



## **Snow Survey and Water Supply Bulletin – June 1, 2011**

The June 1<sup>st</sup> snow survey is now complete. Data from 43 snow courses and 55 snow pillows around the province as well as out-of-province sampling locations, and climate data from Environment Canada, have been used to form the basis for the following reports<sup>1</sup>.

### **Weather**

Weather patterns in May have been dominated by cooler than normal temperatures throughout British Columbia. Weather has been unsettled, and patterns are consistent with the La Niña cycle observed through the winter/spring.

### **Snowpack**

Typically the transition from snow accumulation to snow melt occurs at most locations in the province near the middle of April. However this year, the cool April and May led to a delay in the onset of snow melt by 3-4 weeks.

Snow basin indices represent the difference between a “normal” year and the current year for given sampling date, in this case June 1st. A note of caution in interpreting snow basin indices at this time of year is that with a delay in the onset of snow melt, differences between observed and normal snow pack levels can become large. This is because in a normal year, snow water equivalents are lowering because the snow has melted, whereas this years’ snow pack was delayed in melting, so the snow water equivalents remain higher than would normally be present.

Due to the delayed melt, snow basin indices across the province have increased. Basin snow water indices for BC at June 1<sup>st</sup> vary from a low of 56% of normal in the Peace to a high of 407% of normal in the Kootenays. Well above normal snow packs (>120% of normal) are present across the province, except in the Upper Fraser, Skeena/Nass, and Peace, where near normal or slightly above normal snowpack levels are observed. Overall snow water equivalent levels have dropped since May 15<sup>th</sup> as snow has melted.

Low and mid-elevation snow packs are not well represented by the snow basin indices, as snow survey and automated snow pillow sites tend to be at higher elevations. In most regions of the province, low to mid-elevation snow has been melting, and snow line elevations have been rising. Much of the remaining snow is at higher elevations (>1300m-1400m) with the exception of the more mountainous regions (eg. Coast Mountains and Kootenays) where mid-elevation (900m-1200m) snow packs are still present in some locations.

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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.



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### BC Snow Basin Indices – June 1, 2011

Basin	% of Normal <sup>1</sup>	Basin	% of Normal <sup>1</sup>
Upper Fraser	115%	Okanagan-Kettle	274%
Nechako	134%	Similkameen	201%
Middle Fraser	232%	South Coast	281%
Lower Fraser	231%	Vancouver Island	216%
North Thompson	131%	Peace	56%
South Thompson	154%	Skeena-Nass	111%
Columbia	136%		
Kootenay	407%		

<sup>1</sup>with a delay in the snow melt season, differences between observed and normal snow pack levels can become large as snow water equivalents remain higher (see text above)

### Water Supply Outlook

Snow water equivalents have dropped since May 15<sup>th</sup>, with some variability across snow pack sampling locations. While the % of normal values have increased for most of the province, these increases are due to the delay in snowmelt, not the addition of water stored in the snow pack. Therefore the general picture for the province is that the volume of water that will runoff from snow packs over the freshet period is now being pushed later into the season than normal.

Based on elevated snow pack levels (>150% of normal) increased flood risk is still present, particularly in the Kootenay, Okanagan-Kettle, Similkameen, and South Thompson. Whether or not significant flooding occurs in these systems will depend primarily on the weather through the rest June.

In regions with normal or slightly above normal snow pack (<150% of normal), flood risk is considered normal, with the potential for flooding given adverse weather conditions, particularly through the rest of June.

Large peak flows in the Lower Fraser, South Coast and Vancouver Island regions are typically associated with major storm events in the fall and winter and not with spring snowmelt. Despite high snow packs in these regions, increases in flood risk are modest. However, higher than normal runoff volumes are expected in these regions over the freshet period.

For any region of the province, adverse weather conditions which could lead to flood conditions would be extended periods of hot (well above normal) temperatures and/or significant rainfall.

The River Forecast Centre continues monitor the snowpack, weather, and stream flow conditions throughout the province. Advisories are posted on the River Forecast Centre

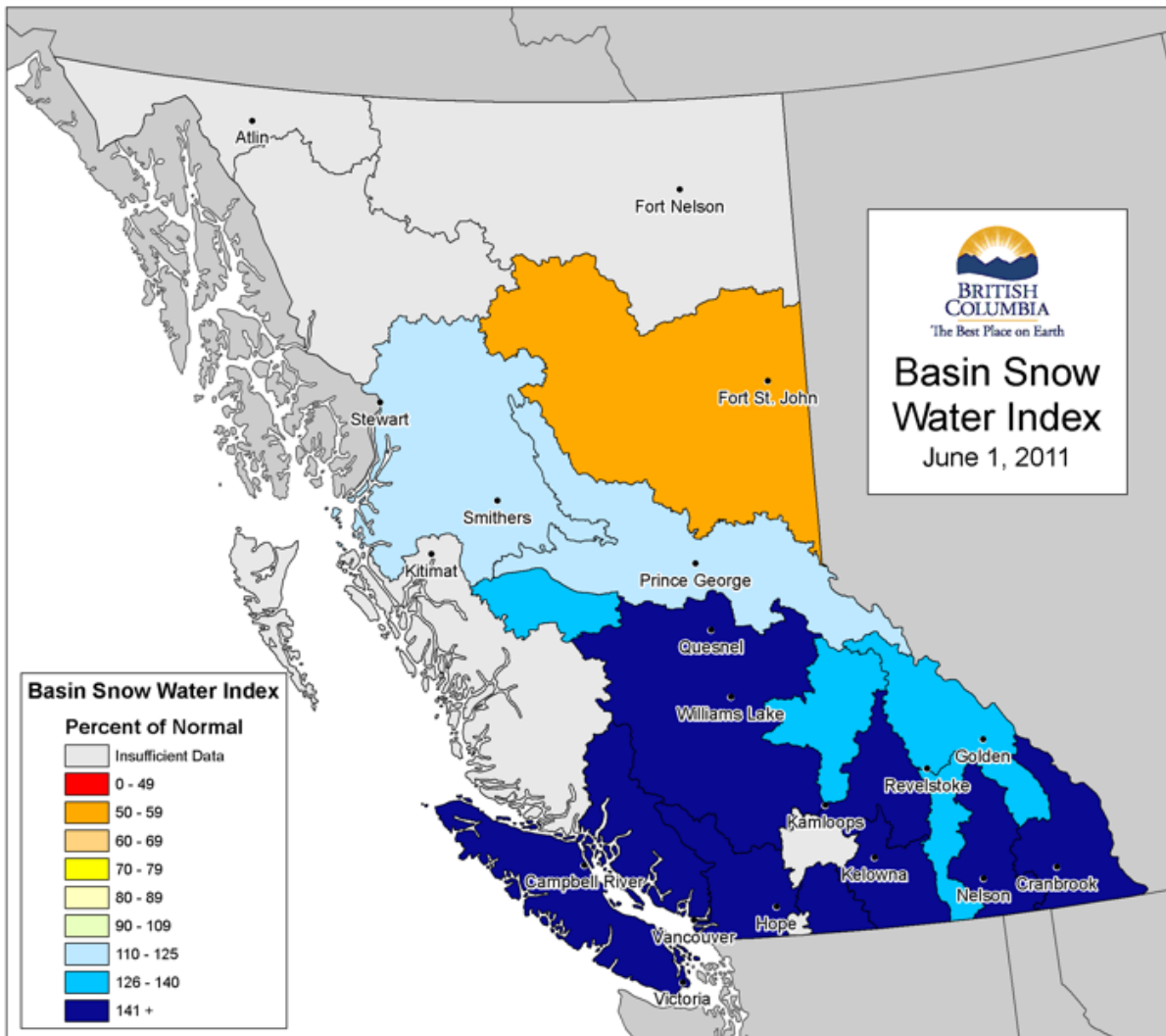
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website as the need arises. The next update to the Snow Survey and Water Outlook bulletin will be released on June 22<sup>nd</sup>.

Produced by: BC River Forecast Centre, June 8, 2011



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## UPPER FRASER Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
PACIFIC LAKE	1A11	770	30-May	0	0	0			411	0	71	33
HEDRICK LAKE	1A14P	1100	01-Jun	98	720	193	388	802	1380	0	374*	11
BIRD CREEK	1A23	1180					0	0	0	0	0*	17
LU LAKE	4B15P	1310	01-Jun	9	135	355	0	0	180	0	38*	12
BARKERVILLE	1A03P	1520	01-Jun	35	169	256	0	34	291	0	66	27
MC BRIDE (UPPER)	1A02	1580	30-May	55	269	132	96	370B	592	0	204	42
KNUDSEN LAKE	1A15	1580	30-May	124	662	100			1113	0	662	31
MCKRIDE (UPPER)	1A02P	1620	01-Jun	56	209	118	107	266	308	45	177*	4
REVOLUTION CREEK	1A17P	1690	01-Jun	N/A	659	133	428	802	974	0	495	26
LONGWORTH (UPPER)	1A05	1740	30-May	147	740	125			1194	0	591	50
DOME MOUNTAIN	1A19	1820	30-May	138	770	116	528	918B	1062	0	664	39
DOME MOUNTAIN	1A19P	1820	01-Jun	123	668	92	499	893	1069	499	729*	5
YELLOWHEAD	1A01P	1860	01-Jun	291	400	86	464	356	857	0	464	14

## NECHAKO Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
TAHTSA LAKE	1B02	1300				963	1039	1828Z	406	1007	36	
TAHTSA LAKE	1B02P	1300	01-Jun	N/A	1157	116	945	1003	2164	277	1001	18
KIDPRICE LAKE	4B01	1370				587	1032	1359A	0	666	36	
MOUNT PONDOSY	1B08P	1400	01-Jun	N/A	508	181	171	253	951	0	280	17
MOUNT WELLS	1B01	1490				211	475	529	0	250	34	
MOUNT WELLS	1B01P	1490	01-Jun	N/A	409	169	189	585	722	0	250	19
NUTLI LAKE	1B07	1490				292	389	618Z	0	219*	20	
MOUNT SWANNELL	1B06	1620				0	261	350Z	0	108*	22	

## MIDDLE FRASER Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
BOSS MOUNTAIN MINE	1C20P	1460	01-Jun	642	364	208	114	184	435	0	175	17
BRENDA MINE	2F18P	1460	01-Jun	N/A	6	N/A	0	51	51	0	0	17
BARKERVILLE	1A03P	1520	01-Jun	35	169	256	0	34	291	0	66	27
YANKS PEAK EAST	1C41P	1670	01-Jun	137	908	154	347	798	1016	128	590	13
PENFOLD CREEK	1C23	1680	30-May	195	1044	123	758	1040B	1354	353	847	40
GREEN MOUNTAIN	1C12P	1780	01-Jun	N/A	918	190	963	195	1183	140	610	17
MISSION RIDGE	1C18P	1850	01-Jun	N/A	442	291	195	0	573	0	151	23

## LOWER FRASER Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
DISAPPOINTMENT LAKE	1D18P	1040	01-Jun	N/A	2177	224	1215		1582P	564P	972*	6
CALLAGHAN CREEK	3A20	1040	30-May	203	1050	477	394	80	1228	0	220	27
DOG MOUNTAIN	3A10	1080	31-May	307	1575	185			2480Z	0	850	24
SPUZZUM CREEK	1D19P	1180	01-Jun	323	1851	164	1350	638	1823	0	1131*	11
WAHLEACH LAKE	1D09P	1400	01-Jun	N/A	1143	176	911	869	1359	0	650	18
CHILLIWACK RIVER	1D17P	1600	01-Jun	N/A	2056	201	1451	1200	1969	0	1023*	15
TENQUILLE LAKE	1D06P	1680	01-Jun	238	1381	187	1135	349	1418	225	739*	10

## NORTH THOMPSON Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
BOSS MOUNTAIN MINE	1C20P	1460	01-Jun	642	364	208	114	184	435	0	175	17
MOUNT COOK	1E02P	1550	01-Jun	231	1435E	139	1271	1099	1579	593	1034*	10
AZURE RIVER	1E08P	1620	01-Jun	134	1107	107	908	881	1778	473	1030	14
ADAMS RIVER	1E07	1720	26-May	167	765	129	623	510	1155	0	595	41
KOSTAL LAKE	1E10P	1770	01-Jun	N/A	983	140	676	825	1377	155	700	26

## SOUTH THOMPSON Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
CELISTA	1F06P	1500	01-Jun	158	890	110	611	506	840	116	478*	4
ADAMS RIVER	1E07	1720	26-May	167	765	129	623	510	1155	0	595	41
SILVER STAR MOUNTAIN	2F10	1840	31-May	158	838	179	562	475	980	0	468	52
PARK MOUNTAIN	1F03P	1890	01-Jun	211	1136	153	761	851	1269	296	742	25
ENDERBY	1F04	1900					967	885	1422	430	960	47

## UPPER COLUMBIA Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
AZURE RIVER	1E08P	1620	01-Jun	134	1107	107	908	881	1778	473	1030	14
KICKING HORSE	2A07	1650	07-Jun	13	44	73			226	0	60	32
MOUNT REVELSTOKE	2A06P	1830	01-Jun	N/A	1428E	125	795	803	2063	240	1146	18
MOLSON CREEK	2A21P	1980	01-Jun	N/A	889	110	968	889	1512	98	810	27
BOW SUMMIT II	AL07A	2080	30-May	58	227	157	106		414	0	145*	4

## LOWER COLUMBIA Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
FERGUSON	2D02	880	27-May	80	400	1600			322	0	25	13
FARRON	2B02A	1220	27-May	10	34	1133			19	0	3	18
BARNES CREEK	2B06P	1620	01-Jun	N/A	630	307	113	338	529	0	205	18
ST. LEON CREEK	2B08P	1800	01-Jun	N/A	1380	169	638	795	1580	225	815	17
RECORD MOUNTAIN	2B09	1890	28-May	190	810	183	450	238	1073	0	442	34
EAST CREEK	2D08P	2030	01-Jun	N/A	971	109	608	563	1256	111	770	28

## EAST KOOTENAY Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
FERNIE EAST	2C07	1250	30-May	0	0	0			51	0	5	14
SULLIVAN MINE	2C04	1550	31-May	22	98	754	0	0	137	0	13	28
BANFIELD MOUNTAIN	MT05P	1710	01-Jun	91	384	519	0	13	254	0	74	13
MORRISSEY RIDGE	2C09Q	1800	01-Jun	N/A	878	627	158	109	810	0	140	26
RED MOUNTAIN	MT04	1830	31-May	104	501	482			560	0	104	52
MOYIE MOUNTAIN	2C10P	1930	01-Jun	N/A	474	677	0	8	438	0	60	25
HAWKINS LAKE	MT06P	1970	01-Jun	203	1028	208	354	307	947	0	495	14
FLOE LAKE	2C14P	2090	01-Jun	N/A	791	130	566	465	979	98	610	16
HIGHWOOD SUMMIT (BUSH)	AL02	2210	31-May	144	528	143			458	233	369*	3
SUNSHINE VILLAGE	AL05	2230	01-Jun	139	637	138	396		583	331	462*	4

## WEST KOOTENAY Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
FERGUSON	2D02	880	27-May	80	400	1600			322	0	25	13
CHAR CREEK	2D06	1310	01-Jun	79	362	658	117	26	327	0	55	34
BUNCHGRASS MEADOW	WA01P	1520	01-Jun	157	674	531	277	221	800	0	127	13
GRAY CREEK (LOWER)	2D05	1550	30-May	112	498	237		312	551	0	210	57
GRAY CREEK (UPPER)	2D10	1910	30-May	176	851	159	487	629	1120	0	535	38
EAST CREEK	2D08P	2030	01-Jun	N/A	971	109	608	563	1256	111	770	28
REDFISH CREEK	2D14P	2104	01-Jun	458	1702	148	1200	867	1624	760	1153*	9

## KETTLE Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
FARRON	2B02A	1220	27-May	10	34	1133			19	0	3	18
BIG WHITE MOUNTAIN	2E03	1680	01-Jun	126	528	261	242	125	658	0	202	45
GRAND CREEK	2E07P	1860	01-Jun	N/A	727	237	300	263	754	0	307*	13



## OKANAGAN Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
SUMMERLAND RESERVOIR	2F02	1280	30-May	0	0	0			25	0	5*	8
BRENDA MINE	2F18P	1460	01-Jun	N/A	6	N/A	0	51	51	0	0	17
GREYBACK RESERVOIR	2F08	1550	02-Jun	23	104	2600			155	0	4	24
ISINTOK LAKE	2F11	1680	28-May	30	60	240		0	211	0	25	21
MISSION CREEK	2F05P	1780	01-Jun	137	620	263	391	300	641	0	236	39
MOUNT KOBAN	2F12	1810	27-May	106	396	300	271	40	488	0	132	45
WHITEROCKS MOUNTAIN	2F09	1830	30-May	92	400	204	194	61	848	0	196	39
SILVER STAR MOUNTAIN	2F10	1840	31-May	158	838	179	562	475	980	0	468	52

## SIMILKAMEEN Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
ISINTOK LAKE	2F11	1680	28-May	30	60	240		0	211	0	25	21
BLACKWALL PEAK	2G03P	1940	01-Jun	191	941	201	589	345	1253	0	452	43
HARTS PASS	WA09P	1980	01-Jun	267	1671	272	478	541	1557	76	615	13

## SOUTH COASTAL Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
PALISADE LAKE	3A09P	880	01-Jun	N/A	N/A	N/A	N/A		595	0	354*	3
CALLAGHAN CREEK	3A20	1040	30-May	203	1050	477	394	80	1228	0	220	27
ORCHID LAKE	3A19	1190	31-May	495	2592	166	1712	1017	3648	174	1560	31
ORCHID LAKE	3A19P	1190	01-Jun	430	2277	162	1395		2463	124	1408*	20
UPPER SQUAMISH RIVER	3A25P	1340	01-Jun	415	2441E	200	1431	N/A	1729	461	1220	20
NOSTETUKO RIVER	3A22P	1500	01-Jun	18	676	669	304	60	582	0	101*	19
UPPER MOSELY CREEK	3A24P	1650	01-Jun	57	233	777	55	0	214	0	30*	22



## VANCOUVER ISLAND Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2008 mm	Max. mm	Min. mm	Normal mm		
JUMP CREEK	3B23P	1160	01-Jun	330	1914	368	747	315	1234	0	520	14
WOLF RIVER (UPPER)	3B17P	1490	01-Jun	N/A	2115	212	1795	527	2465	58	980	23

## NORTH COASTAL Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
TAHTSA LAKE	1B02	1300				963	1023	1828Z	406	1007	36	
TAHTSA LAKE	1B02P	1300	01-Jun	N/A	1157	116	945	1003	2164	277	1001	18
BURNT BRIDGE CREEK	3C08P	1330	01-Jun	N/A	512	154	199		1133	0	333*	13

## SKAGIT Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record	
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
HARTS PASS	WA09P	1980	01-Jun	267	1671	272	478	541	1557	76	615	13

## PEACE Drainage Basin

Snow Course Name and Number	Elev. metres					Historic, Water Equivalent (mm)					Yrs of Record	
						2010 mm	2009 mm	Max. mm	Min. mm	Normal mm		
PACIFIC LAKE	1A11	770	30-May	0	0	0			411	0	71	33
AIKEN LAKE	4A30P	1040	01-Jun	N/A	2	N/A	0	0	0	0	0	24
PULPIT LAKE	4A09P	1310	01-Jun	N/A	0	N/A	0	213	241	0	0	20
PINE PASS	4A02P	1400	01-Jun	N/A	727	91	598	1017	1500A	183	795	18
KWADACHA RIVER	4A27P	1620	01-Jun	N/A	38	18	15	349	458	0	217*	22

## LIARD Drainage Basin

Snow Course Name and Number	Elev. metres		Historic, Water Equivalent (mm)					Yrs of Record
			2010 mm	2009 mm	Max. mm	Min. mm	Normal mm	
<i>NOTE: No Surveys currently done in this basin.</i>								

## SKEENA/NASS Drainage Basin

Snow Course Name and Number	Elev. metres		Historic, Water Equivalent (mm)					Yrs of Record				
			2010 mm	2009 mm	Max. mm	Min. mm	Normal mm					
CEDAR-KITEEN	4B18P	885	01-Jun	60	173	99	0	506	646	0	175*	10
MCKENDRICK CREEK	4B07	1050	31-May	32	115	821			149	0	14*	13
LU LAKE	4B15P	1310	01-Jun	9	135	355	0	0	180	0	38*	12
TSAI CREEK	4B17P	1360	01-Jun	177	1346	130	1039	1329	2123	371	1033*	13
KIDPRICE LAKE	4B01	1370					587	1032	1359A	0	666	36
CHAPMAN LAKE	4B04	1460	31-May	93	424	88			594	285	482*	5
HUDSON BAY MTN.	4B03A	1480	31-May	93	433	150	260		729	0	288	38
MOUNT CRONIN	4B08	1480	31-May	142	674	95			927	500	706*	8
SHEDIN CREEK	4B16P	1480	01-Jun	118	739	100	293	983	1279	98	736*	13

## STIKINE/TAKU Drainage Basin

Snow Course Name and Number	Elev. metres	Date of Survey	Jun 1 2011			Historic, Water Equivalent (mm)					Yrs of Record
			Snow Depth cm	Water Equiv. mm	% of Normal	2010 mm	2008 mm	Max. mm	Min. mm	Normal mm	
<i>NOTE: No Surveys currently done in this basin.</i>											
A - SAMPLING PROBLEMS WERE ENCOUNTERED											
B - EARLY OR LATE SAMPLING											
C - EARLY OR LATE SAMPLING WITH PROBLEMS ENCOUNTERED											
E - ESTIMATED BASED ON AREAL AVERAGE											
* - PERIOD OF RECORD AVERAGE											