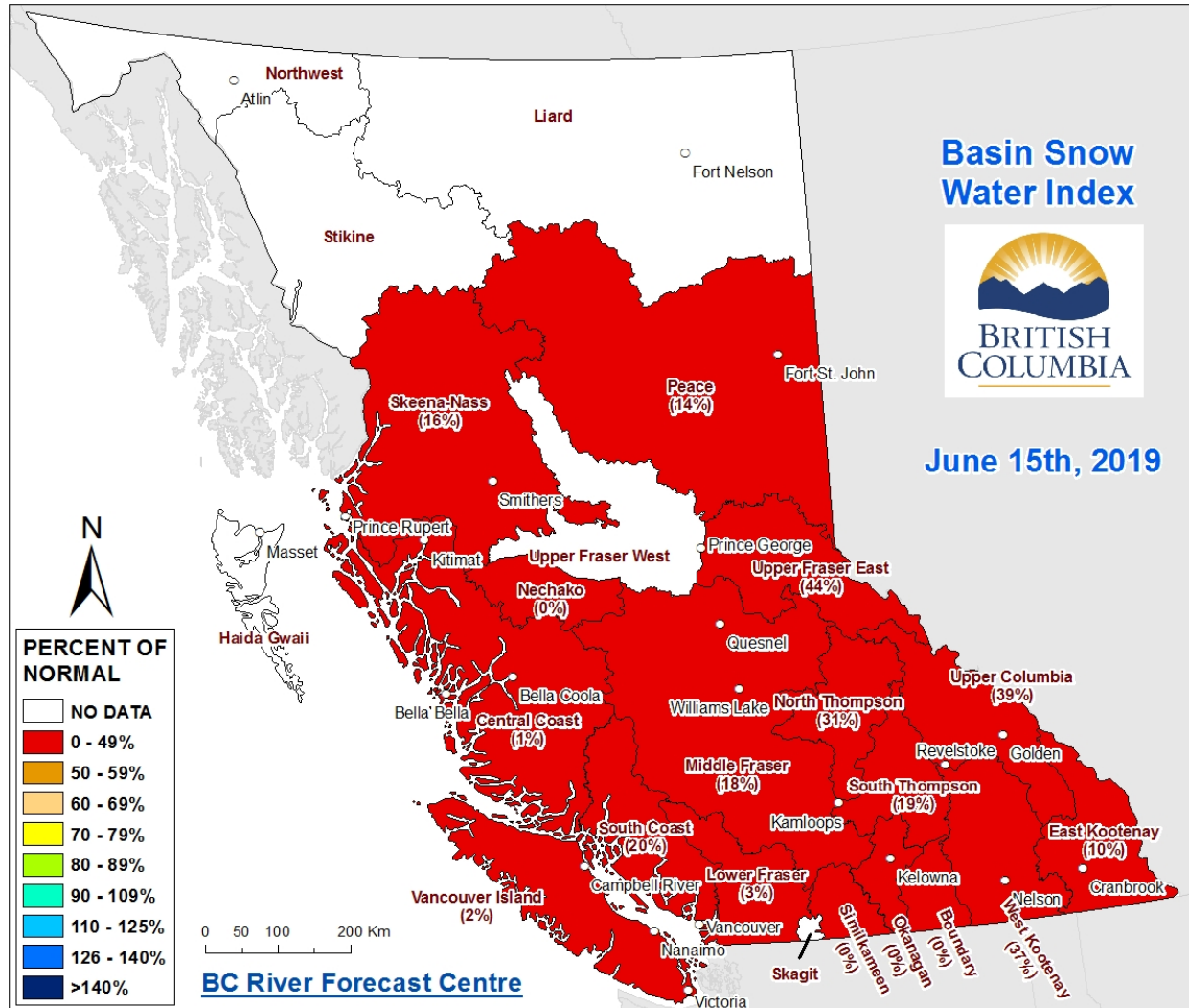
Current information on drought, including provincial drought levels, is available on the [British Columbia Drought Information Portal](#).

This is the final snow bulletin for the 2019 season; the first snow bulletin of the 2020 snow season will be released in early January, 2020. Thank you to our partners for their contributions to these bulletins.

BC River Forecast Centre
June 21, 2019

Snow Survey and Water Supply Bulletin – June 15th, 2019

Figure 1: Basin Snow Water Index – June 15st, 2019



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2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					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	2019-06-15	4				0	66	0	641	135	21
1A02P	McBride Upper	Upper Fraser East	1608	2019-06-15	0	0		0%	0	0	0	198	1	26
1A03P	Barkerville	Upper Fraser East	1483	2019-06-15	1	1		33%	0	0	0	123	3	43
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693								296	296	388	6
1A05P	Longworth Upper	Upper Fraser East	1740	2019-06-15	38	145			0	58	58	58		1
1A06A	HANSARD	Upper Fraser East	622										0	
1A10	PRINCE GEORGE A	Upper Fraser East	684								81	81	0	1
1A11	PACIFIC LAKE	Upper Fraser East	756								165	165	0	6
1A12	KAZA LAKE	Upper Fraser West	1247								132	132	0	1
1A12P	Kaza Lake	Upper Fraser West	1248	2019-06-15	5	0			0	0	0	0		2
1A14P	Hedrick Lake	Upper Fraser East	1118	2019-06-15	0	0		0%	0	10	0	587	38	18
1A15	KNUDSEN LAKE	Upper Fraser East	1598										714	8
1A15P	Knudsen Lake	Upper Fraser East	1601	2019-06-15	0	1			147	51	51	51		1
1A16	BURNS LAKE	Upper Fraser West	820								50	50	0	1
1A17P	Revolution Creek	Upper Fraser East	1676	2019-06-15	13	77		35%	82	71	0	927	223	33
1A19P	Dome Mountain	Upper Fraser East	1768	2019-06-15	35	197		54%	138	165	0	925	367	12
1A23	BIRD CREEK	Upper Fraser West	1196										0	
1B01	MOUNT WELLS	Nechako	1489										0	
1B01P	Mount Wells	Nechako	1489	2019-06-15					0	16	0	321	44	26
1B02	TAHTSA LAKE	Nechako	1319										0	2
1B02P	Tahtsa Lake	Nechako	1319	2019-06-15		0		0%	361	684	0	1870	617	26
1B05	SKINS LAKE	Nechako	877								53	53	0	1
1B06	MOUNT SWANNELL	Nechako	1596										0	
1B07	NUTLI LAKE	Nechako	1502										0	
1B08P	Mount Pondosy	Nechako	1413	2019-06-15		28		37%	0	46	0	520	75	26
1C01	BROOKMERE	Middle Fraser	994										0	
1C05	MCGILLIVRAY PASS	Middle Fraser	1715								239	239	0	4
1C05P	McGillivray Pass	Middle Fraser	1766	2019-06-15		135			0					
1C06	PAVILION	Middle Fraser	1209										0	
1C08	NAZKO	Middle Fraser	1029								31	31	0	1
1C09A	HIGHLAND VALLEY	Middle Fraser	1547										0	
1C12P	Green Mountain	Middle Fraser	1766	2019-06-15		2		1%	0	1	0	887	272	24
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612										0	
1C14	BRALORNE	Middle Fraser	1382								77	77	0	1
1C14P	Bralorne	Middle Fraser	1382	2019-06-15	2	0			0					
1C17	MOUNT TIMOTHY	Middle Fraser	1632							0	0	161	126	6
1C18P	Mission Ridge	Middle Fraser	1903	2019-06-15		0		0%	0	1	0	387	15	48

2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					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
1C19	GNAWED MOUNTAIN	Middle Fraser	1617										0	
1C20P	Boss Mountain Mine	Middle Fraser	1477	2019-06-15	0	0		0%	0	0	0	255	6	24
1C21	BIG CREEK	Middle Fraser	1130								42	42	0	1
1C22	PUNTZI MOUNTAIN	Middle Fraser	939								22	22	0	1
1C23	PENFOLD CREEK	Middle Fraser	1687								525	525	643	6
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471								119	119	0	1
1C28	DUFFEY LAKE	Middle Fraser	1253										0	
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456										0	
1C29P	Shovelnose Moutain	Middle Fraser	1460	2019-06-15	0	13								
1C32	DEADMAN RIVER	Middle Fraser	1463										0	
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175								116	116	0	1
1C37	BRALORNE(UPPER)	Middle Fraser	1980								290	290	0	1
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884										0	
1C38P	Downton Lake Upper	Middle Fraser	1829	2019-06-15		28			166	458	458	512		2
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393								300	300	0	1
1C40	TYAUGHTON	Middle Fraser	1946								198	198	0	1
1C40P	North Tyaughton	Middle Fraser	1969	2019-06-15		1			14	0	0	0		2
1C41P	Yanks Peak East	Middle Fraser	1683	2019-06-15	0	79		41%	0	15	0	698	191	21
1C42	CAVERHILL LAKE	Middle Fraser	1400											
1D06P	Tenquille Lake	Lower Fraser	1669	2019-06-15		0		0%	320	703	0	1177	434	17
1D08	STAVE LAKE	Lower Fraser	1211								584	584	0	2
1D09	WAHLEACH LAKE	Lower Fraser	1395								224	224	71	7
1D09P	Wahleach Lake Upper	Lower Fraser	1408	2019-06-15		6		1%	304	255	0	1281	643	26
1D10	NAHATLATCH RIVER	Lower Fraser	1530								634	634	697	3
1D16	DICKSON LAKE	Lower Fraser	1147								466	466	0	1
1D17P	Chilliwack River	Lower Fraser	1621	2019-06-15		66		8%	791	938	0	2022	797	26
1D18P	Disappointment Lake	Lower Fraser	1050	2019-06-15	2	12								
1D19P	Spuzzum Creek	Lower Fraser	1197	2019-06-15	0	4		0%	479	1049	0	2320	886	19
1E01B	BLUE RIVER	North Thompson	673								160	160	0	1
1E02P	Mount Cook	North Thompson	1574	2019-06-15	49	436		64%	691	890	206	1155	681	18
1E03A	TROPHY MOUNTAIN	North Thompson	1907										0	2
1E05	KNOUFF LAKE	North Thompson	1189										0	
1E07	ADAMS RIVER	North Thompson	1769										255	22
1E08P	Azure River	North Thompson	1625	2019-06-15	18	24		5%	23	631	75	1500	499	21
1E10P	Kostal Lake	North Thompson	1760	2019-06-15	0	5		1%	33	465	0	1248	351	33
1E14P	Cook Creek	North Thompson	1280	2019-06-15	2	19			0	25	0	25	0	10
1F01A	ABERDEEN LAKE	South Thompson	1262								85	85	0	1

2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					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
1F02	ANGLEMONT	South Thompson	1168										0	
1F03P	Park Mountain	South Thompson	1857	2019-06-15	0	3		1%	428	538	0	1095	458	33
1F04P	Enderby	South Thompson	1950	2019-06-15	47	255			684	775	775	775		1
1F06P	Celista Mountain	South Thompson	1533	2019-06-15	0	4		2%	0	194	0	573	179	13
2A01A	CANOE RIVER	Upper Columbia	866										0	
2A02	GLACIER	Upper Columbia	1249								362	362	47	25
2A03A	FIELD	Upper Columbia	1310										0	
2A06P	Mount Revelstoke	Upper Columbia	1770	2019-06-15		222		32%	607	740	0	1801	700	25
2A07	KICKING HORSE	Upper Columbia	1648								160	160	0	6
2A11	BEAVERFOOT	Upper Columbia	1924								148	148	0	1
2A14	MOUNT ABBOT	Upper Columbia	2031								600	600	841	15
2A16	GOLDSTREAM	Upper Columbia	1914								584	584	0	1
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852								590	590	816	26
2A18	KEYSTONE CREEK	Upper Columbia	1839								414	414	0	1
2A18P	Keystone Creek	Upper Columbia	1850	2019-06-15		97			287	594	81	594		2
2A19	VERMONT CREEK	Upper Columbia	1533								286	286	0	1
2A21P	Molson Creek	Upper Columbia	1930	2019-06-15		277		48%	258	527	0	1136	575	37
2A22	SUNBEAM LAKE	Upper Columbia	2066								469	469	0	1
2A23	BUSH RIVER	Upper Columbia	1982								483	483	0	1
2A25	KIRBYVILLE LAKE	Upper Columbia	1739								671	671	0	2
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964								338	338	0	2
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628								335	335	540	3
2A30P	Colpitti Creek	Upper Columbia	2131	2019-06-15		105			282	390	0	390		2
2A31P	Caribou Creek Upper	Upper Columbia	2201	2019-06-15		113			355	469	40	469		2
2A32P	Wildcat Creek	Upper Columbia	2122	2019-06-15		166			176	320	0	320		2
2B02A	FARRON	Lower Columbia	1229								157	157	0	1
2B05	WHATSHAN (UPPER)	Lower Columbia	1476										0	2
2B06P	Barnes Creek	Lower Columbia	1595	2019-06-15		0		0%	15	4	0	272	10	25
2B07	KOCH CREEK	Lower Columbia	1813								415	415	0	2
2B08P	St. Leon Creek	Lower Columbia	1822	2019-06-15		144		28%	519	540	0	1336	509	25
2B09	RECORD MOUNTAIN	Lower Columbia	1906	2019-06-15	0	0		0%	0	170	0	320	127	32
2C01	SINCLAIR PASS	East Kootenay	1374										0	
2C04	SULLIVAN MINE	East Kootenay	1580								114	114	0	2
2C07	FERNIE EAST	East Kootenay	1213								98	98	0	1
2C09Q	Morrissey Ridge	East Kootenay	1966	2019-06-15		2		6%	0	1	0	458	34	38
2C10P	Moyie Mountain	East Kootenay	1840	2019-06-15	0	0		0%	0	0	0	184	1	39
2C14P	Floe Lake	East Kootenay	2110	2019-06-15		31		9%	269	365	0	866	334	25

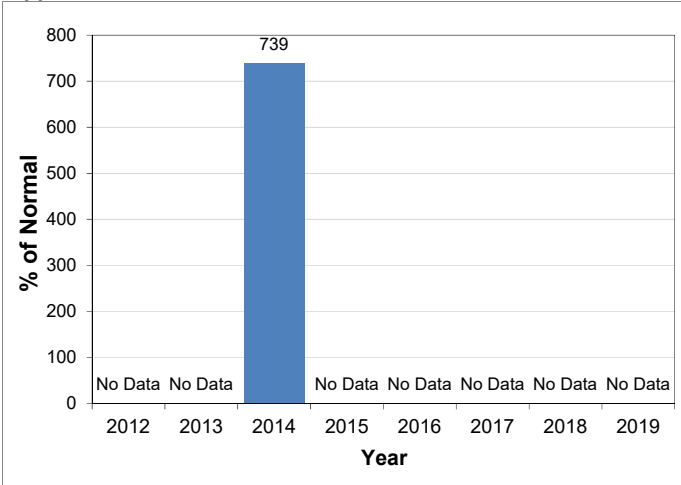
2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2F25	POSTILL LAKE UPPER	Okanagan	1500											
2G03P	Blackwall Peak	Similkameen	1934	2019-06-15	0	0		0%	65	69	0	1031	218	50
2G04	LOST HORSE MOUNTAIN	Similkameen	1988										25	14
2G05	MISSEZULA MOUNTAIN	Similkameen	1602										0	
2G06	HAMILTON HILL	Similkameen	1477										0	
3A01	GROUSE MOUNTAIN	South Coast	1126								596	596	0	1
3A02	POWELL RIVER (UPPER)	South Coast	1002										0	
3A05	POWELL RIVER (LOWER)	South Coast	882										0	
3A09	PALISADE LAKE	South Coast	898										0	
3A09P	Palisade Lake	South Coast	900	2019-06-15	1	0								
3A10	DOG MOUNTAIN	South Coast	1007	2019-06-13	0	0		0%	285	1032	0	1032	399	29
3A19	ORCHID LAKE	South Coast	1178	2019-06-13	30	175		17%	890		832	832	1002	34
3A20	CALLAGHAN CREEK	South Coast	1009										0	9
3A22P	Nostetuko River	South Coast	1457	2019-06-15	2	4		20%	0	0	0	268	20	29
3A24P	Mosley Creek Upper	South Coast	1655	2019-06-15	18	0		0%	0	0	0	159	1	29
3A25P	Squamish River Upper	South Coast	1387	2019-06-15	35	272		35%	815	936	0	2505	786	28
3A26	CHAPMAN CREEK	South Coast	1022											
3A27	EDWARDS LAKE	South Coast	1070											
3A28P	Tetrahedron	South Coast	1420	2019-06-15	69	357								
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110								660	660	830	11
3B02A	MOUNT COKELY	Vancouver Island	1267										0	
3B04	ELK RIVER	Vancouver Island	270								40	40	0	1
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014										0	5
3B17P	Wolf River Upper	Vancouver Island	1422	2019-06-15		7		1%	297	493	0	2183	609	36
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050								230	230	0	1
3B19	WOLF RIVER (LOWER)	Vancouver Island	615								160	160	0	1
3B23P	Jump Creek	Vancouver Island	1134	2019-06-15	4	9		3%	0	186	0	2700	337	22
3B24P	Heather Mountain Upper	Vancouver Island	1190	2019-06-15	0	0			610	1296	0	1296		2
3B26P	Mount Arrowsmith	Vancouver Island	1465	2019-06-15	0	0			348					0
3C07	WEDEENE RIVER SOUTH	Central Coast	196										0	
3C08P	Burnt Bridge Creek	Central Coast	1329	2019-06-15	3	0		0%	0	0	0	739	99	20
3D01C	SUMALLO RIVER WEST	Skagit	801								82	82	0	1
3D02	LIGHTNING LAKE	Skagit	1254										0	
3D03A	KLESILKWA	Skagit	1134								134	134	0	1
4A02P	Pine Pass	Peace	1386	2019-06-15	24	37		11%	31	117	0	1142	324	29
4A03	WARE (UPPER)	Peace	1563								90	90	0	1
4A03P	Ware Upper	Peace	1565	2019-06-15	0	0			0	0	0	0		1

2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					Historic Snow Water Equivalent (mm)					
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4A04	WARE (LOWER)	Peace	969								89	89	0	1
4A04P	Ware Lower	Peace	971	2019-06-15	0	1			0	0	0	0		1
4A05	GERMANSEN (UPPER)	Peace	1489								156	156	0	1
4A06	TUTIZZI LAKE	Peace	1043								106	106	0	1
4A07	LADY LAURIER LAKE	Peace	1460								194	194	0	1
4A09	PULPIT LAKE	Peace	1331								152	152	0	1
4A09P	Pulpit Lake	Peace	1331	2019-06-15	0	10		500%	0	3	0	133	2	28
4A10	FREDRICKSON LAKE	Peace	1323								93	93	0	1
4A11	TRYGVE LAKE	Peace	1409								119	119	0	1
4A12	TSAYDAYCHI LAKE	Peace	1173								166	166	0	1
4A13	PHILIP LAKE	Peace	1013								137	137	0	1
4A16	MORFEE MOUNTAIN	Peace	1427								265	265	0	2
4A18	MOUNT SHEBA	Peace	1480								369	369	0	2
4A20	MONKMAN CREEK	Peace	1566								190	190	0	2
4A20P	Monkman Creek	Peace	1570	2019-06-15		0								
4A21	MOUNT STEARNS	Peace	1514								41	41	0	1
4A25	FORT ST. JOHN A	Peace	692								34	34	0	1
4A27P	Kwadacha North	Peace	1554	2019-06-15	0	0			0	0	0	0		1
4A30P	Aiken Lake	Peace	1061	2019-06-15	0	0		0%	0	2	0	90	5	33
4A31P	Crying Girl Prairie	Peace	1358	2019-06-15		0			0	0	0	0		2
4A33P	Muskwa-Kechika	Peace	1196	2019-06-15		0			0	0	0	0		2
4A34P	Dowling Creek	Peace	1456	2019-06-15					0	0	0	0		1
4B01	KIDPRICE LAKE	Skeena-Nass	1415										0	2
4B02	JOHANSON LAKE	Skeena-Nass	1480								108	108	0	1
4B03A	HUDSON BAY MTN.	Skeena-Nass	1452	2019-06-19	0	0		0%	N		0	168	96	36
4B04	CHAPMAN LAKE	Skeena-Nass	1485										0	3
4B06	TACHEK CREEK	Skeena-Nass	1133										0	
4B07	MCKENDRICK CREEK	Skeena-Nass	1048										0	2
4B08	MOUNT CRONIN	Skeena-Nass	1491										0	6
4B10	NINGUNSAW PASS	Nass	647										0	
4B11A	BEAR PASS	Nass	437										0	
4B12P	Granduc Mine	Skeena-Nass	790	2019-06-15						0	0	0		1
4B13A	TERRACE A	Skeena-Nass	219								68	68	0	1
4B14	EQUITY MINE	Skeena-Nass	1434										0	
4B15	LU LAKE	Skeena-Nass	1296										0	
4B15P	Lu Lake	Skeena-Nass	1308	2019-06-15	0	0			0	0	0	119	0	20
4B16P	Shedin Creek	Skeena-Nass	1320	2019-06-15		7		2%	0	4	0	916	340	22

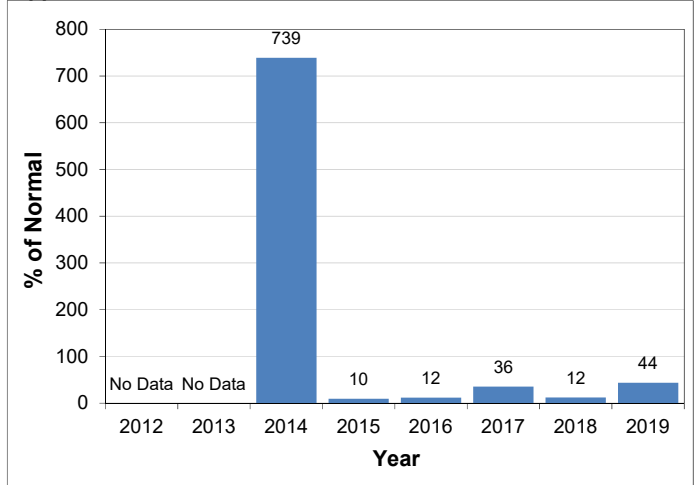
2019 Automated Snow Weather Station/Manual Snow Survey Data				June 15					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2018 SWE (mm)	2017 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B17P	Tsai Creek	Skeena-Nass	1360	2019-06-15	550	134		22%	338	386	0	1772	612	20
4B18P	Cedar-Kiteen	Skeena-Nass	912	2019-06-15	8	1		14%	0	0	0	178	7	17
4C01	SIKANNI LAKE	Liard	1390								78	78	0	1
4C01P	Sikanni Lake	Liard	1400	2019-06-15	1	3			0	3	3	3		1
4C02	SUMMIT LAKE	Liard	1291										0	
4C03	DEASE LAKE	Liard	805										0	
4C05	FORT NELSON AIRPORT	Liard	368								38	38	0	1
4C15	JADE CITY	Liard	943										0	
4D01	TELEGRAPH CREEK	Stikine	490										0	
4D02	ISKUT	Stikine	931										0	
4D11P	Kinaskan Lake	Stikine	1020	2019-06-15	0	0			0	0	0	94	0	22
4E02B	ATLIN LAKE	Yukon	730											
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 - June 15, 2019

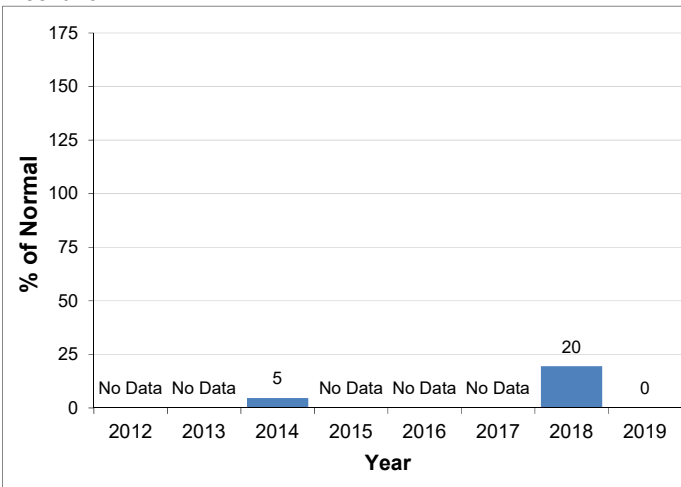
Upper Fraser West



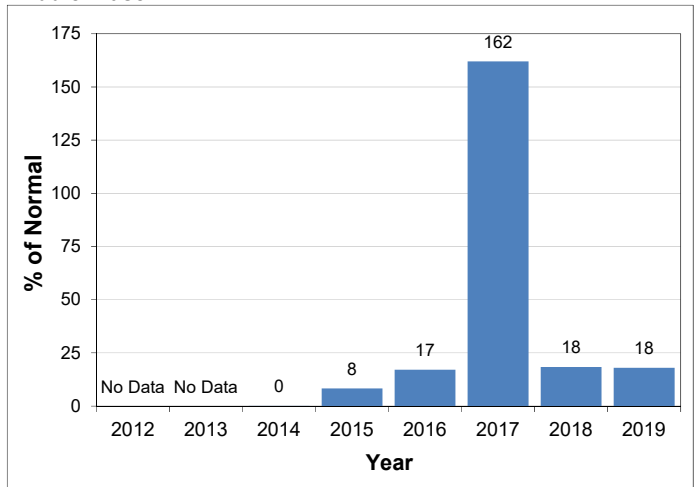
Upper Fraser East



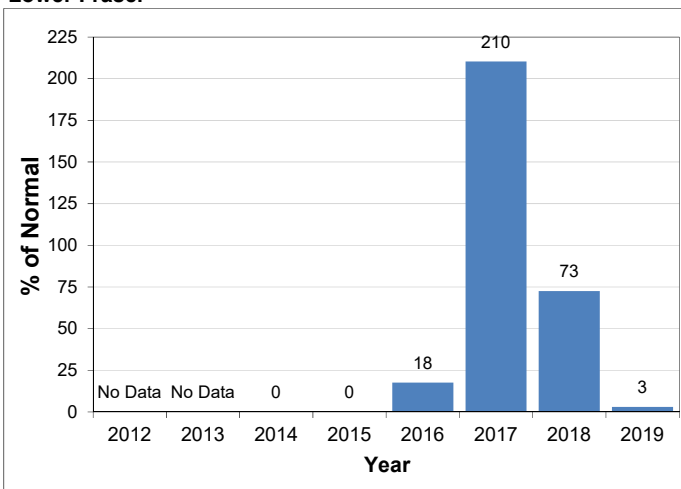
Nechako



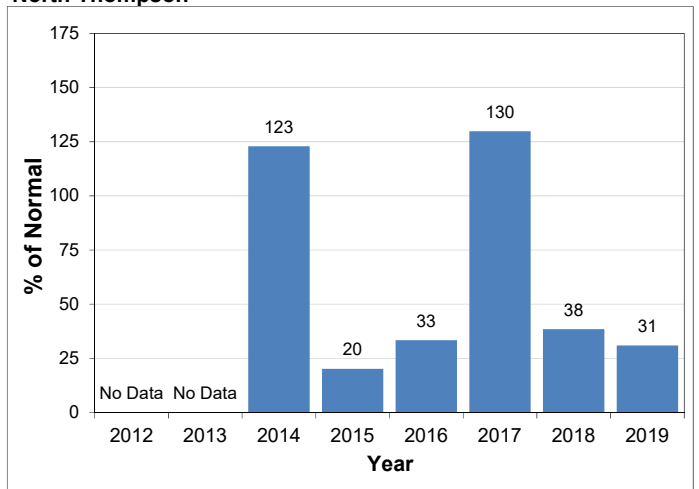
Middle Fraser



Lower Fraser

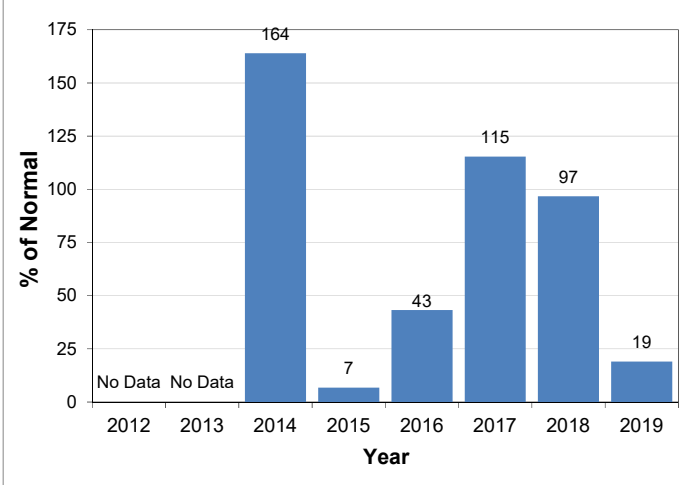


North Thompson

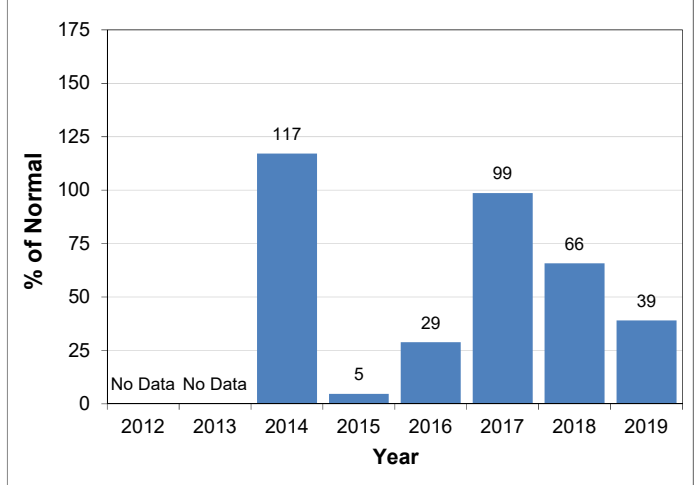


Snow Basin Index Graphs - June 15, 2019

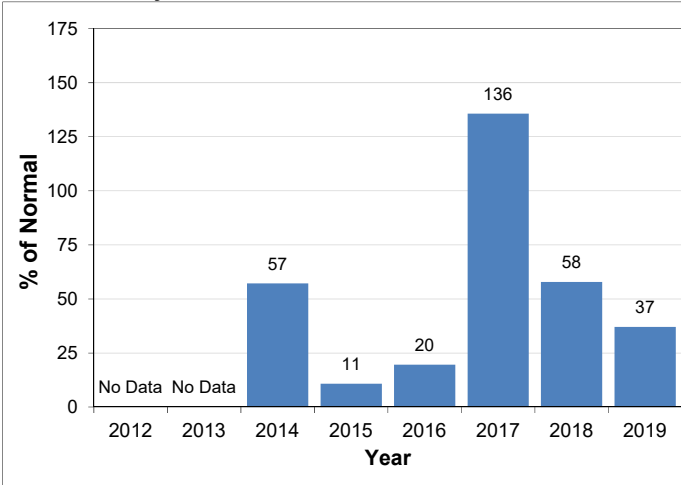
South Thompson



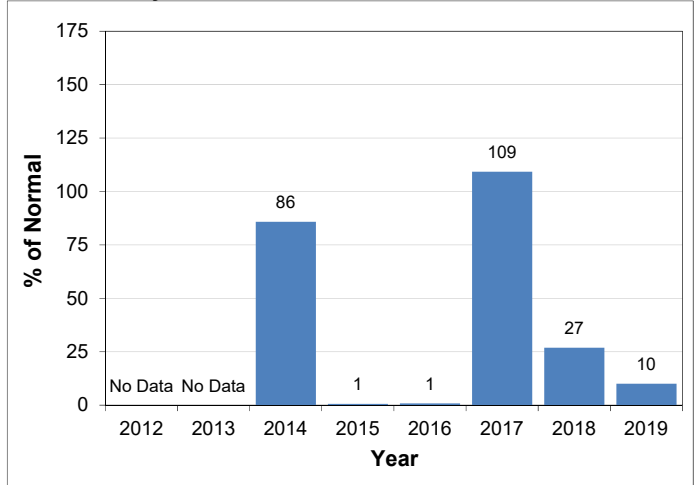
Upper Columbia



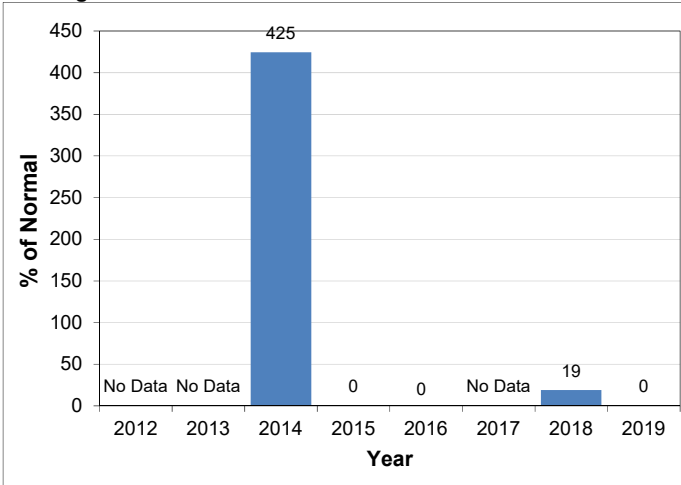
West Kootenay



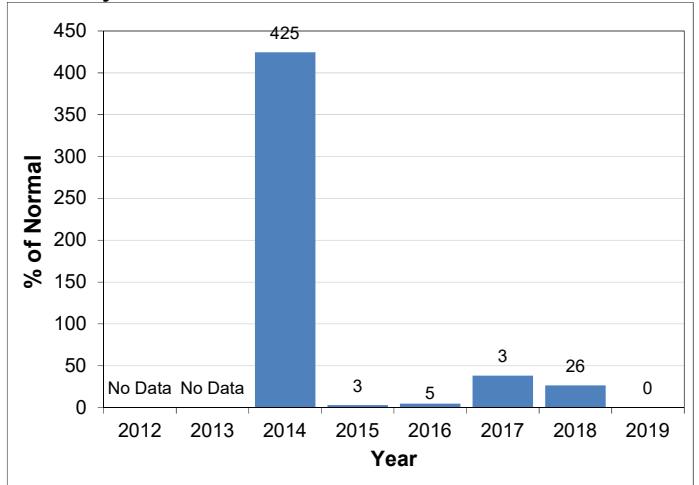
East Kootenay



Okanagan

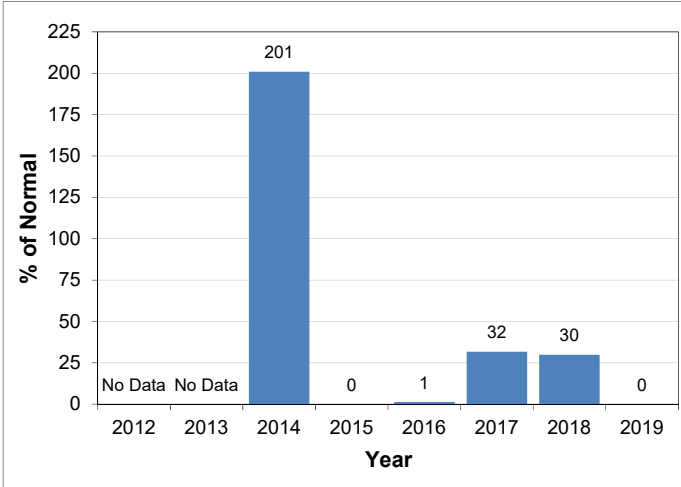


Boundary

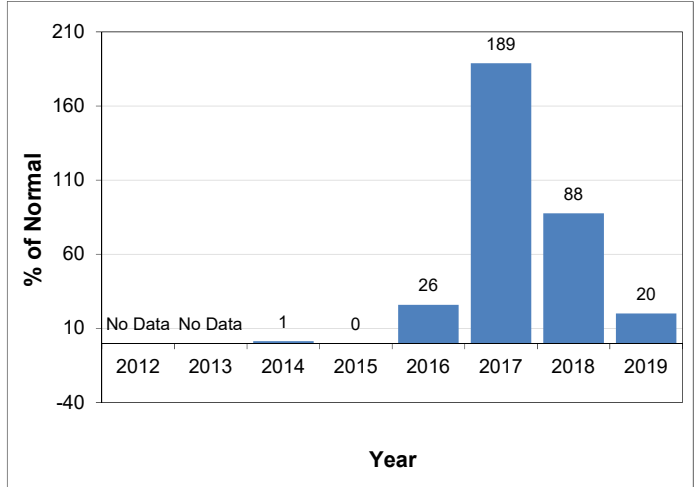


Snow Basin Index Graphs - June 15, 2019

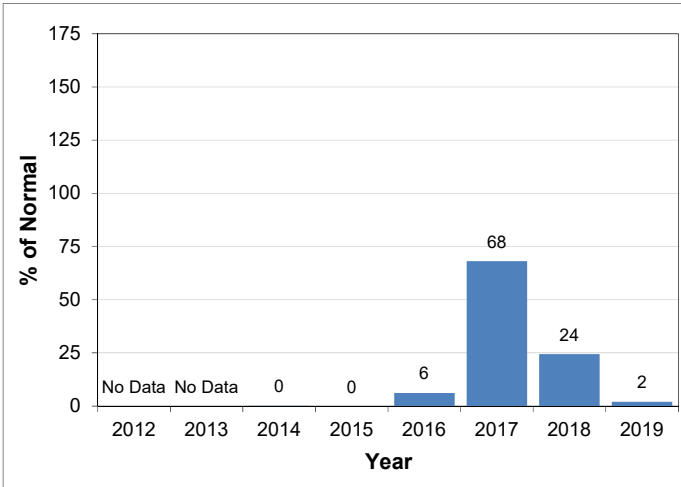
Similkameen



South Coast



Vancouver Island



Peace

