

## Snow Survey and Water Supply Bulletin – May 1<sup>st</sup>, 2016

The May 1<sup>st</sup> snow survey is now complete. Data from 121 snow courses and 61 automated snow stations around the province, collected by the Ministry of Environment Snow Survey Program and partners, and climate data from Environment Canada have been used to form the basis of the following report<sup>1</sup>.

### Weather

Warm temperatures have persisted throughout the 2015-16 winter and spring. April weather was generally warm and dry, dominated by stable high pressure, and included an extended period of record heat in the third week of the month. Temperatures continued to be well above normal through the month of April with daily temperatures being 2-4 °C above normal across most of the province, except in the northwest, where temperatures were closer to normal. A few weather systems brought some precipitation, particularly to northern BC. Precipitation in southern BC was well below normal for April, with precipitation amounts typically in the 20-50% of normal range. In central and north-west BC, precipitation was closer to normal to above normal. In north-east BC, precipitation was 60-90% of normal.

### Snowpack

The extremely warm periods in April led to significant and rapid melt of the provincial snow pack. May 1<sup>st</sup> snow basin indices ranged from 12% to 100% of normal, with a provincial average of 53%. The provincial average saw a decline of 38% from the April 1<sup>st</sup> value of 91%. The 2016 May 1<sup>st</sup> provincial average basin index is a new record low (measured since 1980), and is 13% below the previous low of 66%, observed in 1980. Of the 183 snow survey measurements made for the May 1<sup>st</sup> period, 33 stations, or 18%, observed new record lows, with many locations having 40 to 50 years of record. Low and mid-elevation snow is largely gone for all areas of the province with snow remaining only at high elevation.

Variability in snow pack conditions exists across the province. Snow packs are well below normal (<50%) through most the north half of the province and extending into the Cariboo and Central Coast, and in the Skagit, Similkameen and East Kootenay. In the Okanagan, Boundary, West Kootenay, Peace, Nechako, Vancouver Island, Lower Fraser and Upper Columbia, snow packs are low (60-75%). Snow pack is normal in the North Thompson and South Thompson.

May 1<sup>st</sup> snow conditions are more typical of those observed in a normal June 1<sup>st</sup> period, indicating that snow melt this season is three to four weeks ahead of normal.

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**Table 1: BC Snow Basin Indices – May 1, 2016**

Basin	% of Normal	Basin	% of Normal
Upper Fraser West	28	Okanagan	75
Upper Fraser East	44	Boundary	63
Nechako	62	Similkameen	25
Middle Fraser	48	South Coast	78
Lower Fraser	72	Vancouver Island	70
North Thompson	100	Central Coast	25
South Thompson	99	Skagit	23
Nicola	55	Peace	68
Fraser River (all)	69	Skeena-Nass	47
Upper Columbia	75	Stikine	22
West Kootenay	69	Liard	17
East Kootenay	42	Northwest	12

### Streamflow

With warm temperatures and rapid snow melt, most rivers across British Columbia experienced well above normal streamflow through April. Snow melt runoff that typically flows later in the season has already passed through their watersheds. As of early May, snow melt driven rivers in the province continue to flow well above normal for the time of year. In rivers with limited snow melt contribution to streamflow, such as Vancouver Island, the early melt and dry spring has led to below normal streamflow as of early-May. Also, in north-east BC, some rivers are seeing flows decline to below normal for this time of year, as the influence from this season's snow melt runoff is waning.

The advance in runoff timing is expected to continue to lead to earlier timing of peak flows and recession to the low-flow season across the province. The shift in timing echoes the pattern in snow melt, with many rivers experiencing flow conditions that are 3-4 weeks or more ahead of normal.

### Outlook

Strong El Niño conditions that developed over the equatorial Pacific regions over the past few months peaked in the winter and are declining. The Climate Prediction Centre (CPC) at the U.S. National Weather Service/NOAA is forecasting El Niño (ENSO) conditions to transition into neutral conditions by late-spring/early summer 2016, and an increasing likelihood of moving towards La Niña conditions into the fall/winter of 2016. In the northern Pacific Ocean, below normal sea surface temperature anomalies have replaced the "blob" of warm water that persisted last year. However, near-shore water along the BC, Washington and Oregon coasts remains warmer than average, with warm-phase Pacific Decadal Oscillation (PDO) patterns being observed.



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Seasonal forecasts from Environment Canada are indicating an increased likelihood of above-normal temperatures across British Columbia over the May to July period, and into the extended forecast period of the late summer months. The warmer than average seasonal forecast is consistent with historic weather typically observed during positive in-phase ENSO and PDO conditions.

Seasonal volume runoff forecasts (see table below) are below normal for most basins across the province. The exceptions are above normal seasonal runoff (>115%) forecast for the Nicola River and Okanagan. Seasonal runoff models are influenced by antecedent runoff volumes and calibrated based on historic observed conditions, including the seasonal distribution of flows. In years like this, where spring runoff is much earlier than has typically been observed in the historic record, there is increased uncertainty over the accuracy and performance of the forecast models.

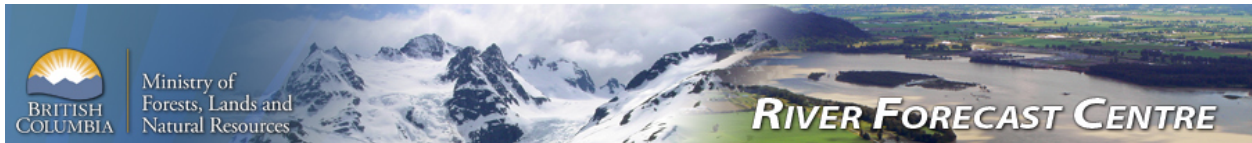
With significant snow melt already occurring, many river basins are approaching, or have passed, the peak of the freshet season. In mid-sized watersheds with limited high elevation terrain in the south and central interior, the peak of the freshet season may already have occurred. This includes the Similkameen River, tributaries in the Okanagan basin, Salmon River, Nicola River upstream of Nicola Lake, and similar surrounding rivers. In the larger river systems of the province, and rivers that drain higher elevation alpine terrain, the peak flow season is expected to continue to be 3-4 weeks earlier than normal, but have not yet occurred. For the North Thompson River the peak season may extend until mid-May, mid-to-late May for the Fraser River, Skeena River and tributaries, and early to mid-June for the South Thompson River and tributaries, again all 3-4 weeks earlier than normal. With a May 1<sup>st</sup> snow basin index of 69% of normal, the Fraser River at Hope has a revised forecasted peak flow of 6500-7000 m<sup>3</sup>/s.

The advanced freshet is expected to put pressure on summer low flows in snow-melt dominated rivers across the province. With the current very low snow packs remaining in the Upper Fraser, Middle Fraser, Nechako, Similkameen, East Kootenay, Central Coast, Stikine, Skeena, Liard, and Northwest, the risk for low flows this summer are elevated. Elsewhere in the province, the early shift in the snow melt season will also add pressure to low flows later in the season, even in basins with normal snow basin indices (e.g. North and South Thompson). In the northeast and in lower elevation coastal watersheds, summer rainfall is particularly important for sustaining summer flows, and will be a big determinant of the flows that will be experienced through this summer.

For both spring flood risk and summer low flows, snow pack is just one of the important elements that determine whether or not extreme conditions will emerge. Weather through the spring and summer is also a key driver in determining if flooding or low stream flows will occur. May and June are climatologically the wet season for the BC Interior. However precipitation is difficult to forecast beyond about a week and longer term trend forecasting is not reliable. Extreme wet or dry weather can significantly impact the likelihood of peak

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and low flows, so although snow packs around the province are low, late spring and summer precipitation will play an important role in determining streamflows.

Current weather forecasts for the next two weeks suggest cooler temperatures with rainfall in some locations through the short-term, and warm weather emerging through the middle of the month. River levels are expected to remain fairly stable through this period. The River Forecast Centre is modelling streamflow across the province. Information regarding freshet conditions, including hydrologic model forecasts, is available on the [Freshet page](#) on the RFC website.

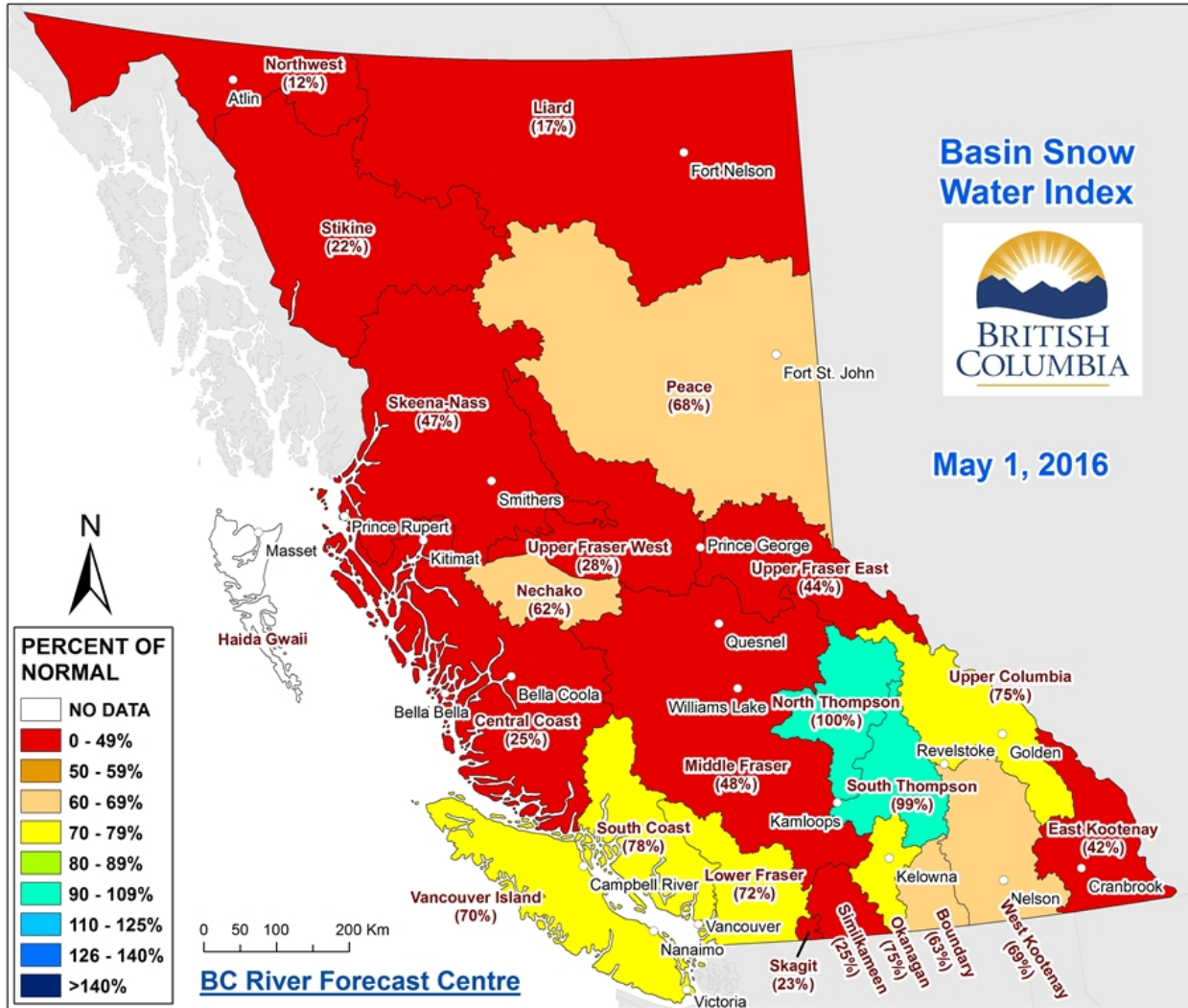
The River Forecast Centre will continue to monitor snow pack conditions and will provide an updated seasonal flood risk and stream flow forecast in the May 15<sup>th</sup> 2016 bulletin, which is scheduled for release on May 24<sup>th</sup>.

BC River Forecast Centre  
May 9, 2016



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Figure 1: Basin Snow Water Index – May 1<sup>st</sup>, 2016



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2016 Automated Snow Pillow/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	2015 SWE (mm)	2014 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
1A01P	YELLOWHEAD LAKE	Upper Fraser East	1860	2016-05-01	57	386		68%	537	606	364	833	565	19
1A02P	MC BRIDE UPPER	Upper Fraser East	1580	2016-05-01	37	203		44%	503	611	239	749	462	24
1A03P	BARKERVILLE	Upper Fraser East	1520	2016-05-01	2	2		1%	200	473	165	604	346	41
1A05	LONGWORTH (UPPER)	Upper Fraser East	1693	2016-04-30	96	462		56%		1252	391	1370	830	62
1A06A	HANSARD	Upper Fraser East	622	NS	NS	NS	NS			100			0	1
1A10	PRINCE GEORGE A	Upper Fraser East	684	NS	NS	NS	NS				0	216	10	40
1A11	PACIFIC LAKE	Upper Fraser East	756	2016-04-30	0	0	T	0%	207	840	93	976	507	53
1A12	KAZA LAKE	Upper Fraser West	1247	2016-04-29	58	200		61%	328	411	166	481	328	53
1A12P	KAZA LAKE	Upper Fraser East	1248	2016-05-01	57	193								0
1A14P	HEDRICK LAKE	Upper Fraser East	1100	2016-05-01	98	248		30%	531	1438	531	1279	820	16
1A15	KNUDSEN LAKE	Upper Fraser East	1598	N	N	N	N			1114	501	1346	868	48
1A16	BURNS LAKE	Upper Fraser West	820	2016-05-01	0	0		0%	8	6	0	148	26	38
1A17P	REVOLUTION CREEK	Upper Fraser East	1690	2016-05-01	131	517		64%	837	1353	486	1349	804	31
1A19P	DOMM MOUNTAIN	Upper Fraser East	1820	2016-05-01	121	535		66%	831	1068	570	1163	810	10
1A23	BIRD CREEK	Upper Fraser West	1196	2016-04-28	0	0		0%	130		0	204	39	25
1B01	MOUNT WELLS	Nechako	1489	2016-04-28	63	255		52%	663		201	958	487	62
1B01P	MOUNT WELLS	Nechako	1490	2016-05-01	NA	325		57%	805	602	311	919	569	24
1B02	TAHTSA LAKE	Nechako	1319	2016-04-28	188	877		70%	1323		701	2073	1256	63
1B02P	TAHTSA LAKE	Nechako	1300	2016-05-01	NA	1012		74%	1351	1017	826	2348	1362	24
1B05	SKINS LAKE	Nechako	877	2016-04-28	0	0		0%			0	100	3	45
1B06	MOUNT SWANNELL	Nechako	1596	2016-04-28	4	15		5%	377		109	499	287	26
1B07	NUTLI LAKE	Nechako	1502	2016-04-28	52	227		44%	547		250	870	513	24
1B08P	MOUNT PONDOSY	Nechako	1400	2016-05-01	NA	527		66%	1014	489	399	1277	794	24
1C01	BROOKMERE	Middle Fraser	994	2016-04-29	0	0	T	0%	0	42	0	419	65	70
1C05	MCGILLIVRAY PASS	Middle Fraser	1715	2016-04-28	72	321	A	56%	362	381	270	1118	573	64
1C06	PAVILION	Middle Fraser	1209	NS	NS	NS	NS				0	0	0	15
1C08	NAZKO	Middle Fraser	1029	NS	NS	NS	NS				0	46	3	24
1C09A	HIGHLAND VALLEY	Middle Fraser	1547	2016-05-05	0	0		0%			0	142	20	47
1C12P	GREEN MOUNTAIN	Middle Fraser	1780	2016-05-01	NA	736		81%	711	628	579	1373	909	22
1C13A	HORSEFLY MOUNTAIN	Middle Fraser	1612	2016-04-28	63	282		69%	372	690	136	676	408	46
1C14	BRALORNE	Middle Fraser	1382	2016-04-28	0	0		0%		98	0	255	58	52
1C17	MOUNT TIMOTHY	Middle Fraser	1632	2016-05-01	25	90		35%	142	351	118	536	257	55
1C18P	MISSION RIDGE	Middle Fraser	1850	2016-05-01	NA	238		48%	341	447	147	1028	496	46
1C19	GNAWED MOUNTAIN	Middle Fraser	1617	2016-05-05	0	0		0%			0	241	54	46
1C20P	BOSS MOUNTAIN MINE	Middle Fraser	1460	2016-05-01	81	394		66%	425	565	394	821	597	22
1C21	BIG CREEK	Middle Fraser	1130	NS	NS	NS	NS			0	0	48	12	5
1C22	PUNTZI MOUNTAIN	Middle Fraser	939	NS	NS	NS	NS				0	0	0	10
1C23	PENFOLD CREEK	Middle Fraser	1687	2016-05-03	164	829		78%	915	1103	710	1420	1064	46
1C25	LAC LE JEUNE (UPPER)	Middle Fraser	1471	2016-04-29	0	0		0%	0	95	0	168	30	43

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1C28	DUFFEY LAKE	Middle Fraser	1253	NS	NS	NS	NS				206	624	377	13
1C29	SHOVELNOSE MOUNTAIN	Middle Fraser	1456	2016-04-29	0	0		0%	0	84	0	305	82	35
1C32	DEADMAN RIVER	Middle Fraser	1463	2016-04-29	0	0		0%	0	0	0	194	32	32
1C33A	GRANITE MOUNTAIN	Middle Fraser	1175	2016-05-02	0	0		0%	0	110	0	221	89	10
1C37	BRALORNE(UPPER)	Middle Fraser	1980	2016-04-28	113	513	A	76%	638	496	364	1092	676	21
1C38	DOWNTON LAKE (UPPER)	Middle Fraser	1884	2016-04-28	171	852		100%	878	554	450	1340	856	21
1C38P	DOWNTON / LAJOIE UPPER	Middle Fraser	1829	2016-05-01	NA	807								0
1C39	BRIDGE GLACIER (LOWER)	Middle Fraser	1393	2016-04-28	139	640		107%	526	392	244	1018	600	21
1C40	TYAUGHTON CREEK (NORTH)	Middle Fraser	1946	2016-04-28	60	258	A	58%	396	304	268	806	443	21
1C40P	NORTH TYAUGHTON	Middle Fraser	1969	2016-05-01	NA	180								0
1C41P	YANKS PEAK, EAST	Middle Fraser	1670	2016-05-01	108	619		75%	863	1192	548	1058	825	19
1C42	CAVERHILL LAKE NEW	Middle Fraser	1400	NS	NS	NS	NS				172	172		1
1D06P	TENQUILLE LAKE	Lower Fraser	1680	2016-05-01	208	953		91%	912	801	653	1705	1047	15
1D08	STAVE LAKE	Lower Fraser	1211	2016-04-26	226	1210		80%	62	1291	62	3120	1513	49
1D09	WAHLEACH LAKE	Lower Fraser	1395	2016-04-26	48	236	A	38%	4	709	4	709	615	49
1D09P	WAHLEACH LAKE	Lower Fraser	1400	2016-05-01	NA	595		57%	344	1009	344	1757	1043	24
1D10	NAHATLATCH RIVER	Lower Fraser	1530	2016-04-26	229	1196		88%	468	1225	468	2720	1361	47
1D16	DICKSON LAKE	Lower Fraser	1147	2016-04-26	169	876		56%	4	1516	4	3180	1553	25
1D17P	CHILLIWACK RIVER	Lower Fraser	1600	2016-05-01	215	1253		83%	675	2245	675	2436	1513	24
1D18	DISAPPOINTMENT LAKE	Lower Fraser	1050	2016-04-28	226	1190								
1D19P	SPUZZUM CREEK	Lower Fraser	1180	2016-05-01	189	1119		68%	162	1613	162	2930	1635	17
1E01B	BLUE RIVER	North Thompson	673	2016-04-25	0	0		0%	0	233	0	265	29	32
1E02P	MOUNT COOK	North Thompson	1550	2016-05-01	269	1527		113%	1184	1389	998	1665	1346	16
1E03A	TROPHY MOUNTAIN	North Thompson	1907	N	N	N	N			685	417	960	607	41
1E05	KNOUFF LAKE	North Thompson	1189	NS	NS	NS	NS				0	142	45	9
1E07	ADAMS RIVER	North Thompson	1769	2016-04-30	148	740		102%	561	778	396	1173	726	45
1E08P	AZURE RIVER	North Thompson	1620	2016-05-01	153	1010		83%	1312	1122	773	1635	1214	19
1E10P	KOSTAL LAKE	North Thompson	1770	2016-05-01	NA	903		101%	813	952	641	1268	891	31
1E14P	COOK CREEK	North Thompson	1280	2016-05-01	23	NA								0
1F01A	ABERDEEN LAKE	South Thompson	1262	N	N	N	N				0	165	19	59
1F02	ANGLEMONT	South Thompson	1168	2016-04-28	0	0		0%			0	496	160	57
1F03P	PARK MOUNTAIN	North Thompson	1890	2016-05-01	172	890		93%	854	1158	570	1343	955	31
1F04	ENDERBY	South Thompson	1948	N	N	N	N				700	1430	1079	50
1F06P	CELISTA MOUNTAIN	North Thompson	1551	2016-05-01	157	1013		111%	847	1030	746	1187	914	11
2A01A	CANOE RIVER	Upper Columbia	866	NS	NS	NS	NS				0	147	5	25
2A02	GLACIER	Upper Columbia	1249	2016-04-28	106	481		75%	497	809	320	1247	643	70
2A03A	FIELD	Upper Columbia	1310	NS	NS	NS	NS			110	0	178	20	51
2A06P	MOUNT REVELSTOKE	Upper Columbia	1830	2016-05-01	NA	1117		88%	1063	1268	874	1625	1265	23
2A07	KICKING HORSE	Upper Columbia	1648	2016-04-28	30	120		41%	185	469	63	589	296	66

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2A11	BEAVERFOOT	Upper Columbia	1924	2016-04-27	13	44		26%	0	270	0	495	170	67
2A14	MOUNT ABBOT	Upper Columbia	2031	2016-04-27	187	1063		79%	1156	1366	853	1885	1345	57
2A16	GOLDSTREAM	Upper Columbia	1914	2016-04-28	203	1039		87%	1156	1331	850	1781	1200	53
2A17	FIDELITY MOUNTAIN	Upper Columbia	1852	2016-04-25	207	1108		85%	1181	1522	817	1986	1306	53
2A18	KEYSTONE CREEK	Upper Columbia	1839	2016-04-28	146	705		86%	734		514	1421	823	49
2A18P	KEYSTONE CREEK	Upper Columbia	1850	2016-05-01	NA	744								0
2A19	VERMONT CREEK	Upper Columbia	1533	2016-04-25	42	180		55%	0	383	0	1026	327	50
2A21P	MOLSON CREEK	Upper Columbia	1980	2016-05-01	NA	886		81%	1054	1104	645	1678	1100	35
2A22	SUNBEAM LAKE	Upper Columbia	2066	2016-04-28	155	762		81%	922	999	611	1562	939	49
2A23	BUSH RIVER	Upper Columbia	1982	2016-04-28	140	677		81%	728	834	492	1392	834	49
2A25	KIRBYVILLE LAKE	Upper Columbia	1739	2016-04-28	222	1162		93%	1134	1331	865	1797	1243	44
2A27	DOWNIE SLIDE (LOWER)	Upper Columbia	964	2016-04-28	75	348		67%		682	0	910	517	38
2A29	DOWNIE SLIDE (UPPER)	Upper Columbia	1628	2016-04-29	254	1320		94%	1112	1344	802	2242	1402	38
2A30P	COLPITTI CREEK	Upper Columbia	2131	2016-05-01	NA	602								0
2A31P	CARIBOU CREEK UPPER	Upper Columbia	2201	2016-05-01	NA	795								0
2A32P	WILDCAT CREEK	Upper Columbia	2122	2016-05-01	NA	442								0
2B02A	FARRON	West Kootenay	1229	2016-04-28	16	66		36%	0	158	0	406	183	43
2B05	WHATSHAN (UPPER)	West Kootenay	1476	2016-04-29	80	374		67%	405	707	255	983	557	55
2B06P	BARNES CREEK	Lower Columbia	1620	2016-05-01	NA	550		102%	487	681	360	821	541	23
2B07	KOCH CREEK	West Kootenay	1813	2016-04-29	150	701		90%	615	685	391	1201	778	56
2B08P	ST. LEON CREEK	Lower Columbia	1800	2016-05-01	NA	949		85%	1023	1345	701	1501	1113	23
2B09	RECORD MOUNTAIN	West Kootenay	1906	2016-05-04	100	520		72%	214	455	157	1278	727	41
2C01	SINCLAIR PASS	East Kootenay	1374	2016-04-26	0	0		0%	0	98	0	246	37	70
2C04	SULLIVAN MINE	East Kootenay	1580	2016-04-27	18	54		30%		304	0	518	182	69
2C07	FERNIE EAST	East Kootenay	1213	2016-04-25	0	0		0%	0	257	0	541	136	65
2C09Q	MORRISSEY RIDGE	East Kootenay	1800	2016-05-01	NA	325		49%	337	949	317	1332	670	36
2C10P	MOYIE MOUNTAIN	East Kootenay	1930	2016-05-01	2	0		0%	110	544	18	689	338	37
2C14P	FLOE LAKE	East Kootenay	2090	2016-05-01	NA	528		69%	690	868	491	1188	767	23
2C15	MOUNT ASSINIBOINE	East Kootenay	2230	2016-04-25	110	434		77%		607	339	930	566	46
2C16	MOUNT JOFFRE	East Kootenay	1763	2016-04-25	58	216		62%	36	491	36	772	346	47
2C17	THUNDER CREEK	East Kootenay	2062	2016-04-25	53	189		70%	197		163	556	271	47
2C20	VERMILLION RIVER NO. 3	East Kootenay	1612	NS	NS	NS	NS				71	422	196	16
2D02	FERGUSON	West Kootenay	929	2016-05-02	64	313		73%	333		160	773	429	69
2D03	SANDON	West Kootenay	1072	2016-05-01	0	0		0%	0	79	0	399	45	66
2D04	NELSON	West Kootenay	952	2016-04-28	0	0		0%		66	0	508	143	58
2D05	GRAY CREEK (LOWER)	West Kootenay	1558	2016-04-27	71	305		71%	269	592	229	726	429	67
2D06	CHAR CREEK	West Kootenay	1290	2016-04-27	62	287		64%	134	488	79	838	449	50
2D07A	DUNCAN LAKE NO. 2	West Kootenay	662	NS	NS	NS	NS				0	42	14	4
2D08P	EAST CREEK	West Kootenay	2030	2016-05-01	NA	794		87%	933	1167	480	1346	910	35



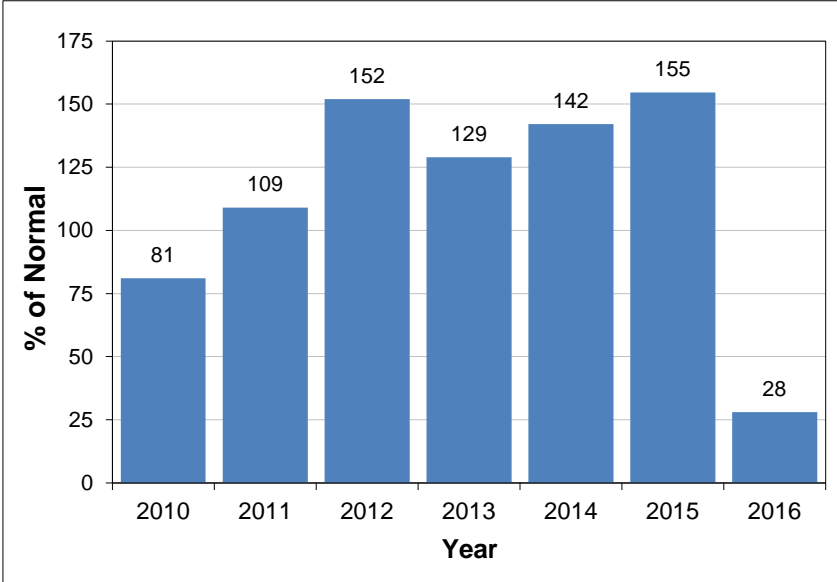
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Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2015 SWE (mm)	2014 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
2D09	MOUNT TEMPLEMAN	West Kootenay	1879	2016-04-29	181	903		84%	958	1182	731	1679	1075	49
2D10	GRAY CREEK (UPPER)	West Kootenay	1926	2016-04-27	139	648		84%	657	922	505	1300	767	46
2D14P	REDFISH CREEK	West Kootenay	2104	2016-05-01	272	1494		115%	1409	1496	1035	1863	1298	14
2E01	MONASHEE PASS	Boundary	1387	2016-04-29	34	114		43%	193	393	67	505	266	58
2E02	CARMI	Boundary	1254	2016-05-02	0	0		0%	0	0	0	173	12	52
2E03	BIG WHITE MOUNTAIN	Boundary	1672	2016-05-02	79	340		75%	249	516	237	762	451	50
2E07P	GRANO CREEK	Kettle	1860	2016-05-01	113	546	E	97%	424	614	420	814	561	18
2F01A	TROUT CREEK (WEST)	Okanagan	1430	2016-04-28	7	30		27%		207	112	292	112	5
2F02	SUMMERLAND RESERVOIR	Okanagan	1304	2016-05-02	0	0		0%	0	0	0	368	84	51
2F03	MC CULLOCH	Okanagan	1266	2016-05-02	0	0		0%		0	0	188	12	68
2F04	GRAYSTOKE LAKE	Okanagan	1818	2016-05-04	55	232		68%			120	940	343	42
2F05P	MISSION CREEK	Okanagan	1780	2016-05-01	99	471		98%	407	716	141	784	481	46
2F07	POSTILL LAKE	Okanagan	1358	2016-05-05	0	0		0%	50	176	0	282	121	64
2F08	GRAYBACK RESERVOIR	Okanagan	1548	2016-04-29	37	138		87%	171	282	0	386	158	43
2F09	WHITEROCKS MOUNTAIN	Okanagan	1789	2016-05-01	96	456		97%	339	508	175	1013	470	45
2F10P	SILVER STAR MOUNTAIN	Okanagan	1839	2016-05-01	183	784								0
2F11	ISINTOK LAKE	Okanagan	1651	2016-05-03	0	0		0%	0	190	0	437	98	51
2F12	MOUNT KOBAN	Okanagan	1817	2016-04-30	64	300		97%	204	226	53	597	309	50
2F13	ESPERON CR (UPPER)	Okanagan	1634	2016-04-30	74	346		100%	228	364	119	805	346	46
2F14	ESPERON CR (MIDDLE)	Okanagan	1440	NS	NS	NS	NS				0	551	216	30
2F18P	BRENDA MINE	Okanagan	1460	2016-05-01	NA	7		5%	0	177	0	342	128	23
2F19	OYAMA LAKE	Okanagan	1365	2016-04-29	0	0		0%		233	0	185	55	46
2F20	VASEUX CREEK	Okanagan	1403	2016-05-05	0	0		0%	0	195	0	192	41	44
2F21	BOULEAU LAKE	Okanagan	1405	2016-05-07	7	16		6%	80	238	40	488	251	45
2F23	MACDONALD LAKE	Okanagan	1742	2016-05-03	86	420		100%		421	198	650	421	38
2F24	ISLAHT LAKE	Okanagan	1492	2016-04-29	42	189		81%	76		64	433	234	34
2F25	POSTILL LAKE (UPPER)	Okanagan	1500	2016-05-05	0	0	T				71	71		2
2G03P	BLACKWALL PEAK	Similkameen	1940	2016-05-01	137	663		86%	593	968	375	1569	768	48
2G04	LOST HORSE MOUNTAIN	Similkameen	1988	2016-04-28	26	84		39%	235	309	64	554	215	56
2G05	MISSEZULA MOUNTAIN	Similkameen	1602	2016-04-28	0	0		0%	0	269	0	323	102	56
2G06	HAMILTON HILL	Similkameen	1477	2016-04-30	0	0		0%	0	251	0	838	190	56
3A01	GROUSE MOUNTAIN	South Coast	1126	2016-04-26	142	752		64%	0	800	0	2870	1170	66
3A02	POWELL RIVER (UPPER)	South Coast	1002	NS	NS	NS	NS				533	1712	783	8
3A05	POWELL RIVER (LOWER)	South Coast	882	NS	NS	NS	NS				181	426	349	6
3A09	PALISADE LAKE	South Coast	898	2016-04-28	124	670		52%	0	700	0	3600	1291	66
3A10	DOG MOUNTAIN	South Coast	1007	2016-04-25	127	662		58%	0	710	0	2760	1137	32
3A19	ORCHID LAKE	South Coast	1178	2016-04-28	281	1453		78%	100	1550	100	3845	1866	44
3A20	CALLAGHAN CREEK	South Coast	1009	2016-04-30	114	598		84%	0	662	0	1568	711	39
3A22P	NOSTETUKO RIVER	South Coast	1500	2016-05-01	62	355		65%	201	399	201	1053	542	27

2016 Automated Snow Pillow/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	2015 SWE (mm)	2014 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
3A24P	UPPER MOSLEY CREEK	South Coast	1650	2016-05-01	1	19		7%	309	227	143	532	254	27
3A25P	UPPER SQUAMISH RIVER	South Coast	1340	2016-05-01	NA	1459		91%	695	1282	695	2910	1597	26
3B01	FORBIDDEN PLATEAU	Vancouver Island	1110	2016-04-28	254	1386		92%	0	929	0	3500	1507	59
3B02A	MT. COKELY	Vancouver Island	1267	2016-04-26	46	100		12%	0		0	2062	813	34
3B04	ELK RIVER	Vancouver Island	270	2016-04-28	0	0			0		0	0	0	32
3B10	UPPER THELWOOD LAKE	Vancouver Island	1014	2016-04-28	210	1136		77%	0	934	0	3560	1484	58
3B17P	WOLF RIVER	Vancouver Island	1490	2016-05-01	NA	1112		82%	374	924	374	2691	1356	34
3B18	WOLF RIVER (MIDDLE)	Vancouver Island	1050	2016-04-28	28	120		22%	0	290	0	1652	546	46
3B19	WOLF RIVER (LOWER)	Vancouver Island	615	2016-04-28	0	0		0%	0	0	0	1118	134	46
3B23P	JUMP CREEK	Vancouver Island	1160	2016-05-01	73	426		36%	0	758	0	3485	1180	20
3B24P	HEATHER MOUNTAIN UPPER	Vancouver Island	1190	2016-05-01	170	1248								0
3C07	WEDEENE RIVER SOUTH	Central Coast	196	2016-04-29	0	0		0%	0	46	0	749	136	28
3C08P	BURNT BRIDGE CREEK	North Coast	1330	2016-05-01	71	392		51%	791	786	454	1464	776	18
3D01C	SUMALLO RIVER WEST	Skagit	801	2016-04-26	0	0		0%	0	118	0	371	66	23
3D02	LIGHTNING LAKE	Skagit	1254	2016-04-30	39	155		70%	92	278	7	599	223	44
3D03A	KLESILKWA	Skagit	1134	2016-04-26	0	0		0%	0	144	0	752	103	43
4A02P	PINE PASS	Peace	1400	2016-05-01	188	956		89%	977	1192	898	1704	1072	27
4A03	WARE (UPPER)	Peace	1563	2016-04-28	49	149		54%	237	319	141	402	274	55
4A04	WARE (LOWER)	Peace	969	2016-04-28	5	13		10%	92	176	0	229	124	54
4A05	GERMANSEN (UPPER)	Peace	1489	2016-04-29	74	259		73%	220	388	181	597	355	55
4A06	TUTIZZI LAKE	Peace	1043	2016-04-29	0	0	T	0%	104	194	0	325	155	53
4A07	LADY LAURIER LAKE	Peace	1446	2016-04-27	104	425		77%	545	557	305	926	555	53
4A09	PULPIT LAKE	Peace	1331	2016-04-28	67	270		65%	429	519	287	623	418	53
4A09P	PULPIT LAKE	Peace	1310	2016-05-01	40	183		45%	384	455	288	633	407	26
4A10	FREDRICKSON LAKE	Peace	1323	2016-04-29	27	87		38%	226	308	107	358	231	53
4A11	TRYGVE LAKE	Peace	1409	2016-04-28	65	220		58%	418	384	272	599	381	53
4A12	TSAYDAYCHI LAKE	Peace	1173	2016-04-29	60	250		65%	316	415	168	700	386	53
4A13	PHILIP LAKE	Peace	1013	2016-04-29	13	52		27%	81	203	0	406	196	53
4A16	MORFEE MOUNTAIN	Peace	1427	2016-04-30	122	597		74%	803	973	410	1181	812	47
4A18	MOUNT SHEBA	Peace	1480	2016-05-02	126	591		66%	867	1091	503	1371	891	47
4A20	MONKMAN CREEK	Peace	1566	2016-04-30	84	337		58%	653	709	329	1042	580	42
4A21	MOUNT STEARNS	Peace	1514	2016-05-04	6	17		12%	157	196	0	271	146	42
4A25	FORT ST. JOHN AIRPORT	Peace	692	NS	NS	NS	NS				0	56	0	26
4A30P	AIKEN LAKE	Peace	1040	2016-05-01	0	17		9%	167	233	71	313	181	31
4A31P	CRYING GIRL PRAIRIE	Peace	1358	2016-05-01	NA	0								0
4A33P	MUSKWA-KECHIKA	Peace	1196	2016-05-01	NA	0	E							0
4B01	KIDPRICE LAKE	Skeena-Nass	1415	2016-04-28	128	593		62%	1076		551	1591	951	63
4B02	JOHANSON LAKE	Skeena-Nass	1480	2016-04-29	61	200		66%	291	368	143	433	301	53
4B03A	HUDSON BAY MTN	Skeena-Nass	1452	2016-04-28	68	272		53%	548	518	343	795	509	44

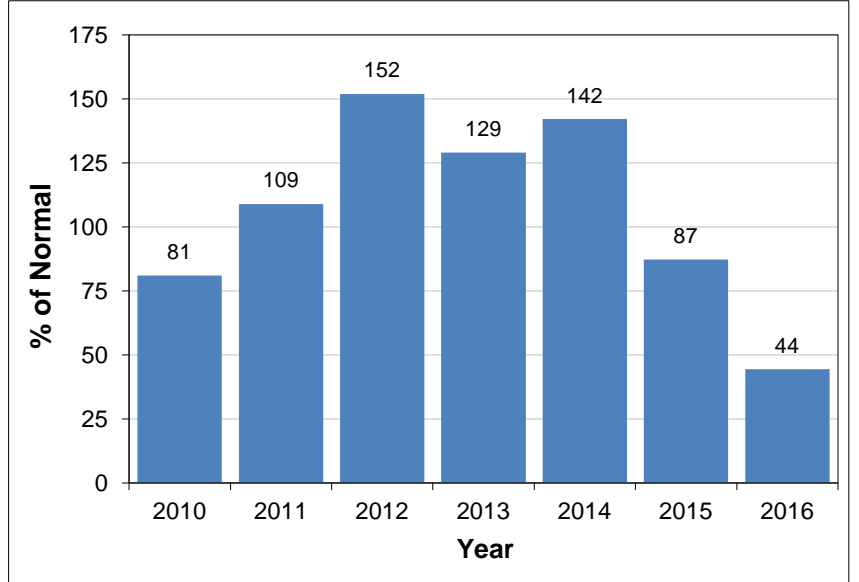
2016 Automated Snow Pillow/Manual Snow Survey Data				May 1					Historic Snow Water Equivalent (mm)					
Station ID	Name	Basin	Elevation (masl)	Survey Date YYYY-MM-DD	SD (cm)	SWE (mm)	Code	SWE % 1981-2010 Normal	2015 SWE (mm)	2014 SWE (mm)	Minimum (mm)	Maximum (mm)	1981-2010 Normal (mm)	Years of Record
4B04	CHAPMAN LAKE	Skeena-Nass	1485	2016-04-28	72	286		60%	484	428	308	749	473	49
4B06	TACHEK CREEK	Skeena-Nass	1133	2016-04-28	20	58		33%	240		55	363	175	47
4B07	MCKENDRICK CREEK	Skeena-Nass	1048	2016-04-28	22	72		32%	266	242	80	422	223	48
4B08	MOUNT CRONIN	Skeena-Nass	1491	2016-04-28	106	429		70%	560	495	422	1125	616	47
4B10	NINGUNSAW PASS	Skeena-Nass	647	2016-05-02	0	0		0%		276	0	676	263	38
4B11A	BEAR PASS	Skeena-Nass	437	2016-05-02	0	0		0%			256	860	541	24
4B13A	TERRACE AIRPORT	Skeena-Nass	219	NS	NS	NS	NS			1115	0	58	14	6
4B14	EQUITY MINE	Skeena-Nass	1434	2016-04-27	62	220		59%	535		212	690	373	39
4B15	LU LAKE	Skeena-Nass	1296	2016-04-27	40	132		49%	390	404	144	528	267	38
4B15P	LU LAKE	Skeena/Nass	1300	2016-05-01	12	106		47%	455	300	79	517	227	18
4B16P	SHEDIN CREEK	Skeena/Nass	1480	2016-05-01	97	487		50%	1310	311	650	1310	972	20
4B17P	TSAI CREEK	Skeena/Nass	1360	2016-05-01	149	834		64%	1310	597	975	2081	1307	18
4B18P	CEDAR - KITEEN	Skeena/Nass	885	2016-05-01	4	11		2%	325	1050	210	1075	612	15
4C01	SIKANNI LAKE	Liard	1390	2016-04-28	22	88		33%	278	710	115	404	266	53
4C02	SUMMIT LAKE	Liard	1291	2016-05-05	0	0		0%	72	355	0	200	44	51
4C03	DEASE LAKE	Liard	805	2016-05-04	0	0	B	0%			0	178	38	49
4C05	FORT NELSON A	Liard	368	NS	NS	NS	NS			192	0	103	12	31
4C15	JADE CITY	Liard	943	2016-04-24	0	0		0%	136		28	350	189	14
4D01	TELEGRAPH CREEK	Stikine	490	2016-05-04	0	0	B	0%	0	302	0	163	23	41
4D02	ISKUT	Stikine	931	NS	NS	NS	NS				0	146	18	24
4D11P	KINASKAN LAKE	Stikine/Taku	1020	2016-05-01	22	114		32%	305	0	0	305	352	20
4E02B	ATLIN LAKE	Northwest	730	2016-05-01	0	0			0	0	0	140		10
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, 2016

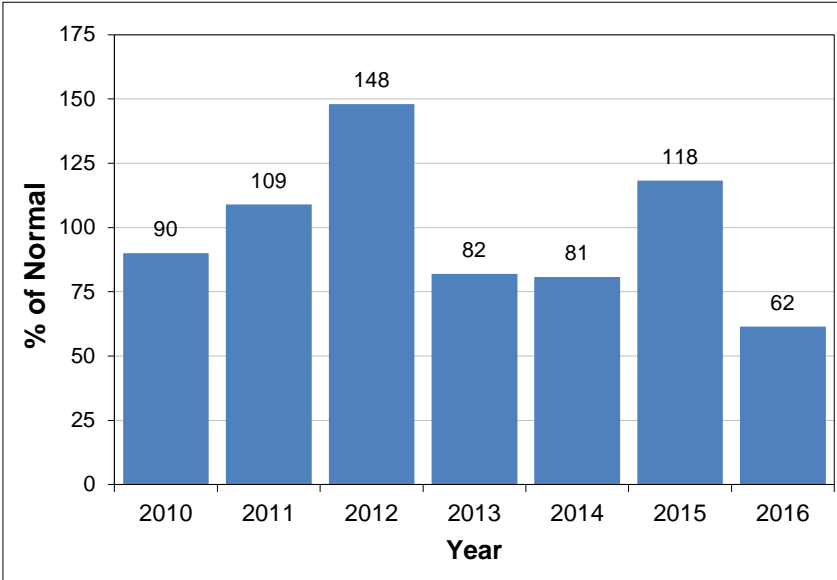
### Upper Fraser West



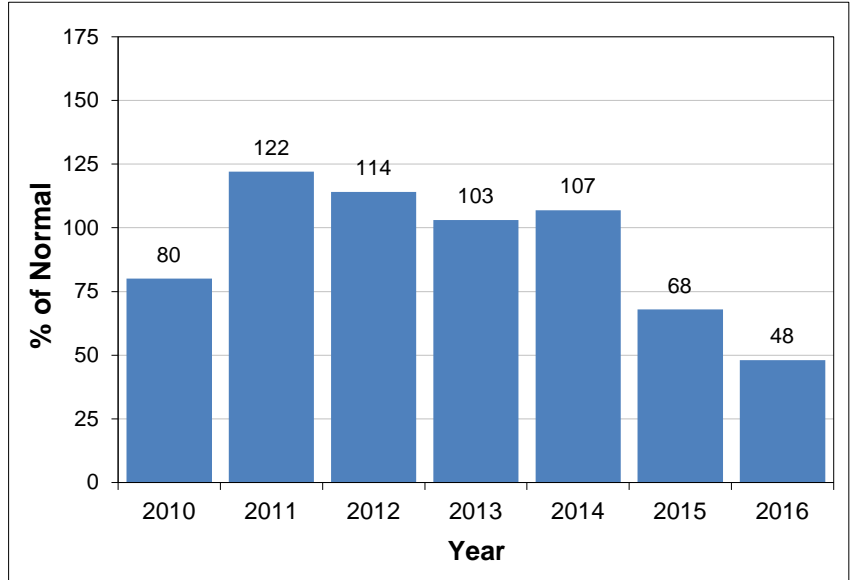
### Upper Fraser East



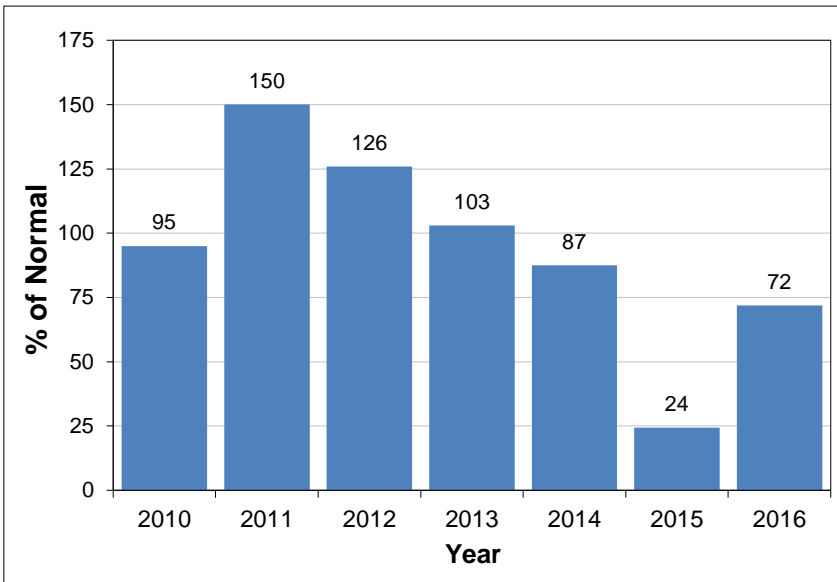
### Nechako



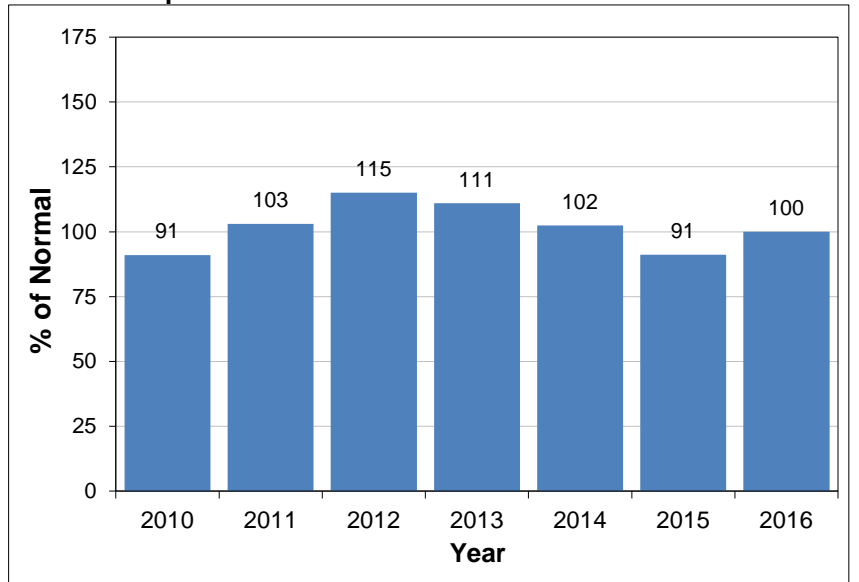
### Middle Fraser



### Lower Fraser

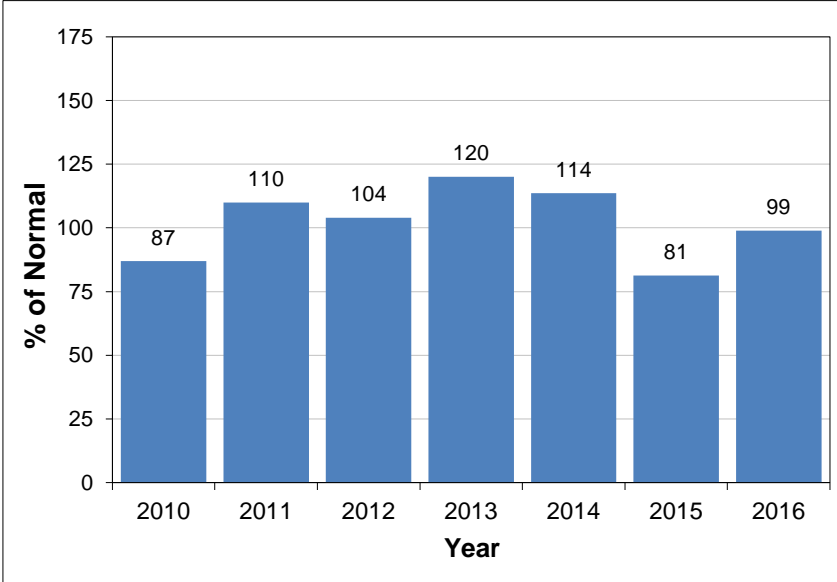


### North Thompson

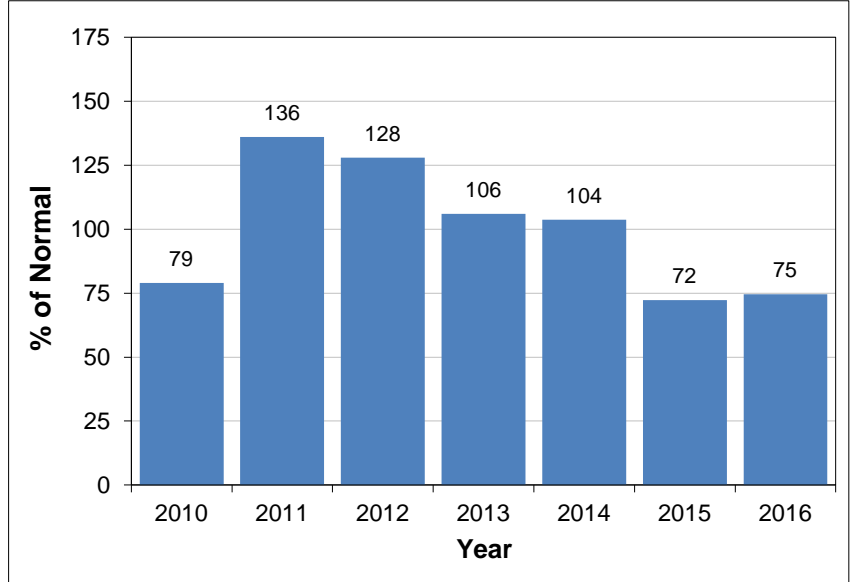


## Snow Basin Index Graphs - May 1, 2016

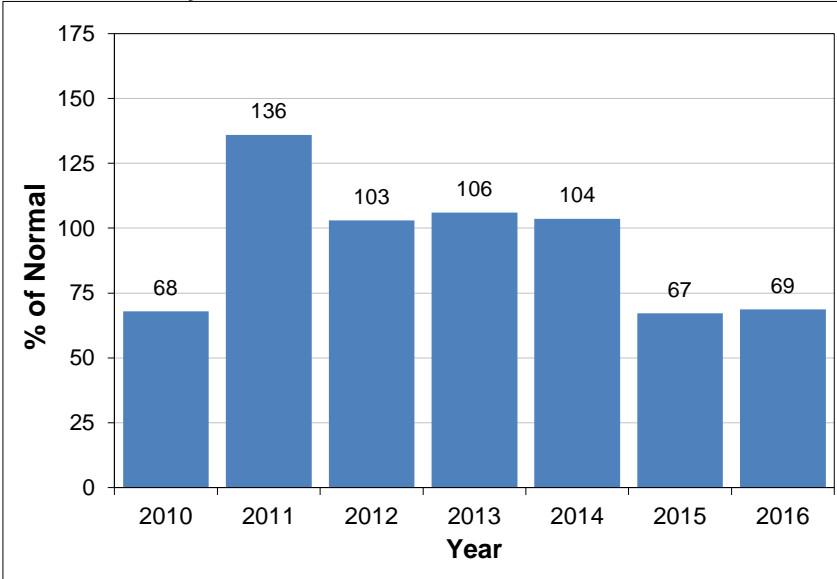
### South Thompson



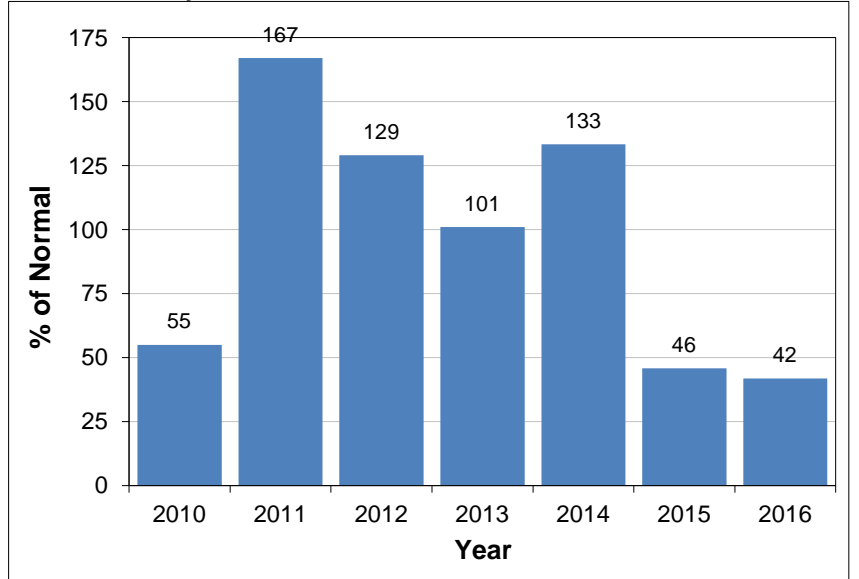
### Upper Columbia



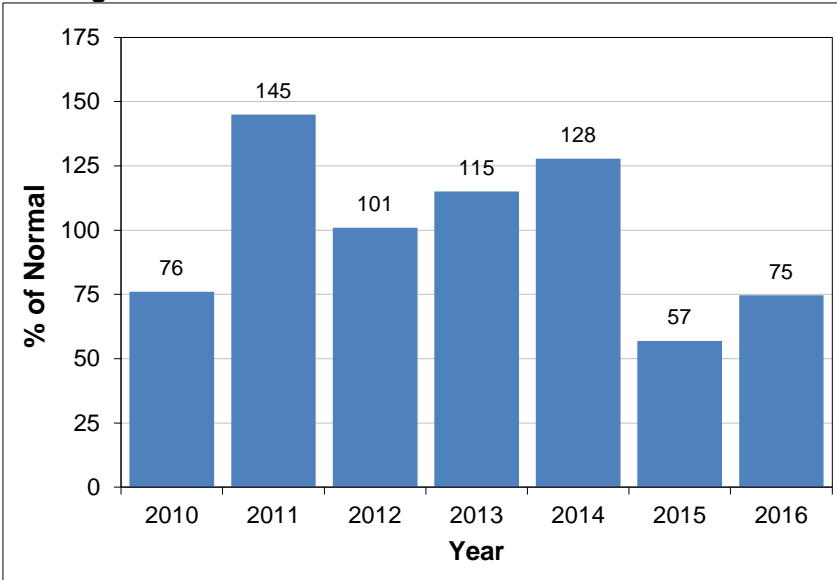
### West Kootenay



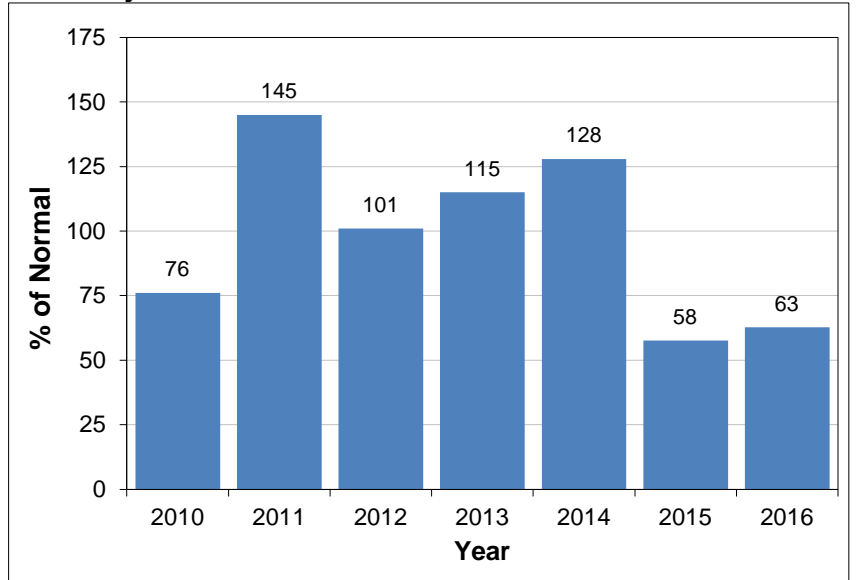
### East Kootenay



### Okanagan

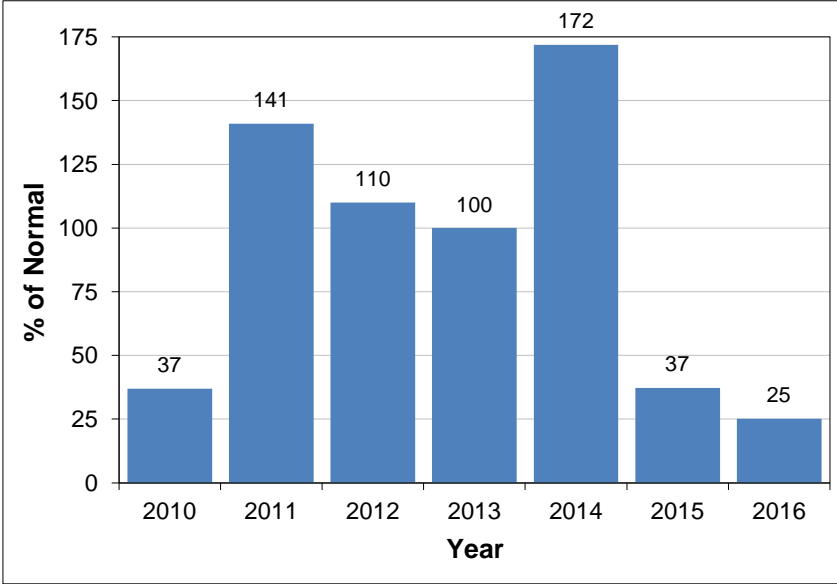


### Boundary

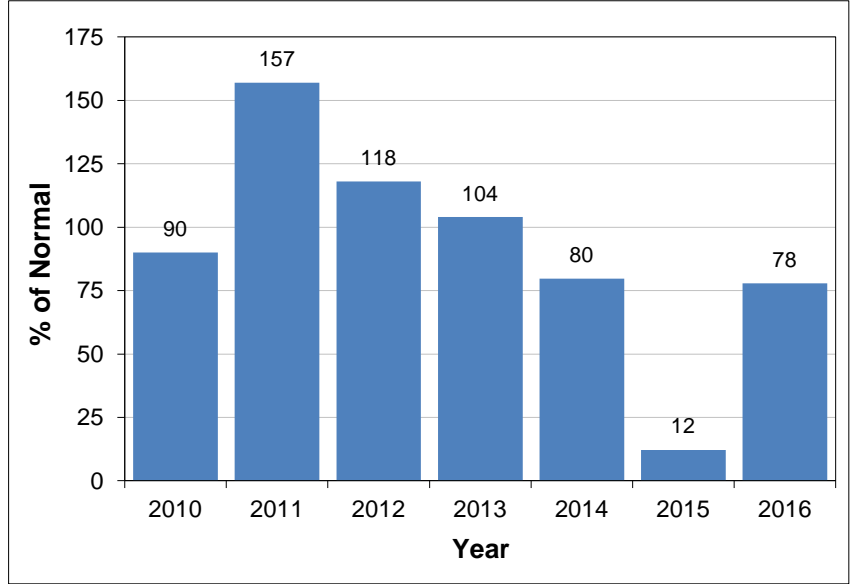


# Snow Basin Index Graphs - May 1, 2016

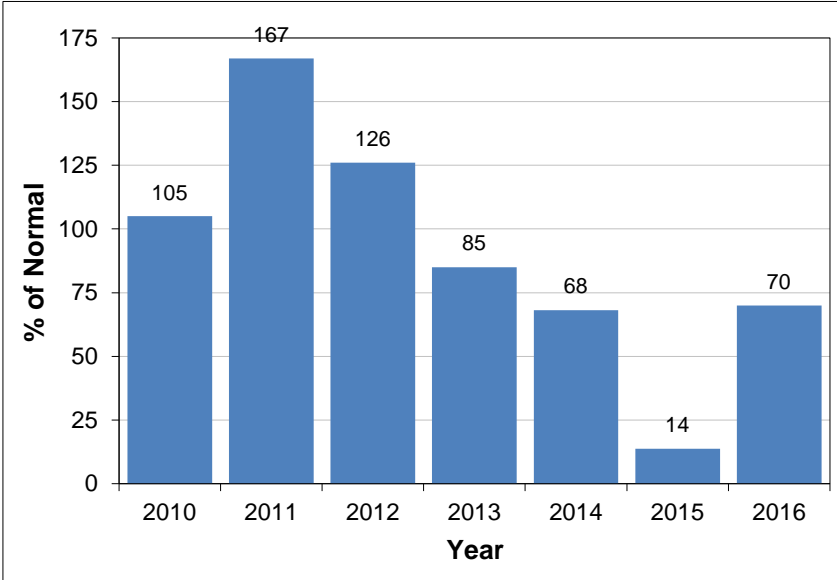
## Similkameen



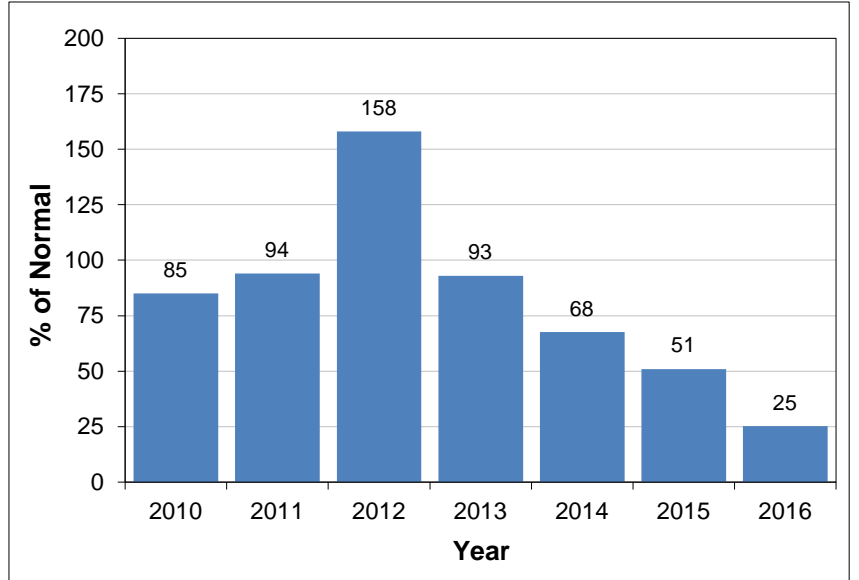
## South Coast



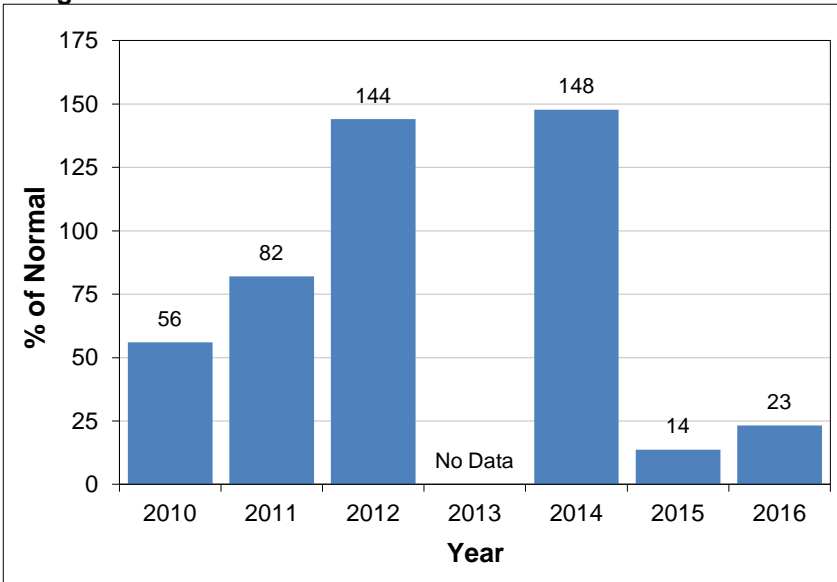
## Vancouver Island



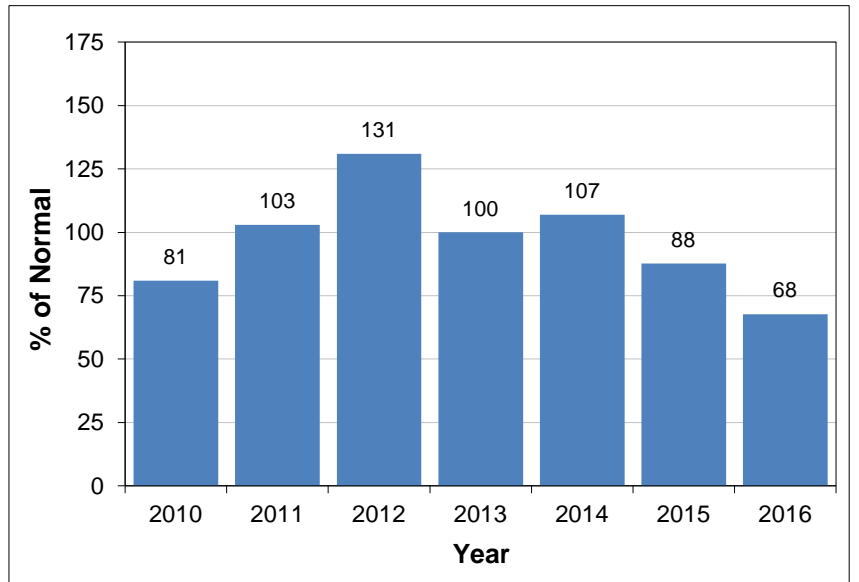
## Central Coast



## Skagit

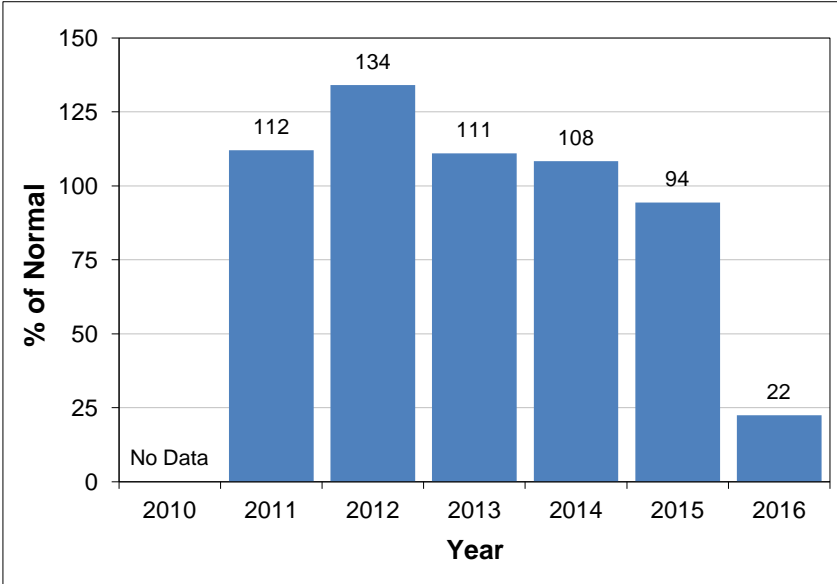


## Peace

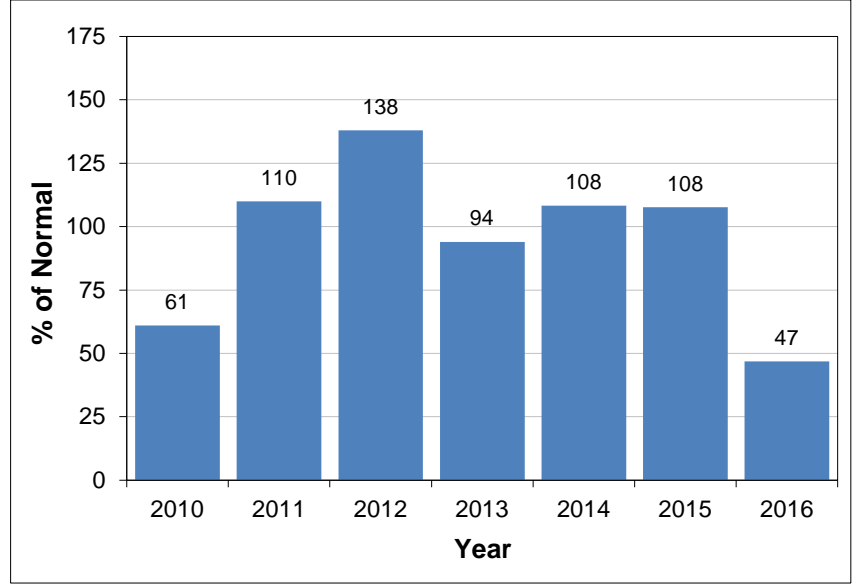


## Snow Basin Index Graphs - May 1, 2016

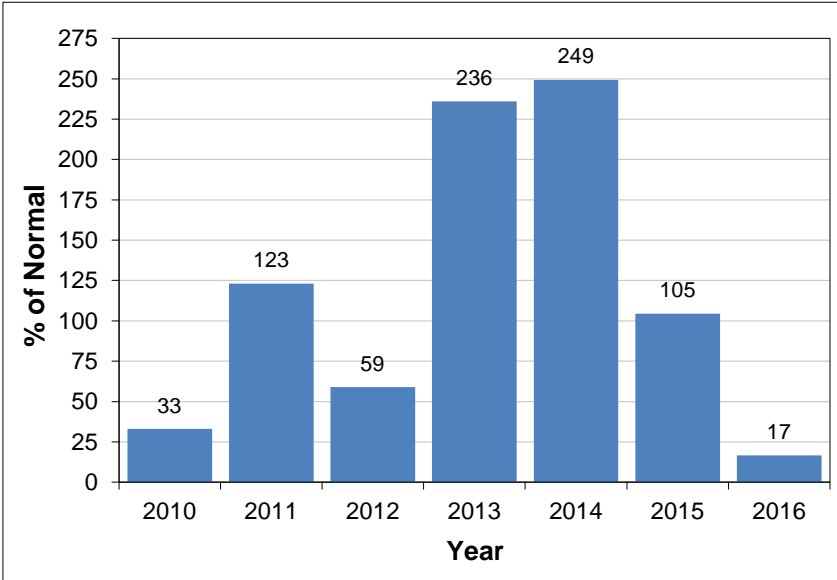
### Stikine



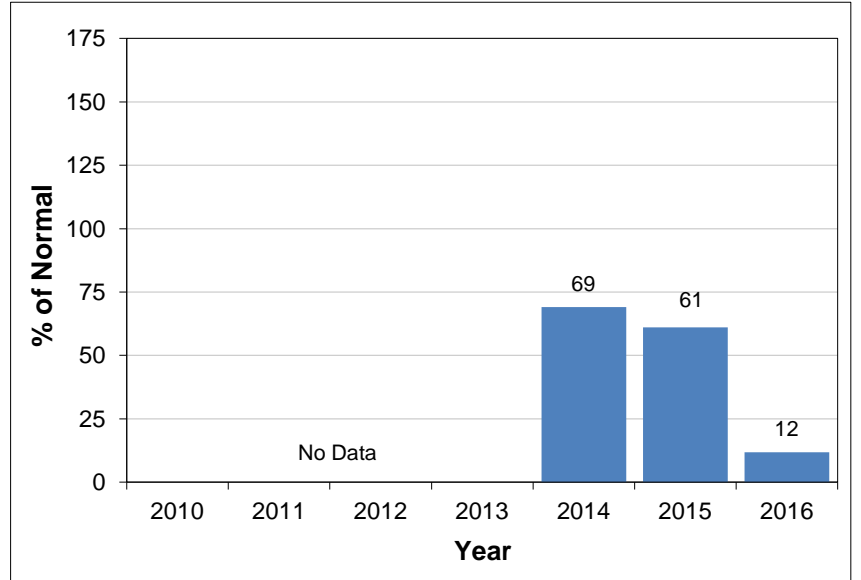
### Skeena-Nass



### Liard



### Northwest



**Ministry of Forests, Lands and Natural Resource Operations**  
**River Forecast Centre**  
**Volume Runoff Forecast May 2016**

Location	May - Jun Runoff				May - Jul Runoff				May - Sep Runoff				
	Forecast (kdam <sup>3</sup> )	Normal (1981-2010) (kdam <sup>3</sup> )	% of Normal	Std. Error (kdam <sup>3</sup> )	Forecast (kdam <sup>3</sup> )	Normal (1981-2010) (kdam <sup>3</sup> )	% of Normal	Std. Error (kdam <sup>3</sup> )	Forecast (kdam <sup>3</sup> )	Normal (1981-2010) (kdam <sup>3</sup> )	% of Normal	Std. Error (kdam <sup>3</sup> )	
Upper Fraser Basin	Fraser at McBride				2897	3534	82%	297	4341	5000	87%	373	
	McGregor at Lower Canyon				2326	3552	65%	376	3318	4598	72%	563	
	Fraser at Shelley				8880	13672	65%	1070	12404	17732	70%	1657	
Middle Fraser Basin	Quesnel River at Quesnel				2907	4117	71%	396	3984	5448	73%	574	
Thompson Basin	N. Thompson at McLure				7817	8209	95%	425	10003	10379	96%	785	
	S. Thompson at Chase				4929	5298	93%	403	6402	6865	93%	659	
	Thompson at Spences Bridge				13496	13923	97%	825	17518	17903	98%	1510	
Bulkley and Skeena	Bulkley at Quick				1550	2383	65%	185	2067	2980	79%	220	
	Skeena at Usk				13665	17317	79%	964	17242	21661	80%	1463	
Nicola Lake	Inflows	139	105	133%	28								
Nicola River	at Spences Bridge	471	409	115%	76	177	122	145%	33				
Okanagan and Kalamalka-Wood Lake	Okanagan Lake Inflow	449	349	129%	81	555	476	116%	98				
	Kalamalka-Wood Lake Inflow	22	19	117%	8	492	376	131%	103				
Similkameen River	Similkameen at Nighthawk	861	1101	78%	152					1072	1411	76%	193
	Similkameen at Hedley	694	827	84%	91					835	1015	82%	105
Cowichan River	Cowichan Lake Inflows	73	130	56%	45					111	174	64%	45

1 kdam<sup>3</sup>=1,000,000 m<sup>3</sup>

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