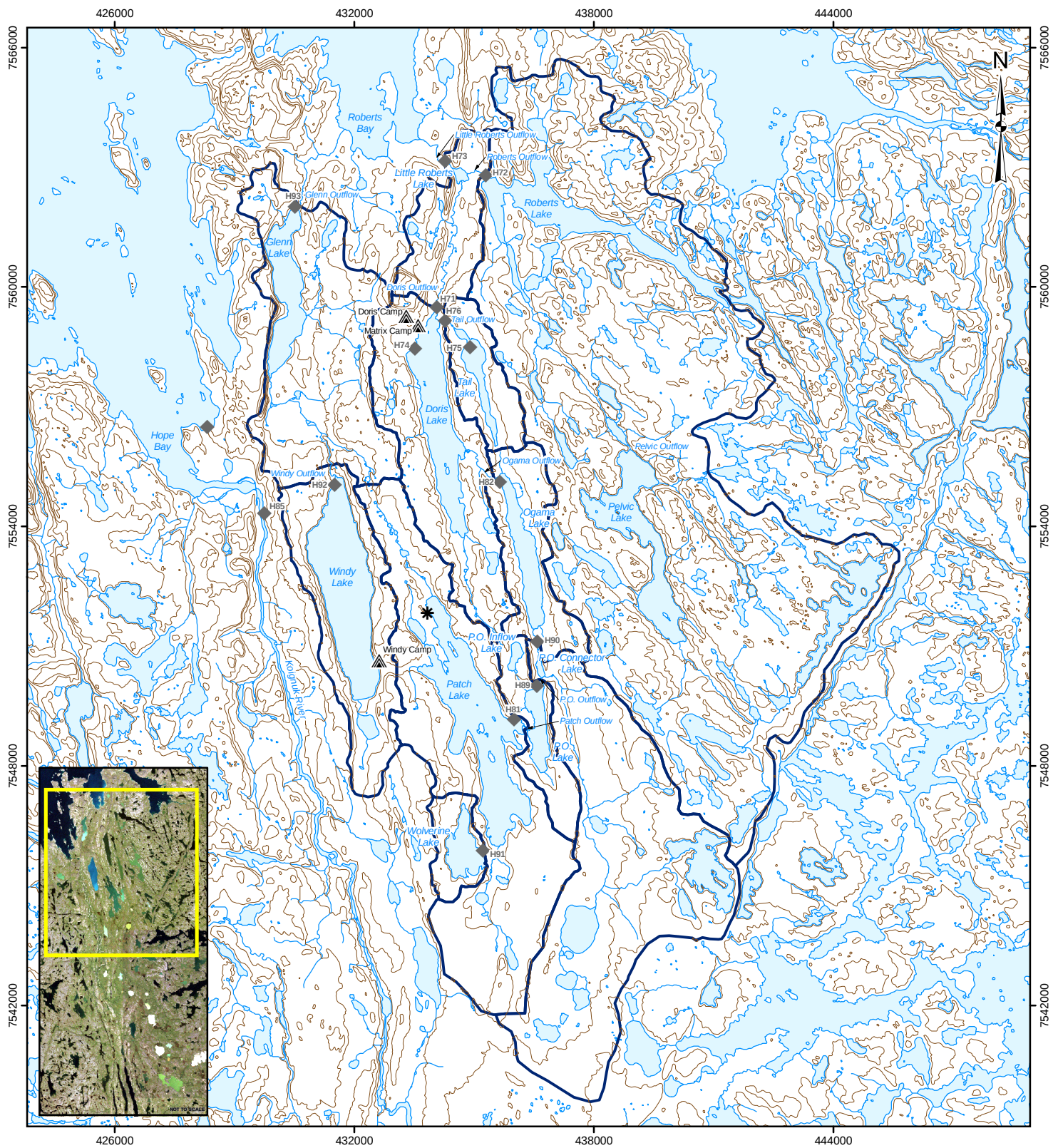


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LEGEND

- CAMP
- HYDROMETRIC STATION
- MAJOR DRILLING SHOP
- CONTOUR (20 m INTERVAL)
- WATERCOURSE
- WATERBODY
- WATERSHED (ASSOCIATED WITH THE MAIN LAKE WATERBODY)

REFERENCE

Base data obtained from Government of Canada, Natural Resources Canada, Centre for Topographic Information (1:50 000). Landsat 7 imagery captured in 2007, obtained from CanImage. Field data collected by Golder Associates Ltd., 2008.
Projection: UTM Zone 13 Datum: NAD 83

4000 0 4000
SCALE 1:135000 METRES

PROJECT



HOPE BAY MINING LTD.

TITLE

DORIS PROJECT AREA WATERSHED LIMITS
AND HYDROMETRIC STATION LOCATIONS



PROJECT NO. 08-1373-0026			SCALE AS SHOWN	REV. 0
DESIGN	DC	9 Jan. 2009	FIGURE: 3.2	
GIS	DC	9 Jan. 2009		
CHECK	DC	25 Mar. 2009		
REVIEW	NS	25 Mar. 2009		



Local water balances for Doris Lake and Tail Lake watersheds were calculated where complete annual data are available for the years 2004 to 2008. These are presented in Table 3.3 for Doris Lake and in Table 3.4 for Tail Lake.

Table 3.3: Calculated Doris Lake Water Balances, 2004 to 2008

Parameter	2004	2005	2006	2007	2008
Rainfall ^a	65.0	102.8	64.7	101.5	172.1
Snow Water Equivalent	56.0	66.0	79.0	77.9	93.1
Total Annual Input	115.0	158.0	132.0	179.4	265.2
Water Yield	62.0	83.0	73.0	80.0	153.0
Lake Evaporation ^b	40.0	41.0	54.0	49.2	47.7
Calculated Other Losses	13.0	34.0	5.0	50.2	64.5
Runoff Coefficient	54%	53%	55%	45%	58%

Note: %= percent

(a) Measured values adjusted using undercatch factor of 1.29.

(b) Based on 19% lake area in the watershed.

Table 3.4: Calculated Tail Lake Water Balances, 2004 to 2008

Parameter	2004	2005	2006	2007	2008
Rainfall ^a	65.0	102.8	64.7	101.5	172.1
Snow Water Equivalent	56.0	66.0	79.0	77.9	93.1
Total Annual Input	115.0	158.0	132.0	179.4	265.2
Water Yield	42.0	84.0	53.0	82.0	152.0
Lake Evaporation ^b	41.0	41.0	55.0	55.3	50.0
Calculated Other Losses	32.0	33.0	24.0	42.1	63.2
Runoff Coefficient	37%	53%	40%	46%	57%

Note: %= percent

(c) Measured values adjusted using undercatch factor of 1.29.

(d) Based on 19% lake area in the watershed.

3.3 WATER BALANCE MODELING

3.3.1 Water Balance Model Description

In order to assess mean characteristics and natural variability of flows at major waterbodies in the Little Roberts and Glenn lake watersheds, a water balance model was developed. The model description and calibration are described in detail in Appendix E.

The water balance model was set up using GoldSim™ software on a daily time step for the period 1948 to 2008. This time period was selected to allow use of the derived climate data discussed in Section 2 of this report. In the model, the basic water balance for each sub-watershed considered rainfall and snowmelt runoff, direct precipitation to the lake surface, inflow from upstream watersheds, changes in lake storage, lake evaporation and outflow to downstream watersheds.

The model was calibrated using runoff coefficients from land surfaces, stage-discharge rating curves at lake outflows, and degree-day models for snowmelt, spring ice melt and winter freeze-up in lake outflow channels. These parameters were calibrated using climate and hydrology data collected from 2004 to 2008 at the Project.



The calibrated model was used to generate a daily time series of outflows for lakes of interest at the Project. Frequency analyses were performed on these data sets to characterize key discharge parameters. The results of the model are summarized in the following section.

3.3.2 Lake Outflow Regimes

Model results for lake outflows of interest at Doris North were subject to flood and drought frequency analyses for the following parameters:

- Monthly flow volumes for June to October;
- Maximum annual peak (mean daily);
- Annual maxima of 7-day and 14-day mean discharges; and
- July and August 7-day low flow (mean daily).

Due to the highly attenuated nature of lake outflows at the Project, derived mean daily outflows are similar to peak instantaneous outflows.

3.3.2.1 Wolverine Lake

Model results for Wolverine Lake are presented in Table 3.5 (maximum annual peak outflow volumes) and Table 3.6 (long duration floods and low flow discharges).

Table 3.5: Derived Maximum Annual Outflow Volumes at Wolverine Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	105,099	238,588	215,699	115,404	28,844	181.6
	50	90,539	218,690	183,655	95,664	20,209	165.7
	20	72,166	190,179	144,785	72,680	12,251	143.5
	10	58,755	166,510	117,535	57,229	8,054	125.7
	5	45,463	140,203	91,473	42,991	4,929	106.5
Median	2	26,641	97,060	56,215	24,617	1,845	76.8
Dry	5	13,413	62,449	32,564	12,730	295	52.7
	10	8,598	46,472	24,064	9,031	31	41.5
	20	5,352	34,395	18,430	6,715	0	33.0
	50	2,343	21,909	13,292	4,712	0	24.3
	100	655	14,187	10,450	3,657	0	18.9

Note: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 2.9 km².



Table 3.6: Derived Representative Discharges at Wolverine Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	15,854	13,624	11,745	4,803	3,938
	50	13,605	11,924	10,441	4,389	3,391
	20	10,899	9,788	8,743	3,800	2,707
	10	9,017	8,235	7,462	3,314	2,210
	5	7,230	6,703	6,155	2,776	1,722
Median	2	4,835	4,543	4,235	1,900	1,035
Dry	5	3,175	2,993	2,815	1,209	553
	10	2,450	2,310	2,177	897	401
	20	1,937	1,821	1,712	663	304
	50	1,442	1,341	1,249	423	217
	100	1,152	1,057	971	276	171

Note: m³/d = cubic metres per day

3.3.2.2 Patch Lake

Model results for Patch Lake are presented in Table 3.7 (maximum annual peak outflow volumes) and Table 3.8 (long duration floods and low flow discharges).

Table 3.7: Derived Maximum Annual Outflow Volumes at Patch Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	1,590,250	2,646,921	2,148,113	1,193,089	455,389	182.4
	50	1,427,073	2,388,329	1,822,000	1,015,606	377,027	167.8
	20	1,204,270	2,035,890	1,434,173	801,512	285,700	147.5
	10	1,028,104	1,757,735	1,167,734	652,270	224,243	131.3
	5	840,616	1,462,189	917,451	510,258	167,561	113.9
Median	2	549,839	1,004,787	586,486	319,362	94,330	87.1
Dry	5	330,226	658,518	369,486	191,139	46,710	65.5
	10	234,919	515,213	298,547	148,999	32,159	55.5
	20	165,360	412,170	253,160	121,849	23,094	47.9
	50	95,815	310,601	213,130	97,742	15,299	40.1
	100	54,072	250,404	191,653	84,732	11,212	35.2

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 31.3 km².



Table 3.8: Derived Representative Discharges at Patch Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	177,714	139,613	118,705	53,563	37,039
	50	154,049	124,675	107,742	47,546	32,610
	20	125,333	105,299	92,923	39,748	26,882
	10	105,195	90,757	81,324	33,902	22,596
	5	85,931	75,981	69,090	27,966	18,252
Median	2	59,859	54,385	50,335	19,299	11,924
Dry	5	41,686	38,402	36,036	13,092	7,327
	10	34,022	31,525	29,633	10,421	5,842
	20	28,653	26,583	24,920	8,508	4,869
	50	23,489	21,713	20,170	6,631	3,990
	100	20,495	18,828	17,298	5,523	3,509

Note: m³/d = cubic metres per day

3.3.2.3 PO Lake

Model results for PO Lake are presented in Table 3.9 (maximum annual peak outflow volumes) and Table 3.10 (long duration floods and low flow discharges).

Table 3.9: Derived Maximum Annual Outflow Volumes at PO Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	3,177,026	5,191,338	4,750,269	2,969,431	1,207,956	194.2
	50	2,838,773	4,797,963	4,159,410	2,626,777	1,042,232	180.9
	20	2,385,042	4,233,152	3,427,475	2,191,921	836,173	162.2
	10	2,032,664	3,763,327	2,903,219	1,872,681	688,018	147.0
	5	1,663,587	3,240,155	2,392,215	1,554,630	543,121	130.5
Median	2	1,102,796	2,380,135	1,683,950	1,101,335	341,424	104.5
Dry	5	682,658	1,694,859	1,202,028	783,821	201,915	83.6
	10	497,862	1,385,349	1,030,442	668,893	148,705	73.8
	20	363,026	1,152,950	916,310	591,415	112,482	66.4
	50	228,250	914,199	811,859	519,598	78,590	58.7
	100	147,372	767,390	753,930	479,310	59,418	54.0

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 66.3 km².



Table 3.10: Derived Representative Discharges at PO Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	262,840	242,143	224,664	126,325	97,290
	50	236,576	219,919	205,019	114,889	87,988
	20	202,346	190,284	178,494	99,369	75,495
	10	176,527	167,408	157,756	87,172	65,781
	5	150,178	143,575	135,908	74,262	55,594
Median	2	111,453	107,611	102,458	54,380	40,093
Dry	5	83,176	80,811	77,365	39,495	28,562
	10	70,975	69,077	66,153	32,850	24,238
	20	62,199	60,540	57,918	27,966	21,238
	50	53,545	52,031	49,636	23,051	18,380
	100	48,414	46,938	44,637	20,084	16,738

Note: m³/d = cubic metres per day

3.3.2.4 Ogama Lake

Model results for Ogama Lake are presented in Table 3.11 (maximum annual peak outflow volumes) and Table 3.12 (long duration floods and low flow discharges).

Table 3.11: Derived Maximum Annual Outflow Volumes at Ogama Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	3,397,276	5,647,028	5,190,190	3,267,481	1,383,085	192.8
	50	3,059,287	5,219,872	4,544,158	2,890,231	1,192,675	179.4
	20	2,596,973	4,606,403	3,740,999	2,409,292	955,788	160.7
	10	2,230,767	4,095,973	3,163,616	2,054,586	785,372	145.5
	5	1,840,399	3,527,456	2,598,998	1,699,751	618,619	128.9
Median	2	1,233,720	2,592,622	1,813,173	1,191,372	386,350	102.9
Dry	5	771,212	1,847,630	1,276,669	833,260	225,542	81.8
	10	563,567	1,509,388	1,080,347	703,154	164,446	72.0
	20	410,204	1,254,979	948,509	615,213	122,895	64.5
	50	255,115	993,187	826,751	533,491	84,056	56.8
	100	161,077	831,975	758,671	487,542	62,104	52.0

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 73.4 km².



Table 3.12: Derived Representative Discharges at Ogama Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	269,824	251,851	239,991	139,559	107,868
	50	246,038	229,270	218,885	126,905	97,353
	20	213,880	199,001	190,459	109,696	83,245
	10	188,705	175,511	168,290	96,142	72,285
	5	162,148	150,924	144,984	81,767	60,804
Median	2	121,428	113,596	109,404	59,574	43,353
Dry	5	90,626	85,795	82,836	42,914	30,382
	10	77,136	73,486	71,020	35,369	25,471
	20	67,278	64,491	62,363	29,796	22,056
	50	57,410	55,487	53,674	24,159	18,794
	100	51,481	50,076	48,441	20,741	16,914

Note: m³/d = cubic metres per day

3.3.2.5 Tail Lake

Model results for Tail Lake are presented in Table 3.13 (maximum annual peak outflow volumes) and Table 3.14 (long duration floods and low flow discharges).

Table 3.13: Derived Maximum Annual Outflow Volumes at Tail Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	243,481	353,158	285,088	150,573	28,699	153.0
	50	229,769	313,995	231,674	123,360	20,482	141.1
	20	207,868	260,980	170,574	91,719	12,694	124.4
	10	187,598	219,424	130,238	70,477	8,463	110.8
	5	162,760	175,540	93,661	50,927	5,230	95.9
Median	2	116,558	108,152	47,410	25,737	1,935	72.2
Dry	5	75,670	56,638	17,226	8,980	0	52.9
	10	54,691	38,471	10,843	4,280	0	43.8
	20	37,756	26,057	7,301	1,426	0	36.9
	50	19,109	14,401	4,570	0	0	29.8
	100	6,916	7,787	3,273	0	0	25.3

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 4.4 km².



Table 3.14: Derived Representative Discharges at Tail Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	33,615	22,641	17,060	5,049	3,832
	50	28,194	19,992	15,750	4,243	3,155
	20	22,148	16,747	13,939	3,269	2,353
	10	18,259	14,452	12,490	2,587	1,804
	5	14,812	12,238	10,930	1,938	1,291
Median	2	10,578	9,210	8,477	1,061	617
Dry	5	7,941	7,126	6,574	468	125
	10	6,815	6,170	5,661	276	60
	20	6,048	5,485	4,970	153	29
	50	5,330	4,809	4,255	44	7
	100	4,924	4,410	3,812	0	0

Note: m³/d = cubic metres per day

3.3.2.6 Doris Lake

Model results for Doris Lake are presented in Table 3.15 (maximum annual peak outflow volumes) and Table 3.16 (long duration floods and low flow discharges).

Table 3.15: Derived Maximum Annual Outflow Volumes at Doris Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	3,867,979	6,876,478	6,384,505	4,103,699	1,791,996	189.0
	50	3,558,693	6,362,595	5,600,438	3,616,204	1,522,776	175.6
	20	3,112,820	5,621,310	4,612,776	2,990,946	1,195,432	156.7
	10	2,740,419	5,001,790	3,893,183	2,526,953	965,385	141.4
	5	2,324,223	4,309,028	3,181,085	2,060,247	744,903	124.8
Median	2	1,636,845	3,164,063	2,174,865	1,386,902	445,800	98.6
Dry	5	1,088,283	2,247,665	1,476,315	907,535	243,357	77.4
	10	841,979	1,825,453	1,217,563	734,001	171,944	67.6
	20	657,206	1,505,989	1,042,362	616,576	124,823	60.1
	50	467,546	1,175,373	879,282	507,343	82,025	52.3
	100	351,011	970,744	787,455	445,870	58,451	47.4

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 93.3 km².



Table 3.16: Derived Representative Discharges at Doris Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	307,250	291,873	282,882	169,578	135,976
	50	282,179	268,052	259,186	155,028	121,867
	20	247,700	235,329	226,866	134,770	103,002
	10	220,237	209,298	201,337	118,434	88,398
	5	190,819	181,442	174,193	100,740	73,146
Median	2	144,811	137,936	132,146	72,673	50,056
Dry	5	109,424	104,642	100,279	51,065	32,879
	10	93,727	89,876	86,171	41,129	26,579
	20	82,153	78,996	75,807	33,700	22,243
	50	70,468	68,017	65,379	26,097	18,144
	100	63,392	61,374	59,085	21,438	15,804

Note: m³/d = cubic metres per day

3.3.2.7 Roberts Lake

Model results for Roberts Lake are presented in Table 3.17 (maximum annual peak outflow volumes) and Table 3.18 (long duration floods and low flow discharges).

Table 3.17: Derived Maximum Annual Outflow Volumes at Roberts Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	5,650,788	8,212,646	6,779,309	3,849,778	1,492,253	184.9
	50	4,930,641	7,488,473	5,765,660	3,317,286	1,252,397	171.0
	20	4,013,367	6,474,223	4,556,298	2,659,337	965,934	151.5
	10	3,337,458	5,651,409	3,722,715	2,189,301	768,273	135.7
	5	2,661,841	4,755,429	2,937,389	1,732,205	581,879	118.6
Median	2	1,694,859	3,324,348	1,895,039	1,100,521	334,187	91.8
Dry	5	1,006,960	2,208,433	1,207,126	665,437	168,972	70.2
	10	722,043	1,734,605	988,654	519,268	115,707	60.0
	20	521,144	1,388,213	849,934	423,726	81,706	52.3
	50	326,783	1,041,335	728,462	337,726	51,782	44.3
	100	213,495	832,834	663,713	290,736	35,758	39.4

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 97.5 km².



Table 3.18: Derived Representative Discharges at Roberts Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	515,516	431,972	377,368	173,227	119,690
	50	450,781	387,532	342,801	153,710	105,898
	20	371,097	329,495	296,191	128,496	87,868
	10	314,391	285,630	259,801	109,646	74,226
	5	259,435	240,783	221,507	90,561	60,266
Median	2	183,820	174,718	162,971	62,795	39,676
Dry	5	130,914	125,857	118,711	42,978	24,513
	10	108,232	104,454	98,648	34,482	19,592
	20	92,218	88,967	83,845	28,412	16,351
	50	76,705	73,609	68,888	22,467	13,413
	100	67,654	64,459	59,827	18,963	11,797

Note: m³/d = cubic metres per day

3.3.2.8 Little Roberts Lake

Model results for Little Roberts Lake are presented in Table 3.19 (maximum annual peak outflow volumes) and Table 3.20 (long duration floods and low flow discharges).

Table 3.19: Derived Maximum Annual Outflow Volumes at Little Roberts Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	9,537,984	15,439,631	13,552,182	8,223,766	3,372,917	185.6
	50	8,557,203	14,199,851	11,732,416	7,177,873	2,846,018	172.3
	20	7,233,762	12,432,742	9,495,564	5,858,081	2,212,184	153.6
	10	6,199,759	10,973,602	7,906,021	4,894,781	1,771,598	138.4
	5	5,110,951	9,359,438	6,367,491	3,939,999	1,353,405	121.7
Median	2	3,445,195	6,728,378	4,254,025	2,588,119	793,049	95.5
Dry	5	2,191,991	4,643,851	2,820,025	1,638,545	417,535	74.1
	10	1,659,607	3,716,169	2,325,607	1,308,323	290,769	64.2
	20	1,274,672	3,024,322	2,000,664	1,088,721	208,527	56.6
	50	893,229	2,318,164	1,706,656	887,786	135,024	48.7
	100	666,092	1,886,442	1,545,259	776,368	95,117	43.8

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 197.5 km².



Table 3.20: Derived Representative Discharges at Little Roberts Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	768,230	703,801	653,539	376,015	266,075
	50	695,849	643,533	599,984	336,036	237,470
	20	599,322	561,098	525,921	283,589	199,486
	10	524,799	495,803	466,600	243,768	170,288
	5	447,154	426,201	402,737	202,889	139,985
Median	2	329,971	318,035	302,216	142,354	94,477
Dry	5	241,356	234,632	224,489	98,399	60,649
	10	202,950	197,770	189,413	79,094	48,956
	20	175,062	170,648	163,368	65,127	41,070
	50	147,313	143,321	136,895	51,279	33,756
	100	130,729	126,805	120,771	43,029	29,651

Note: m³/d = cubic metres per day

3.3.2.9 Windy Lake

Model results for Windy Lake are presented in Table 3.21 (maximum annual peak outflow volumes) and Table 3.22 (long duration floods and low flow discharges).

Table 3.21: Derived Maximum Annual Outflow Volumes at Windy Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	704,284	1,317,861	991,073	494,992	178,450	188.0
	50	618,952	1,162,389	802,308	397,242	137,222	169.0
	20	506,826	958,517	592,855	289,068	94,214	143.6
	10	421,550	803,785	458,849	220,050	68,399	124.0
	5	333,882	645,003	340,644	159,317	46,873	103.5
Median	2	203,816	409,985	196,316	85,388	22,388	73.2
Dry	5	108,699	238,708	108,860	39,683	7,973	49.6
	10	72,425	172,850	79,632	27,553	5,035	39.1
	20	47,292	127,124	61,251	20,430	3,472	31.3
	50	23,381	83,532	45,303	14,638	2,315	23.4
	100	9,652	58,455	36,872	11,750	1,786	18.7

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 13.8 km².



Table 3.22: Derived Representative Discharges at Windy Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	105,439	78,693	64,399	23,848	15,080
	50	87,500	67,806	56,700	20,698	12,658
	20	67,068	54,481	46,826	16,736	9,766
	10	53,639	45,053	39,500	13,854	7,770
	5	41,510	35,963	32,132	11,005	5,889
Median	2	26,248	23,537	21,504	6,987	3,390
Dry	5	16,347	14,947	13,878	4,187	1,715
	10	12,332	11,367	10,590	3,074	1,238
	20	9,611	8,867	8,238	2,304	945
	50	7,074	6,472	5,934	1,572	696
	100	5,645	5,088	4,574	1,152	567

Note: m³/d = cubic metres per day

3.3.2.10 Glenn Lake

Model results for Glenn Lake are presented in Table 3.23 (maximum annual peak outflow volumes) and Table 3.24 (long duration floods and low flow discharges).

Table 3.23: Derived Maximum Annual Outflow Volumes at Glenn Lake

Condition	Return Period (years)	Monthly Maximum Daily Outflow Volume (m ³ /d)					Annual Water Yield (mm) ^a
		Jun	Jul	Aug	Sep	Oct	
Wet	100	1,165,244	2,245,947	2,195,404	1,388,120	637,496	178.5
	50	1,043,448	2,053,652	1,893,018	1,208,588	537,444	163.5
	20	879,900	1,790,637	1,530,485	988,838	418,896	143.3
	10	751,798	1,580,239	1,279,352	833,351	337,759	127.6
	5	615,681	1,351,752	1,041,709	683,428	261,797	111.0
Median	2	403,898	983,888	724,516	478,481	161,771	86.0
Dry	5	242,944	673,811	515,968	340,858	96,005	66.6
	10	174,830	545,389	431,182	290,601	71,967	57.8
	20	125,499	460,465	373,087	257,032	56,071	51.3
	50	76,537	387,770	318,397	226,189	41,603	44.7
	100	47,340	351,828	287,289	209,023	33,619	40.7

Notes: m³/d = cubic metres per day; mm = millimetres

(a) Based on a drainage area of 13.5 km².



Table 3.24: Derived Representative Discharges at Glenn Lake

Condition	Return Period (years)	Maximum Discharge			7-Day Low Flow	
		Daily (m ³ /d)	7-Day (m ³ /d)	14-Day (m ³ /d)	July (m ³ /d)	August (m ³ /d)
Wet	100	123,132	114,628	105,677	50,465	46,998
	50	106,420	99,950	92,945	46,986	41,605
	20	86,381	82,036	77,126	41,881	34,764
	10	72,497	69,398	65,761	37,540	29,743
	5	59,358	57,243	54,653	32,611	24,743
Median	2	41,818	40,683	39,205	24,302	17,620
Dry	5	30,190	29,530	28,628	17,588	12,666
	10	25,377	24,880	24,157	14,412	10,709
	20	22,056	21,645	21,018	11,977	9,355
	50	18,908	18,557	17,993	9,425	8,068
	100	17,106	16,777	16,236	7,827	7,330

Note: m³/d = cubic metres per day

A comparison of model results to monitoring data where annual data are available is provided in Table 3.25. This shows that the return periods (estimated frequencies) of annual precipitation events are consistent with the return periods of annual water yields from these watersheds. Discrepancies may be due to variations in annual lake evaporation. The classification of return period is sensitive to relatively small differences in values of precipitation and annual water yield, because extreme (100-year return period) annual values generally range only from approximately 50% to 200% of the mean.



Table 3.25: Comparison of Monitoring Data to Modeling Results

Quantity	Measure	Year				
		2004	2005	2006	2007	2008
Rainfall	Annual Total (mm)	65.0	102.8	64.7	101.5	172.1
	Estimated Frequency	10 year Dry	2-5 year Wet	5-10 year Dry	2-5 year Wet	20-50 year Wet
Spring Snow Water Equivalent	Annual Total (mm)	56	66	79	77.9	93.1
	Estimated Frequency	5-10 year Dry	2-5 year Dry	2-5 year Wet	2-5 year Wet	2-5 year Wet
Precipitation to Runoff	Annual Total (mm)	211.3	211.5	157.9	221.7	315.7
	Estimated Frequency	2-5 year Dry	2-5 year Dry	50-100 year Dry	2-5 year Dry	20-50 year Wet
Doris Lake Outflow	Annual Water Yield (mm)	62	83	73	80	153
	Estimated Frequency	10-20 year Dry	2-5 year Dry	5-10 year Dry	2-5 year Dry	10-20 year Wet
Tail Lake Outflow	Annual Water Yield (mm)	42	84	53	82	152
	Estimated Frequency	10-20 year Dry	2-5 year Wet	5 year Dry	2-5 year Wet	50-100 year Wet
Roberts Lake Outflow	Annual Water Yield (mm)	61	100	72	72	170
	Estimated Frequency	10 year Dry	2-5 year Wet	5 year Dry	5 year Dry	50 year Wet
Little Roberts Lake Outflow	Annual Water Yield (mm)	64	90	68	83	158
	Estimated Frequency	10 year Dry	2-5 year Dry	5-10 year Dry	2-5 year Dry	20-50 year Wet
Patch Lake Outflow	Annual Water Yield (mm)	-	-	40	-	150
	Estimated Frequency	-	-	50 year Dry	-	20-50 year Wet
Ogama Lake Outflow	Annual Water Yield (mm)	-	-	78	97	136
	Estimated Frequency	-	-	5-10 year Dry	2-5 year Dry	5-10 year Wet
Glenn Lake Outflow	Annual Water Yield (mm)	-	-	63	-	132
	Estimated Frequency	-	-	5-10 year Dry	-	10-20 year Wet



4.0 REPORT SIGNATURE PAGE

We trust the above meets your present requirements. If you have any questions or require additional details, please contact the undersigned.

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APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

APPENDIX A – INAC WALKER BAY CLIMATE DATA



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-1 Daily Rainfall (mm) at INAC Walker Bay, January 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
1	1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	8		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	11		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	12		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	13		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	14		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	15		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	16		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	17		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	18		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	19		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	21		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	22		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	23		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	24		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	25		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	26		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	27		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	28		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	29		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	30		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	31		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-2 Daily Rainfall (mm) at INAC Walker Bay, February 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
2	1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	8		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	11		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	12		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	13		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	14		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	15		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	16		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	17		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	18		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	19		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	20		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	21		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	22		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	23		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	24		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	25		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	26		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	27		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	28		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	29		0.0				0.0				0.0
Total			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-3 Daily Rainfall (mm) at INAC Walker Bay, March 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
3	1		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	2		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	3		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	4		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	5		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	6		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3	7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	8		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	9		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	10		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	11		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	13			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	14			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	15			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	16			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	17			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	18			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	19			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	20			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	21			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	22			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	23			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	24			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	25			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	26			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	27			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	28			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	29			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	30			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	31			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-4 Daily Rainfall (mm) at INAC Walker Bay, April 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
4	1			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	2			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	3			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	4			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	5			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	6			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	7			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	8			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	9			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	10			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	11			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	13			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	14			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
4	15			0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	16			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	17			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	18			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	19			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	20			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	21			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	22			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	23			0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6
4	24			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	25			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	26			0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	27			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	28			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	29			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	30			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total				0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-5 Daily Rainfall (mm) at INAC Walker Bay, May 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
5	1			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	2			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	3			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	4			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	5			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	6			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	7			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	8			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	9			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	10			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	11			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	12			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	13			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	14			0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
5	15			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	16			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	17			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	18			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	19	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	20	0.0			1.2		0.0	0.0	0.0	0.0	0.0
5	21	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	22	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	23	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	24	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	25	0.0			0.0	0.0	0.0	0.1	0.0	0.0	0.0
5	26	0.0	0.0		0.0	0.0	0.0	0.0	4.0	0.0	0.0
5	27	0.4	0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0
5	28	0.0	0.0		0.0	0.0	0.0	0.2	0.0	0.0	0.0
5	29	0.1	0.1		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	30	0.0	0.0		0.0	0.0	0.0	0.0	0.2	0.0	0.0
5	31	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		0.5	0.1	0.0	1.2	0.3	0.0	0.4	4.2	0.0	0.0



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-6 Daily Rainfall (mm) at INAC Walker Bay, June 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
6	1	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	2	0.1	12.7	0.0	3.9	0.1	0.0	0.0	0.0	0.0	0.7
6	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
6	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	5	0.5	0.0	0.0	0.0	0.0	0.8	0.5	0.0	0.0	0.0
6	6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	7	0.0	0.0	0.9	0.0	0.0	0.0	0.0	1.2	0.0	0.0
6	8	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0
6	9	1.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
6	10	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
6	11	4.7	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.3	0.0	0.1
6	13	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.3	0.0	0.0
6	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	30.3
6	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
6	16	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.0
6	17	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	1.1
6	18	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0
6	19	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.6	0.0
6	20	0.0	1.7	2.2	0.1	0.8	0.0	0.8	0.0	0.5	0.9
6	21	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0
6	22	0.0	0.0	0.0	0.0	0.0	0.1	1.9	0.0	0.7	0.0
6	23	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
6	24	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	25	0.0	2.1	0.1	0.0	1.1	0.9	0.0	0.0	0.0	0.0
6	26	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.3	1.1
6	27	0.0	1.5	2.3	0.0	0.5	0.0	0.7	4.1	2.1	0.0
6	28	0.9	0.1	2.4	9.0	0.0	0.8	0.0	0.1	0.1	0.0
6	29	0.0	0.0	0.0	3.1	0.0	0.0	3.3	0.0	0.0	2.1
6	30	0.0	0.0	0.0	0.0	0.0	0.0	12.3	0.0	0.0	0.1
Total		7.8	18.4	13.1	17.6	3.1	6.7	24.1	7.2	6.3	38.1



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-7 Daily Rainfall (mm) at INAC Walker Bay, July 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
7	1	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	1.8	0.0
7	2	0.0	2.4	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
7	3	0.0	4.8	0.0	7.7	0.6	0.0	2.0	0.0	0.0	2.0
7	4	0.0	0.0	0.0	0.0	3.0	0.0	0.6	0.0	0.0	0.0
7	5	0.0	4.0	0.0	1.0	0.0	0.6	3.6	0.0	0.0	0.0
7	6	0.0	5.9	0.0	0.5	0.0	8.5	0.0	0.0	0.0	0.0
7	7	0.0	0.0	0.0	0.0	0.0	0.1	1.5	0.0	0.0	0.1
7	8	0.0	8.3	0.0	0.0	0.2	0.0	0.6	0.0	0.0	2.5
7	9	2.6	0.0	1.2	2.5	0.0	0.0	0.0	6.7	4.5	0.0
7	10	0.0	0.0	0.0	0.0	2.5	0.5	0.0	2.9	0.0	0.0
7	11	0.0	0.0	0.0	0.3	8.2	1.1	0.0	0.1	0.0	0.0
7	12	5.1	0.0	0.0	0.0	0.0	3.2	0.7	2.2	0.3	0.0
7	13	5.3	0.0	0.0	0.3	0.0	9.2	0.0	0.0	0.2	0.0
7	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
7	15	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
7	16	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0
7	17	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.8
7	18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	8.6
7	19	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	2.1
7	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	1.0
7	21	0.1	0.0	2.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0
7	22	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	3.3
7	23	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3
7	24	0.0	0.0	5.8	0.0	0.0	0.0	0.2	0.3	0.0	0.0
7	25	0.0	0.0	6.2	0.0	0.0	0.0	1.2	0.0	0.0	0.5
7	26	0.0	0.0	0.9	1.2	0.0	0.0	0.0	0.0	0.0	0.7
7	27	0.0	0.0	0.0	0.8	0.0	0.1	0.0	5.3	0.0	0.0
7	28	0.2	0.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
7	29	3.7	0.0	0.0	0.0	0.0	1.6	0.0	0.0	7.3	5.3
7	30	0.7	0.0	0.0	0.0	0.0	0.1	0.6	0.7	3.5	0.5
7	31	0.0	0.0	0.3	0.0	0.0	9.8	0.0	0.8	0.0	2.2
Total		18.5	26.0	16.4	22.2	14.5	41.4	12.8	23.5	18.7	33.0



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-8 Daily Rainfall (mm) at INAC Walker Bay, August 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
8	1	2.9	0.0	0.0	0.0	0.0	6.5	0.0	1.3	0.0	0.0
8	2	4.9	0.0	0.2	0.0	0.3	1.5	0.0	6.3	0.0	0.0
8	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	1.6	0.7
8	4	0.0	2.0	1.7	0.0	0.0	0.1	0.0	0.5	0.0	0.0
8	5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
8	6	0.7	0.0	0.0	0.0	12.6	0.0	0.0	0.0	0.0	0.0
8	7	0.8	0.0	0.0	0.0	1.0	0.6	1.2	0.0	0.0	
8	8	0.3	0.3	0.0	0.0	0.3	0.8	1.0	0.8	0.0	
8	9	0.3	0.0	0.0	0.0	0.0	1.5	2.6	4.4	0.5	
8	10	3.0	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	
8	11	0.7	0.0	2.1	0.0	0.0	0.2	7.3	3.2	0.0	
8	12	0.0	0.0	0.3	0.0	0.0	0.3	0.4	0.0	0.0	
8	13	0.4	0.0	2.2	0.0	2.2	0.8	0.0	17.5	0.0	
8	14	0.0	0.0	0.2	0.0	3.0	0.1	0.0	0.0	7.5	
8	15	0.0	0.0	0.1	0.0	0.0	14.7	0.0	0.5	1.7	
8	16	0.0	0.0	0.3	0.0	0.3	0.0	0.0	10.0	0.9	
8	17	0.1	0.0	1.9	0.3	0.0	0.0	0.0	0.8	0.0	
8	18	1.2	0.0	4.3	1.5	1.1	0.2	7.0	0.0	0.0	
8	19	2.6	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	
8	20	4.4	0.0	0.0	1.2	0.0	0.0	0.0	0.2	0.1	
8	21	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
8	22	1.6	9.4	0.0	0.1	2.9	0.5	0.0	0.2	0.0	
8	23	2.2	0.0	0.0	0.0	0.6	0.0	0.1	0.0	0.0	
8	24	0.2	10.9	0.0	0.1	0.2	0.0	0.0	16.6	0.1	
8	25	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.0	
8	26	0.0	1.7	0.0	0.0	0.0	0.2	0.0	0.4	0.0	
8	27	4.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	
8	28	0.0	2.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	
8	29	0.0	0.0	0.4	0.0	0.0	0.0	2.2	0.0	0.0	
8	30	0.0	0.0	1.2	0.0	0.2	0.0	1.4	0.0	0.0	
8	31	0.0	0.0	0.0	0.4	0.0	0.0	1.4	0.0	0.3	
Total		31.4	28.2	16.0	5.4	24.7	22.1	24.6	66.0	13.4	0.7



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-9 Daily Rainfall (mm) at INAC Walker Bay, September 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
9	1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.5	
9	2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
9	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8	0.0	
9	4	0.0	1.9	0.0	0.0	0.0	0.2	1.0	0.8	0.0	
9	5	0.1	0.0	0.0	0.6	1.6	0.0	0.0	0.0	0.0	
9	6	0.0	0.0	0.0	0.1	8.7	0.5	4.2	0.0	0.0	
9	7	1.4	2.6	2.4	0.0	0.3	0.0	0.0	0.0	0.0	
9	8	0.0	4.7	0.5	0.0	8.4	0.0	0.2	5.0	0.6	
9	9	0.0	4.2	0.2	1.2	2.4	0.1	0.0	0.2	0.0	
9	10	0.0	0.0	0.3	0.0	3.3	0.0	0.0	0.2	0.0	
9	11	2.5	0.1	0.2	0.4	0.1	0.0	0.2	0.0	0.1	
9	12	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	
9	13	0.0	0.0	0.3	3.6	0.0	0.0	0.1	0.0	3.3	
9	14	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.9	
9	15	0.0	0.0	0.2	0.0	2.4	0.2	0.0	0.0	0.0	
9	16	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.2	0.0	
9	17	1.2	0.0	0.1	0.0	0.0	7.7	0.0	0.1	0.0	
9	18	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.0	0.1	
9	19	0.1	0.0	0.0	0.8	0.1		0.2	0.0	0.0	
9	20	1.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.9	
9	21	0.5	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
9	22	0.0	0.2	0.3	0.0	0.3	0.0	0.0	0.0	0.0	
9	23	3.9	1.6	0.8	10.7	0.0	0.2	0.0	0.0	0.0	
9	24	2.1	0.5	1.0	0.4	0.0	1.0	0.0	0.3	0.0	
9	25	2.5	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	
9	26	2.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	
9	27	0.7	1.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	
9	28	0.0	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.0	
9	29	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
9	30	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		18.8	18.0	12.0	18.2	28.8	11.4	6.0	16.7	8.6	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-10 Daily Rainfall (mm) at INAC Walker Bay, October 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
10	1	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	
10	2	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	
10	3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	
10	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	5	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	
10	7	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	
10	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	
10	9	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	
10	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	
10	12	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	
10	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	15	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	17	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	18	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
10	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	21	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
10	22	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	
10	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		0.1	0.0	7.7	0.3	1.4	0.6	0.3	1.0	0.0	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-11 Daily Rainfall (mm) at INAC Walker Bay, November 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
11	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	10	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-12 Daily Rainfall (mm) at INAC Walker Bay, December 1996 to 2005

Month	Day	Year									
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
12	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
12	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-13 Daily Mean Air Temperatures (°C) at INAC Walker Bay, January 1996 - 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	1		-36.7	-32.4	-28.7	-21.1	-35.8	-22.0	-17.5	-31.0	-30.7		-21.9
1	2		-25.5	-31.5	-24.8	-19.8	-34.6	-22.1	-22.1	-31.9	-31.9		-21.3
1	3		-30.0	-40.2	-28.6	-17.4	-33.3	-16.9	-31.3	-33.4	-32.6		-18.2
1	4		-34.2	-33.5	-28.3	-18.5	-33.6	-23.7	-20.4	-21.3	-18.8		-18.4
1	5		-38.0	-40.9	-26.0	-22.0	-31.6	-29.2	-11.7	-16.7	-13.8		-21.9
1	6		-34.9	-28.5	-27.4	-27.8	-36.9	-28.8	-11.7	-24.9	-19.2		-20.8
1	7		-25.4	-30.4	-28.4	-24.0	-37.4	-18.8	-14.1	-28.6	-23.1		-29.6
1	8		-31.5	-27.8	-29.0	-27.3	-34.0	-19.7	-19.4	-29.5	-23.1		-34.8
1	9		-34.6	-27.9	-32.3	-39.5	-24.2	-23.6	-27.6	-32.6	-23.9		-40.2
1	10		-39.2	-27.0	-35.8	-35.1	-28.3	-30.2	-29.1	-28.3	-27.0		-34.2
1	11		-22.5	-34.2	-35.0	-29.9	-26.8	-26.8	-30.6	-32.4	-32.9		-31.9
1	12		-17.2	-31.5	-28.5	-33.4	-32.0	-26.4	-27.0	-31.9	-43.3		-32.2
1	13		-26.1	-35.9	-31.4	-30.4	-30.3	-24.7	-24.0	-36.6	-35.2		-23.8
1	14		-33.3	-32.7	-26.1	-31.7	-40.0	-26.9	-19.7	-43.1	-42.3		-27.5
1	15		-32.2	-34.3	-25.0	-28.5	-35.7	-30.7	-27.0	-41.9	-34.7		-32.7
1	16		-33.7	-23.9	-31.6	-27.3	-27.1	-28.8	-25.6	-39.3	-30.3		-31.8
1	17		-25.4	-33.6	-26.6	-32.7	-23.0	-31.8	-28.2	-34.7	-33.2		-26.7
1	18		-23.4	-36.6	-22.2	-35.3	-18.5	-36.1	-26.5	-39.6	-33.0		-28.8
1	19		-32.0	-37.6	-22.0	-40.0	-24.7	-42.0	-26.2	-35.6	-34.2		-36.0
1	20		-32.5	-37.6	-27.2	-40.1	-19.4	-41.2	-30.0	-34.0	-29.8		-36.9
1	21		-30.5	-42.0	-24.2	-35.2	-16.2	-37.3	-35.8	-31.5	-23.7		-37.9
1	22		-31.2	-38.4	-28.5	-30.0	-27.5	-30.8	-35.3	-33.8	-33.0		-34.0
1	23		-30.8	-40.9	-36.0	-30.6	-23.3	-32.6	-30.8	-35.1	-38.0		-24.2
1	24		-25.4	-39.7	-34.2	-38.8	-26.3	-26.9	-30.4	-38.0	-38.2		-23.0
1	25		-30.1	-37.8	-28.9	-30.1	-33.1	-27.0	-21.4	-35.2	-39.4		-28.9
1	26		-36.0	-42.2	-26.4	-16.4	-30.1	-35.7	-29.6	-28.2	-36.1		-30.0
1	27		-32.9	-41.3	-27.6	-20.5	-31.4	-31.6	-35.5	-35.7	-27.9		-23.8
1	28		-35.5	-33.1	-30.7	-20.2	-37.1	-36.4	-35.4	-28.9	-28.9		-28.5
1	29		-35.8	-34.5	-32.7	-26.5	-38.0	-37.8	-32.0	-24.7	-23.3		-25.7
1	30		-33.7	-38.3	-38.2	-29.8	-31.6	-40.7	-33.7	-28.7	-24.6		-25.9
1	31		-34.3	-39.7	-38.8	-20.7	-24.6	-35.3	-34.8	-34.5	-30.2		-24.0
Mean			-31.1	-35.0	-29.4	-28.4	-29.9	-29.8	-26.6	-32.3	-30.2		-28.2



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-14 Daily Mean Air Temperatures (°C) at INAC Walker Bay, February 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
2	1		-31.9	-30.4	-37.4	-12.6	-27.5	-25.0	-36.2	-28.7	-31.5		-24.8
2	2		-28.4	-28.2	-37.9	-20.0	-28.5	-24.2	-37.4	-36.4	-40.7		-21.3
2	3		-24.0	-24.5	-39.0	-23.3	-28.9	-32.6	-35.9	-39.5	-40.0		-28.1
2	4		-32.8	-30.4	-36.8	-24.4	-23.0	-36.6	-32.7	-31.2	-35.1		-36.1
2	5		-37.7	-42.4	-28.6	-30.2	-27.8	-35.6	-20.5	-26.0	-30.2		-35.1
2	6		-27.1	-35.7	-24.4	-28.5	-30.7	-36.6	-29.4	-28.6	-35.2		-34.0
2	7		-23.0	-22.4	-26.8	-27.8	-33.2	-35.9	-28.8	-22.7	-32.1		-28.6
2	8		-32.9	-32.6	-33.3	-31.1	-27.3	-36.9	-26.6	-21.8	-40.0		-25.7
2	9		-29.0	-36.9	-33.2	-28.3	-21.9	-31.9	-29.3	-25.1	-38.8		-24.8
2	10		-28.1	-41.8	-31.8	-23.1	-28.0	-32.8	-27.1	-33.4	-36.4		-30.0
2	11		-33.2	-44.0	-25.8	-30.9	-39.7	-38.6	-28.8	-28.4	-39.9		-31.9
2	12		-35.1	-36.9	-25.2	-29.1	-39.1	-39.1	-31.4	-36.2	-38.0		-28.6
2	13		-42.2	-22.5	-28.1	-25.7	-31.2	-41.2	-29.2	-34.1	-38.3		-26.1
2	14		-39.2	-23.3	-23.5	-30.5	-21.7	-42.1	-31.3	-36.5	-31.3		-19.8
2	15		-33.7	-33.6	-23.2	-34.2	-21.6	-38.6	-36.0	-37.3	-33.3		-28.6
2	16		-31.9	-37.1	-32.1	-36.0	-13.2	-40.1	-34.9	-36.0	-32.4		-31.5
2	17		-35.0	-31.1	-26.7	-39.3	-20.9	-41.5	-30.2	-36.5	-37.2		-32.8
2	18		-33.4	-33.3	-27.0	-43.2	-31.8	-39.7	-31.7	-37.7	-40.6		-35.3
2	19		-31.1	-44.1	-27.4	-42.1	-35.3	-31.7	-37.5	-37.5	-37.1		-34.5
2	20		-27.2	-46.1	-24.4	-40.2	-32.4	-24.9	-31.2	-39.8	-26.7		-31.3
2	21		-26.1	-44.2	-21.1	-26.5	-33.2	-30.2	-33.3	-38.4	-22.4		-33.1
2	22		-26.1	-39.7	-23.5	-29.1	-39.8	-28.0	-33.8	-40.2	-26.9		-33.8
2	23		-19.4	-36.4	-26.1	-35.7	-39.6	-27.8	-30.2	-41.8	-33.1		-29.9
2	24		-26.6	-29.5	-24.6	-21.6	-27.3	-29.0	-34.2	-37.2	-34.0		-24.1
2	25		-27.9	-25.6	-27.3	-20.7	-31.3	-29.7	-35.6	-35.6	-26.4		-31.7
2	26		-31.1	-24.3	-23.6	-22.1	-32.6	-33.1	-40.6	-26.3	-32.8		-26.9
2	27		-40.1	-21.7	-26.9	-30.3	-31.5	-27.9	-38.9	-25.9	-36.1		-24.9
2	28		-34.4	-18.1	-32.2	-34.7	-24.9	-27.0	-39.5	-34.5	-28.3		-28.5
2	29					-33.5				-34.2			
Mean			-31.0	-32.7	-28.5	-29.5	-29.4	-33.5	-32.6	-33.4	-34.1		-29.4



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-15 Daily Mean Air Temperatures (°C) at INAC Walker Bay, March 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
3	1		-35.7	-19.5	-30.3	-34.1	-22.1	-28.4	-39.0	-35.7	-29.9		-28.6
3	2		-31.9	-17.2	-36.5	-31.2	-25.0	-18.8	-34.2	-31.2	-28.8		-31.4
3	3		-30.3	-17.8	-33.5	-31.7	-23.5	-28.0	-28.7	-32.8	-34.5		-37.9
3	4		-34.1	-18.9	-29.5	-35.3	-19.1	-30.5	-31.3	-32.9	-39.4		-39.5
3	5		-32.5	-25.1	-28.5	-31.5	-19.4	-26.3	-36.3	-34.8	-42.2		-30.5
3	6		-32.2	-32.2	-28.6	-33.2	-16.4	-24.9	-39.6	-36.0	-40.6		-33.0
3	7		-34.4	-30.5	-31.9	-33.0	-16.8	-25.2	-23.6	-38.6			-32.8
3	8		-31.3	-28.1	-31.0	-33.3	-18.3	-28.4	-19.4	-39.1	-30.2		-31.7
3	9		-33.0	-22.3	-20.2	-34.6	-30.8	-34.3	-27.0	-38.7	-35.6		-37.2
3	10		-32.8	-21.7	-19.6	-31.8	-34.2	-29.8	-33.5	-32.1	-38.7		-34.5
3	11		-31.0	-28.2	-11.3	-25.2	-37.5	-33.2	-36.4	-31.6	-37.7		-33.3
3	12		-31.3	-30.4	-10.0	-30.7	-35.7	-32.4	-33.7	-32.7	-34.4		-35.0
3	13		-29.4	-27.5	-13.7	-33.4	-33.2	-25.6	-33.8	-36.7	-23.7		-35.5
3	14			-15.4	-17.9	-34.1	-33.4	-25.0	-35.9	-33.6	-29.5		-31.9
3	15			-21.6	-13.1	-33.4	-30.9	-30.5	-29.0	-30.9	-29.6		-29.5
3	16			-29.2	-12.1	-30.4	-34.9	-30.4	-32.2	-25.2	-28.2		-29.1
3	17			-33.2	-19.0	-29.3	-31.2	-31.9	-19.0	-29.9	-30.9		-35.7
3	18			-29.8	-19.6	-32.3	-35.0	-27.4	-15.1	-30.3	-31.6		-36.2
3	19			-25.9	-20.1	-29.7	-31.8	-27.5	-18.9	-33.5	-31.2		-33.3
3	20			-14.7	-17.4	-22.5	-26.7	-22.2	-19.6	-31.8	-29.8		-34.5
3	21			-23.7	-22.3	-19.8	-21.5	-13.2	-29.6	-27.1	-25.5		-25.6
3	22			-29.3	-14.8	-26.6	-24.9	-20.3	-24.8	-32.7	-26.5		-25.5
3	23			-29.4	-7.9	-25.4	-31.6	-16.8	-25.1	-34.0	-19.6		-25.9
3	24			-31.8	-15.3	-15.0	-32.9	-19.1	-26.2	-36.7	-19.0		-21.1
3	25			-30.7	-11.3	-18.6	-25.2	-23.0	-23.1	-35.0	-28.6		-23.3
3	26			-30.8	-13.5	-18.7	-24.5	-21.2	-26.1	-34.9	-33.9		-21.1
3	27			-29.5	-21.2	-13.3	-14.2	-23.0	-27.6	-31.1	-32.3		-18.3
3	28			-21.7	-25.6	-7.8	-9.5	-33.0	-26.8	-23.7	-24.0		-22.1
3	29			-28.9	-28.0	-11.0	-14.9	-33.9	-24.1	-17.1	-8.8		-18.4
3	30			-28.3	-28.9	-15.6	-24.6	-34.7	-26.3	-16.9	-10.9		-22.1
3	31			-24.7	-24.9	-16.8	-29.7	-33.3	-29.8	-16.2	-17.5		-27.5
Mean			-32.3	-25.7	-21.2	-26.4	-26.1	-26.8	-28.2	-31.4	-29.1		-29.7



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

**Table A-16 Daily Mean Air Temperatures (°C) at INAC Walker Bay, April
1996 – 2007**

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
4	1			-22.7	-22.5	-15.5	-19.1	-31.3	-28.0	-21.1	-21.4		-28.8
4	2			-21.7	-11.7	-18.3	-21.9	-27.9	-27.0	-23.9	-26.1		-26.6
4	3			-18.1	-13.4	-23.7	-26.5	-23.3	-24.1	-27.7	-24.0		-22.1
4	4			-20.9	-17.1	-25.3	-16.4	-25.8	-13.9	-25.0	-21.7		-20.7
4	5			-19.5	-19.6	-25.6	-20.0	-28.1	-14.0	-23.7	-14.6		-19.8
4	6			-19.2	-15.5	-27.1	-24.5	-23.4	-18.3	-22.8	-16.2		-17.6
4	7			-25.1	-17.2	-26.3	-27.5	-26.1	-21.6	-22.2	-17.5		-12.1
4	8			-24.7	-21.9	-26.3	-24.4	-28.6	-25.1	-21.5	-15.1		-5.7
4	9			-19.7	-22.7	-26.9	-25.5	-31.7	-25.4	-20.4	-6.2		-8.1
4	10			-15.9	-23.3	-24.2	-29.1	-31.0	-21.4	-11.9	-11.1		-3.7
4	11			-16.2	-20.5	-26.7	-26.7	-29.4	-15.5	-21.2	-21.8		-9.0
4	12			-21.9	-17.6	-23.4	-14.7	-24.8	-23.7	-23.8	-18.0		-9.8
4	13			-18.4	-15.1	-21.3	-13.5	-22.8	-28.7	-17.7	-11.6		-13.2
4	14			-16.8	-17.2	-23.6	-13.4	-28.0	-27.4	-18.3	-7.6		-20.3
4	15			-16.8	-18.6	-21.8	-10.4	-22.7	-21.6	-20.5	-14.2		-23.9
4	16			-9.1	-13.7	-23.5	-8.5	-14.9	-11.8	-19.9	-18.8		-21.4
4	17			-10.2	-11.8	-24.9	-12.3	-22.1	-14.5	-23.8	-21.5		-19.7
4	18			-10.4	-14.6	-22.6	-18.5	-21.6	-17.3	-23.9	-22.4		-19.7
4	19			-11.7	-19.2	-17.8	-23.4	-11.9	-16.3	-23.8	-17.3		-16.8
4	20			-11.7	-10.9	-16.5	-21.2	-15.6	-10.0	-23.8	-12.7		-8.6
4	21			-10.1	-17.0	-19.0	-20.3	-20.9	-7.2	-22.4	-10.7		-13.3
4	22			-9.1	-11.4	-6.6	-20.6	-21.9	-5.4	-21.0	-7.7		-17.3
4	23			-7.2	-10.0	-5.0	-22.2	-22.0	-6.8	-21.8	-5.8		-17.0
4	24			-9.7	-16.2	-7.7	-18.8	-21.5	-3.6	-20.9	-8.0		-15.3
4	25			-5.8	-20.4	-8.8	-19.6	-19.3	-3.9	-21.4	-9.4		-9.8
4	26			-10.2	-17.5	-6.9	-17.2	-12.8	-12.7	-20.7	-12.5		-14.1
4	27			-14.9	-21.1	-12.5	-13.4	-10.3	-15.4	-21.4	-16.3		-17.1
4	28			-16.7	-18.4	-15.6	-15.8	-10.2	-14.7	-20.9	-16.7		-18.1
4	29			-18.2	-17.0	-14.7	-15.3	-15.0	-16.6	-16.0	-15.3		-16.9
4	30			-10.8	-14.6	-5.0	-16.6	-18.4	-18.1	-17.7	-13.0		-11.2
Mean				-15.4	-16.9	-18.8	-19.2	-22.1	-17.0	-21.4	-15.2		-15.9



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-17 Daily Mean Air Temperatures (°C) at INAC Walker Bay, May 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
5	1			-7.2	-15.6	-3.5	-19.6	-15.8	-17.5	-17.9	-6.0		-12.1
5	2			-11.0	-14.0	-2.8	-13.1	-16.9	-15.1	-16.9	-7.9		-12.8
5	3			-13.7	-9.7	-4.5	-4.8	-20.0	-10.3	-16.5	-12.9		-14.1
5	4			-12.1	-15.2	-6.0	-0.9	-16.7	-6.6	-14.1	-13.7		-14.4
5	5			-10.4	-16.4	-9.2	-10.2	-11.9	-6.0	-17.2	-17.2		-15.7
5	6			-9.3	-15.3	-5.2	-13.2	-9.7	-6.4	-14.9	-13.5		-10.7
5	7			-7.1	-14.6	-2.1	-9.7	-10.1	-9.1	-17.3	-16.4		-6.7
5	8			-8.2	-9.0	-5.1	-4.7	-12.6	-8.2	-13.6	-15.1		-14.2
5	9			-5.5	-9.1	-5.7	-8.1	-12.4	-8.6	-7.6	-12.7		-14.4
5	10			-5.1	-6.9	-3.2	-10.5	-10.6	-11.0	-10.1	-14.4		-9.8
5	11			-3.6	-2.2	-0.7	-8.5	-10.0	-16.3	-7.6	-11.8		-9.5
5	12			2.0	0.6	-1.5	-6.4	-12.8	-14.2	-6.4	-15.8		-9.0
5	13			1.8	-7.5	-7.8	-2.9	-10.9	-9.2	-10.7	-12.6		-6.2
5	14			1.4	-8.2	-9.2	-2.4	-9.8	-2.1	-12.3	-11.0		-10.0
5	15			0.2	-8.1	-13.7	0.0	-3.8	-6.5	-14.3	-12.3		-10.8
5	16			0.8	-6.4	-11	-0.9	-3.1	-8.1	-13.8	-13.1		-12.1
5	17			-1.4	-4.4	-5.4	-1.5	-0.9	-6.6	-13.3	-14.2		-12.3
5	18	-2.9		-3.0	-5.9	-7.4	-1.1	-2.6	-7.6	-11.8	-12.3		-10.6
5	19	-5.7		-1.3	-5.3	-7.5	0.8	-2.8	-6.4	-12.1	-13.8		-7.9
5	20	-4.9			-4.1		-2.1	-5.7	-9.1	-13.0	-9.2		-5.0
5	21	-3.8			-7.2	-3.1	-5.4	-9.8	-7.3	-9.8	-5.1		-5.6
5	22	0.1			-5.7	-1.2	-3.8	-8.5	-2.3	-11.1	-9.0		-4.9
5	23	-0.5			-4.6	-6.9	-4.8	-3.7	-2.6	-13.0	-5.6		-3.2
5	24	-1.6			-1.4	-7.9	-5.6	-2.8	-3.9	-10.0	-3.9		-3.2
5	25	0.0			-2.9	-8.0	-1.0	-3.8	-2.5	-1.1	-2.9		-1.7
5	26	1.6	-8.7		-4.4	-7.3	0.0	-6.5	-0.2	-0.1	-2.8		-3.0
5	27	3.2	-5.4		-8.2	-5.9	-2.4	-4.8	-2.4	-8.8	0.7		-9.3
5	28	0.8	-0.8		-6.8	-7.1	-3.0	-2.1	-2.5	-9.5	2.6		-8.1
5	29	0.5	-2.5		-7.7	-8.8	-5.6	-2.0	-0.5	-8.0	2.6		-0.8
5	30	1.2	0.9		-4.6	-8.6	-6.9	-3.9	1.9	-5.8	0.3		-5.3
5	31	1.1	-1.5		0.2	-10.8	-4.2	-6.8	0.2	-4.3	0.0		-0.5
Mean		-0.8	-3.0	-4.9	-7.4	-6.2	-5.2	-8.2	-6.7	-11.1	-9.0		-8.5



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-18 Daily Mean Air Temperatures (°C) at INAC Walker Bay, June 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
6	1	2.4	-0.7		-2.4	-9.3	-0.5	-6.3	0.8	-4.1	0.8		0.2
6	2	2.4	0.2	-1.5	-0.3	-4.6	-0.1	-3.0	0.1	0.0	-0.3		-0.2
6	3	5.6	-1.2	4.9	0.8	-2.2	0.9	-0.7	0.8	1.7	1.1		-4.8
6	4	2.3	-1.1	4.1	0.8	-4.9	0.1	2.3	2.0	1.3	1.7		-4.6
6	5	1.1	-2.8	4.7	-0.3	-2.3	1.6	2.6	1.9	1.0	0.6		-2.5
6	6	1.3	-4.1	5.7	-0.7	-1.7	2.5	-0.2	1.1	0.9	2.3		0.5
6	7	5.7	-4.2	4.5	2.1	1.4	1.8	-0.1	0.5	1.5	5.9		0.4
6	8	6.9	-2.7	2.1	2.1	2.0	1.2	2.9	3.0	1.6	4.3		1.8
6	9	6.9	0.2	3.8	0.5	3.4	1.4	4.0	0.2	2.3	3.9		1.5
6	10	3.7	1.9	5.0	-0.3	5.8	0.7	6.1	-2.5	1.4	7.1		1.3
6	11	1.7	4.6	3.8	0.1	8.0	1.0	3.4	-2.1	1.7	10.4		1.7
6	12	1.4	5.6	3.3	2.7	10.1	3.6	2.7	0.9	4.2	9.5		2.9
6	13	3.2	4.7	4.2	5.4	10.5	3.8	2.1	0.4	4.4	4.8		1.5
6	14	5.0	4.1	3.8	9.6	9.2	3.7	2.5	2.9	1.4	4.3		2.6
6	15	7.0	5.1	5.0	13.7	7.6	3.4	2.8	7.5	2.7	1.5		2.4
6	16	7.6	7.9	8.3	14.6	10.1	6.0	3.3	9.6	3.9	3.9		2.4
6	17	10.5	9.0	8.5	8.0	7.3	3.9	2.7	3.8	4.9	4.8		2.6
6	18	12.6	10.5	8.2	2.2	7.7	4.9	4.0	2.5	8.3	6.2		2.7
6	19	7.6	11.6	9.4	2.6	9.0	3.5	5.5	3.9	4.0	6.8		3.4
6	20	5.4	8.8	6.5	7.3	7.3	2.6	4.0	5.9	3.0	4.5		3.5
6	21	7.2	6.9	7.9	5.6	8.0	3.5	4.9	8.6	4.1	3.8		4.3
6	22	11.7	5.2	9.3	6.2	7.1	2.8	6.8	10.0	4.8	5.2		6.3
6	23	14.8	2.9	9.0	6.2	7.6	3.8	6.1	6.0	9.4	7.7		10.3
6	24	14.7	2.8	6.1	6.5	8.5	3.1	11.1	4.2	12.0	4.9		13.5
6	25	16.8	2.3	8.9	6.8	10.8	3.1	15.5	7.1	13.3	4.3		12.1
6	26	20.6	4.1	11.6	7.4	7.1	4.0	16.5	5.7	9.3	5.2		13.9
6	27	19.1	3.7	10.4	11.5	8.5	5.1	15.2	5.5	6.9	4.2		15.6
6	28	16.3	4.3	10.0	6.7	7.9		14.0	5.7	5.9	5.9		16.2
6	29	18.1	2.9	7.3	4.6	9.5	9.6	13.2	8.0	8.3	9.1	9.4	16.9
6	30	18.8	7.2	10.1	5.2	8.5	11.1	14.0	8.2	4.8	5.2	10.7	17.5
Mean		8.6	3.3	6.4	4.5	5.3	3.2	5.3	3.7	4.2	4.7	10.1	4.9



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-19 Daily Mean Air Temperatures (°C) at INAC Walker Bay, July 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
7	1	18.1	9.8	12.2	3.8	14.1	5.4	17.3	9.5	3.5	5.1	10.1	17.8
7	2	18.2	10.0	14.1	3.4	16.1	4.4	18.6	9.7	5.9	6.9	12.0	10.2
7	3	18.3	4.8	13.3	5.6	16.3	8.2	9.3	8.3	9.0	9.2	8.9	8.9
7	4	17.9	4.8	12.5	8.5	7.9	15.8	8.7	9.7	13.4	8.1	5.8	9.4
7	5	19.6	3.4	12.9	8.9	11.9	14.9	6.7	12.2	10.0	5.2	7.2	11.3
7	6	20.4	3.5	14.9	10.9	18.7	7.7	5.5	14.2	17.8	8.9	5.6	12.7
7	7	19.0	3.9	17.9	13.9	10.8	11.4	6.9	14.5	7.6	13.2	5.7	13.3
7	8	14.6	5.4	21.2	11.5	10.7	14.0	7.1	16.2	11.1	10.6	5.8	12.7
7	9	12.0	6.8	10.4	6.6	12.9	14.9	12.2	11.4	7.5	7.3	6.5	15.3
7	10	11.3	9.1	10.9	10.4	10.8	14.2	11.1	6.1	7.6	10.9	6.5	
7	11	14.0	14.0	12.7	8.7	5.8	9.9	10.1	5.6	9.4	12.4	10.6	
7	12	9.0	19.8	13.5	5.5	6.8	4.9	7.9	9.1	11.4	11.0	14.1	
7	13	7.7	17.9	7.2	4.7	8.6	6.6	9.3	11.8	5.5	15.5	12.6	
7	14	11.4	15.4	8.0	6.4	7.3	6.7	13.7	12.4	5.6	10.4	13.4	
7	15	13.1	10.2	9.7	5.7	6.1	8.9	14.6	12.5	6.6	7.6	14.4	
7	16	13.2	12.5	12.0	5.8	8.1	14.0	5.8	11.6	9.1	6.1	11.2	
7	17	14.8	14.4	10.8	7.1	14.2	14.8	9.3	14.4	8.6	8.1	11.0	
7	18	15.6	15.9	8.4	10.4	19.4	10.7	11.9	9.0	8.3	8.4	9.7	
7	19	18.4	17.7	11.4	9.1	17.5	11.5	8.0	11.1	6.6	3.8	12.4	
7	20	18.0	16.5	11.7	5.1	19.0	13.3	10.3	6.1	5.3	4.4	15.8	
7	21	12.8	16.3	14.0	6.0	14.1	16.2	13.3	13.4	6.5	3.7	17.7	
7	22	14.2	17.2	14.4	6.7	9.9	16.3	13.4	9.2	8.1	3.5	13.6	
7	23	8.7	15.0	17.6	6.8	11.9	13.5	15.5	11.1	8.4	2.7	7.5	
7	24	7.9	15.6	17.8	5.9	14.6	18.8	13.4	9.6	10.5	5.6	8.4	
7	25	14.8	17.5	13.1	8.7	20.5	20.8	13.8	11.0	10.3	7.9	8.1	
7	26	17.6	19.5	12.9	7.3	18.0	22.8	8.2	17.1	9.5	7.5	9.4	
7	27	19.0	13.9	12.8	8.3	18.0	18.7	7.5	16.5	8.8	6.9	9.0	
7	28	12.8	10.1	12.6	7.4	19.3	11.4	9.8	11.0	16.7	8.4	9.6	
7	29	11.7	6.6	14.0	10.1	17.5	13.1	9.3	9.4	16.4	9.9	11.3	
7	30	13.2	6.4	15.0	12.5	14.1	15.6	7.5	15.4	4.8	9.6	12.7	
7	31	10.4	5.6	12.6	11.6	14.6	8.8	6.0	8.1	7.2	12.7	14.1	
Mean		14.4	11.6	13.0	7.8	13.4	12.5	10.4	11.2	8.9	8.1	10.3	12.4



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-20 Daily Mean Air Temperatures (°C) at INAC Walker Bay, August 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
8	1	7.9	7.8	12.9	13.1	18.7	7.9	6.2	12.4	11.2	9.5	15.3	
8	2	8.9	11.4	11.0	12.2	14.8	8.5	6.6	11.3	12.3	10.0	16.0	
8	3	9.1	11.9	17.0	11.4	14.6	9.9	8.4	10.1	8.8	11.6	16.0	
8	4	8.5	10.9	12.7	10.4	17.7	12.2	11.5	5.9	7.7	11.6	17.3	
8	5	8.9	9.2	8.9	8.7	18.1	14.7	15.1	8.6	6.1	9.4	17.7	
8	6	7.9	6.3	13.3	6.8	13.9	14.4	14.8	8.3	6.1	10.1	16.6	
8	7	7.2	5.5	12.4	9.2	12.1	10.0	8.3	8.5	6.5	8.8	15.9	
8	8	9.8	4.9	10.7	11.6	7.2	8.5	9.3	5.9	8.9		17.2	
8	9	9.2	5.1	11.2	10.7	8.0	5.1	10.9	4.5	11.7		18.0	
8	10	7.9	6.4	15.0	10.6	11.2	6.6	6.5	8.5	9.7		15.5	
8	11	6.0	5.0	14.8	9.9	12.5	9.8	4.0	9.3	11.9		9.9	
8	12	5.5	12.5	11.8	9.9	9.8	6.0	6.3	3.5	10.6		10.4	
8	13	6.4	15.8	11.1	9.6	6.9	7.8	9.3	5.6	7.7		10.6	
8	14	7.3	10.5	10.4	10.4	10.2	7.7	7.4	5.3	8.0		10.4	
8	15	8.8	6.9	11.8	10.7	9.8	6.8	5.3	9.9	5.2		11.2	
8	16	6.1	8.9	15.3	11.2	5.6	8.0	7.0	7.0	4.3		11.7	
8	17	9.3	13.6	10.3	10.3	7.1	7.3	3.2	6.6	3.3		11.7	
8	18	5.8	12.5	8.5	9.1	9.5	3.9	5.3	6.2	3.4		9.3	
8	19	4.5	4.9	5.8	8.0	11.9	5.1	5.7	9.2	5.0		6.2	
8	20	2.7	6.3	8.3	6.5	6.9	4.1	5.4	6.9	3.5		6.4	
8	21	1.6	7.8	11.6	5.9	6.8	4.2	8.3	5.7	4.8		7.7	
8	22	3.8	10.6	12.2	6.6	7.8	4.1	7.4	6.2	5.5		13.2	
8	23	3.2	3.8	10.1	6.0	7.5	6.9	7.7	10.4	3.5		14.3	
8	24	2.3	4.4	7.5	5.6	4.9	9.1	8.2	7.8	2.2		11.7	
8	25	8.9	5.2	7.2	6.3	2.3	8.1	7.0	7.5	4.1		10.0	
8	26	11.8	5.0	8.6	6.2	2.5	9.2	7.2	7.1	4.8		7.3	
8	27	5.5	5.6	9.4	6.1	2.2	9.4	8.3	7.9	4.7		5.3	
8	28	3.5	4.9	7.2	5.6	2.6	8.6	10.5	6.9	3.7		6.3	
8	29	4.0	0.8	8.6	1.5	1.9	8.3	9.3	6.9	5.5		7.4	
8	30	2.4	0.7	11.2	2.2	1.1	9.6	8.5	7.2	7.7		5.1	
8	31	3.3	2.7	8.9	2.9	3.6	11.4	6.8	9.1	4.7		4.3	
Mean		6.4	7.3	10.8	8.2	8.7	8.2	7.9	7.6	6.6	10.1	11.5	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-21 Daily Mean Air Temperatures (°C) at INAC Walker Bay, September 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
9	1	4.7	8.5	7.8	4.2	6.8	11.2	4.8	10.3	6.9		2.9	
9	2	0.9	9.3	9.2	4.6	7.0	10.0	4.3	11.7	10.9		3.0	
9	3	0.5	1.9	9.8	4.3	10.4	12.0	6.3	11.0	8.9		4.1	
9	4	1.2	3.6	8.6	7.1	8.9	9.0	3.2	8.4	7.0		5.9	
9	5	1.9	6.8	5.5	8.7	8.1	6.7	2.7	6.7	2.2		7.2	
9	6	1.5	3.2	2.7	5.4	3.6	4.9	7.0	6.6	-0.1		1.2	
9	7	2.6	3.6	4.6	4.6	4.2	2.9	9.1	5.5	-1.6		4.2	
9	8	0.0	4.1	8.0	6.0	3.8	3.7	6.7	6.3	1.7		8.1	
9	9	1.0	0.8	6.7	5.2	1.7	4.4	5.1	8.6	1.0		10.8	
9	10	4.1	-1.6	6.4	1.1	0.8	5.6	8.3	4.4	5.2		10.8	
9	11	4.6	-2.1	5.2	0.4	1.5	7.0	8.1	5.1	5.0		9.5	
9	12	4.9	-1.7	4.6	0.3	1.9	7.3	6.2	6.3	4.5		1.5	
9	13	4.2	-1.8	3.4	3.7	1.7	8.7	3.1	3.3	5.5		-1.9	
9	14	4.4	-1.4	2.9	1.4	4.6	6.7	1.4	1.6	4.2		-1.2	
9	15	6.0	-0.8	2.0	-0.2	3.9	5.0	3.0	0.7	1.0		2.0	
9	16	7.9	0.5	0.8	0.0	0.0	2.8	5.4	0.4	-1.7		5.6	
9	17	6.0	-2.4	1.0	0.1	2.4	2.7	7.0	1.7	-2.5		4.5	
9	18	6.5	-1.9	2.0	2.8	1.4	-0.4	6.3	2.6	-0.1		4.5	
9	19	9.1	1.9	2.2	5.6	-0.8		4.8	3.1	-0.8		4.2	
9	20	7.3	1.8	4.0	5.2	-0.6	-2.2	2.0	2.2	-0.1		0.9	
9	21	8.8	1.2	7.2	1.7	2.4	-0.6	-1.0	0.4	-0.4		0.9	
9	22	5.2	2.6	5.5	0.1	3.2	0.9	-1.8	0.7	-0.5		3.4	
9	23	5.0	2.3	3.5	0.4	-1.1	3.2	-2.5	-0.3	-1.0		3.1	
9	24	5.3	3.2	1.4	3.8	-6.8	6.8	-0.8	0.1	-0.7		3.0	
9	25	5.0	4.0	1.7	2.6	-7.1	7.5	-0.4	-0.6	-0.6		-0.2	
9	26	6.4	3.6	2.1	1.2	-7.3	6.0	-2.0	0.8	-1.2		-0.3	
9	27	-2.5	1.0	3.9	0.0	-7.9	6.7	-4.7	0.5	-2.0		-2.8	
9	28	-6.7	-4.0	1.5	-1.2	-7.8	6.1	-2.3	-0.2	-3.8		-3.6	
9	29	-9.6	-3.2	0.5	-4.3	-5.5	0.1	-2	-1.2	-3.5		-2.6	
9	30	-7.3	-0.6	-1.3	-4.9	-3.7	-0.4	-4.7	1.1	-6.2		-1.1	
Mean		3.0	1.4	4.1	2.3	1.0	5.0	2.8	3.6	1.2		2.9	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Table A-22 Daily Mean Air Temperatures (°C) at INAC Walker Bay, October 1996 – 2007

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
10	1	-8.5	-5.7	-0.6	-5.2	-1.8	-2.0	-7.8	1.6	-6.0		-0.6	
10	2	-7.7	-8.4	-0.9	-8.8	-3.4	0.2	-7.7	1.5	-5.3		-1.3	
10	3	-9.6	-6.8	-2.4	-8.2	-5.3	-4.8	-5.4	1.7	-9.0		0.6	
10	4	-5.5	-5.9	1.7	-7.3	-6.4	-6.3	-3.5	4.1	-11.8		-1.7	
10	5	-4.7	-5.1	2.3	-11.1	-3.9	-6.7	-6.2	1.7	-10.1		-4.8	
10	6	-5.9	-6.9	-3.2	-10.2	-0.5	0.9	-6.0	-1.1	-7.3		-8.3	
10	7	-12.4	-7.5	-5.4	-7.0	-4.4	-1.3	-0.9	-2.4	-6.2		-9.7	
10	8	-10.7	-8.7	-5.9	-2.9	-2.9	-6.9	-8.4	0.1	-4.4		-11.1	
10	9	-14.5	-11.6	-1.9	-4.8	-1.8	-4.2	-8.1	0.6	-5.4		-10.9	
10	10	-17.2	-9.5	-1.5	-8.7	-2.3	-2.7	-6.2	-0.6	-5.9		-11.8	
10	11	-11.6	-8.1	-4.5	-10.1	-4.4	-1.2	-11.8	0.2	-7.9		-9.2	
10	12	-8.2	-8.7	-0.3	-3.7	-6.7	-0.9	-10.8	-0.2	-10.6		-1.3	
10	13	-4.3	-7.6	-1.7	-6.0	-10.5	-3.8	-10.2	-4.5	-13.6		-2.9	
10	14	-1.2	-10.1	-4.3	-10	-10.5	-10.6	-11.4	-7.6	-14.1		-5.2	
10	15	-0.3	-11.9	-9.3	-10.7	-6.1	-12.6	-10.9	-12.6	-15.5		-7.6	
10	16	-0.3	-12.4	-3.9	-17.2	-8.5	-12.8	-11.7	-9.2	-16.1		-7.3	
10	17	-2.2	-17.1	1.4	-17.1	-15.5	-11.7	-13.5	-8.0	-16.5		-5.4	
10	18	-3.1	-17.7	-0.7	-15.7	-10.4	-12.3	-8.6	-7.1	-14.5		-4.1	
10	19	-6.4	-14.8	-5.5	-12.7	-14.4	-9.8	-2.4	-6.7	-11.8		-6.5	
10	20	-6.5	-13.3	0.0	-13.1	-12.4	-13.2	-2.7	-7.4	-11.3		-5.2	
10	21	-12.9	-13.7	-5.5	-16.3	-8.5	-18.0	-5.9	-7.4	-11.7		-10.1	
10	22	-13.0	-9.5	-7.6	-12.3	-15.3	-21.3	-4.1	-6.5	-8.6		-4.3	
10	23	-13.5	-7.4	-10.0	-8.7	-13.7	-22.3	-1.8	-4.1	-10.1		-1.9	
10	24	-19.4	-9.1	-12.1	-8.4	-16.2	-21.3	-4.2	-6.5	-9.7		-2.7	
10	25	-14.7	-11.0	-6.0	-10.1	-13.7	-18.9	-4.5	-12.7	-13.3		-4.4	
10	26	-9.4	-15.1	-2.0	-4.4	-9.5	-15.9	-9.9	-4.7	-12.0		-0.1	
10	27	-15.9	-19.6	-3.9	-4.4	-8.6	-15.5	-11.6	-10.7	-13.2		-3.9	
10	28	-26.3	-19.3	-9.0	-7.6	-16.3	-19.8	-6.1	-14.4	-13.2		-5.0	
10	29	-22.2	-20.5	-7.0	-5.6	-11.9	-22.9	-2.4	-12.0	-19.2		-5.5	
10	30	-23.6	-20.1	-13.2	-4.1	-13.7	-19.9	-8.9	-16.4	-14.8		-8.5	
10	31	-22.0	-21.5	-12.1	-5.7	-22.6	-16.6	-8.2	-16.2	-18.4		-12.4	
Mean		-10.8	-11.8	-4.4	-9.0	-9.1	-10.8	-7.2	-5.4	-11.2		-5.6	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

**Table A-23 Daily Mean Air Temperatures (°C) at INAC Walker Bay,
November 1996 – 2007**

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
11	1	-16.6	-21.0	-11.4	-9.9	-11.6	-16.2	-20.6	-15.7	-24.4		-18.9	
11	2	-17.7	-18.2	-7.7	-9.1	-9.9	-19.7	-16.2	-12.2	-23.0		-20.1	
11	3	-17.2	-9.5	-5.2	-14.1	-13.8	-22.5	-8.5	-13.5	-23.0		-19.5	
11	4	-15.1	-7.7	-6.8	-23.1	-17.7	-13.3	-18.4	-19.1	-8.6		-19.7	
11	5	-14.3	-5.0	-9.5	-22.0	-16.0	-8.1	-15.8	-24.0	-3.6		-20.2	
11	6	-16.4	-8.2	-15.4	-19.3	-17.9	-17.2	-18.8	-19.0	-11.7		-14.9	
11	7	-15.1	-8.9	-8.1	-20.3	-17.4	-21.8	-11.2	-3.5	-20.5		-11.4	
11	8	-18.6	-12.0	-4.7	-21.5	-19.5	-18.3	-11.3	-12.8	-22.6		-18.3	
11	9	-17.4	-13.5	-10.7	-11.3	-26.5	-16.0	-12.6	-13.6	-21.3		-19.3	
11	10	-21.2	-8.8	-13.8	-4.0	-27.2	-23.1	-18.3	-11.1	-21.1		-13.1	
11	11	-21.7	-12.0	-20.9	-16.4	-28.0	-22.2	-19.8	-15.3	-19.0		-14.3	
11	12	-18.2	-9.9	-24.5	-14.2	-23.1	-22.4	-20.8	-18.8	-19.7		-18.7	
11	13	-12.0	-5.6	-18.0	-16.7	-28.7	-26.3	-19.8	-23.6	-25.9		-12.8	
11	14	-15.2	-11.9	-11.2	-19.2	-31.6	-31.6	-24.6	-17.4	-19.9		-18.2	
11	15	-13.9	-17.6	-17.7	-25.6	-22.3	-30.4	-26.6	-8.6	-13.9		-13.1	
11	16	-19.0	-21.2	-24.5	-24.2	-17.2	-16.5	-22.5	-10.4	-28.6		-16.6	
11	17	-28.5	-20.8	-17.0	-22.9	-18.8	-11.0	-9.7	-10.8	-23.4		-14.7	
11	18	-29.0	-19.5	-15.8	-18.6	-15.4	-15.6	-11.2	-11.9	-23.3		-19.5	
11	19	-16.6	-23.1	-19.5	-20.4	-14.9	-14.2	-21.5	-13.3	-11.7		-20.1	
11	20	-17.4	-22.0	-25.7	-24.6	-22.6	-27.3	-18.9	-15.7	-14.0		-20.0	
11	21	-18.7	-23.4	-17.4	-24.6	-21.8	-23.5	-20.7	-16.7	-18.4		-25.3	
11	22	-23.4	-23.9	-8.9	-19.4	-13.5	-18.7	-30.1	-22.4	-23.9		-21.7	
11	23	-27.2	-25.7	-12.3	-15.4	-17.3	-25.0	-21.3	-20.4	-18.0		-20.3	
11	24	-25.0	-25.5	-21.5	-19.2	-20.1	-25.3	-27.7	-19.2	-22.6		-25.4	
11	25	-20.5	-26.8	-13.6	-17.7	-22.6	-24.1	-21.0	-19.0	-37.1		-25.6	
11	26	-18.5	-24.2	-8.2	-17.7	-19.6	-21.7	-23.7	-22.9	-28.8		-19.3	
11	27	-23.3	-21.2	-9.8	-17.2	-21.1	-23.6	-23.7	-26.8	-27.7		-16.1	
11	28	-27.0	-20.4	-14.5	-20.0	-24.2	-18.5	-21.6	-29.9	-36.9		-27.5	
11	29	-21.2	-23.0	-12.9	-18.3	-22.9	-12.8	-23.1	-29.3	-39.9		-28.7	
11	30	-29.9	-17.2	-11.8	-24.6	-27.2	-15.0	-32.1	-29.7	-35.1		-30.2	
Mean		-19.9	-16.9	-14.0	-18.4	-20.3	-20.1	-19.7	-17.6	-22.3		-19.5	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

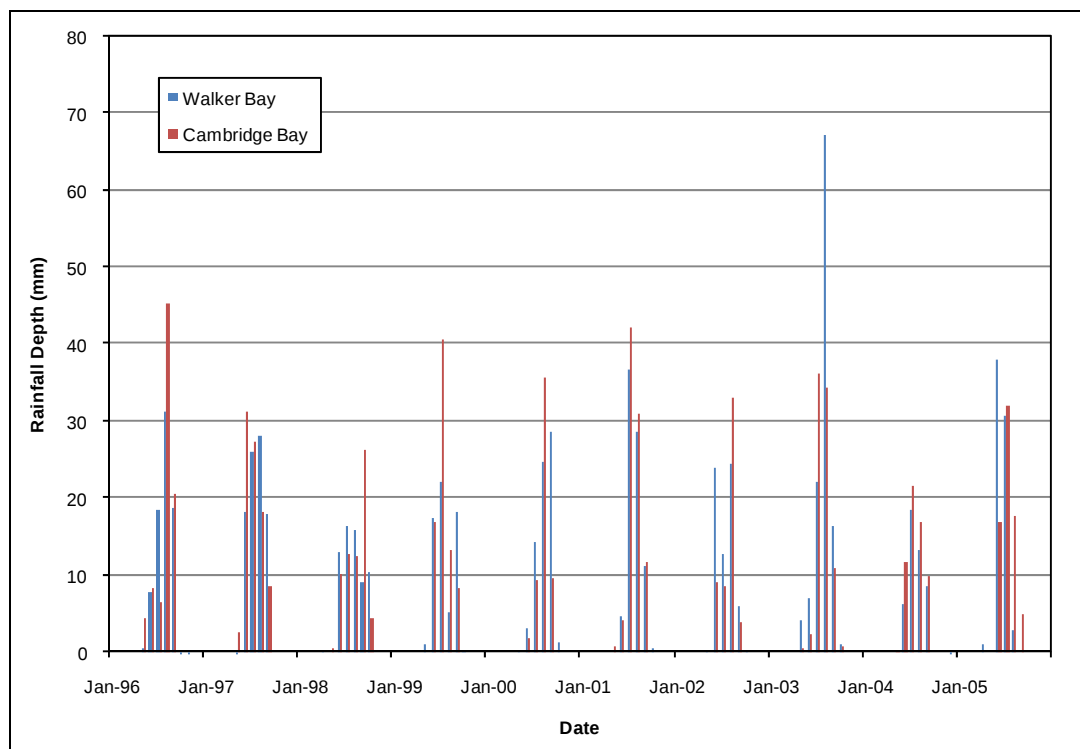
**Table A-24 Daily Mean Air Temperatures (°C) at INAC Walker Bay,
December 1996 – 2007**

Month	Day	Year											
		1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
12	1	-30.5	-15.2	-12.4	-26.1	-24.2	-16.1	-30.9	-30.6	-30.1		-29.8	
12	2	-27.9	-15.6	-16.3	-27.8	-26.1	-18.0	-13.6	-23.4	-33.4		-24.6	
12	3	-32.9	-11.8	-17.4	-30.8	-29.8	-20.6	-14.9	-12.8			-12.2	
12	4	-27.4	-9.8	-21.6	-21.3	-31.8	-19.9	-24.8	-20.1	-25.9		-14.0	
12	5	-22.6	-11.4	-17.3	-22.9	-33.8	-28.1	-20.7	-28.7	-29.3		-23.1	
12	6	-21.6	-15.3	-14.4	-22.7	-35.1	-33.4	-28.7	-26.6	-32.6		-20.6	
12	7	-30.9	-19.3	-20.1	-23.5	-34.9	-24.9	-26.8	-32.1	-26.9		-17.2	
12	8	-27.1	-18.2	-31.2	-21.7	-36.8	-19.8	-20.3	-31.8	-27.7		-22.9	
12	9	-23.4	-16.7	-14.4	-28.7	-26.1	-25.1	-23.0	-25.4	-35.2		-18.8	
12	10	-23.3	-23.6	-16.2	-21.1	-29.4	-22.3	-22.0	-21.6	-36.3		-20.7	
12	11	-30.5	-33.4	-18.0	-25.0	-29.6	-28.7	-24.0	-31.4	-35.7		-11.6	
12	12	-29.8	-31.8	-18.5	-27.0	-30.3	-33.7	-25.0	-36.4	-25.2		-18.3	
12	13	-25.7	-23.6	-19.7	-31.7	-27.3	-30.6	-19.7	-36.9	-29.8		-20.8	
12	14	-23.0	-18.6	-22.0	-32.7	-31.1	-26.5	-8.0	-37.8	-39.5		-28.0	
12	15	-19.8	-17.0	-31.0	-35.1	-24.0	-23.4	-18.5	-35.7	-33.7		-24.3	
12	16	-22.1	-23.1	-27.3	-30.6	-24.8	-13.6	-17.9	-33.5	-33.2		-25.2	
12	17	-26.5	-27.3	-24.7	-25.7	-29.2	-20.4	-14.2	-34.1	-36.7		-34.2	
12	18	-35.2	-27.6	-24.3	-29.0	-29.6	-19.9	-10.5	-37.4	-35.6		-33.0	
12	19	-36.9	-33.7	-26.5	-33.7	-27.4	-21.3	-11.3	-38.2	-36.3		-27.1	
12	20	-28.9	-34.2	-23.7	-35.4	-20.9	-22.3	-11.8	-32.8	-34.0		-19.8	
12	21	-30.2	-27.4	-21.3	-34.5	-34.9	-28.4	-17.4	-21.8	-30.7		-20.1	
12	22	-31.8	-31.2	-21.4	-29.7	-31.5	-16.0	-20.2	-22.7	-34.6		-20.2	
12	23	-27.6	-31.7	-26.6	-19.6	-20.7	-16.1	-31.3	-13.8	-29.4		-23.7	
12	24	-28.7	-36.5	-19.3	-15.9	-30.5	-17.8	-36.6	-18.0	-26.3		-23.5	
12	25	-24.7	-39.6	-17.9	-24.4	-28.1	-11.1	-35.3	-29.1	-23.8		-18.2	
12	26	-36.1	-42.4	-28.2	-29.8	-33.1	-19.2	-30.6	-21.5	-25.7		-19.8	
12	27	-30.8	-41.9	-35.5	-34.6	-25.1	-24.2	-27.5	-26.3	-27.3		-16.6	
12	28	-38.6	-41.0	-29.7	-35.4	-21.1	-25.3	-36	-28.3	-31.2		-19.1	
12	29	-35.7	-43.6	-28.3	-30.9	-25.2	-22.7	-26.7	-31.3	-27.2		-26.8	
12	30	-42.7	-39.1	-26.4	-34.3	-19.9	-22.4	-22.9	-31.3	-22.9		-13.4	
12	31	-37.3	-33.4	-22.8	-35.2	-35.6	-15.2	-21.8	-27.2	-26.8		-19.6	
Mean		-29.4	-26.9	-22.4	-28.3	-28.6	-22.2	-22.4	-28.3	-30.8		-21.5	



APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

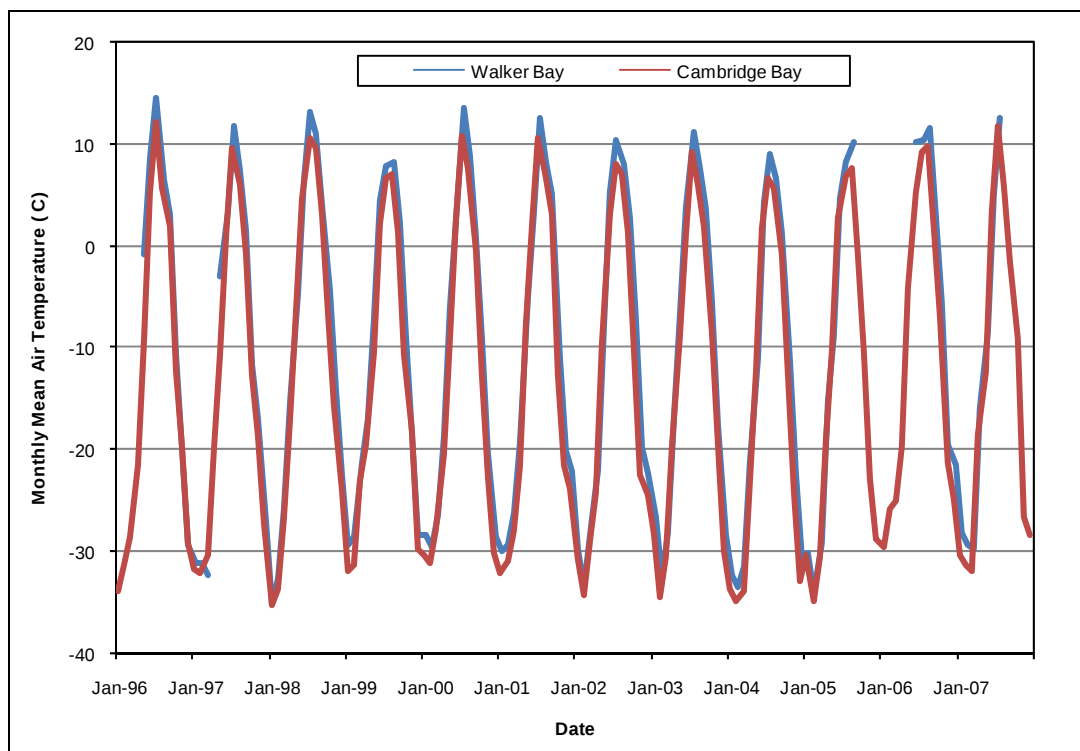
Figure A-1 Monthly Rainfall at INAC Walker Bay and Cambridge Bay A, 1996 to 2005





APPENDIX A HOPE BAY PROJECT - INAC WALKER BAY CLIMATE DATA

Figure A-2 Monthly Mean Air Temperatures at INAC Walker Bay and Cambridge Bay A, 1996 to 2005





APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

APPENDIX B – TEMPERATURE DATA



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-1 Monthly and Annual Mean Temperatures (°C) at Cambridge Bay A, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	-29.0	-30.5	-32.6	-20.7	-12.5	0.9	6.6						
1930						5.2	12.8	8.6	-0.7	-12.1			
1931					-10.3	4.5		5.5	1.8	-8.3	-21.9		
1932				-23.7		3.6							
1933													
1934										-13.2	-20.7		
1935			-31.1	-22.0	-10.7	3.2	10.0	8.7	-0.4		-26.9	-31.9	
1936	-38.2	-37.9	-32.3	-23.9	-11.8	0.8				-17.6	-25.9	-33.5	
1937	-32.1	-35.0	-29.4	-20.9	-9.3		8.9			-9.3	-22.6	-32.8	
1938	-30.6												
1939	-34.8		-35.1	-17.5	-7.6	0.6						-29.4	
1940	-23.7	-29.6	-25.8	-16.7	-6.2	-0.2	8.0	4.6	2.3	-10.0	-23.9	-30.0	-12.6
1941	-32.6	-29.2	-30.5	-23.9	-9.6	3.3	10.5	5.6	-3.2	-11.9	-27.7	-29.3	-14.9
1942	-29.5	-36.6	-26.1	-21.8	-6.8	1.6	10.5	6.7		-6.1	-25.3	-29.8	
1943	-33.7	-32.2	-28.0		-9.4	2.9	10.1	10.3		-8.1	-19.7	-29.0	
1944	-30.1	-34.0	-29.3			2.9	7.2	6.3	-0.2	-10.0	-21.0	-25.6	
1945	-30.1	-31.5	-25.9	-26.5	-10.7					-9.8	-24.7	-30.4	
1946	-34.6	-37.2	-25.6	-20.2	-7.6	0.8	7.5	7.3	-2.8	-15.0	-23.4	-30.2	-15.1
1947	-34.3	-32.1	-25.4	-21.9	-11.0								
1948		-34.9	-31.8	-24.2	-7.6	2.6	11.0	8.3	1.0	-11.0	-22.5	-33.8	-13.0
1949	-33.7	-38.0	-29.4	-21.4	-11.8	-1.2	5.7	8.2	1.1	-12.2	-22.2	-28.5	-15.3
1950	-39.1	-35.3	-26.6	-23.2	-10.5	0.2	6.3	4.8	0.3	-15.4	-24.6	-29.1	-16.0
1951	-30.9	-37.2	-31.5	-22.4	-7.5	2.2	7.0	7.3	-0.3	-11.6	-24.8	-33.6	-15.3
1952	-35.6	-35.7	-31.3	-16.8	-3.5	3.4	8.1	5.1	-2.0	-13.3	-23.7	-25.1	-14.2
1953	-36.6	-30.6	-30.4	-15.9	-10.6	1.2	7.7	7.4	0.4	-12.1	-21.4	-32.3	-14.4
1954	-33.8	-33.2	-29.0	-24.8	-9.7	0.7	9.5	11.0	2.8	-11.3	-22.4	-31.9	-14.3
1955	-31.3	-38.2	-32.7	-19.2	-9.1	1.8	7.8	6.7	-0.3	-7.4	-24.3	-31.3	-14.8
1956	-30.6	-35.7	-32.6	-22.0	-13.9	1.2	9.4	5.4	-2.3	-14.0	-24.5	-32.6	-16.0
1957	-34.7	-36.1	-28.0	-21.3	-12.1	-0.1	6.6	6.4	0.7	-9.4	-26.8	-34.6	-15.8
1958	-31.3	-39.3	-30.1	-25.9	-7.7	0.3	7.8	8.8	1.6	-9.0	-27.5	-28.9	-15.1



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-1 Monthly and Annual Mean Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1959	-30.3	-32.5	-31.6	-21.2	-13.7	-0.6	6.1	4.9	-0.5	-14.4	-23.4	-24.7	-15.2
1960	-34.8	-34.1	-33.4	-22.8	-5.8	5.9	9.2	7.9	-0.4	-10.0	-25.8	-26.3	-14.2
1961	-35.2	-32.5	-37.7	-23.9	-11.1	1.5	9.8	5.1	-3.7	-15.9	-23.0	-33.8	-16.7
1962	-34.4	-36.7	-26.6	-23.0	-12.9	3.9	9.4	6.9	0.3	-11.8	-25.1	-29.9	-15.0
1963	-34.7	-31.0	-36.2	-18.9	-11.5	1.5	7.3	6.2	-1.9	-11.8	-21.0	-28.7	-15.1
1964	-38.0	-34.9	-34.2	-25.6	-7.9	-0.3	6.5	7.2	-0.7	-12.3	-20.9	-29.7	-15.9
1965	-33.4	-37.6	-29.7	-22.2	-9.8	0.3	7.2	5.6	-3.8	-13.0	-22.9	-31.4	-15.9
1966	-38.3	-35.3	-29.3	-24.5	-6.0	3.4	9.3	7.7	1.2	-15.4	-26.6	-26.5	-15.0
1967	-35.4	-36.9	-32.1	-24.0	-9.8	-1.6	6.5	5.2	-3.2	-8.3	-26.3	-26.8	-16.1
1968	-35.1	-33.6	-27.9	-24.2	-11.2	2.6	6.3	5.6	1.1	-5.9	-21.3	-27.9	-14.3
1969	-34.0	-29.8	-31.4	-19.8	-10.9	-2.0	9.1	7.4	1.1	-6.7	-23.8	-22.8	-13.6
1970	-31.2	-34.8	-28.4	-21.6	-10.7	3.6	9.4	7.6	0.1	-9.9	-23.1	-34.6	-14.5
1971	-31.3	-32.7	-29.1	-20.9	-9.6	3.5	9.2	6.1	1.0	-7.3	-25.6	-32.5	-14.1
1972	-35.5	-38.8	-29.7	-26.7	-13.1	-1.7	5.9	4.4	-5.2	-16.3	-25.8	-31.7	-17.9
1973	-32.3	-34.5	-33.7	-24.0	-6.8	5.0	8.8	9.5	1.6	-6.9	-20.6	-28.0	-13.5
1974	-33.2	-35.8	-32.3	-26.3	-9.6	0.9	9.4	6.0	-3.3	-16.5	-22.0	-31.9	-16.2
1975	-36.9	-32.3	-31.4	-16.1	-4.0	7.0	7.9	8.8	-1.1	-11.5	-22.6	-32.5	-13.7
1976	-34.2	-34.5	-32.6	-16.4	-8.8	-0.2	8.3	5.0	-0.1	-11.8	-24.3	-32.7	-15.2
1977	-29.7	-35.7	-30.6	-17.9	-7.4	3.3	8.3	6.1	1.6	-10.7	-23.8	-29.7	-13.9
1978	-29.9	-27.3	-30.7	-23.3	-12.8	-2.7	4.5	3.4	-1.0	-19.2	-24.4	-27.9	-15.9
1979	-30.1	-38.2	-33.7	-22.3	-8.2	-1.0	7.1	4.2	-1.9	-14.6	-18.6	-31.0	-15.7
1980	-34.3	-26.8	-30.1	-23.2	-7.1	2.3	7.3	7.5	-2.0	-11.3	-27.7	-30.0	-14.6
1981	-24.6	-31.3	-28.8	-23.7	-7.2	3.1	7.8	7.1	0.3	-7.5	-21.3	-26.7	-12.7
1982	-35.2	-31.7	-30.4	-23.8	-10.2	0.5	7.4	5.0	-2.5	-11.2	-27.8	-32.3	-16.0
1983	-33.3	-37.4	-30.8	-22.9	-14.9	3.6	9.0	6.7	3.4	-11.5	-17.3	-26.3	-14.3
1984	-34.9	-30.9	-29.1	-18.8	-6.2	4.6	9.2	6.2	-1.6	-10.4	-22.1	-33.3	-13.9
1985	-31.6	-36.5	-32.4	-26.1	-4.3	3.5	6.4	4.8	0.7	-11.6	-23.4	-27.3	-14.8
1986	-35.2	-30.5	-30.3	-22.2	-9.3	-0.4	7.1	3.9	-1.1	-15.7	-27.3	-29.8	-15.9
1987	-33.0	-32.4	-30.4	-23.1	-13.5	-0.3	7.6	4.8	1.1	-11.7	-23.3	-22.2	-14.7
1988	-32.4	-33.7	-26.8	-19.0	-9.7	3.6	8.9	7.3	1.5	-9.7	-26.9	-29.3	-13.9
1989	-35.2	-25.5	-31.0	-18.3	-12.3	4.8	9.8	8.8	-0.2	-12.0	-27.1	-30.9	-14.1
1990	-33.1	-38.2	-25.4	-19.4	-9.4	2.6	8.5	5.5	-0.5	-11.1	-26.5	-32.3	-14.9



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-1 Monthly and Annual Mean Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1991	-35.4	-34.3	-32.3	-21.2	-9.3	3.1	8.3	7.0	-2.0	-11.7	-23.6	-30.2	-15.1
1992	-34.8	-32.5	-26.7	-24.2	-9.4	0.9	7.5	5.5	-1.4	-11.4	-24.0	-26.2	-14.7
1993										-10.8			
1994	-34.8	-32.9	-28.3	-22.0	-8.3	3.7	10.5	7.7	0.1	-7.0	-20.3	-27.5	-13.3
1995	-29.8	-32.2	-29.7	-17.5	-10.6	3.6	8.0	7.5	-1.2	-12.1	-23.7	-34.0	-14.3
1996	-34.0	-31.3	-28.6	-21.4	-9.2	5.4	12.3	5.6	1.9	-12.1	-19.8	-29.1	-13.4
1997	-31.8	-32.2	-30.3	-19.9	-10.7	0.8	9.6	6.1	-0.7	-12.6	-18.7	-27.1	-14.0
1998	-35.3	-33.7	-26.8	-17.1	-6.5	4.7	10.7	9.6	3.3	-6.5	-15.5	-24.1	-11.4
1999	-31.9	-31.4	-23.0	-19.4	-10.4	2.2	6.8	7.1	1.4	-10.5	-18.1	-29.7	-13.1
2000	-30.4	-31.2	-27.8	-20.5	-9.0	2.6	10.9	7.7	-0.4	-12.6	-22.6	-30.1	-13.6
2001	-32.2	-30.8	-28.1	-21.7	-7.6	2.0	10.8	6.8	3.2	-12.5	-21.6	-23.7	-13.0
2002	-30.7	-34.2	-29.0	-24.2	-9.7	3.2	8.2	7.2	1.4	-10.0	-22.5	-24.4	-13.7
2003	-28.1	-34.5	-30.4	-19.7	-8.9	1.1	9.3	6.1	2.0	-8.5	-19.3	-29.9	-13.4
2004	-33.8	-35.0	-33.9	-23.0	-12.3	1.9	6.8	5.7	-0.8	-12.7	-24.0	-33.0	-16.2
2005	-30.3	-34.9	-30.6	-19.1	-10.1	2.8	7.0	7.7	-0.7	-10.5	-22.9	-28.8	-14.2
2006	-29.5	-25.8	-25.0	-19.7	-4.1	5.4	9.3	9.8	1.8	-6.8	-21.2	-24.7	-10.9
2007	-30.4	-31.3	-31.7	-18.4	-12.4	3.4	11.9	5.9	-1.3	-9.0	-26.6	-28.4	-14.0
2008	-31.5	-35.7	-35.0	-21.4	-7.1	2.3	9.5	7.4	-0.8	-6.4	-21.1	-29.0	-14.1



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-2 Monthly and Annual Minimum Temperatures (°C) at Cambridge Bay A, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	-32.4	-34.2	-35.9	-26.3	-17.2	-2.2	2.8						-35.9
1930						-0.2	5.5	4.3	-2.8	-15.7	-25.9	-33.6	-33.6
1931	-39.1	-37.6	-38.8	-23.8	-14.4	1.5		3.1	0.0	-11.2	-24.8	-33.8	-39.1
1932	-36.9	-42.2	-34.4	-28.1		0.6							-42.2
1933													
1934										-16.4	-24.5	-35.8	-35.8
1935	-41.0	-36.3	-36.1	-27.2	-15.3	-0.3	5.8	5.7	-2.0		-30.3	-35.5	-41.0
1936	-40.8	-41.1	-37.1	-27.8	-15.8	-2.1				-21.8	-29.2	-36.4	-41.1
1937	-35.1	-37.5	-33.8	-24.5	-13.3		4.8			-12.1	-26.2	-35.9	-37.5
1938	-34.0												-34.0
1939	-37.1	-38.3	-37.7	-21.8	-10.9	-1.5						-33.0	-38.3
1940	-28.4	-33.6	-30.7	-23.3	-9.7	-2.8	3.5	1.4	-0.7	-12.7	-28.4	-33.6	-33.6
1941	-36.3	-33.0	-33.6	-27.2	-13.1	0.0	5.6	2.5	-5.6	-15.4	-31.6	-32.7	-36.3
1942	-33.7	-40.1	-30.2	-26.4	-9.3	-0.6	8.1	4.7		-8.2	-28.5	-32.7	-40.1
1943	-36.9	-35.2	-30.6		-11.9	1.1	8.1	8.6		-11.2	-23.5	-32.9	-36.9
1944	-33.9	-37.7	-33.3			-0.6	3.8	3.4	-2.2	-13.4	-24.8	-29.9	-37.7
1945	-33.7	-35.2	-29.9	-31.5	-14.8					-12.9	-29.1	-34.1	-35.2
1946	-37.1	-40.0	-27.5	-22.9	-11.0	-1.9	2.6	3.4	-5.1	-18.3	-27.1	-33.4	-40.0
1947	-37.9	-36.2	-29.5	-26.4	-14.7								-37.9
1948		-39.2	-36.2	-29.8	-11.8	-0.7	6.6	4.8	-1.7	-14.2	-25.6	-37.4	-39.2
1949	-37.3	-41.4	-33.7	-26.4	-16.7	-3.7	2.1	4.2	-1.6	-15.7	-25.7	-31.7	-41.4
1950	-42.4	-39.2	-31.4	-28.7	-14.6	-3.1	2.8	1.8	-2.0	-18.6	-27.8	-32.6	-42.4
1951	-34.2	-41.4	-34.9	-27.4	-10.6	-0.9	3.2	3.5	-2.7	-14.9	-28.1	-36.2	-41.4
1952	-38.9	-38.7	-35.7	-21.4	-7.2	0.4	3.6	2.3	-4.2	-16.4	-27.2	-28.9	-38.9
1953	-39.4	-34.4	-34.2	-20.6	-14.7	-1.8	3.4	3.6	-2.4	-15.7	-25.8	-35.6	-39.4
1954	-37.3	-37.2	-32.7	-29.0	-13.4	-1.6	5.3	6.4	0.8	-15.3	-25.6	-35.0	-37.3
1955	-33.8	-41.1	-36.0	-23.2	-12.4	-0.8	3.2	3.7	-2.3	-9.9	-27.7	-35.3	-41.1
1956	-35.4	-38.6	-36.5	-26.3	-18.4	-2.0	4.6	2.4	-3.9	-17.1	-27.8	-35.8	-38.6
1957	-38.9	-38.8	-31.2	-25.8	-15.6	-2.7	2.9	3.5	-1.6	-12.6	-30.6	-36.9	-38.9
1958	-34.9	-42.3	-34.2	-30.7	-11.1	-2.3	4.2	5.3	-0.7	-12.0	-30.3	-32.4	-42.3
1959	-34.2	-36.1	-35.3	-25.6	-17.8	-2.8	2.9	2.2	-2.6	-17.9	-26.6	-29.0	-36.1



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-2 Monthly and Annual Minimum Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1960	-38.7	-37.2	-37.1	-27.4	-8.4	1.9	5.2	5.2	-1.9	-13.1	-29.2	-30.1	-38.7
1961	-37.8	-35.3	-40.9	-28.0	-14.9	-1.4	5.1	2.4	-5.9	-19.3	-27.2	-37.1	-40.9
1962	-38.7	-40.0	-30.9	-28.0	-16.8	0.7	5.1	3.1	-2.0	-14.9	-28.6	-33.3	-40.0
1963	-37.9	-34.1	-39.9	-23.7	-15.5	-1.4	3.8	3.0	-3.9	-16.2	-24.1	-32.6	-39.9
1964	-41.2	-38.3	-38.1	-30.7	-11.9	-2.3	2.6	3.5	-2.7	-15.6	-24.7	-33.3	-41.2
1965	-36.8	-40.5	-34.2	-27.3	-14.3	-2.3	3.1	2.4	-6.4	-16.8	-27.6	-34.6	-40.5
1966	-41.9	-39.1	-33.7	-29.0	-9.4	0.1	5.3	4.8	-1.1	-18.6	-30.4	-29.9	-41.9
1967	-38.3	-39.8	-36.2	-28.6	-13.7	-5.0	2.3	1.9	-5.3	-11.4	-29.7	-30.9	-39.8
1968	-38.1	-38.3	-32.3	-29.1	-15.8	-0.1	3.2	2.8	-0.6	-8.4	-24.7	-31.4	-38.3
1969	-36.8	-34.6	-35.7	-24.3	-14.7	-4.6	4.2	4.3	-1.6	-9.9	-27.5	-26.1	-36.8
1970	-34.1	-37.7	-32.4	-25.6	-14.8	0.2	5.1	4.4	-2.2	-13.9	-26.7	-37.3	-37.7
1971	-34.2	-36.0	-33.1	-25.4	-13.7	0.2	5.3	3.3	-1.2	-10.2	-29.1	-36.0	-36.0
1972	-39.1	-42.1	-33.9	-31.7	-17.8	-4.3	2.2	1.2	-7.6	-20.3	-30.4	-35.1	-42.1
1973	-36.6	-38.4	-38.3	-29.1	-10.8	1.1	4.7	6.5	-0.8	-10.6	-24.8	-31.7	-38.4
1974	-37.1	-39.4	-36.2	-31.8	-14.1	-3.1	5.1	2.7	-5.7	-20.2	-25.9	-35.9	-39.4
1975	-40.5	-35.6	-35.6	-20.7	-6.6	2.8	3.9	4.9	-3.8	-15.3	-26.9	-35.7	-40.5
1976	-37.9	-38.4	-36.6	-21.6	-13.4	-3.1	3.8	1.9	-2.1	-16.0	-28.4	-36.3	-38.4
1977	-34.0	-39.6	-34.6	-22.4	-10.6	0.1	4.5	3.3	-0.6	-14.4	-28.0	-33.4	-39.6
1978	-34.1	-31.5	-34.8	-27.9	-17.1	-4.9	1.5	0.6	-3.3	-23.0	-27.7	-31.2	-34.8
1979	-33.8	-41.3	-37.5	-27.2	-12.2	-4.0	3.2	1.4	-4.3	-18.8	-23.7	-34.5	-41.3
1980	-37.5	-31.5	-33.9	-27.5	-10.4	-0.6	4.1	4.2	-4.8	-15.0	-31.6	-33.4	-37.5
1981	-28.7	-35.2	-33.4	-28.4	-11.1	0.1	4.3	4.1	-1.4	-10.0	-24.2	-30.0	-35.2
1982	-38.5	-35.0	-34.1	-28.1	-13.9	-2.5	3.6	1.8	-5.0	-14.8	-31.0	-35.8	-38.5
1983	-37.2	-40.0	-34.5	-27.3	-19.3	0.4	4.9	3.5	0.9	-15.1	-20.4	-30.1	-40.0
1984	-37.7	-34.6	-32.8	-23.7	-10.5	0.9	5.3	3.4	-3.7	-13.1	-25.5	-36.0	-37.7
1985	-35.4	-39.8	-36.5	-30.4	-6.6	0.3	2.8	1.7	-1.7	-15.0	-26.4	-30.6	-39.8
1986	-37.9	-34.3	-34.1	-26.4	-13.0	-3.4	3.1	1.0	-3.3	-20.2	-30.7	-33.8	-37.9



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-2 Monthly and Annual Minimum Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1987	-37.0	-35.9	-34.0	-27.9	-17.2	-2.8	3.8	2.6	-0.9	-15.5	-26.6	-25.6	-37.0
1988	-35.5	-37.3	-30.7	-23.7	-12.9	0.5	5.3	4.3	-0.3	-12.6	-29.8	-32.4	-37.3
1989	-38.0	-29.8	-34.7	-22.8	-16.2	1.0	5.6	5.0	-2.5	-15.6	-30.3	-34.2	-38.0
1990	-36.4	-41.1	-29.8	-24.4	-13.1	-0.6	4.5	2.9	-2.4	-13.9	-29.5	-35.0	-41.1
1991	-38.2	-38.0	-36.4	-25.8	-13.6	0.0	4.9	3.7	-3.6	-14.7	-26.7	-33.8	-38.2
1992	-37.7	-35.7	-30.4	-28.4	-13.2	-2.0	3.5	2.4	-3.8	-14.6	-28.3	-30.7	-37.7
1993	-35.2	-37.0	-32.0	-28.3	-10.5	0.3	5.5	3.7	-3.8	-13.9	-27.4	-33.9	-37.0
1994	-37.9	-36.2	-32.6	-26.5	-12.3	0.9	5.9	4.7	-2.4	-9.5	-23.1	-31.6	-37.9
1995	-32.9	-35.6	-33.7	-22.8	-15.0	-0.3	5.0	4.3	-3.3	-15.6	-27.1	-37.1	-37.1
1996	-37.7	-35.3	-33.0	-25.5	-12.9	1.5	8.0	3.3	-0.2	-15.2	-22.8	-33.0	-37.7
1997	-35.5	-36.0	-33.7	-24.6	-14.2	-2.0	5.9	3.1	-2.9	-14.6	-22.5	-30.0	-36.0
1998	-38.2	-37.3	-30.6	-21.0	-9.7	1.6	6.8	6.4	1.6	-9.6	-19.3	-27.3	-38.2
1999	-34.4	-34.8	-26.8	-23.3	-14.5	-0.5	3.4	4.6	-0.6	-13.2	-21.9	-32.3	-34.8
2000	-34.6	-34.8	-31.7	-24.3	-12.5	-1.1	5.9	4.3	-2.7	-16.1	-26.1	-33.8	-34.8
2001	-36.0	-34.9	-31.6	-26.6	-11.2	-0.5	5.7	3.7	0.7	-14.8	-24.6	-27.6	-36.0
2002	-33.8	-38.1	-32.9	-28.8	-12.7	0.1	4.1	4.1	-1.2	-13.7	-26.4	-28.5	-38.1
2003	-32.1	-38.3	-34.4	-24.4	-13.1	-1.5	4.7	3.2	-0.3	-12.0	-22.5	-33.3	-38.3
2004	-37.5	-38.4	-37.6	-27.2	-15.6	-0.8	2.9	2.9	-3.3	-16.1	-28.5	-36.1	-38.4
2005	-33.6	-37.8	-34.2	-24.0	-14.1	0.0	3.7	4.5	-2.9	-13.3	-26.6	-32.4	-37.8
2006	-33.6	-29.5	-28.8	-24.3	-7.1	1.5	5.6	6.0	-0.8	-9.7	-25.1	-29.1	-33.6
2007	-33.7	-34.9	-35.7	-22.9	-16.9	0.3	7.5	3.5	-3.3	-12.3	-29.8	-31.3	-35.7
2008	-34.6	-38.9	-39.2	-25.7	-10.1	-0.2	5.4	4.7	-2.3	-9.7	-25.1	-32.7	-39.2
Minimum	-42.4	-42.3	-40.9	-31.8	-19.3	-5.0	1.5	0.6	-7.6	-23.0	-31.6	-37.4	-42.4



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-3 Monthly and Annual Maximum Temperatures (°C) at Cambridge Bay A, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	-25.6	-26.7	-29.2	-15.1	-7.8	4.0	10.4						10.4
1930						10.5	20.1	12.9	1.4	-8.5			20.1
1931					-6.1	7.4		7.8	3.5	-5.4	-18.9		7.8
1932				-19.3		6.6							6.6
1933													
1934										-10.0	-16.9		-10.0
1935			-26.1	-16.8	-6.0	6.7	14.1	11.6	1.2		-23.4	-28.2	14.1
1936	-35.6	-34.7	-27.4	-19.9	-7.8	3.6				-13.3	-22.6	-30.5	3.6
1937	-29.1	-32.4	-24.9	-17.2	-5.3		12.9			-6.4	-18.9	-29.6	12.9
1938	-27.1												-27.1
1939	-32.5		-32.5	-13.1	-4.3	2.7						-25.7	2.7
1940	-18.9	-25.5	-20.8	-10.0	-2.7	2.5	12.4	7.8	5.2	-7.2	-19.4	-26.3	12.4
1941	-28.9	-25.4	-27.3	-20.6	-6.1	6.5	15.4	8.6	-0.8	-8.3	-23.7	-25.8	15.4
1942	-25.3	-33.0	-21.9	-17.2	-4.2	3.7	12.8	8.6		-4.0	-22.1	-26.8	12.8
1943	-30.5	-29.1	-25.4		-6.9	4.6	12.0	11.9		-4.9	-15.9	-25.1	12.0
1944	-26.2	-30.2	-25.2			6.4	10.6	9.2	1.9	-6.6	-17.2	-21.3	10.6
1945	-26.4	-27.7	-21.9	-21.4	-6.6					-6.7	-20.3	-26.6	-6.6
1946	-32.1	-34.4	-23.6	-17.4	-4.1	3.4	12.3	11.2	-0.4	-11.7	-19.7	-26.9	12.3
1947	-30.7	-28.0	-21.2	-17.3	-7.3								-7.3
1948		-30.5	-27.4	-18.6	-3.4	5.9	15.3	11.7	3.7	-7.7	-19.3	-30.1	15.3
1949	-30.1	-34.5	-25.0	-16.4	-6.8	1.4	9.3	12.2	3.7	-8.6	-18.7	-25.2	12.2
1950	-35.7	-31.3	-21.8	-17.6	-6.4	3.4	9.7	7.8	2.6	-12.2	-21.4	-25.6	9.7
1951	-27.5	-33.0	-28.1	-17.3	-4.3	5.3	10.8	11.1	2.1	-8.2	-21.4	-31.0	11.1
1952	-32.2	-32.6	-26.9	-12.2	0.2	6.4	12.5	7.9	0.3	-10.1	-20.1	-21.3	12.5
1953	-33.8	-26.8	-26.6	-11.2	-6.4	4.2	11.9	11.2	3.2	-8.5	-17.0	-28.9	11.9
1954	-30.2	-29.1	-25.2	-20.6	-6.0	3.0	13.6	15.6	4.8	-7.3	-19.2	-28.8	15.6
1955	-28.8	-35.3	-29.3	-15.1	-5.8	4.3	12.4	9.7	1.7	-4.8	-20.8	-27.3	12.4
1956	-25.7	-32.7	-28.7	-17.7	-9.4	4.3	14.1	8.3	-0.6	-10.9	-21.1	-29.4	14.1
1957	-30.4	-33.3	-24.7	-16.7	-8.5	2.5	10.3	9.2	2.9	-6.1	-22.9	-32.3	10.3
1958	-27.6	-36.2	-25.9	-21.1	-4.3	2.8	11.4	12.3	3.8	-6.0	-24.6	-25.3	12.3
1959	-26.4	-28.9	-27.8	-16.7	-9.6	1.7	9.3	7.6	1.7	-10.8	-20.1	-20.4	9.3
1960	-30.8	-30.9	-29.7	-18.2	-3.1	9.8	13.1	10.6	1.2	-6.9	-22.4	-22.4	13.1
1961	-32.6	-29.7	-34.5	-19.8	-7.3	4.3	14.5	7.7	-1.4	-12.4	-18.8	-30.4	14.5
1962	-30.1	-33.3	-22.3	-17.9	-9.0	7.1	13.7	10.7	2.6	-8.7	-21.5	-26.4	13.7



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-3 Monthly and Annual Maximum Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1963	-31.4	-27.8	-32.4	-14.1	-7.5	4.3	10.7	9.4	0.2	-7.3	-17.9	-24.7	10.7
1964	-34.8	-31.5	-30.2	-20.5	-3.8	1.8	10.3	10.8	1.4	-8.9	-17.1	-26.1	10.8
1965	-30.0	-34.6	-25.1	-17.1	-5.3	2.8	11.3	8.7	-1.2	-9.2	-18.2	-28.1	11.3
1966	-34.7	-31.4	-24.8	-19.9	-2.6	6.6	13.3	10.5	3.4	-12.1	-22.7	-23.1	13.3
1967	-32.4	-33.9	-27.9	-19.3	-5.9	1.8	10.7	8.4	-1.0	-5.1	-22.8	-22.6	10.7
1968	-32.0	-28.8	-23.4	-19.2	-6.6	5.3	9.4	8.3	2.8	-3.4	-17.9	-24.3	9.4
1969	-31.2	-25.0	-27.1	-15.3	-7.1	0.6	13.9	10.5	3.8	-3.4	-20.1	-19.4	13.9
1970	-28.2	-31.8	-24.4	-17.6	-6.6	6.9	13.6	10.7	2.3	-5.8	-19.5	-31.8	13.6
1971	-28.3	-29.3	-25.1	-16.3	-5.5	6.8	13.1	8.9	3.2	-4.3	-22.1	-29.0	13.1
1972	-31.8	-35.4	-25.4	-21.7	-8.3	0.9	9.6	7.5	-2.7	-12.2	-21.1	-28.2	9.6
1973	-27.9	-30.6	-29.1	-18.8	-2.8	8.9	12.9	12.5	4.0	-3.1	-16.4	-24.3	12.9
1974	-29.3	-32.1	-28.4	-20.8	-5.1	4.9	13.7	9.2	-0.9	-12.8	-18.1	-27.8	13.7
1975	-33.2	-28.9	-27.2	-11.4	-1.3	11.2	11.8	12.6	1.7	-7.6	-18.2	-29.3	12.6
1976	-30.4	-30.5	-28.6	-11.1	-4.2	2.8	12.8	8.1	2.0	-7.5	-20.2	-29.0	12.8
1977	-25.3	-31.8	-26.6	-13.4	-4.2	6.5	12.0	8.8	3.7	-7.0	-19.6	-26.0	12.0
1978	-25.6	-23.1	-26.6	-18.7	-8.5	-0.5	7.5	6.1	1.4	-15.3	-21.0	-24.6	7.5
1979	-26.4	-35.1	-29.8	-17.4	-4.1	2.0	11.0	7.0	0.5	-10.4	-13.5	-27.5	11.0
1980	-31.0	-22.1	-26.2	-18.8	-3.8	5.2	10.4	10.8	0.8	-7.5	-23.7	-26.5	10.8
1981	-20.5	-27.3	-24.2	-18.9	-3.2	6.1	11.3	10.1	1.9	-4.9	-18.4	-23.4	11.3
1982	-31.9	-28.3	-26.6	-19.4	-6.5	3.4	11.1	8.1	0.0	-7.5	-24.5	-28.8	11.1
1983	-29.4	-34.7	-27.1	-18.5	-10.5	6.7	13.0	9.8	5.9	-7.9	-14.1	-22.4	13.0
1984	-32.0	-27.2	-25.4	-13.9	-1.9	8.3	13.1	9.0	0.5	-7.7	-18.7	-30.5	13.1
1985	-27.7	-33.2	-28.3	-21.7	-1.9	6.6	10.0	7.9	3.1	-8.2	-20.3	-23.9	10.0
1986	-32.4	-26.6	-26.5	-17.9	-5.6	2.7	11.1	6.8	1.2	-11.2	-23.8	-25.8	11.1
1987	-28.9	-28.8	-26.7	-18.2	-9.7	2.3	11.3	6.9	3.0	-7.9	-20.0	-18.8	11.3
1988	-29.3	-30.1	-22.9	-14.3	-6.4	6.7	12.5	10.3	3.2	-6.8	-23.9	-26.1	12.5
1989	-32.3	-21.2	-27.2	-13.7	-8.4	8.5	14.0	12.5	2.1	-8.4	-23.9	-27.5	14.0
1990	-29.8	-35.2	-21.0	-14.3	-5.6	5.8	12.5	8.0	1.5	-8.2	-23.5	-29.6	12.5



APPENDIX B HOPE BAY PROJECT - TEMPERATURE DATA

Table B-3 Monthly and Annual Maximum Temperatures (°C) at Cambridge Bay A, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1991	-32.5	-30.5	-28.1	-16.5	-5.1	6.1	11.8	10.3	-0.5	-8.6	-20.4	-26.5	11.8
1992	-31.9	-29.2	-23.0	-20.0	-5.5	3.8	11.6	8.4	1.0	-8.2	-19.8	-21.7	11.6
1993	-25.8	-29.9	-23.1	-18.9	-3.5	5.7	13.1	9.5	1.1	-7.7	-20.4	-28.9	13.1
1994	-31.6	-29.6	-23.9	-17.4	-4.2	6.5	15.1	10.8	2.7	-4.6	-17.4	-23.4	15.1
1995	-26.6	-28.8	-25.7	-12.3	-6.1	7.4	11.1	10.6	0.9	-8.5	-20.2	-30.8	11.1
1996	-30.2	-27.2	-24.2	-17.2	-5.4	9.2	16.4	7.9	4.0	-9.0	-16.7	-25.2	16.4
1997	-27.9	-28.3	-26.9	-15.1	-7.1	3.5	13.3	9.1	1.4	-10.5	-14.8	-24.1	13.3
1998	-32.3	-30.1	-23.0	-13.2	-3.3	7.8	14.5	12.8	5.0	-3.3	-11.7	-20.8	14.5
1999	-29.4	-27.9	-19.2	-15.5	-6.1	4.9	10.2	9.5	3.3	-7.8	-14.3	-27.1	10.2
2000	-26.1	-27.4	-23.8	-16.7	-5.4	6.4	15.8	11.0	1.9	-9.1	-19.0	-26.4	15.8
2001	-28.3	-26.8	-24.4	-16.8	-3.9	4.5	15.7	9.8	5.6	-10.2	-18.4	-19.8	15.7
2002	-27.6	-30.3	-25.0	-19.6	-6.7	6.3	12.3	10.1	3.9	-6.4	-18.7	-20.1	12.3
2003	-24.0	-30.7	-26.5	-14.9	-4.6	3.7	13.9	8.9	4.2	-5.0	-16.0	-26.4	13.9
2004	-30.0	-31.5	-30.1	-18.8	-9.0	4.6	10.6	8.5	1.8	-9.2	-19.4	-29.8	10.6
2005	-26.9	-31.9	-26.8	-14.2	-6.1	5.5	10.3	10.9	1.5	-7.6	-19.1	-25.1	10.9
2006	-25.4	-22.1	-21.2	-15.1	-1.0	9.3	12.9	13.6	4.4	-3.9	-17.4	-20.3	13.6
2007	-27.0	-27.7	-27.7	-13.9	-7.8	6.5	16.2	8.3	0.8	-5.7	-23.4	-25.6	16.2
2008	-28.5	-32.5	-30.6	-17.0	-4.1	4.8	13.6	10.0	0.8	-3.1	-17.0	-25.3	13.6
Maximum	-18.9	-21.2	-19.2	-10.0	0.2	11.2	20.1	15.6	5.9	-3.1	-11.7	-18.8	7.3



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

APPENDIX C – PRECIPITATION DATA



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-1 Recorded Monthly and Annual Precipitation (mm) at Cambridge Bay A, 1929 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	1.5	-	-	-	20.3	43.2	5.0	-	-	-	-	-	70.0
1930	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	1.3	3.3	4.6
1935	17.8	-	-	-	-	-	-	29.2	21.9	-	-	-	68.9
1936	-	-	-	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	51.0	44.3	-	7.6	-	-	102.9
1938	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	15.3	-	6.3	6.0	10.1	4.9	33.7	12.3	14.5	12.7	38.1	24.2	178.1
1941	-	12.7	3.8	12.7	3.8	11.6	14.5	13.2	14.2	14.0	5.0	-	105.5
1942	-	-	1.3	2.1	2.6	2.1	10.5	16.1	17.8	11.5	-	-	64.0
1943	1.3	7.5	-	-	1.3	-	24.0	11.7	-	26.9	29.7	4.9	107.3
1944	24.1	0.8	9.2	-	-	10.7	31.4	38.1	12.5	17.2	18.5	11.0	173.5
1945	2.5	1.3	10.0	0.8	12.0	1.3	-	-	11.6	13.2	8.8	3.9	65.4
1946	2.1	-	-	-	5.1	3.8	13.0	20.8	7.6	16.5	8.8	2.5	80.2
1947	-	2.5	8.9	-	5.1	-	-	-	-	-	-	-	16.5
1948	0.5	0.9	5.0	4.0	3.4	13.3	17.6	19.9	17.4	23.9	4.5	3.1	113.5
1949	4.3	1.5	1.6	2.9	7.4	6.0	38.4	44.9	25.6	17.3	5.8	4.1	159.8
1950	2.6	9.3	4.5	1.6	6.2	8.3	70.3	32.7	7.1	9.2	6.1	5.1	163.0
1951	5.1	0.8	9.7	5.8	7.0	39.5	15.4	7.3	11.2	16.5	3.3	0.9	122.5
1952	2.5	5.3	6.3	5.4	2.4	0.9	5.7	28.4	17.8	16.0	10.6	15.2	116.5
1953	3.5	8.9	3.9	4.8	4.6	3.3	15.3	56.2	8.7	3.1	15.4	1.3	129.0
1954	2.4	6.8	2.2	1.1	2.3	13.4	13.8	2.1	11.9	14.8	8.8	6.1	85.7
1955	4.8	0.5	4.4	2.0	8.7	31.6	38.7	28.8	8.8	10.4	2.1	4.2	145.0
1956	19.9	7.2	5.3	6.9	8.2	18.3	25.2	35.6	21.8	6.5	11.4	4.6	170.9
1957	5.8	4.5	4.9	7.2	8.2	5.8	20.6	39.0	17.6	14.9	18.3	5.0	151.8
1958	13.0	4.2	11.1	5.3	6.7	6.9	11.6	3.4	16.5	11.2	8.5	8.3	106.7
1959	8.8	2.6	6.3	5.5	12.2	36.4	23.4	8.0	8.8	6.5	6.1	12.5	137.1
1960	5.5	2.9	2.8	3.0	6.0	2.3	37.6	29.5	32.2	16.0	0.9	4.2	142.9
1961	0.9	1.8	-	8.7	12.1	15.8	3.0	20.9	10.0	22.1	14.8	2.8	112.9
1962	4.1	0.6	10.1	3.4	2.6	1.9	15.3	15.8	14.7	34.5	9.3	4.4	116.7
1963	3.9	4.9	2.6	13.3	7.8	17.0	74.0	14.9	21.8	41.7	9.2	5.5	216.6
1964	2.2	3.4	5.4	19.8	12.7	9.0	15.8	16.7	12.9	15.2	8.1	14.8	136.0
1965	4.6	3.2	15.5	11.5	17.2	30.2	0.6	8.4	11.3	14.9	8.0	1.4	126.8
1966	3.1	4.8	7.7	0.8	18.1	4.3	26.2	57.2	30.5	10.0	10.7	4.7	178.1
1967	1.9	0.8	5.2	1.9	23.8	6.6	35.8	37.3	22.1	22.0	4.2	7.4	169.0
1968	6.6	8.5	4.1	9.6	17.1	2.2	9.5	36.1	28.1	16.6	7.1	11.1	156.6
1969	3.2	8.7	1.2	3.9	2.8	29.8	9.4	57.5	6.6	3.0	3.6	7.1	136.8
1970	3.0	0.5	5.5	8.6	3.7	23.0	5.1	33.4	26.4	15.1	3.7	3.4	131.4
1971	4.3	10.9	4.0	5.3	6.3	5.4	33.6	74.1	18.1	16.4	7.8	9.6	195.8
1972	6.5	2.6	8.4	-	22.6	5.4	11.0	34.1	16.1	9.0	6.5	3.1	125.3
1973	3.6	11.0	2.1	1.1	6.5	9.5	17.1	18.5	21.5	26.6	6.7	0.3	124.5
1974	3.0	1.4	-	2.6	8.6	24.2	15.9	11.6	17.9	25.9	14.4	3.4	128.9
1975	3.9	3.0	2.3	11.3	13.0	2.1	18.0	12.3	24.8	16.8	13.4	5.3	126.2
1976	1.9	1.1	0.8	19.1	2.3	6.4	23.6	18.2	22.4	9.9	2.8	1.8	110.3
1977	10.7	3.0	0.7	13.9	16.6	3.1	15.1	34.7	11.3	8.1	8.0	5.4	130.6



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-1 Recorded Monthly and Annual Precipitation (mm) at Cambridge Bay A, 1929 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1978	0.9	2.6	0.4	13.3	6.8	13.8	19.5	35.7	25.2	7.0	3.7	1.6	130.5
1979	4.8	-	7.6	6.8	17.1	9.3	20.4	21.9	11.0	13.9	1.8	11.1	125.7
1980	3.9	7.6	3.3	16.7	5.7	9.9	20.6	44.4	15.9	4.4	4.4	0.2	137.0
1981	3.0	2.6	7.3	1.0	9.3	6.8	35.0	33.5	15.3	8.2	4.9	2.2	129.1
1982	1.0	5.0	12.8	4.1	6.0	11.6	34.8	21.4	21.8	14.6	8.6	3.0	144.7
1983	4.8	2.2	0.8	5.0	5.4	5.2	9.3	13.5	28.8	9.6	3.6	7.8	96.0
1984	5.4	8.6	5.4	2.4	-	5.0	18.0	36.8	6.0	24.0	17.5	1.6	130.7
1985	5.8	2.8	9.9	2.4	12.2	13.1	17.8	20.7	23.9	10.4	2.4	5.8	127.2
1986	3.7	10.8	4.8	11.4	22.7	3.7	11.9	18.2	20.8	10.6	7.5	4.7	130.8
1987	7.6	2.9	2.6	6.4	6.4	30.0	46.5	55.6	32.8	8.2	7.0	2.6	208.6
1988	2.4	0.8	1.4	2.2	7.1	16.8	73.6	23.4	42.8	4.8	1.4	3.0	179.7
1989	5.2	11.0	5.2	5.4	10.6	17.8	16.0	7.4	23.8	13.4	4.0	2.4	122.2
1990	4.8	2.0	9.2	7.0	11.4	21.7	12.6	30.4	25.1	3.2	10.4	7.2	145.0
1991	2.8	15.0	6.8	9.0	7.6	9.4	27.0	29.0	8.4	14.2	10.0	14.2	153.4
1992	7.6	3.0	8.6	9.4	9.0	4.0	9.2	11.2	8.2	39.0	15.6	0.8	125.6
1993	12.2	5.1	9.8	2.0	21.8	11.5	29.2	25.6	13.2	7.2	1.8	6.4	145.8
1994	2.6	2.2	6.8	12.6	5.6	25.0	8.2	20.6	18.0	26.0	5.3	12.7	145.6
1995	4.4	4.0	24.2	3.2	9.0	29.0	12.0	10.4	3.6	23.8	11.0	6.2	140.8
1996	5.4	10.8	10.2	4.6	11.4	10.4	6.4	64.2	22.8	12.4	2.6	10.0	171.2
1997	9.2	5.0	3.6	3.8	5.8	33.2	27.4	18.7	22.4	17.6	4.8	7.8	159.3
1998	3.2	6.2	3.6	6.6	1.6	10.2	12.8	12.4	26.8	25.2	15.6	5.4	129.6
1999	2.2	5.2	14.0	2.9	10.0	18.0	40.5	14.6	15.2	2.4	4.8	3.2	133.0
2000	1.8	4.2	3.8	3.0	3.6	3.0	9.2	35.7	15.9	12.2	5.2	3.2	100.8
2001	9.2	0.6	5.0	4.8	17.4	9.0	42.2	31.0	13.8	3.6	6.6	4.8	148.0
2002	4.0	1.8	3.2	2.8	6.8	10.4	8.6	33.0	5.0	19.0	5.0	5.2	104.8
2003	10.4	1.2	8.4	7.2	6.8	11.0	36.2	34.4	12.8	7.6	14.8	3.8	154.6
2004	3.0	10.4	4.2	4.2	4.4	15.6	22.8	16.8	17.8	14.8	13.4	2.4	129.8
2005	4.0	2.6	7.4	10.6	1.0	19.2	32.0	17.8	7.4	8.0	9.4	6.8	126.2
2006	5.0	5.4	5.2	5.6	5.8	6.2	7.0	20.2	14.2	13.2	2.8	8.8	99.4
2007	4.6	2.0	2.2	4.6	2.8	4.2	22.8	37.2	12.8	23.4	7.4	4.4	128.4
2008	8.0	2.2	6.4	5.7	1.6	26.8	30.4	34.8	17.9	22.2	6.8	1.6	164.4
Mean	5.3	4.5	5.8	6.1	8.6	12.9	22.7	26.9	17.2	14.8	8.4	5.5	129.7



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-2 Recorded Monthly and Annual Rainfall (mm) at Cambridge Bay A, 1929 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	-	-	-	-	-	-	5.0	-	-	-	-	-	5.0
1930	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	-	-	-
1935	-	-	-	-	-	-	-	29.2	13.0	-	-	-	42.2
1936	-	-	-	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	51.0	44.3	-	-	-	-	95.3
1938	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	-	-	-	-	-	1.1	33.7	12.3	14.5	-	-	-	61.6
1941	-	-	-	-	-	11.6	14.5	13.2	4.1	-	-	-	43.4
1942	-	-	-	-	-	-	10.5	16.1	10.2	-	-	-	36.8
1943	-	-	-	-	-	-	24.0	11.7	-	3.8	-	-	39.5
1944	-	-	-	-	-	10.7	31.4	38.1	12.5	1.3	-	-	94.0
1945	-	-	-	-	-	1.3	-	-	-	-	-	-	1.3
1946	-	-	-	-	-	3.8	13.0	20.8	-	-	-	-	37.6
1947	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	-	6.2	17.6	19.9	11.0	-	-	-	54.7
1949	-	-	-	-	0.3	2.5	36.8	44.2	11.5	-	-	-	95.3
1950	-	-	-	-	-	7.4	70.3	29.2	6.1	-	-	-	113.0
1951	-	-	-	-	-	23.9	15.4	7.3	2.6	-	-	-	49.2
1952	-	-	-	-	0.3	0.9	5.7	27.6	9.9	-	-	-	44.4
1953	-	-	-	-	-	1.3	15.3	56.2	7.4	-	-	-	80.2
1954	-	-	-	-	-	9.4	13.8	2.1	11.4	0.6	-	-	37.3
1955	-	-	-	-	-	7.9	38.7	28.8	6.6	2.5	-	-	84.5
1956	-	-	-	-	2.3	16.5	23.7	35.6	12.2	0.5	-	-	90.8
1957	-	-	-	-	-	-	20.6	39.0	9.1	2.0	-	-	70.7
1958	-	-	-	-	1.0	3.1	11.6	3.4	12.5	0.6	-	-	32.2
1959	-	-	-	-	-	26.8	23.4	8.0	1.9	-	-	-	60.1
1960	-	-	-	-	0.6	2.3	37.6	29.5	8.9	0.6	-	-	79.5
1961	-	-	-	-	-	15.5	3.0	20.9	0.3	-	-	-	39.7
1962	-	-	-	-	-	1.4	15.3	15.8	11.4	0.3	-	-	44.2
1963	-	-	-	-	-	16.7	74.0	14.1	12.7	11.2	-	-	128.7
1964	-	-	-	-	-	1.1	15.5	16.7	6.7	-	-	-	40.0
1965	-	-	-	-	2.8	27.9	0.6	5.2	1.3	-	-	-	37.8
1966	-	-	-	-	5.9	4.3	26.2	57.2	29.7	0.3	-	-	123.6
1967	-	-	-	-	-	6.6	35.8	37.3	8.7	3.6	-	-	92.0
1968	-	-	-	-	-	0.3	8.8	35.6	21.1	-	0.3	-	66.1
1969	-	-	-	-	-	13.2	9.4	57.5	3.1	0.6	-	-	83.8
1970	-	-	-	-	-	19.2	5.1	33.4	16.6	3.0	-	-	77.3
1971	-	-	-	-	1.3	4.6	33.6	72.6	9.4	-	-	-	121.5
1972	-	-	-	-	-	5.1	11.0	32.9	0.3	-	-	-	49.3
1973	-	-	-	-	1.0	9.5	17.1	18.5	16.4	0.3	-	-	62.8
1974	-	-	-	-	1.6	19.9	15.9	6.0	11.3	-	-	-	54.7
1975	-	-	-	3.8	3.1	2.1	18.0	11.8	3.9	-	-	-	42.7
1976	-	-	-	-	-	4.2	23.6	18.2	14.5	-	-	-	60.5
1977	-	-	-	-	5.8	3.1	15.1	34.7	11.0	-	-	-	69.7



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-2 Recorded Monthly and Annual Rainfall (mm) at Cambridge Bay A, 1929 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1978	-	-	-	-	-	9.5	19.5	34.9	23.0	-	-	-	86.9
1979	-	-	-	-	4.2	7.2	20.4	20.0	7.4	-	-	-	59.2
1980	-	-	-	-	-	7.3	20.6	44.4	1.9	-	-	-	74.2
1981	-	-	-	-	5.7	6.4	35.0	32.6	8.0	2.8	-	-	90.5
1982	-	-	-	-	-	3.9	34.8	19.0	15.6	0.8	-	-	74.1
1983	-	-	-	-	-	4.6	9.3	13.5	13.2	-	0.2	-	40.8
1984	-	-	-	-	-	5.0	18.0	36.8	4.6	-	-	-	64.4
1985	-	-	-	-	0.2	5.6	17.8	17.3	10.3	0.4	-	-	51.6
1986	-	-	-	-	3.5	3.3	11.9	14.8	6.0	-	-	-	39.5
1987	-	-	-	-	-	23.6	46.5	51.0	27.0	-	-	-	148.1
1988	-	-	-	-	0.3	15.2	73.6	23.4	40.4	-	-	-	152.9
1989	-	-	-	-	-	13.6	16.0	7.4	13.6	-	-	-	50.6
1990	-	-	-	-	7.0	4.2	12.6	30.4	13.6	-	-	-	67.8
1991	-	-	-	-	-	2.6	27.0	23.6	1.4	0.2	-	-	54.8
1992	-	-	-	-	2.0	2.4	9.2	11.2	1.8	-	-	-	26.6
1993	0.2	-	-	-	4.4	9.5	29.2	23.8	2.0	-	-	-	69.1
1994	-	-	-	-	1.0	23.0	8.2	15.6	10.6	3.4	-	-	61.8
1995	-	-	-	-	-	29.0	11.8	6.6	0.8	-	-	-	48.2
1996	-	-	-	-	4.4	8.4	6.4	45.2	20.6	-	-	-	85.0
1997	-	-	-	-	2.6	31.2	27.2	18.1	8.6	-	-	-	87.7
1998	-	-	-	-	0.4	10.2	12.8	12.4	26.2	4.4	-	-	66.4
1999	-	-	-	-	-	17.0	40.5	13.2	8.4	-	-	-	79.1
2000	-	-	-	-	-	1.8	9.2	35.7	9.7	-	-	-	56.4
2001	-	-	-	-	0.8	4.0	42.2	31.0	11.8	-	-	-	89.8
2002	-	-	-	-	-	9.0	8.6	33.0	3.8	-	-	-	54.4
2003	-	-	-	-	0.4	2.2	36.2	34.4	11.0	0.8	-	-	85.0
2004	-	-	-	-	0.2	11.6	21.6	16.8	9.8	-	-	-	60.0
2005	-	-	-	-	-	17.0	32.0	17.8	4.8	-	-	-	71.6
2006	-	-	-	-	1.6	6.2	7.0	20.2	14.0	-	-	-	49.0
2007	-	-	-	-	-	1.8	22.8	37.2	6.0	-	-	-	67.8
2008	-	-	-	-	0.2	13.2	30.4	34.8	10.4	1.2	-	-	90.2
Mean	-	-	-	-	0.9	8.8	22.6	25.8	10.1	0.6	-	-	63.3



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-3 Recorded Monthly and Annual Snowfall (mm) at Cambridge Bay A, 1929 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1929	1.5	-	-	-	20.3	43.2	-	-	-	-	-	-	65.0
1930	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	-	-	-	-	-
1932	-	-	-	-	-	-	-	-	-	-	-	-	-
1933	-	-	-	-	-	-	-	-	-	-	-	-	-
1934	-	-	-	-	-	-	-	-	-	-	1.3	3.3	4.6
1935	17.8	-	-	-	-	-	-	-	8.9	-	-	-	26.7
1936	-	-	-	-	-	-	-	-	-	-	-	-	-
1937	-	-	-	-	-	-	-	-	-	7.6	-	-	7.6
1938	-	-	-	-	-	-	-	-	-	-	-	-	-
1939	-	-	-	-	-	-	-	-	-	-	-	-	-
1940	15.3	-	6.3	6.0	10.1	3.8	-	-	-	12.7	38.1	24.2	116.5
1941	-	12.7	3.8	12.7	3.8	-	-	-	10.1	14.0	5.0	-	62.1
1942	-	-	1.3	2.1	2.6	2.1	-	-	7.6	11.5	-	-	27.2
1943	1.3	7.5	-	-	1.3	-	-	-	-	23.1	29.7	4.9	67.8
1944	24.1	0.8	9.2	-	-	-	-	-	-	15.9	18.5	11.0	79.5
1945	2.5	1.3	10.0	0.8	12.0	-	-	-	11.6	13.2	8.8	3.9	64.1
1946	2.1	-	-	-	5.1	-	-	-	7.6	16.5	8.8	2.5	42.6
1947	-	2.5	8.9	-	5.1	-	-	-	-	-	-	-	16.5
1948	0.5	0.9	5.0	4.0	3.4	7.1	-	-	6.4	23.9	4.5	3.1	58.8
1949	4.3	1.5	1.6	2.9	7.1	3.5	1.6	0.7	14.1	17.3	5.8	4.1	64.5
1950	2.6	9.3	4.5	1.6	6.2	0.9	-	3.5	1.0	9.2	6.1	5.1	50.0
1951	5.1	0.8	9.7	5.8	7.0	15.6	-	-	8.6	16.5	3.3	0.9	73.3
1952	2.5	5.3	6.3	5.4	2.1	-	-	0.8	7.9	16.0	10.6	15.2	72.1
1953	3.5	8.9	3.9	4.8	4.6	2.0	-	-	1.3	3.1	15.4	1.3	48.8
1954	2.4	6.8	2.2	1.1	2.3	4.0	-	-	0.5	14.2	8.8	6.1	48.4
1955	4.8	0.5	4.4	2.0	8.7	23.7	-	-	2.2	7.9	2.1	4.2	60.5
1956	19.9	7.2	5.3	6.9	5.9	1.8	1.5	-	9.6	6.0	11.4	4.6	80.1
1957	5.8	4.5	4.9	7.2	8.2	5.8	-	-	8.5	12.9	18.3	5.0	81.1
1958	13.0	4.2	11.1	5.3	5.7	3.8	-	-	4.0	10.6	8.5	8.3	74.5
1959	8.8	2.6	6.3	5.5	12.2	9.6	-	-	6.9	6.5	6.1	12.5	77.0
1960	5.5	2.9	2.8	3.0	5.4	-	-	-	23.3	15.4	0.9	4.2	63.4
1961	0.9	1.8	-	8.7	12.1	0.3	-	-	9.7	22.1	14.8	2.8	73.2
1962	4.1	0.6	10.1	3.4	2.6	0.5	-	-	3.3	34.2	9.3	4.4	72.5
1963	3.9	4.9	2.6	13.3	7.8	0.3	-	0.8	9.1	30.5	9.2	5.5	87.9
1964	2.2	3.4	5.4	19.8	12.7	7.9	0.3	-	6.2	15.2	8.1	14.8	96.0
1965	4.6	3.2	15.5	11.5	14.4	2.3	-	3.2	10.0	14.9	8.0	1.4	89.0
1966	3.1	4.8	7.7	0.8	12.2	-	-	-	0.8	9.7	10.7	4.7	54.5
1967	1.9	0.8	5.2	1.9	23.8	-	-	-	13.4	18.4	4.2	7.4	77.0
1968	6.6	8.5	4.1	9.6	17.1	1.9	0.7	0.5	7.0	16.6	6.8	11.1	90.5
1969	3.2	8.7	1.2	3.9	2.8	16.6	-	-	3.5	2.4	3.6	7.1	53.0
1970	3.0	0.5	5.5	8.6	3.7	3.8	-	-	9.8	12.1	3.7	3.4	54.1
1971	4.3	10.9	4.0	5.3	5.0	0.8	-	1.5	8.7	16.4	7.8	9.6	74.3
1972	6.5	2.6	8.4	-	22.6	0.3	-	1.2	15.8	9.0	6.5	3.1	76.0
1973	3.6	11.0	2.1	1.1	5.5	-	-	-	5.1	26.3	6.7	0.3	61.7
1974	3.0	1.4	-	2.6	7.0	4.3	-	5.6	6.6	25.9	14.4	3.4	74.2
1975	3.9	3.0	2.3	7.5	9.9	-	-	0.5	20.9	16.8	13.4	5.3	83.5
1976	1.9	1.1	0.8	19.1	2.3	2.2	-	-	7.9	9.9	2.8	1.8	49.8
1977	10.7	3.0	0.7	13.9	10.8	-	-	-	0.3	8.1	8.0	5.4	60.9



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-3 Recorded Monthly and Annual Snowfall (mm) at Cambridge Bay A, 1929 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1978	0.9	2.6	0.4	13.3	6.8	4.3	-	0.8	2.2	7.0	3.7	1.6	43.6
1979	4.8	-	7.6	6.8	12.9	2.1	-	1.9	3.6	13.9	1.8	11.1	66.5
1980	3.9	7.6	3.3	16.7	5.7	2.6	-	-	14.0	4.4	4.4	0.2	62.8
1981	3.0	2.6	7.3	1.0	3.6	0.4	-	0.9	7.3	5.4	4.9	2.2	38.6
1982	1.0	5.0	12.8	4.1	6.0	7.7	-	2.4	6.2	13.8	8.6	3.0	70.6
1983	4.8	2.2	0.8	5.0	5.4	0.6	-	-	15.6	9.6	3.4	7.8	55.2
1984	5.4	8.6	5.4	2.4	-	-	-	-	1.4	24.0	17.5	1.6	66.3
1985	5.8	2.8	9.9	2.4	12.0	7.5	-	3.4	13.6	10.0	2.4	5.8	75.6
1986	3.7	10.8	4.8	11.4	19.2	0.4	-	3.4	14.8	10.6	7.5	4.7	91.3
1987	7.6	2.9	2.6	6.4	6.4	6.4	-	4.6	5.8	8.2	7.0	2.6	60.5
1988	2.4	0.8	1.4	2.2	6.8	1.6	-	-	2.4	4.8	1.4	3.0	26.8
1989	5.2	11.0	5.2	5.4	10.6	4.2	-	-	10.2	13.4	4.0	2.4	71.6
1990	4.8	2.0	9.2	7.0	4.4	17.5	-	-	11.5	3.2	10.4	7.2	77.2
1991	2.8	15.0	6.8	9.0	7.6	6.8	-	5.4	7.0	14.0	10.0	14.2	98.6
1992	7.6	3.0	8.6	9.4	7.0	1.6	-	-	6.4	39.0	15.6	0.8	99.0
1993	12.0	5.1	9.8	2.0	17.4	2.0	-	1.8	11.2	7.2	1.8	6.4	76.7
1994	2.6	2.2	6.8	12.6	4.6	2.0	-	5.0	7.4	22.6	5.3	12.7	83.8
1995	4.4	4.0	24.2	3.2	9.0	-	0.2	3.8	2.8	23.8	11.0	6.2	92.6
1996	5.4	10.8	10.2	4.6	7.0	2.0	-	19.0	2.2	12.4	2.6	10.0	86.2
1997	9.2	5.0	3.6	3.8	3.2	2.0	0.2	0.6	13.8	17.6	4.8	7.8	71.6
1998	3.2	6.2	3.6	6.6	1.2	-	-	-	0.6	20.8	15.6	5.4	63.2
1999	2.2	5.2	14.0	2.9	10.0	1.0	-	1.4	6.8	2.4	4.8	3.2	53.9
2000	1.8	4.2	3.8	3.0	3.6	1.2	-	-	6.2	12.2	5.2	3.2	44.4
2001	9.2	0.6	5.0	4.8	16.6	5.0	-	-	2.0	3.6	6.6	4.8	58.2
2002	4.0	1.8	3.2	2.8	6.8	1.4	-	-	1.2	19.0	5.0	5.2	50.4
2003	10.4	1.2	8.4	7.2	6.4	8.8	-	-	1.8	6.8	14.8	3.8	69.6
2004	3.0	10.4	4.2	4.2	4.2	4.0	1.2	-	8.0	14.8	13.4	2.4	69.8
2005	4.0	2.6	7.4	10.6	1.0	2.2	-	-	2.6	8.0	9.4	6.8	54.6
2006	5.0	5.4	5.2	5.6	4.2	-	-	-	0.2	13.2	2.8	8.8	50.4
2007	4.6	2.0	2.2	4.6	2.8	2.4	-	-	6.8	23.4	7.4	4.4	60.6
2008	8.0	2.2	6.4	5.7	1.4	13.6	-	-	7.5	21.0	6.8	1.6	74.2
Mean	4.5	3.7	4.8	4.9	6.6	3.5	0.1	0.9	6.0	12.2	7.1	4.7	59.1



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-4 Adjusted Monthly and Annual Precipitation (mm) at Cambridge Bay A, 1940 to 2007

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	21.1	-	8.7	8.3	13.9	6.8	36.6	13.8	15.6	17.5	52.6	33.4	-
1941	-	17.5	5.2	17.5	5.2	12.8	15.3	14.8	18.4	19.3	6.9	-	-
1942	-	-	1.8	2.9	3.6	4.2	11.8	17.8	21.5	15.9	-	-	-
1943	1.8	10.4	-	-	1.8	-	26.0	13.0	-	36.7	41.1	7.0	-
1944	33.3	1.3	12.8	-	-	14.3	35.9	43.7	13.4	24.0	25.5	15.3	-
1945	3.5	1.8	13.8	1.5	16.5	-	-	-	-	18.5	12.1	5.4	-
1946	2.9	-	-	-	7.0	4.7	15.0	22.5	10.8	22.8	12.1	3.5	-
1947	-	3.5	12.3	-	7.0	-	-	-	-	-	-	-	-
1948	-	2.0	7.6	6.8	7.3	20.2	23.2	24.7	25.1	34.1	7.8	6.0	-
1949	7.5	4.3	3.3	5.0	10.7	9.7	43.9	49.0	34.8	24.6	8.9	6.6	208.1
1950	4.7	13.6	6.6	2.9	9.2	10.5	77.5	39.3	10.2	14.1	9.3	8.4	206.4
1951	7.7	2.1	14.6	8.5	12.0	49.4	20.4	9.9	17.2	23.4	5.5	3.2	174.1
1952	5.1	8.8	9.5	7.9	4.5	5.0	7.8	34.4	23.9	23.5	15.4	21.6	167.2
1953	5.7	13.1	5.6	7.4	7.3	8.7	17.7	60.7	11.3	5.1	21.9	2.6	167.0
1954	3.5	9.4	3.4	1.8	5.2	18.8	16.4	3.2	18.0	23.3	13.4	9.6	126.0
1955	7.5	1.4	7.5	3.9	15.8	44.8	42.8	35.5	13.4	16.0	4.3	7.0	199.9
1956	28.4	11.2	8.9	10.5	11.9	22.6	29.2	40.4	28.4	11.1	16.6	8.2	227.4
1957	9.1	7.4	7.7	10.9	12.2	10.5	25.8	46.9	25.0	21.5	26.3	7.8	211.1
1958	18.9	7.0	16.6	8.3	13.5	12.4	15.8	5.6	21.2	17.3	13.3	12.7	162.5
1959	13.0	4.4	9.9	8.5	17.5	45.8	31.4	13.5	14.8	10.5	9.6	18.5	197.4
1960	9.4	5.3	4.9	5.4	12.6	4.9	43.2	36.8	46.9	23.5	2.9	7.3	203.2
1961	3.3	3.7	2.3	13.8	19.3	21.1	7.7	28.2	19.3	31.9	21.7	5.5	177.8
1962	7.7	3.2	15.5	5.9	5.4	6.6	18.8	21.6	20.4	50.0	13.7	7.4	176.3
1963	6.8	7.7	7.2	20.6	14.9	22.1	81.7	22.0	29.7	57.1	19.3	8.6	297.6
1964	4.5	7.7	11.1	38.2	20.2	16.4	21.6	21.4	24.1	27.9	14.9	28.3	236.2
1965	8.4	6.6	26.4	19.9	27.3	35.5	4.3	13.5	18.8	22.2	14.1	4.5	201.4
1966	6.9	9.0	12.0	3.6	28.0	7.9	30.1	64.2	36.5	19.8	17.4	9.5	244.9
1967	4.9	2.5	8.6	4.0	39.0	12.2	41.5	44.5	35.9	37.2	8.3	14.1	252.7
1968	11.0	12.5	8.7	16.0	25.4	8.8	14.4	43.7	40.6	31.6	16.3	18.8	247.9
1969	6.7	15.0	4.8	8.6	8.1	46.1	13.2	64.2	11.0	7.3	7.5	14.6	206.9
1970	5.7	1.8	9.3	18.4	9.3	28.6	7.4	41.3	39.0	31.0	10.6	8.6	210.8
1971	8.3	24.7	10.4	10.9	12.7	9.9	39.8	83.5	28.9	37.5	18.2	21.4	306.2
1972	15.7	6.4	19.8	2.4	45.1	10.1	16.0	42.4	34.2	19.6	15.1	9.4	236.3
1973	8.5	20.1	7.8	5.8	13.3	12.5	20.8	22.6	29.3	40.0	22.9	4.3	208.0
1974	11.3	4.7	3.7	9.4	14.9	30.6	19.3	19.1	24.5	38.3	29.1	8.2	213.1
1975	8.0	9.1	5.8	19.3	23.7	4.2	22.0	15.9	37.0	29.5	22.2	12.4	209.2
1976	6.7	4.1	4.5	29.4	7.5	11.8	26.3	23.0	30.7	18.1	7.2	5.4	174.7
1977	21.0	6.7	3.3	23.5	23.1	6.1	19.9	39.0	15.8	14.6	13.5	11.2	197.8
1978	3.4	7.0	2.8	19.7	10.9	19.5	23.8	41.1	31.0	11.7	8.1	5.0	184.0
1979	9.1	2.5	12.7	11.4	23.9	14.3	24.5	27.8	15.9	21.6	5.0	17.6	186.2
1980	7.5	12.3	7.3	25.6	12.3	14.2	25.4	49.7	24.4	9.0	8.9	2.9	199.6
1981	6.4	5.9	14.0	3.7	14.2	10.6	40.1	39.2	23.6	14.3	8.9	5.3	186.3
1982	4.3	8.4	20.0	8.1	10.6	17.7	38.3	25.7	28.0	23.6	15.6	6.3	206.7
1983	9.4	5.4	3.6	8.5	10.3	9.0	13.7	18.4	38.5	15.9	7.0	13.0	152.6
1984	9.8	13.7	10.3	5.0	1.6	6.6	22.2	41.3	12.7	37.3	28.0	4.8	193.3
1985	10.7	5.8	16.8	6.0	26.0	17.0	22.9	26.0	32.8	18.8	7.6	11.7	201.9
1986	8.9	16.9	8.5	16.9	32.8	7.5	15.3	24.9	31.3	18.4	13.0	10.8	205.2
1987	17.1	9.7	7.6	15.0	15.6	37.5	50.2	63.2	40.8	22.4	14.5	9.3	303.0
1988	6.4	3.3	10.9	7.3	20.2	23.6	78.2	27.5	50.4	11.4	5.4	7.5	252.0



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-4 Adjusted Monthly and Annual Precipitation (mm) at Cambridge Bay A, 1940 to 2007 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	14.9	24.2	10.6	11.8	20.6	22.3	20.7	11.0	33.3	23.5	7.5	5.7	206.0
1990	9.2	8.5	19.3	10.7	17.4	31.5	15.8	35.8	33.8	13.4	27.5	13.5	236.3
1991	6.1	35.9	11.7	20.6	16.1	15.8	30.4	35.9	18.4	26.0	16.5	22.7	256.2
1992	13.7	7.1	16.8	15.9	20.8	8.2	12.9	17.4	16.3	70.1	35.9	15.3	250.4
1993	24.7	9.3	20.9	10.1	31.8	18.5	34.1	31.7	28.9	14.3	6.2	15.4	245.8
1994	6.2	5.2	13.3	21.3	11.3	32.4	10.9	26.9	28.1	41.7	-	19.3	-
1995	9.1	7.2	44.1	7.9	15.0	31.8	15.3	15.6	9.4	40.5	18.7	10.8	225.4
1996	10.1	16.9	15.6	8.7	16.5	14.3	9.5	76.0	27.6	19.7	5.2	16.8	237.0
1997	14.5	8.5	6.4	6.4	9.1	37.7	30.9	22.6	31.4	26.8	11.2	13.1	218.6
1998	5.6	10.0	6.4	15.4	3.3	14.6	15.6	17.0	32.2	35.8	25.9	10.3	192.0
1999	4.6	8.4	20.2	5.7	16.8	22.4	45.8	18.8	22.0	-	8.3	6.1	-
2000	4.7	8.3	7.9	6.9	9.2	5.9	10.8	39.5	22.5	21.8	10.9	7.0	155.5
2001	17.4	3.0	8.5	9.9	30.2	17.4	44.9	34.5	18.3	8.8	14.7	9.3	217.0
2002	8.1	4.2	6.7	6.3	13.6	15.9	12.5	36.8	10.5	31.3	8.8	9.7	164.4
2003	18.0	4.0	18.0	16.1	16.3	18.4	40.0	38.2	18.0	18.0	28.2	8.0	241.2
2004	7.4	21.6	9.2	9.0	10.6	21.8	26.5	23.8	28.0	25.3	24.3	5.7	213.2
2005	7.7	5.2	12.5	18.2	4.1	24.6	36.3	21.7	12.7	16.7	18.1	12.5	190.3
2006	8.9	9.4	9.8	10.0	10.8	10.8	11.6	22.1	18.5	22.3	6.1	14.1	154.4
2007	8.9	4.8	4.9	8.4	6.7	8.9	25.3	42.8	20.4	-	-	-	-
Mean	9.5	8.8	10.7	11.4	15.6	18.4	26.7	32.7	25.4	24.5	14.2	10.5	209.3

Note: Mean values calculated from 1948 to 2007



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-5 Adjusted Mean Monthly and Annual Rainfall (mm) at Cambridge Bay A, 1940 to 2007

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	-	-	-	-	-	1.6	36.6	13.7	15.5	-	-	-	-
1941	-	-	-	-	-	12.7	15.3	14.8	4.5	-	-	-	-
1942	-	-	-	-	-	0.9	11.8	17.8	11.0	-	-	-	-
1943	-	-	-	-	-	-	26.0	13.0	-	4.7	-	-	-
1944	-	-	-	-	-	14.0	35.9	43.5	13.4	1.6	-	-	-
1945	-	-	-	0.3	-	-	-	-	-	0.3	-	-	-
1946	-	-	-	-	-	4.7	15.0	22.5	0.3	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	1.5	10.1	23.2	24.7	15.5	0.3	0.3	-	75.6
1949	-	0.3	-	-	0.5	4.3	41.5	47.7	14.9	-	-	-	109.3
1950	-	-	-	-	-	8.6	77.2	34.0	7.8	-	-	-	127.5
1951	-	-	-	-	1.2	27.4	20.2	9.8	4.6	-	-	-	63.2
1952	-	-	-	-	0.5	4.6	7.8	33.0	12.0	0.6	-	-	58.5
1953	-	-	-	-	0.3	5.3	17.7	60.7	8.9	-	-	-	93.0
1954	-	-	-	-	1.2	12.7	16.4	3.2	16.7	2.6	0.6	-	53.4
1955	-	-	-	-	2.7	11.3	42.7	35.4	9.5	3.7	-	-	105.2
1956	-	-	-	-	2.6	19.2	27.1	40.3	13.9	1.3	-	-	104.5
1957	-	-	-	-	-	2.1	25.8	46.8	12.6	2.9	-	-	90.2
1958	-	-	-	-	4.3	6.7	15.8	5.6	15.1	2.0	-	-	49.4
1959	-	-	-	-	-	31.7	31.4	13.5	4.4	-	-	-	81.1
1960	-	-	-	-	3.8	4.4	43.2	36.8	13.4	1.4	-	-	103.0
1961	-	-	-	-	1.5	19.8	7.7	27.9	4.1	0.3	-	-	61.4
1962	-	-	-	-	0.3	5.6	18.8	21.3	14.7	1.1	-	-	61.9
1963	-	-	-	-	-	21.3	81.7	20.7	15.7	12.7	0.6	-	152.7
1964	-	-	-	-	1.2	5.4	20.8	21.4	11.1	2.7	-	0.9	63.4
1965	-	-	-	-	4.9	32.4	4.3	10.6	4.2	0.9	0.3	-	57.6
1966	-	-	-	-	9.8	7.7	30.1	64.1	34.5	1.7	-	-	147.9
1967	-	-	-	-	0.6	10.8	41.5	44.2	12.5	4.9	-	-	114.5
1968	-	-	-	-	0.3	4.7	13.3	42.4	24.6	2.1	1.4	-	88.9
1969	-	-	-	0.3	0.6	17.7	13.2	64.0	5.2	1.9	-	-	102.9
1970	-	-	-	-	0.9	22.4	7.4	41.1	20.9	4.8	-	-	97.5
1971	-	-	-	0.9	2.0	8.2	39.8	81.2	14.1	0.9	-	-	147.1
1972	-	-	-	-	0.3	8.4	15.9	39.6	0.5	0.6	-	-	65.3
1973	-	-	-	-	2.3	12.5	20.8	22.5	18.3	1.3	-	-	77.7
1974	-	-	-	-	2.9	22.6	19.3	11.1	13.3	0.6	-	-	69.7
1975	-	-	-	4.3	6.4	4.0	21.7	15.2	6.7	0.3	0.3	-	58.9
1976	-	-	-	0.6	2.1	7.1	26.2	22.5	16.8	0.6	-	-	75.9
1977	0.6	-	-	0.9	7.5	5.3	19.9	39.0	13.9	0.6	-	-	87.8
1978	-	-	-	-	0.6	12.0	23.8	39.1	26.7	-	-	-	102.3
1979	-	-	-	-	5.3	10.3	24.5	24.2	10.0	0.6	0.9	-	75.8
1980	-	-	-	0.6	2.4	10.1	25.3	49.7	3.9	1.5	-	-	93.4
1981	-	-	-	-	7.4	9.4	39.9	37.6	12.0	5.2	0.3	-	111.8
1982	-	-	-	-	0.9	5.9	38.3	22.3	18.5	2.6	0.3	-	88.6
1983	-	-	-	-	1.2	7.8	13.5	18.4	16.5	0.6	0.3	-	58.3
1984	-	-	0.6	0.3	0.6	6.2	22.2	40.9	8.8	1.8	-	0.3	81.7
1985	-	-	-	0.6	4.5	7.5	22.9	21.0	13.0	1.9	-	-	71.4
1986	-	-	-	-	4.5	5.4	15.3	19.5	9.4	1.2	-	0.3	55.7
1987	-	-	-	-	0.3	27.3	50.1	56.8	30.7	2.1	-	0.3	167.6
1988	-	-	0.3	0.6	3.1	20.3	78.2	27.3	46.0	1.8	-	-	177.6



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-5 Adjusted Mean Monthly and Annual Rainfall (mm) at Cambridge Bay A, 1940 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	0.3	0.3	-	0.3	0.6	16.3	20.6	11.0	17.5	2.1	-	-	69.0
1990	-	-	-	-	8.0	5.9	15.8	35.6	17.7	1.5	-	-	84.5
1991	-	-	-	-	1.2	6.7	30.4	28.0	4.3	1.2	-	-	71.8
1992	-	-	-	-	3.1	5.2	12.8	16.9	4.7	0.6	-	0.3	43.4
1993	0.3	-	0.6	-	7.4	13.4	34.1	27.5	4.9	1.5	-	-	89.8
1994	-	-	-	0.3	2.0	28.6	10.9	19.9	14.0	5.7	-	-	81.3
1995	-	-	-	-	-	31.6	15.1	10.2	4.2	0.9	-	-	62.0
1996	-	-	-	-	5.8	11.2	9.5	49.7	24.2	1.5	-	-	101.9
1997	-	-	-	-	3.2	34.2	30.7	21.5	11.3	0.3	0.6	-	101.8
1998	-	-	-	-	0.5	14.5	15.6	17.0	30.6	5.3	0.3	-	83.8
1999	-	-	-	-	0.3	20.6	45.8	16.7	11.1	-	-	-	-
2000	-	-	-	1.2	1.8	4.0	10.8	39.3	12.6	1.5	-	-	71.2
2001	-	-	-	-	3.0	8.1	44.9	34.1	14.8	0.9	0.6	-	106.5
2002	-	-	-	-	0.6	13.2	12.5	36.8	6.4	0.3	-	-	69.7
2003	0.3	-	-	0.6	3.5	5.1	40.0	38.0	14.8	3.5	-	-	105.9
2004	-	-	-	-	0.3	15.1	24.8	23.5	13.5	0.6	-	-	77.8
2005	-	-	-	0.3	1.2	21.1	36.2	21.5	7.7	1.5	-	-	89.6
2006	0.5	-	-	-	3.9	10.2	11.6	22.1	16.9	2.7	-	-	68.1
2007	-	-	-	0.3	0.9	4.4	25.3	42.8	9.3	-	-	-	-
Mean ¹	-	-	-	0.2	2.3	12.6	26.6	30.8	13.6	1.8	0.1	-	88.1

Note: Mean values calculated from 1948 to 2007



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-6 Adjusted Monthly and Annual Snowfall (mm) at Cambridge Bay A, 1940 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	21.1	-	8.7	8.3	13.9	5.2	-	0.1	0.1	17.5	52.6	33.4	-
1941	-	17.5	5.2	17.5	5.2	0.1	-	-	13.9	19.3	6.9	-	-
1942	-	-	1.8	2.9	3.6	3.3	-	-	10.5	15.9	-	-	-
1943	1.8	10.4	-	-	1.8	-	-	-	-	32.0	41.1	7.0	-
1944	33.3	1.3	12.8	-	-	0.3	-	0.2	-	22.4	25.5	15.3	-
1945	3.5	1.8	13.8	1.2	16.5	-	-	-	-	18.2	12.1	5.4	-
1946	2.9	-	-	-	7.0	-	-	-	10.5	22.8	12.1	3.5	-
1947	-	3.5	12.3	-	7.0	-	-	-	-	-	-	-	-
1948	-	2.0	7.6	6.8	5.8	10.1	-	-	9.7	33.8	7.4	6.0	-
1949	7.5	4.0	3.3	5.0	10.1	5.4	2.5	1.3	19.9	24.6	8.9	6.6	98.9
1950	4.7	13.6	6.6	2.9	9.2	2.0	0.4	5.3	2.4	14.1	9.3	8.4	78.9
1951	7.7	2.1	14.6	8.5	10.8	22.0	0.2	0.2	12.6	23.4	5.5	3.2	110.9
1952	5.1	8.8	9.5	7.9	4.0	0.4	-	1.4	11.9	22.9	15.4	21.6	108.7
1953	5.7	13.1	5.6	7.4	7.0	3.4	-	-	2.3	5.1	21.9	2.6	74.0
1954	3.5	9.4	3.4	1.8	4.0	6.1	-	-	1.4	20.8	12.8	9.6	72.6
1955	7.5	1.4	7.5	3.9	13.1	33.5	0.1	0.1	4.0	12.2	4.3	7.0	94.7
1956	28.4	11.2	8.9	10.5	9.3	3.4	2.1	0.2	14.4	9.8	16.6	8.2	122.9
1957	9.1	7.4	7.7	10.9	12.2	8.4	-	0.1	12.4	18.6	26.3	7.8	120.9
1958	18.9	7.0	16.6	8.3	9.2	5.7	-	-	6.1	15.4	13.3	12.7	113.1
1959	13.0	4.4	9.9	8.5	17.5	14.1	-	-	10.4	10.5	9.6	18.5	116.3
1960	9.4	5.3	4.9	5.4	8.9	0.5	-	-	33.5	22.1	2.9	7.3	100.2
1961	3.3	3.7	2.3	13.8	17.8	1.2	-	0.4	15.1	31.6	21.7	5.5	116.4
1962	7.7	3.2	15.5	5.9	5.1	1.0	-	0.3	5.7	48.9	13.7	7.4	114.3
1963	6.8	7.7	7.2	20.6	14.9	0.9	-	1.3	14.0	44.4	18.7	8.6	144.9
1964	4.5	7.7	11.1	38.2	19.0	11.0	0.8	-	13.1	25.2	14.9	27.4	172.7
1965	8.4	6.6	26.4	19.9	22.4	3.1	-	2.8	14.6	21.3	13.8	4.5	143.9
1966	6.9	9.0	12.0	3.6	18.2	0.2	-	0.1	2.1	18.1	17.4	9.5	97.0
1967	4.9	2.5	8.6	4.0	38.5	1.4	-	0.4	23.4	32.3	8.3	14.1	138.2
1968	11.0	12.5	8.7	16.0	25.1	4.1	1.1	1.3	16.0	29.5	14.9	18.8	159.0
1969	6.7	15.0	4.8	8.3	7.5	28.4	-	0.2	5.7	5.3	7.5	14.6	104.0
1970	5.7	1.8	9.3	18.4	8.4	6.3	-	0.2	18.1	26.2	10.6	8.6	113.3
1971	8.3	24.7	10.4	10.0	10.7	1.7	-	2.3	14.8	36.6	18.2	21.4	159.1
1972	15.7	6.4	19.8	2.4	44.8	1.7	0.1	2.8	33.7	19.0	15.1	9.4	170.9
1973	8.5	20.1	7.8	5.8	11.0	0.1	-	0.1	10.9	38.7	22.9	4.3	130.3
1974	11.3	4.7	3.7	9.4	12.1	8.0	-	8.0	11.3	37.8	29.1	8.2	143.4
1975	8.0	9.1	5.8	15.0	17.3	0.3	0.3	0.7	30.3	29.2	21.9	12.4	150.3
1976	6.7	4.1	4.5	28.8	5.4	4.6	0.1	0.5	14.0	17.5	7.2	5.4	98.8
1977	20.4	6.7	3.3	22.6	15.6	0.8	-	-	1.9	14.0	13.5	11.2	110.0
1978	3.4	7.0	2.8	19.7	10.3	7.5	-	2.0	4.3	11.7	8.1	5.0	81.7
1979	9.1	2.5	12.7	11.4	18.6	4.0	-	3.6	6.0	21.0	4.1	17.6	110.5
1980	7.5	12.3	7.3	25.0	9.9	4.1	0.2	-	20.5	7.5	8.9	2.9	106.2
1981	6.4	5.9	14.0	3.7	6.8	1.2	0.2	1.6	11.6	9.1	8.6	5.3	74.5
1982	4.3	8.4	20.0	8.1	9.7	11.9	-	3.4	9.6	21.1	15.3	6.3	118.0
1983	9.4	5.4	3.6	8.5	9.1	1.2	0.2	-	22.0	15.3	6.7	13.0	94.3
1984	9.8	13.7	9.7	4.7	1.0	0.5	-	0.5	3.9	35.5	28.0	4.5	111.6
1985	10.7	5.8	16.8	5.4	21.4	9.4	-	5.0	19.9	16.9	7.6	11.7	130.5
1986	8.9	16.9	8.5	16.9	28.2	2.1	-	5.4	21.9	17.2	13.0	10.5	149.5
1987	17.1	9.7	7.6	15.0	15.3	10.2	0.1	6.4	10.2	20.3	14.5	9.0	135.4
1988	6.4	3.3	10.6	6.7	17.1	3.3	-	0.2	4.4	9.6	5.4	7.5	74.4



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-6 Adjusted Monthly and Annual Snowfall (mm) at Cambridge Bay A, 1940 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	14.6	23.9	10.6	11.5	20.0	6.0	0.1	-	15.8	21.4	7.5	5.7	137.0
1990	9.2	8.5	19.3	10.7	9.5	25.7	-	0.2	16.0	11.9	27.5	13.5	151.8
1991	6.1	35.9	11.7	20.6	14.9	9.1	0.1	7.9	14.0	24.7	16.5	22.7	184.4
1992	13.7	7.1	16.8	15.9	17.8	3.0	0.1	0.5	11.7	69.5	35.9	15.0	207.0
1993	24.4	9.3	20.3	10.1	24.4	5.1	-	4.1	24.0	12.8	6.2	15.4	156.0
1994	6.2	5.2	13.3	21.0	9.3	3.8	-	7.1	14.2	36.0	-	19.3	-
1995	9.1	7.2	44.1	7.9	15.0	0.2	0.3	5.3	5.2	39.6	18.7	10.8	163.4
1996	10.1	16.9	15.6	8.7	10.8	3.0	-	26.3	3.4	18.2	5.2	16.8	135.1
1997	14.5	8.5	6.4	6.4	5.9	3.5	0.3	1.1	20.1	26.5	10.6	13.1	116.9
1998	5.6	10.0	6.4	15.4	2.8	0.1	-	-	1.7	30.5	25.6	10.3	108.3
1999	4.6	8.4	20.2	5.7	16.5	1.7	-	2.1	10.9	16.8	8.3	6.1	101.6
2000	4.7	8.3	7.9	5.7	7.4	1.9	-	0.3	9.9	20.3	10.9	7.0	84.4
2001	17.4	3.0	8.5	9.9	27.2	9.3	-	0.4	3.5	7.9	14.1	9.3	110.5
2002	8.1	4.2	6.7	6.3	13.0	2.8	-	0.1	4.1	31.0	8.8	9.7	94.7
2003	17.7	4.0	18.0	15.5	12.8	13.3	-	0.2	3.1	14.5	28.2	8.0	135.3
2004	7.4	21.6	9.2	9.0	10.3	6.7	1.8	0.3	14.5	24.7	24.3	5.7	135.4
2005	7.7	5.2	12.5	17.9	2.9	3.5	0.1	0.2	5.0	15.2	18.1	12.5	100.7
2006	8.3	9.4	9.8	10.0	6.9	0.5	-	-	1.5	19.6	6.1	14.1	86.3
2007	8.9	4.8	4.9	8.1	5.8	4.5	-	0.1	11.1	-	-	-	-
Mean	9.4	8.8	10.7	11.2	13.3	5.8	0.2	1.9	11.8	22.6	14.1	10.5	120.6

Note: Mean values calculated from 1948 to 2007



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-7 Derived Monthly and Annual Precipitation (mm) at Doris North, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	23.4	-	9.7	9.2	15.4	7.5	40.6	15.3	17.3	19.4	58.4	37.1	-
1941	-	19.4	5.8	19.4	5.8	14.2	17.0	16.4	20.4	21.4	7.7	-	-
1942	-	-	2.0	3.2	4.0	4.7	13.1	19.8	23.9	17.6	-	-	-
1943	2.0	11.5	-	-	2.0	-	28.9	14.4	-	40.7	45.6	7.8	-
1944	37.0	1.4	14.2	-	-	15.9	39.8	48.5	14.9	26.6	28.3	17.0	-
1945	3.9	2.0	15.3	1.7	18.3	-	-	-	-	20.5	13.4	6.0	-
1946	3.2	-	-	-	7.8	5.2	16.7	25.0	12.0	25.3	13.4	3.9	-
1947	-	3.9	13.7	-	7.8	-	-	-	-	-	-	-	-
1948	1.0	2.2	8.4	7.5	8.1	22.4	25.8	27.4	27.9	37.9	8.7	6.7	183.9
1949	8.3	4.8	3.7	5.6	11.9	10.8	48.7	54.4	38.6	27.3	9.9	7.3	231.0
1950	5.2	15.1	7.3	3.2	10.2	11.7	86.0	43.6	11.3	15.7	10.3	9.3	229.1
1951	8.5	2.3	16.2	9.4	13.3	54.8	22.6	11.0	19.1	26.0	6.1	3.6	193.3
1952	5.7	9.8	10.5	8.8	5.0	5.6	8.7	38.2	26.5	26.1	17.1	24.0	185.6
1953	6.3	14.5	6.2	8.2	8.1	9.7	19.6	67.4	12.5	5.7	24.3	2.9	185.4
1954	3.9	10.4	3.8	2.0	5.8	20.9	18.2	3.6	20.0	25.9	14.9	10.7	139.9
1955	8.3	1.6	8.3	4.3	17.5	49.7	47.5	39.4	14.9	17.8	4.8	7.8	221.9
1956	31.5	12.4	9.9	11.7	13.2	25.1	32.4	44.8	31.5	12.3	18.4	9.1	252.4
1957	10.1	8.2	8.5	12.1	13.5	11.7	28.6	52.1	27.8	23.9	29.2	8.7	234.3
1958	21.0	7.8	18.4	9.2	15.0	13.8	17.5	6.2	23.5	19.2	14.8	14.1	180.4
1959	14.4	4.9	11.0	9.4	19.4	50.8	34.9	15.0	16.4	11.7	10.7	20.5	219.1
1960	10.4	5.9	5.4	6.0	14.0	5.4	48.0	40.8	52.1	26.1	3.2	8.1	225.6
1961	3.7	4.1	2.6	15.3	21.4	23.4	8.5	31.3	21.4	35.4	24.1	6.1	197.4
1962	8.5	3.6	17.2	6.5	6.0	7.3	20.9	24.0	22.6	55.5	15.2	8.2	195.7
1963	7.5	8.5	8.0	22.9	16.5	24.5	90.7	24.4	33.0	63.4	21.4	9.5	330.3
1964	5.0	8.5	12.3	42.4	22.4	18.2	24.0	23.8	26.8	31.0	16.5	31.4	262.2
1965	9.3	7.3	29.3	22.1	30.3	39.4	4.8	15.0	20.9	24.6	15.7	5.0	223.6
1966	7.7	10.0	13.3	4.0	31.1	8.8	33.4	71.3	40.5	22.0	19.3	10.5	271.8
1967	5.4	2.8	9.5	4.4	43.3	13.5	46.1	49.4	39.8	41.3	9.2	15.7	280.5
1968	12.2	13.9	9.7	17.8	28.2	9.8	16.0	48.5	45.1	35.1	18.1	20.9	275.2
1969	7.4	16.7	5.3	9.5	9.0	51.2	14.7	71.3	12.2	8.1	8.3	16.2	229.7
1970	6.3	2.0	10.3	20.4	10.3	31.7	8.2	45.8	43.3	34.4	11.8	9.5	234.0
1971	9.2	27.4	11.5	12.1	14.1	11.0	44.2	92.7	32.1	41.6	20.2	23.8	339.9
1972	17.4	7.1	22.0	2.7	50.1	11.2	17.8	47.1	38.0	21.8	16.8	10.4	262.3
1973	9.4	22.3	8.7	6.4	14.8	13.9	23.1	25.1	32.5	44.4	25.4	4.8	230.9
1974	12.5	5.2	4.1	10.4	16.5	34.0	21.4	21.2	27.2	42.5	32.3	9.1	236.5
1975	8.9	10.1	6.4	21.4	26.3	4.7	24.4	17.6	41.1	32.7	24.6	13.8	232.2
1976	7.4	4.6	5.0	32.6	8.3	13.1	29.2	25.5	34.1	20.1	8.0	6.0	193.9
1977	23.3	7.4	3.7	26.1	25.6	6.8	22.1	43.3	17.5	16.2	15.0	12.4	219.6
1978	3.8	7.8	3.1	21.9	12.1	21.6	26.4	45.6	34.4	13.0	9.0	5.6	204.2
1979	10.1	2.8	14.1	12.7	26.5	15.9	27.2	30.9	17.6	24.0	5.6	19.5	206.7
1980	8.3	13.7	8.1	28.4	13.7	15.8	28.2	55.2	27.1	10.0	9.9	3.2	221.6
1981	7.1	6.5	15.5	4.1	15.8	11.8	44.5	43.5	26.2	15.9	9.9	5.9	206.8
1982	4.8	9.3	22.2	9.0	11.8	19.6	42.5	28.5	31.1	26.2	17.3	7.0	229.4
1983	10.4	6.0	4.0	9.4	11.4	10.0	15.2	20.4	42.7	17.6	7.8	14.4	169.4
1984	10.9	15.2	11.4	5.6	1.8	7.3	24.6	45.8	14.1	41.4	31.1	5.3	214.6
1985	11.9	6.4	18.6	6.7	28.9	18.9	25.4	28.9	36.4	20.9	8.4	13.0	224.1
1986	9.9	18.8	9.4	18.8	36.4	8.3	17.0	27.6	34.7	20.4	14.4	12.0	227.8
1987	19.0	10.8	8.4	16.7	17.3	41.6	55.7	70.2	45.3	24.9	16.1	10.3	336.3
1988	7.1	3.7	12.1	8.1	22.4	26.2	86.8	30.5	55.9	12.7	6.0	8.3	279.7



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-7 Derived Monthly and Annual Precipitation (mm) at Doris North, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	16.5	26.9	11.8	13.1	22.9	24.8	23.0	12.2	37.0	26.1	8.3	6.3	228.7
1990	10.2	9.4	21.4	11.9	19.3	35.0	17.5	39.7	37.5	14.9	30.5	15.0	262.3
1991	6.8	39.8	13.0	22.9	17.9	17.5	33.7	39.8	20.4	28.9	18.3	25.2	284.4
1992	15.2	7.9	18.6	17.6	23.1	9.1	14.3	19.3	18.1	77.8	39.8	17.0	277.9
1993	27.4	10.3	23.2	11.2	35.3	20.5	37.9	35.2	32.1	15.9	6.9	17.1	272.8
1994	6.9	5.8	14.8	23.6	12.5	36.0	12.1	29.9	31.2	46.3	10.5	21.4	251.0
1995	10.1	8.0	49.0	8.8	16.7	35.3	17.0	17.3	10.4	45.0	20.8	12.0	250.2
1996	11.2	18.8	17.3	9.7	18.3	15.9	10.5	84.4	30.6	21.9	5.8	18.6	263.1
1997	16.1	9.4	7.1	7.1	10.1	41.8	34.3	25.1	34.9	29.7	12.4	14.5	242.6
1998	6.2	11.1	7.1	17.1	3.7	16.2	17.3	18.9	35.7	39.7	28.7	11.4	213.1
1999	5.1	9.3	22.4	6.3	18.6	24.9	50.8	20.9	24.4	18.6	9.2	6.8	217.4
2000	5.2	9.2	8.8	7.7	10.2	6.5	12.0	43.8	25.0	24.2	12.1	7.8	172.6
2001	19.3	3.3	9.4	11.0	33.5	19.3	49.8	38.3	20.3	9.8	16.3	10.3	240.9
2002	9.0	4.7	7.4	7.0	15.1	17.6	13.9	40.8	11.7	34.7	9.8	10.8	182.5
2003	20.0	4.4	20.0	17.9	18.1	20.4	44.4	42.4	20.0	20.0	31.3	8.9	267.7
2004	8.2	24.0	10.2	10.0	12.7	15.6	17.4	20.4	36.1	27.4	27.0	6.3	215.3
2005	8.5	5.8	13.9	19.9	3.2	27.2	35.3	40.6	9.5	16.9	20.1	13.9	214.6
2006	9.2	10.4	10.9	11.1	10.3	14.7	28.6	12.2	6.3	24.4	6.8	15.7	160.5
2007	9.9	5.3	5.4	9.3	7.1	8.0	11.5	77.0	19.5	48.5	14.7	8.8	225.0
2008	15.9	4.4	12.7	11.3	3.1	59.6	49.9	50.9	49.7	45.4	13.5	3.2	319.7
Mean	10.4	9.7	11.9	12.6	17.0	20.9	29.7	37.0	28.3	27.7	15.6	11.5	232.5



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-8 Derived Monthly and Annual Rainfall (mm) at Doris North, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	-	-	-	-	-	1.8	40.6	15.2	17.2	-	-	-	-
1941	-	-	-	-	-	14.1	17.0	16.4	5.0	-	-	-	-
1942	-	-	-	-	-	1.0	13.1	19.8	12.2	-	-	-	-
1943	-	-	-	-	-	-	28.9	14.4	-	5.2	-	-	-
1944	-	-	-	-	-	15.5	39.8	48.3	14.9	1.8	-	-	-
1945	-	-	-	0.3	-	-	-	-	-	0.3	-	-	-
1946	-	-	-	-	-	5.2	16.7	25.0	0.3	-	-	-	-
1947	-	-	-	-	-	-	-	-	-	-	-	-	-
1948	-	-	-	-	1.7	11.2	25.8	27.4	17.2	0.3	0.3	-	83.9
1949	-	0.3	-	-	0.6	4.8	46.1	52.9	16.5	-	-	-	121.3
1950	-	-	-	-	-	9.5	85.7	37.7	8.7	-	-	-	141.5
1951	-	-	-	-	1.3	30.4	22.4	10.9	5.1	-	-	-	70.2
1952	-	-	-	-	0.6	5.1	8.7	36.6	13.3	0.7	-	-	64.9
1953	-	-	-	-	0.3	5.9	19.6	67.4	9.9	-	-	-	103.2
1954	-	-	-	-	1.3	14.1	18.2	3.6	18.5	2.9	0.7	-	59.3
1955	-	-	-	-	3.0	12.5	47.4	39.3	10.5	4.1	-	-	116.8
1956	-	-	-	-	2.9	21.3	30.1	44.7	15.4	1.4	-	-	116.0
1957	-	-	-	-	-	2.3	28.6	51.9	14.0	3.2	-	-	100.1
1958	-	-	-	-	4.8	7.4	17.5	6.2	16.8	2.2	-	-	54.8
1959	-	-	-	-	-	35.2	34.9	15.0	4.9	-	-	-	90.0
1960	-	-	-	-	4.2	4.9	48.0	40.8	14.9	1.6	-	-	114.3
1961	-	-	-	-	1.7	22.0	8.5	31.0	4.6	0.3	-	-	68.2
1962	-	-	-	-	0.3	6.2	20.9	23.6	16.3	1.2	-	-	68.7
1963	-	-	-	-	-	23.6	90.7	23.0	17.4	14.1	0.7	-	169.5
1964	-	-	-	-	1.3	6.0	23.1	23.8	12.3	3.0	-	1.0	70.4
1965	-	-	-	-	5.4	36.0	4.8	11.8	4.7	1.0	0.3	-	63.9
1966	-	-	-	-	10.9	8.5	33.4	71.2	38.3	1.9	-	-	164.2
1967	-	-	-	-	0.7	12.0	46.1	49.1	13.9	5.4	-	-	127.1
1968	-	-	-	-	0.3	5.2	14.8	47.1	27.3	2.3	1.6	-	98.7
1969	-	-	-	0.3	0.7	19.6	14.7	71.0	5.8	2.1	-	-	114.2
1970	-	-	-	-	1.0	24.9	8.2	45.6	23.2	5.3	-	-	108.2
1971	-	-	-	1.0	2.2	9.1	44.2	90.1	15.7	1.0	-	-	163.3
1972	-	-	-	-	0.3	9.3	17.6	44.0	0.6	0.7	-	-	72.5
1973	-	-	-	-	2.6	13.9	23.1	25.0	20.3	1.4	-	-	86.2
1974	-	-	-	-	3.2	25.1	21.4	12.3	14.8	0.7	-	-	77.4
1975	-	-	-	4.8	7.1	4.4	24.1	16.9	7.4	0.3	0.3	-	65.4
1976	-	-	-	0.7	2.3	7.9	29.1	25.0	18.6	0.7	-	-	84.2
1977	0.7	-	-	1.0	8.3	5.9	22.1	43.3	15.4	0.7	-	-	97.5
1978	-	-	-	-	0.7	13.3	26.4	43.4	29.6	-	-	-	113.6
1979	-	-	-	-	5.9	11.4	27.2	26.9	11.1	0.7	1.0	-	84.1
1980	-	-	-	0.7	2.7	11.2	28.1	55.2	4.3	1.7	-	-	103.7
1981	-	-	-	-	8.2	10.4	44.3	41.7	13.3	5.8	0.3	-	124.1
1982	-	-	-	-	1.0	6.5	42.5	24.8	20.5	2.9	0.3	-	98.3
1983	-	-	-	-	1.3	8.7	15.0	20.4	18.3	0.7	0.3	-	64.7
1984	-	-	0.7	0.3	0.7	6.9	24.6	45.4	9.8	2.0	-	0.3	90.7
1985	-	-	-	0.7	5.0	8.3	25.4	23.3	14.4	2.1	-	-	79.3
1986	-	-	-	-	5.0	6.0	17.0	21.6	10.4	1.3	-	0.3	61.8
1987	-	-	-	-	0.3	30.3	55.6	63.0	34.1	2.3	-	0.3	186.0
1988	-	-	0.3	0.7	3.4	22.5	86.8	30.3	51.1	2.0	-	-	197.1



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-8 Derived Monthly and Annual Rainfall (mm) at Doris North, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	0.3	0.3	-	0.3	0.7	18.1	22.9	12.2	19.4	2.3	-	-	76.6
1990	-	-	-	-	8.9	6.5	17.5	39.5	19.6	1.7	-	-	93.8
1991	-	-	-	-	1.3	7.4	33.7	31.1	4.8	1.3	-	-	79.7
1992	-	-	-	-	3.4	5.8	14.2	18.8	5.2	0.7	-	0.3	48.2
1993	0.3	-	0.7	-	8.2	14.9	37.9	30.5	5.4	1.7	-	-	99.7
1994	-	-	-	0.3	2.2	31.7	12.1	22.1	15.5	6.3	-	-	90.2
1995	-	-	-	-	-	35.1	16.8	11.3	4.7	1.0	-	-	68.8
1996	-	-	-	-	6.4	12.4	10.5	55.2	26.9	1.7	-	-	113.1
1997	-	-	-	-	3.6	38.0	34.1	23.9	12.5	0.3	0.7	-	113.0
1998	-	-	-	-	0.6	16.1	17.3	18.9	34.0	5.9	0.3	-	93.0
1999	-	-	-	-	0.3	22.9	50.8	18.5	12.3	-	-	-	104.9
2000	-	-	-	1.3	2.0	4.4	12.0	43.6	14.0	1.7	-	-	79.0
2001	-	-	-	-	3.3	9.0	49.8	37.9	16.4	1.0	0.7	-	118.2
2002	-	-	-	-	0.7	14.7	13.9	40.8	7.1	0.3	-	-	77.4
2003	0.3	-	-	0.7	3.9	5.7	44.4	42.2	16.4	3.9	-	-	117.5
2004	-	-	-	-	1.3	8.2	15.4	20.0	20.0	-	-	-	65.0
2005	-	-	-	-	-	23.3	35.1	40.4	3.9	-	-	-	102.8
2006	-	-	-	-	2.6	14.1	28.6	12.2	4.6	2.6	-	-	64.7
2007	-	-	-	0.3	0.7	3.0	11.5	76.8	7.2	2.0	-	-	101.5
2008	-	-	-	-	0.3	32.5	49.9	50.9	34.8	3.6	-	-	172.1
Mean	0.0	0.0	0.0	0.2	2.5	14.2	29.5	34.9	15.2	1.9	0.1	0.0	98.7



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-9 Derived Monthly and Annual Snowfall (mm) at Doris North, 1948 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1940	23.4	-	9.7	9.2	15.4	5.8	-	0.1	0.1	19.4	58.4	37.1	-
1941	-	19.4	5.8	19.4	5.8	0.1	-	-	15.4	21.4	7.7	-	-
1942	-	-	2.0	3.2	4.0	3.7	-	-	11.7	17.6	-	-	-
1943	2.0	11.5	-	-	2.0	-	-	-	-	35.5	45.6	7.8	-
1944	37.0	1.4	14.2	-	-	0.3	-	0.2	-	24.9	28.3	17.0	-
1945	3.9	2.0	15.3	1.3	18.3	-	-	-	-	20.2	13.4	6.0	-
1946	3.2	-	-	-	7.8	-	-	-	11.7	25.3	13.4	3.9	-
1947	-	3.9	13.7	-	7.8	-	-	-	-	-	-	-	-
1948	1.0	2.2	8.4	7.5	6.4	11.2	-	-	10.8	37.5	8.2	6.7	100.0
1949	8.3	4.4	3.7	5.6	11.2	6.0	2.8	1.4	22.1	27.3	9.9	7.3	109.8
1950	5.2	15.1	7.3	3.2	10.2	2.2	0.4	5.9	2.7	15.7	10.3	9.3	87.6
1951	8.5	2.3	16.2	9.4	12.0	24.4	0.2	0.2	14.0	26.0	6.1	3.6	123.1
1952	5.7	9.8	10.5	8.8	4.4	0.4	-	1.6	13.2	25.4	17.1	24.0	120.7
1953	6.3	14.5	6.2	8.2	7.8	3.8	-	-	2.6	5.7	24.3	2.9	82.1
1954	3.9	10.4	3.8	2.0	4.4	6.8	-	-	1.6	23.1	14.2	10.7	80.6
1955	8.3	1.6	8.3	4.3	14.5	37.2	0.1	0.1	4.4	13.5	4.8	7.8	105.1
1956	31.5	12.4	9.9	11.7	10.3	3.8	2.3	0.2	16.0	10.9	18.4	9.1	136.4
1957	10.1	8.2	8.5	12.1	13.5	9.3	-	0.1	13.8	20.6	29.2	8.7	134.2
1958	21.0	7.8	18.4	9.2	10.2	6.3	-	-	6.8	17.1	14.8	14.1	125.5
1959	14.4	4.9	11.0	9.4	19.4	15.7	-	-	11.5	11.7	10.7	20.5	129.1
1960	10.4	5.9	5.4	6.0	9.9	0.6	-	-	37.2	24.5	3.2	8.1	111.2
1961	3.7	4.1	2.6	15.3	19.8	1.3	-	0.4	16.8	35.1	24.1	6.1	129.2
1962	8.5	3.6	17.2	6.5	5.7	1.1	-	0.3	6.3	54.3	15.2	8.2	126.9
1963	7.5	8.5	8.0	22.9	16.5	1.0	-	1.4	15.5	49.3	20.8	9.5	160.8
1964	5.0	8.5	12.3	42.4	21.1	12.2	0.9	-	14.5	28.0	16.5	30.4	191.7
1965	9.3	7.3	29.3	22.1	24.9	3.4	-	3.1	16.2	23.6	15.3	5.0	159.7
1966	7.7	10.0	13.3	4.0	20.2	0.2	-	0.1	2.3	20.1	19.3	10.5	107.7
1967	5.4	2.8	9.5	4.4	42.7	1.6	-	0.4	26.0	35.9	9.2	15.7	153.4
1968	12.2	13.9	9.7	17.8	27.9	4.6	1.2	1.4	17.8	32.7	16.5	20.9	176.5
1969	7.4	16.7	5.3	9.2	8.3	31.5	-	0.2	6.3	5.9	8.3	16.2	115.4
1970	6.3	2.0	10.3	20.4	9.3	7.0	-	0.2	20.1	29.1	11.8	9.5	125.8
1971	9.2	27.4	11.5	11.1	11.9	1.9	-	2.6	16.4	40.6	20.2	23.8	176.6
1972	17.4	7.1	22.0	2.7	49.7	1.9	0.1	3.1	37.4	21.1	16.8	10.4	189.7
1973	9.4	22.3	8.7	6.4	12.2	0.1	-	0.1	12.1	43.0	25.4	4.8	144.6
1974	12.5	5.2	4.1	10.4	13.4	8.9	-	8.9	12.5	42.0	32.3	9.1	159.2
1975	8.9	10.1	6.4	16.7	19.2	0.3	0.3	0.8	33.6	32.4	24.3	13.8	166.8
1976	7.4	4.6	5.0	32.0	6.0	5.1	0.1	0.6	15.5	19.4	8.0	6.0	109.7
1977	22.6	7.4	3.7	25.1	17.3	0.9	-	-	2.1	15.5	15.0	12.4	122.1
1978	3.8	7.8	3.1	21.9	11.4	8.3	-	2.2	4.8	13.0	9.0	5.6	90.7
1979	10.1	2.8	14.1	12.7	20.6	4.4	-	4.0	6.7	23.3	4.6	19.5	122.7
1980	8.3	13.7	8.1	27.8	11.0	4.6	0.2	-	22.8	8.3	9.9	3.2	117.9
1981	7.1	6.5	15.5	4.1	7.5	1.3	0.2	1.8	12.9	10.1	9.5	5.9	82.7
1982	4.8	9.3	22.2	9.0	10.8	13.2	-	3.8	10.7	23.4	17.0	7.0	131.0
1983	10.4	6.0	4.0	9.4	10.1	1.3	0.2	-	24.4	17.0	7.4	14.4	104.7
1984	10.9	15.2	10.8	5.2	1.1	0.6	-	0.6	4.3	39.4	31.1	5.0	123.9
1985	11.9	6.4	18.6	6.0	23.8	10.4	-	5.6	22.1	18.8	8.4	13.0	144.9
1986	9.9	18.8	9.4	18.8	31.3	2.3	-	6.0	24.3	19.1	14.4	11.7	165.9
1987	19.0	10.8	8.4	16.7	17.0	11.3	0.1	7.1	11.3	22.5	16.1	10.0	150.3
1988	7.1	3.7	11.8	7.4	19.0	3.7	-	0.2	4.9	10.7	6.0	8.3	82.6



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-9 Derived Monthly and Annual Snowfall (mm) at Doris North, 1948 to 2008 (continued)

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1989	16.2	26.5	11.8	12.8	22.2	6.7	0.1	-	17.5	23.8	8.3	6.3	152.1
1990	10.2	9.4	21.4	11.9	10.5	28.5	-	0.2	17.8	13.2	30.5	15.0	168.5
1991	6.8	39.8	13.0	22.9	16.5	10.1	0.1	8.8	15.5	27.4	18.3	25.2	204.7
1992	15.2	7.9	18.6	17.6	19.8	3.3	0.1	0.6	13.0	77.1	39.8	16.7	229.8
1993	27.1	10.3	22.5	11.2	27.1	5.7	-	4.6	26.6	14.2	6.9	17.1	173.2
1994	6.9	5.8	14.8	23.3	10.3	4.2	-	7.9	15.8	40.0	10.5	21.4	160.8
1995	10.1	8.0	49.0	8.8	16.7	0.2	0.3	5.9	5.8	44.0	20.8	12.0	181.4
1996	11.2	18.8	17.3	9.7	12.0	3.3	-	29.2	3.8	20.2	5.8	18.6	150.0
1997	16.1	9.4	7.1	7.1	6.5	3.9	0.3	1.2	22.3	29.4	11.8	14.5	129.8
1998	6.2	11.1	7.1	17.1	3.1	0.1	-	-	1.9	33.9	28.4	11.4	120.2
1999	5.1	9.3	22.4	6.3	18.3	1.9	-	2.3	12.1	18.6	9.2	6.8	112.8
2000	5.2	9.2	8.8	6.3	8.2	2.1	-	0.3	11.0	22.5	12.1	7.8	93.7
2001	19.3	3.3	9.4	11.0	30.2	10.3	-	0.4	3.9	8.8	15.7	10.3	122.7
2002	9.0	4.7	7.4	7.0	14.4	3.1	-	0.1	4.6	34.4	9.8	10.8	105.1
2003	19.6	4.4	20.0	17.2	14.2	14.8	-	0.2	3.4	16.1	31.3	8.9	150.2
2004	8.2	24.0	10.2	10.0	11.4	7.4	2.0	0.3	16.1	27.4	27.0	6.3	150.3
2005	8.5	5.8	13.9	19.9	3.2	3.9	0.1	0.2	5.6	16.9	20.1	13.9	111.8
2006	9.2	10.4	10.9	11.1	7.7	0.6	-	-	1.7	21.8	6.8	15.7	95.8
2007	9.9	5.3	5.4	9.0	6.4	5.0	-	0.1	12.3	46.5	14.7	8.8	123.5
2008	15.9	4.4	12.7	11.3	2.8	27.1	-	-	14.9	41.8	13.5	3.2	147.6
Mean	16.2	26.5	11.8	12.8	22.2	6.7	0.1	-	17.5	23.8	8.3	6.3	152.1



APPENDIX C HOPE BAY PROJECT – PRECIPITATION DATA

Table C-10 Recorded and Adjusted Annual Precipitation (mm) at Cambridge Bay A, 1948 to 2008

Hydrological Year	Total Precipitation			Summer Precipitation			Winter Precipitation		
	Recorded	Adjusted	Undercatch Factor	Recorded	Adjusted	Undercatch Factor	Recorded	Adjusted	Undercatch Factor
1948				68.2	93.2	1.37			
1949	164.1	216.1	1.32	114.9	137.4	1.20	49.2	78.7	1.60
1950	169.8	214.6	1.26	118.4	137.5	1.16	51.4	77.1	1.50
1951	122.2	173.6	1.42	73.4	96.9	1.32	48.8	76.7	1.57
1952	95.4	139.0	1.46	52.8	71.1	1.35	42.6	67.9	1.59
1953	151.0	198.0	1.31	83.5	98.4	1.18	67.5	99.6	1.48
1954	75.8	109.3	1.44	41.2	56.4	1.37	34.6	52.9	1.53
1955	158.0	218.9	1.39	107.9	136.5	1.27	50.1	82.4	1.64
1956	165.1	218.8	1.33	100.9	120.6	1.20	64.2	98.2	1.53
1957	136.1	191.4	1.41	83.0	108.2	1.30	53.1	83.2	1.57
1958	116.9	174.9	1.50	38.4	55.0	1.43	78.5	119.9	1.53
1959	140.0	202.1	1.44	76.6	105.5	1.38	63.4	96.6	1.52
1960	146.9	208.0	1.42	101.6	131.8	1.30	45.3	76.2	1.68
1961	94.3	152.4	1.62	49.7	76.3	1.54	44.6	76.1	1.71
1962	108.2	164.2	1.52	47.7	67.4	1.41	60.5	96.8	1.60
1963	208.4	283.8	1.36	127.7	155.5	1.22	80.7	128.3	1.59
1964	154.3	250.2	1.62	54.4	83.5	1.53	99.9	166.7	1.67
1965	140.6	231.8	1.65	50.5	72.1	1.43	90.1	159.7	1.77
1966	177.0	239.0	1.35	118.2	138.7	1.17	58.8	100.3	1.71
1967	160.8	239.8	1.49	101.8	134.1	1.32	59.0	105.7	1.79
1968	155.4	240.7	1.55	75.9	107.5	1.42	79.5	133.2	1.68
1969	157.9	244.4	1.55	103.3	134.5	1.30	54.6	109.9	2.01
1970	122.9	190.2	1.55	87.9	116.3	1.32	35.0	73.9	2.11
1971	184.2	279.3	1.52	131.2	162.1	1.24	53.0	117.2	2.21
1972	140.5	269.2	1.92	66.6	102.7	1.54	73.9	166.5	2.25
1973	109.5	184.8	1.69	66.6	85.2	1.28	42.9	99.6	2.32
1974	118.8	204.7	1.72	69.6	93.5	1.34	49.2	111.2	2.26
1975	134.4	220.6	1.64	57.2	79.1	1.38	77.2	141.5	1.83
1976	131.3	208.1	1.58	70.6	91.8	1.30	60.7	116.3	1.92
1977	123.6	189.1	1.53	64.2	80.8	1.26	59.4	108.3	1.82
1978	139.7	198.5	1.42	94.2	115.4	1.23	45.5	83.1	1.83
1979	111.2	166.9	1.50	62.6	82.5	1.32	48.6	84.4	1.74
1980	154.8	222.9	1.44	90.8	113.7	1.25	64.0	109.2	1.71
1981	122.8	178.5	1.45	90.6	113.5	1.25	32.2	65.0	2.02
1982	133.8	189.6	1.42	89.6	109.7	1.22	44.2	79.9	1.81
1983	101.2	162.3	1.60	56.8	79.6	1.40	44.4	82.7	1.86
1984	108.6	159.1	1.47	65.8	82.8	1.26	42.8	76.3	1.78
1985	151.7	234.1	1.54	75.5	98.7	1.31	76.2	135.4	1.78
1986	126.6	201.1	1.59	54.6	79.0	1.45	72.0	122.1	1.70
1987	213.6	298.9	1.40	164.9	191.7	1.16	48.7	107.2	2.20
1988	188.3	274.0	1.46	156.6	179.7	1.15	31.7	94.3	2.97
1989	111.6	193.7	1.74	65.0	87.3	1.34	46.6	106.4	2.28
1990	144.0	218.7	1.52	89.8	116.9	1.30	54.2	101.8	1.88
1991	135.8	245.3	1.81	73.8	100.5	1.36	62.0	144.8	2.34
1992	108.6	194.3	1.79	32.6	54.8	1.68	76.0	139.5	1.84
1993	185.8	331.3	1.78	79.5	113.2	1.42	106.3	218.1	2.05
1994	117.0	191.5	1.64	71.8	98.3	1.37	45.2	93.2	2.06
1995	143.8	225.9	1.57	55.0	72.1	1.31	88.8	153.8	1.73
1996	187.2	265.2	1.42	103.8	127.4	1.23	83.4	137.8	1.65



APPENDIX C

HOPE BAY PROJECT – PRECIPITATION DATA

Table C-10 Recorded and Adjusted Annual Precipitation (mm) at Cambridge Bay A, 1948 to 2008 (continued)

Hydrological Year	Total Precipitation			Summer Precipitation			Winter Precipitation		
	Recorded	Adjusted	Undercatch Factor	Recorded	Adjusted	Undercatch Factor	Recorded	Adjusted	Undercatch Factor
1997	154.1	209.2	1.36	101.7	122.6	1.21	52.4	86.6	1.65
1998	113.6	171.2	1.51	62.2	79.4	1.28	51.4	91.8	1.79
1999	168.8	236.7	1.40	88.3	109.0	1.23	80.5	127.7	1.59
2000	90.6	146.9	1.62	63.8	78.7	1.23	26.8	68.2	2.54
2001	153.6	223.8	1.46	96.0	115.1	1.20	57.6	108.7	1.89
2002	90.6	147.4	1.63	57.0	75.7	1.33	33.6	71.7	2.13
2003	157.6	236.8	1.50	94.4	114.6	1.21	63.2	122.2	1.93
2004	125.4	212.1	1.69	73.0	100.1	1.37	52.4	112.0	2.14
2005	132.6	198.3	1.50	76.4	95.3	1.25	56.2	103.0	1.83
2006	98.8	159.2	1.61	47.6	63.0	1.32	51.2	96.2	1.88
2007	118.0	173.6	1.47	77.0	97.4	1.26	41.0	76.2	1.86
2008	169.0			109.9	152.6	1.39	59.1	105.8	1.79
Annual	138.7	208.9	1.52	80.7	104.1	1.31	57.8	105.4	1.85



APPENDIX D HOPE BAY PROJECT – HUMIDITY DATA

APPENDIX D – HUMIDITY DATA



APPENDIX D HOPE BAY PROJECT – HUMIDITY DATA

Table D-1 Recorded Monthly and Annual Mean Relative Humidity (%) at Cambridge Bay A, 2004 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2004		67.5	66.2	69.6	83.1	83.5	75.9	73.5	83.3	79.4	67.6	59.9	73.6
2005	58.9	60.2	59.2	65.6	81.8	84.1	84.2	83.6	85.9	87.1	73.9	62.5	74.0
2006	61.8	66.7	67.1	75.6	91.6	79.7	72.8	75.9	85.7	88.1	74.2	69.2	75.7
2007	63.7	67.9	67.3	75.5	86.2	85.1	75.8	91.0	89.6	94.0	69.7	65.7	77.7
2008	62.0	61.9	67.1	75.8	89.7	91.6	84.3	88.4	90.0	82.1	70.7	62.3	77.2

Table D-2 Recorded Monthly and Annual Mean Relative Humidity (%) at Doris North, 2004 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2004		71.8	69.2	77.7	82.5	78.7	72.8	76.8	82.6	87.0	80.6	73.9	78.1
2005	74.3	70.3	73.2	81.3	80.1	75.7	80.1	78.3	81.5	87.9	82.7	77.7	78.6
2006	76.4	77.2	77.5	79.6	84.0	70.5	71.3	70.5	82.6	89.1	83.3	81.4	78.6
2007	75.5	72.3	71.8	79.2	84.4	77.4	65.8	83.8	82.3	89.6	78.1	76.4	78.1
2008	73.8	69.4	69.1	79.2	83.0	80.1	73.5	80.9	84.9	85.9	82.6	75.1	78.1

Table D-3 Recorded Monthly and Annual Maximum Relative Humidity (%) at Doris North, 2004 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2004		86.9	92.5	90.4	96.1	98.3	98.5	97.1	98.5	98.5	94.2	84.5	98.5
2005	93.7	83.6	91.5	98.1	97.7	98.5	98.6	98.1	97.8	99.5	97.0	89.3	99.5
2006	95.7	93.4	95.7	93.7	99.7	98.9	98.2	97.2	99.1	99.1	92.5	93.9	99.7
2007	88.2	86.7	90.9	96.3	98.7	98.4	96.8	97.6	97.9	99.0	92.3	88.4	99.0
2008	95.1	86.0	88.5	93.0	98.7	98.9	97.1	97.2	98.9	99.1	95.4	86.8	99.1

Table D-4 Recorded Monthly and Annual Minimum Relative Humidity (%) at Doris North, 2004 to 2008

Year	Month												Annual
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2004		67.3	41.5	52.5	57.9	24.7	22.4	27.7	33.4	69.4	63.0	63.2	22.4
2005	61.1	60.0	48.3	49.1	36.6	24.1	30.8	30.6	34.4	57.2	68.7	66.2	24.1
2006	59.2	57.0	49.4	43.0	30.0	25.6	33.0	25.5	37.2	64.8	71.6	65.4	25.5
2007	61.7	46.6	56.1	40.8	50.2	24.4	23.6	32.9	37.4	71.7	63.0	64.7	23.6
2008	62.2	59.0	48.0	50.5	48.5	29.8	29.9	33.7	52.6	52.0	73.5	60.3	29.8



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

APPENDIX E – WATER BALANCE MODELING



1.0 INTRODUCTION

In order to assess mean characteristics and natural variability of discharges and water levels at lake outflows at the Doris and Madrid Project areas, a hydrological model was developed. The model setup and calibration are described in this appendix.

The water balance model was set up using GoldSim™ software on a daily time step for the period 1948 to 2008. This time period was selected to allow use of the climate data derived for the site based on long-term data from the Environment Canada Cambridge Bay A climate station. The basic water balance for each sub-watershed considered rainfall and snowmelt runoff, inflow from upstream watersheds, changes in lake storage, lake evaporation and outflow to downstream watersheds.

The model was calibrated using runoff coefficients from land surfaces, lake outlet stage-discharge rating curves and degree-day models for snowmelt and spring ice melt in outlet channels. These parameters were varied to calibrate the model using site-specific climate and hydrology data collected in 2006 and 2008. Site-specific data from 2005 to 2008 were used to validate the model results.

The calibrated model was used to generate a daily time series of flows for all lakes of interest in the Glenn Lake and Little Roberts Lake watersheds. Frequency analyses were performed on these data sets to define key discharge parameters.

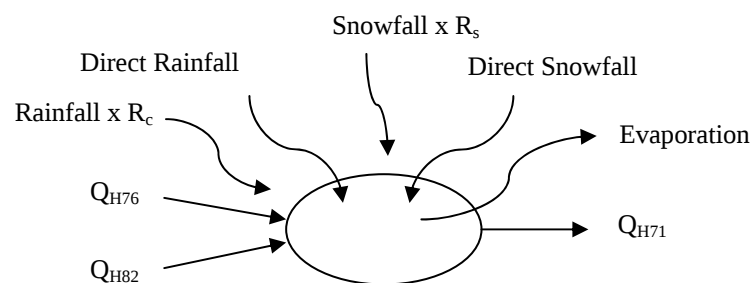
2.0 MODEL DEVELOPMENT

2.1 Model Notation

Each lake was designated by an alphanumeric value, noted in brackets besides the name of the Lake, to simplify the diagrams. These designations typically corresponded to the baseline monitoring station number (e.g., Roberts Lake and Outflow were designated as “H72”).

2.2 Model Structure

Each modeled lake was represented by a reservoir as described in the schematic diagram shown on Figure 1. This shows the inflows and outflows for Doris Lake (H71) and considers inflows from Ogama Lake (H82) and Tail Lake (H76), as well as direct rainfall, direct snowfall, and runoff from rainfall and snowfall. Outflows include lake evaporation and lake outflows.



Note: A runoff coefficient (R_c & R_s) was applied to compensate for other losses including evapotranspiration.

Figure 1 – Schematic Diagram for Doris Lake (H71)

Lake inflows and outflows were calculated according to the input data and methods described on Figure 2.

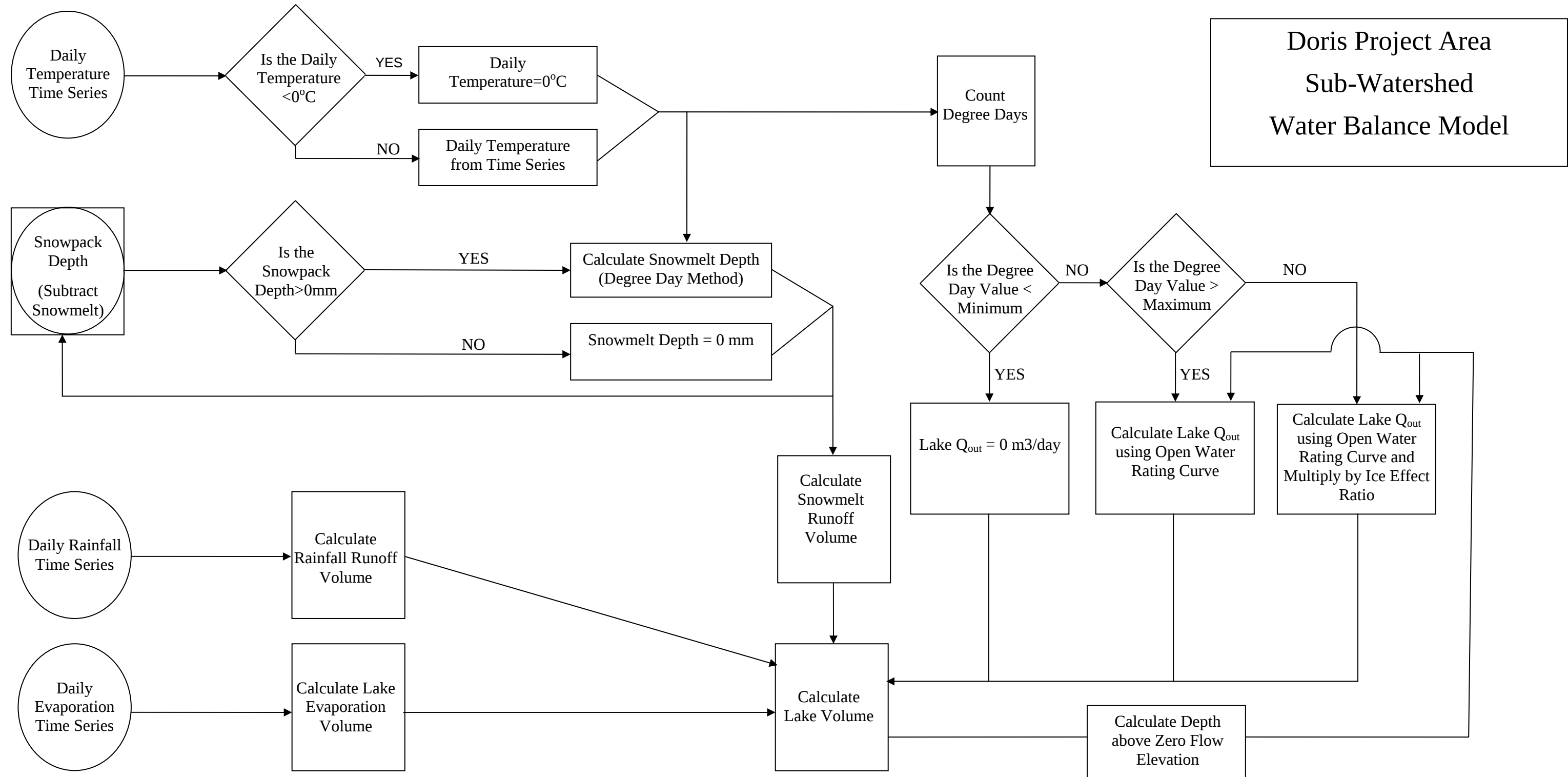


Figure 2 - Sub-Watershed Water Balance Model Structure



2.3 Model Components

2.3.1 Lake Outlet Melt Period

During the end of May and the beginning of June, as temperatures rise above freezing and the cumulative degree-days increase, frozen lake outlets thaw and water begins to flow. During the early portion of the snowmelt season, ice effects have been observed to reduce the discharge to some factor (<1) of the discharge that would be observed under ice-free conditions. The modeling approach was to examine the relationship between lake outflow discharge and cumulative degree days, with the objective of defining a relationship to account for ice effects in the melt period in hydrological modeling.

2.3.1.1 Hydrometric and Meteorological Data

Observations were available in the outlet opening periods in 2004 to 2007 at Doris Lake Outflow (H71), Roberts Lake Outflow (H72), and Little Roberts Lake Outflow (H73), and in 2004 only at Tail Lake Outlet (H76). At the start of each open water season, lake outflows were visited to install hydrometric stations during the outflow opening period. Stations were often installed under frozen conditions by placing monitoring equipment in augured holes. Discharges were measured, where present, and ice conditions were recorded. Upstream lake water level data were also available at Doris Lake (H74) and Tail Lake (H75). Roberts Lake Outlet (H72) also included upstream lake water level data.

A meteorology station was operated at the Doris North project site starting from March 2004, with data available until the end of December 2008. Reported hourly data allow determination of the daily minimum, maximum and mean temperatures.

2.3.1.2 Method

A degree-day method was chosen to assess the effect of ice conditions discharge at each lake outlet. Degree-days were counted above a base temperature of 0°C , based on mean daily temperatures, which typically begin to exceed 0°C in late May.

The effect of the ice on discharge was quantified by the following ratio:

$$\text{Ice Effect Ratio} = Q_{\text{actual}} / Q_{\text{predicted}}$$

where Q_{actual} = Discharge measured at the outlet under ice conditions; and

$Q_{\text{predicted}}$ = Discharge predicted using an open water rating curve for the specific outlet.

Opening of lake outflows in the area is generally rapid as peak flows occur soon after the onset of the open water period (Rescan 2002). This is related to snowmelt runoff into the lake upstream of the outlet as well as thaw of ice in the lake outlet. Flowing water provides additional thermal input and melted or saturated snow on the outflow channel surface lowers its albedo and increases absorption of solar energy, which further accelerates melt. The change in conditions from frozen solid to fully open was observed to typically occur over a span of approximately one week. Logistical considerations during the field program meant that flow measurements were not acquired during the melt period, though observations of zero flow and fully open flow were available. Therefore, the analysis focused on identifying dates of zero flow (Ice Effect Ratio = 0) and fully open flow (Ice Effect Ratio = 1).

There is some uncertainty in the cumulative degree-day values corresponding to these assigned values, because of the limited number of visits at lake outflows in the early season. This uncertainty was addressed by assuming that the last day of zero flow at the site (Ice Effect Ratio = 0) was the last day that zero flow was observed (the actual date could have been any day between then and the first day of observed flow), and by assuming that the first day with no ice effects (Ice Effect Ratio = 1) was the day after the last day that any ice



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

effects were observed (the actual date could have been any day between the last day of observed ice effects and the first day of observed ice-free conditions).

Cumulative degree-day and ice effect ratio data were examined. Lake outlets were separated into groups exhibiting similar characteristics, with differences possible due to late winter ice characteristics, upstream flow conditions and solar exposure.

2.3.1.3 Results and Discussion

Values of cumulative degree-days and the ice effect ratios were plotted to examine the observed relationships at each lake outlet. Initially all data were plotted together. After an initial examination, Little Roberts Lake Outlet (Station H73) was considered separately due to its observed earlier outlet opening date. Results are presented in Figure 3 and Figure 4, and degree-day plots for all years are presented in Figure 5.

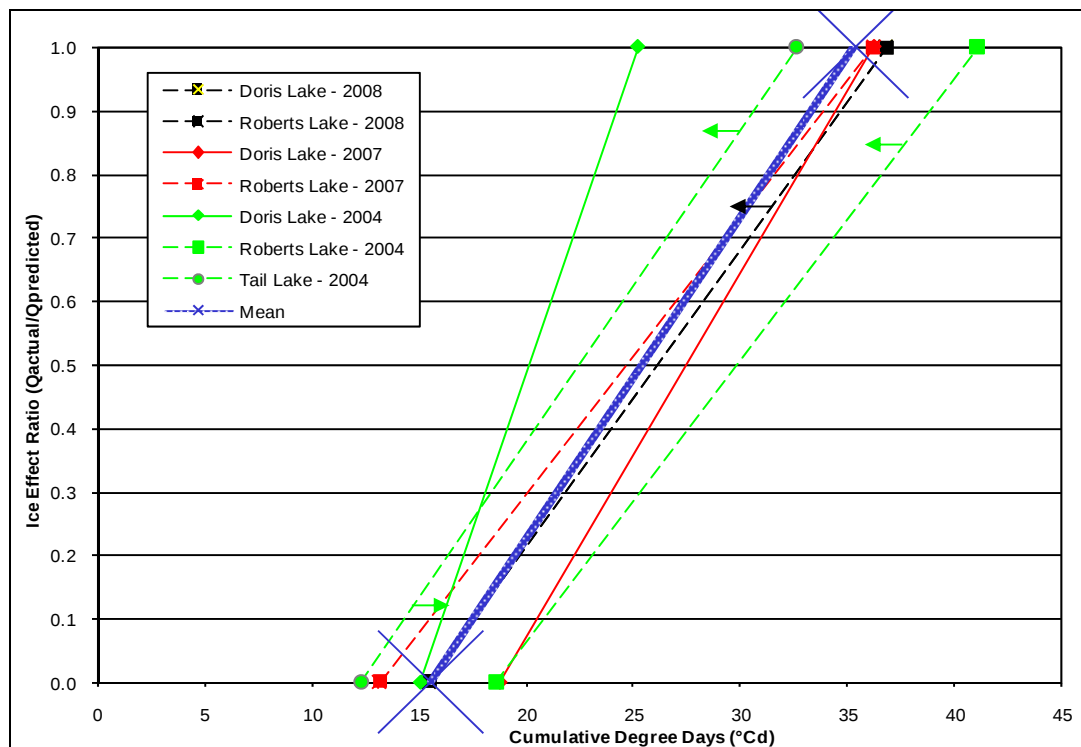


Figure 3 – Melt Period Ice Effect Ratios and Cumulative Degree-Days at Doris, Roberts and Tail Lake Outflows



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

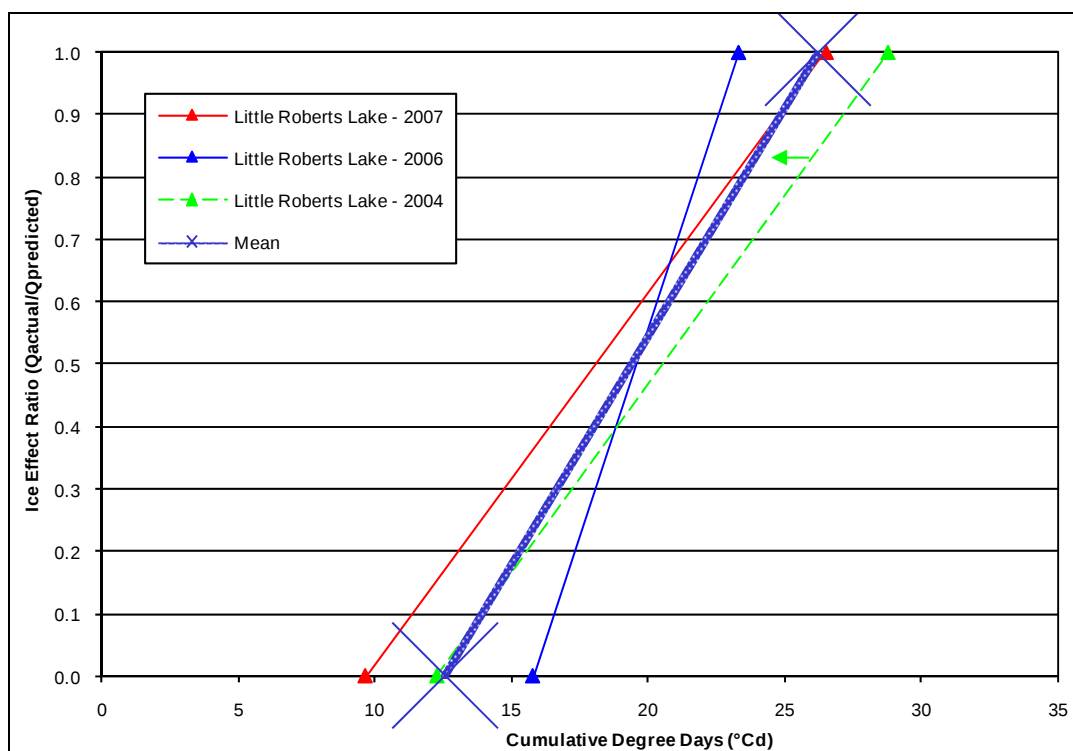


Figure 4 – Melt Period Ice Effect Ratios and Cumulative Degree-Days at Little Roberts Lake Outflow



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

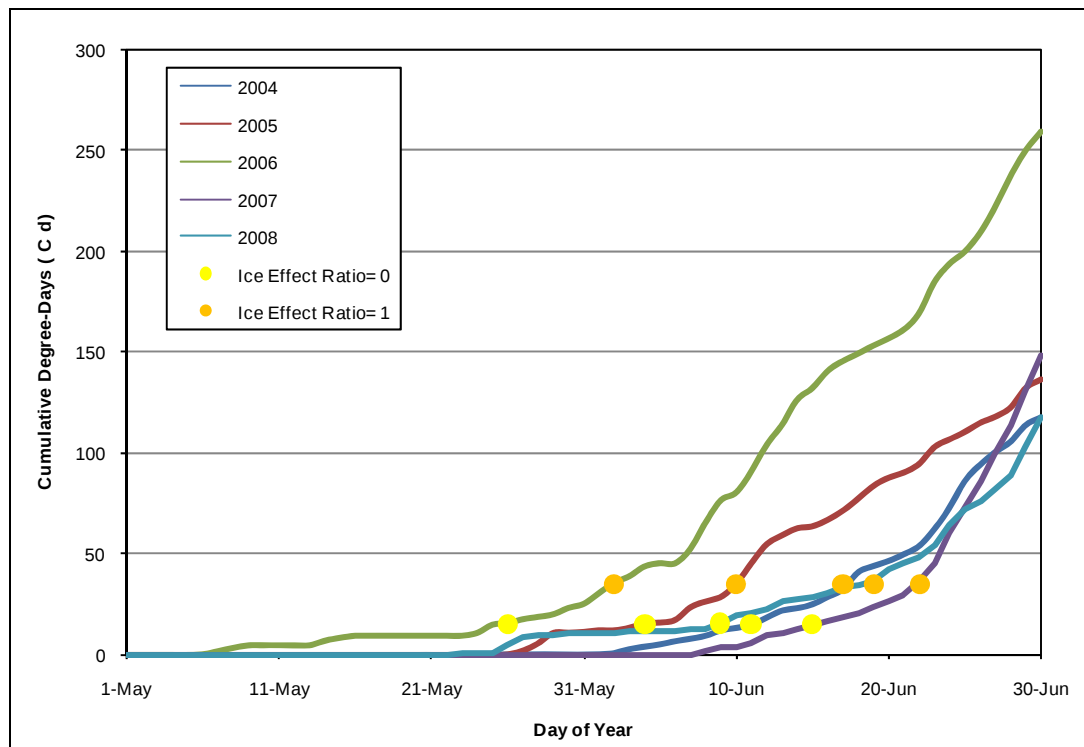


Figure 5 – Cumulative Degree-Days of Air Temperature above Base Temperature at Doris North Meteorology Station, 2004 to 2008

Observations at the Doris, Roberts and Tail Lake outflows, with the exception of Doris Lake in 2004, show that outflows begin to melt after approximately 15 degree-days (Ice Effect Ratio= 0) and are fully opened after approximately 35 degree-days (Ice Effect Ratio= 1).

Observations at Little Roberts Lake show that the outflow begins to melt after approximately 12 degree-days and is fully opened after approximately 26 degree-days.

The points that define the best fit lines are presented in Table 1. These relationships are used in the water balance modeling to incorporate ice effects at lake outlets.

Table 1 – Derived Lake Outflow Ice Effect Ratios for Melt Period

Cumulative Degree-Days (°C·days)	Ice Effect Ratio
Doris Lake, Roberts Lake and Tail Lake Outflows	
15.5	0.0
35.3	1.0
Little Roberts Lake Outflow	
12.6	0.0
26.2	1.0



The estimates of ice effects that were generated are used to estimate discharge from the lakes as outflows open up. The best fit line for the group of lakes presented in Figure 3 are used to estimate the opening of all lake outflows except for Little Roberts Lake, for which the best fit line presented in Figure 4 is used. Lakes where observations were not available are assumed to have similar conditions than those presented in Figure 3.

2.3.2 Lake Outlet Freeze-up Period

During the latter part of September and beginning of October, as temperatures fall and the cumulative negative degree-days increase, lake outlets freeze and discharges decrease to zero. During the late portion of the open water season, ice effects are expected to reduce the discharge by some factor (<1) of the discharge that would be observed under ice-free conditions, in a similar process described in the previous section. The objective of the analysis is to define a relationship between this factor and meteorological parameters at each lake outlet, to provide a method to account for ice effects in the freezing period in hydrological modeling.

2.3.2.1 Hydrometric and Meteorological Data

Water level data were available in the fall of 2005 to 2007 at Doris Lake and in the fall of 2004 to 2007 at Tail Lake.

A meteorology station was operated at the Doris North project site starting from March 2004, with data available until the end of December 2008. Reported hourly data allow determination of the daily minimum, maximum, and mean temperatures.

2.3.2.2 Method

A degree-day method was chosen to assess the effect of ice conditions on discharge at each lake outlet. Negative degree-days were counted below a base temperature of 0°C , and daily mean temperatures typically begin to fall below 0°C in September.

The effect of the ice on discharge affects the water level of the upstream lake. As the outlet starts to freeze, the discharge decreases until it ceases. During this period, the water level in the upstream lake stops decreasing (assuming that $Q_{\text{out}} > Q_{\text{in}}$) and starts increasing once the outlet is frozen, depending on precipitation.

A graphical approach was selected for the analysis by plotting water level vs. date. A corresponding cumulative degree-day value was assigned to the date the rate of change in water level started to decrease, indicating the first day of freeze up. A corresponding cumulative degree-day value was assigned to the date the rate of change in water level started to increase, indicating permanent frozen conditions.

The effect of the ice on discharge was quantified by the following ratio:

$$\text{Ice Effect Ratio} = Q_{\text{actual}} / Q_{\text{predicted}}$$

Where Q_{actual} = Discharge measured at the outlet under ice conditions; and

$Q_{\text{predicted}}$ = Discharge predicted using an open water rating curve for the specific outlet.

Flows during the freeze-up period are assumed to be smaller than the discharge predicted using an open water rating curve, resulting in ice effect ratios varying between 0 and 1. Values of 0 indicate the first day of complete freeze up of the outlet, and values of 1 indicate the last day of open water conditions.

Curves were fitted to the cumulative degree-day vs. ice effect ratio data to examine the relationships. Lake outlets were separated into groups exhibiting similar characteristics, with differences possibly due to outlet size and upstream storage.



2.3.2.3 Results and Discussion

Values of cumulative degree-days and ice effect ratios were plotted to examine the freeze-up period relationships at each lake outflow. Initially all data were plotted together. After an initial observation, both lakes were considered separately due to their different outlet freezing dates. Results are presented in Figure 6 for Doris Lake outflow and in Figure 7 for Tail Lake outflow. Cumulative degree-day plots for all years are presented in Figure 8.

In 2006 and 2007, the analysis did not reveal a clear indication of the dates of change of water level, and therefore these years were not considered further.

- Data at Doris Lake show that outflow begins to freeze after approximately -60 degree days (Ice Effect Ratio = 0) and is completely frozen after approximately -252 cumulative degree-days (Ice Effect Ratio = 1).
- Data at Tail Lake show that the outflow begins to freeze after approximately -2 degree days and is completely frozen after approximately -74 cumulative degree-days.

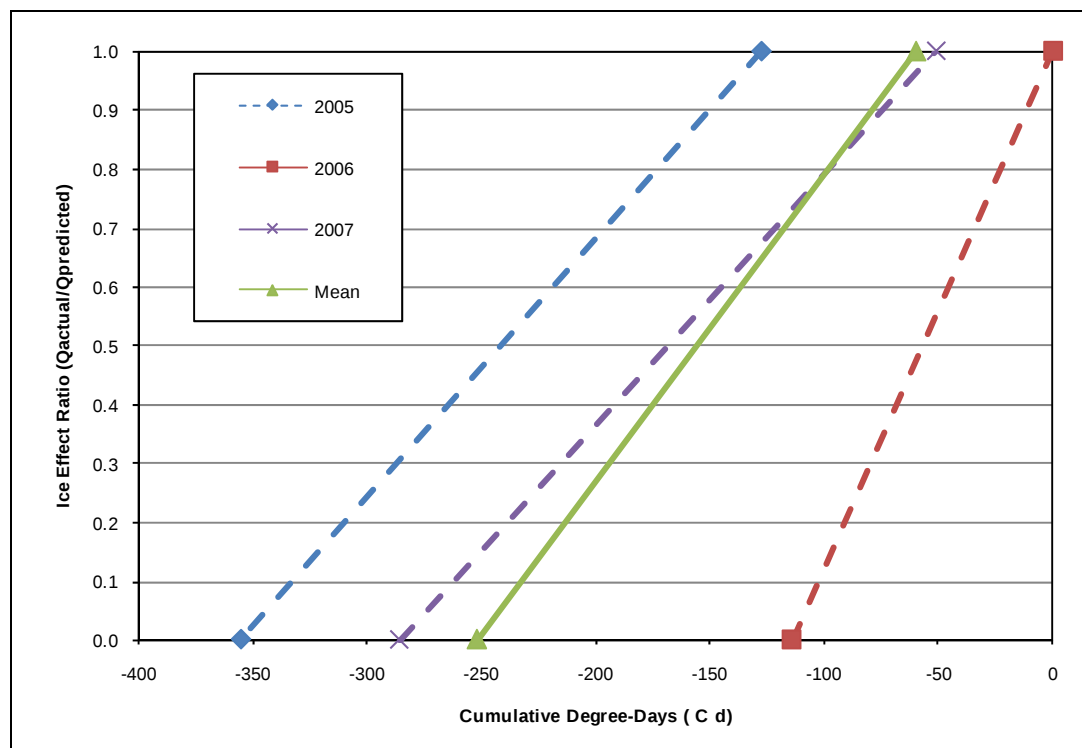


Figure 6 – Freeze-up Period Ice Effect Ratios and Cumulative Degree-Days at Doris Lake Outflow



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

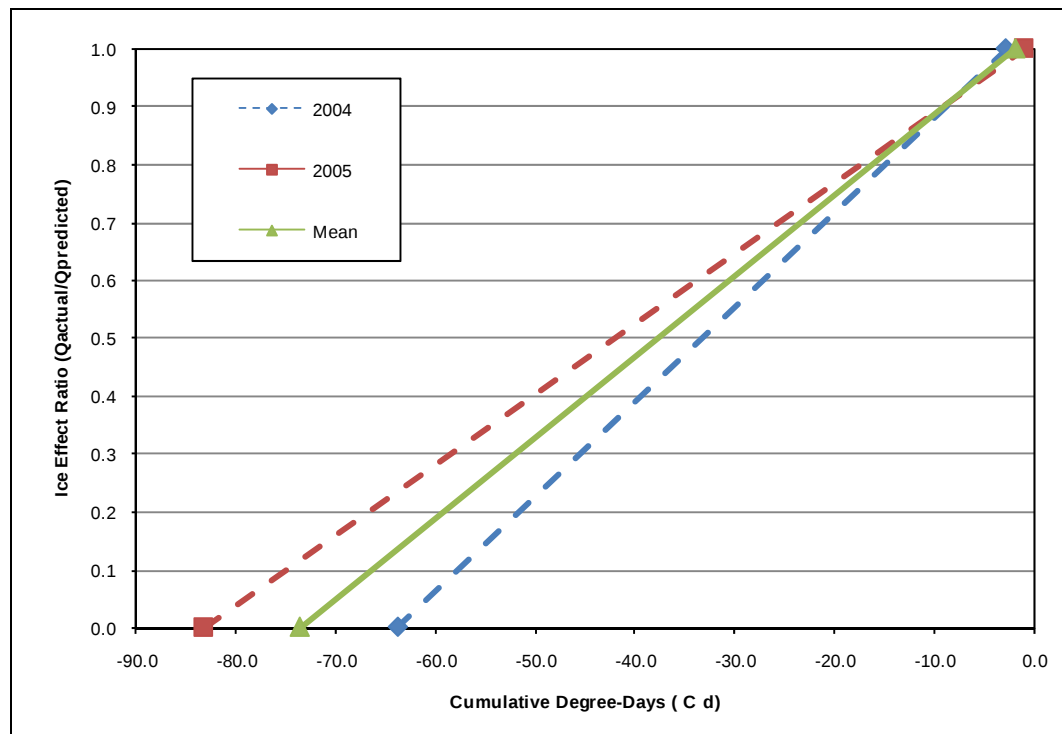


Figure 7 – Freeze-up Period Ice Effect Ratios and Cumulative Degree-Days at Tail Lake Outflow

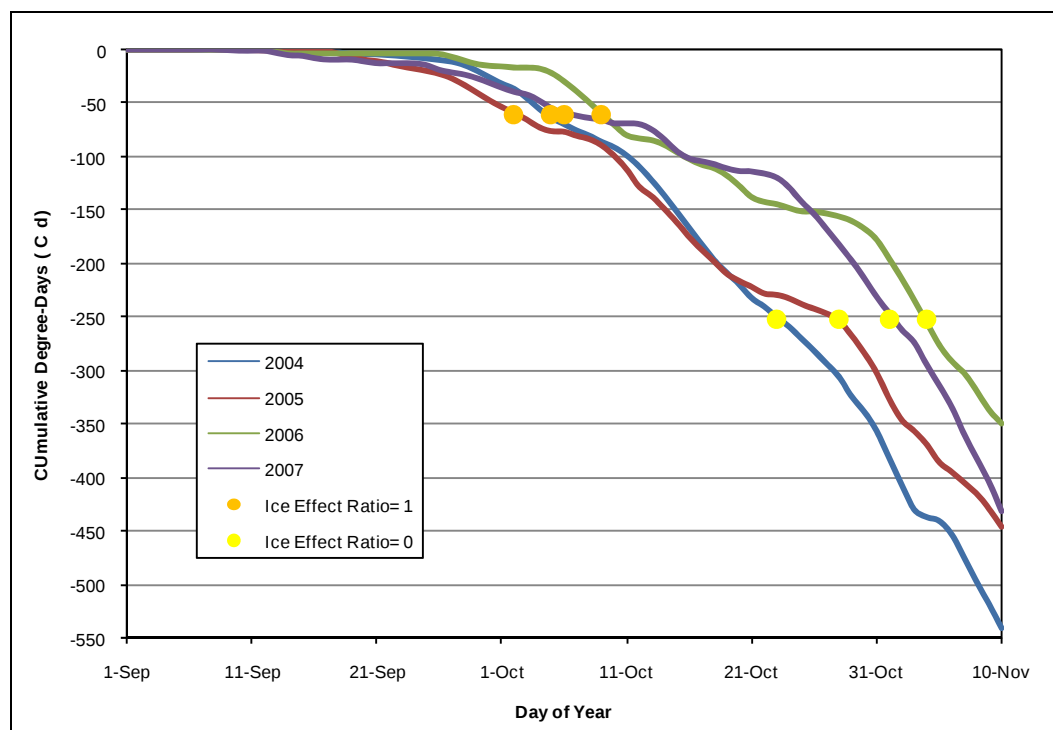


Figure 8 – Cumulative Degree-Days of Air Temperature below Base Temperature at Doris North Meteorology Station, 2004-2008



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

The points that define the best fit lines are presented in Table 2. These relationships will be used in the hydrological modeling to incorporate ice effects at lake outlets.

Table 2 – Derived Lake Outflow Ice Effect Ratios for Melt Period

Cumulative Degree-Days (°C•days)	Ice Effect Ratio
Doris Lake Outflow	
-59.6	1.0
-251.7	0.0
Tail Lake Outflow	
-1.9	1.0
-73.6	0.0

The estimates of ice effects are used to estimate discharges from the lakes as outlets freeze up. The best fit line presented in Figure 6 will be used to estimate the opening of all lake outlets except for Tail Lake and Wolverine Lake, for which the best fit line presented in Figure 7 will be used due to their small size relative to other lakes.

2.3.3 Snowmelt

During the snowmelt period, which typically occurs in the month of June, runoff flows to lakes and water levels and discharges rise to a peak. The objective of the analysis is to provide a method to quantify snowmelt runoff in hydrological modeling.

2.3.3.1 Hydrometric and Meteorological Data

Hydrometric data were available at Tail Lake from 2004 to 2008 including lake water levels and corresponding discharges during the open water season. Tail Lake was selected for use in the analysis, because it is a headwater lake with no major inflow from an upstream lake.

Spring snow water equivalent data were available from 2004 to 2008 from snow course surveys.

A meteorology station was operated at the Doris North project site from March 2004 until the end of December 2008. Available data include daily minimum, maximum and average temperature and derived lake evaporation.

2.3.3.2 Method

A water balance method was chosen to estimate the snowmelt runoff parameters. The snowmelt runoff was quantified using the following equation:

$$\text{Snowmelt Runoff} = R_{cs} \times M_f \times (T - T_b)$$

Where R_{cs} = Snowmelt runoff coefficient;

M_f = Melt factor (mm/°C);

T = Mean air temperature (°C); and

T_b = Base temperature (°C).

A water balance model for each watershed was setup as illustrated in Figure 9.

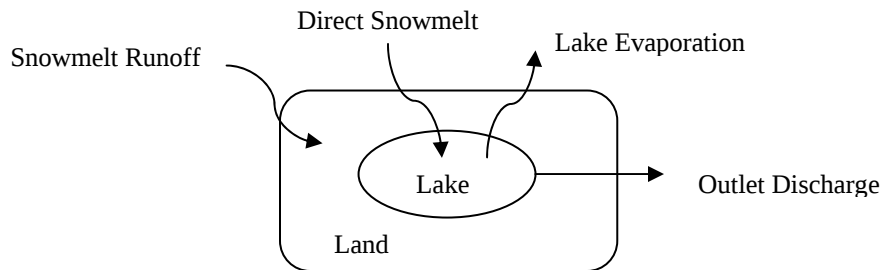


Figure 9 – Schematic Diagram for Snowmelt Water Balance Analysis

The water balance for each watershed considered snowmelt runoff, lake evaporation, outflow to downstream watersheds and outlet opening in the early open water season. Rainfall runoff was neglected due to its small contribution to snowmelt peaks. Inflow from upstream watersheds was also neglected. Tail Lake is a headwater lake in the Little Roberts watershed and does not have any contributing inflow from upstream lakes.

The model was run on a daily timestep using a trial and error method to estimate each parameter contributing to the snowmelt runoff (M_f , T_b and R_{cs}). The resulting hydrographs were plotted together with the measured data for comparison and parameters adjusted to achieve a best-fit to the available monitoring data. Hydrographs from 2006 and 2005 were discarded from the analysis, because the snowmelt portions of the hydrographs in both years were estimated.

2.3.3.3 Results and Discussion

Hydrographs from 2004, 2007, and 2008 were analyzed using the same sets of parameters. Calculated water balance results were plotted against the measured data for comparison and the following observations were noted:

- The melt factor, M_f , affects the duration of the snowmelt peak;
- The base temperature, T_b , shifts the snowmelt curve laterally and affects the height of the peak; and
- The runoff coefficient, R_{cs} , affects the height of the peak.

Plots of measured hydrographs against modeled hydrographs using the snowmelt parameters that were adopted are presented in Figures 10, 11 and 12.



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

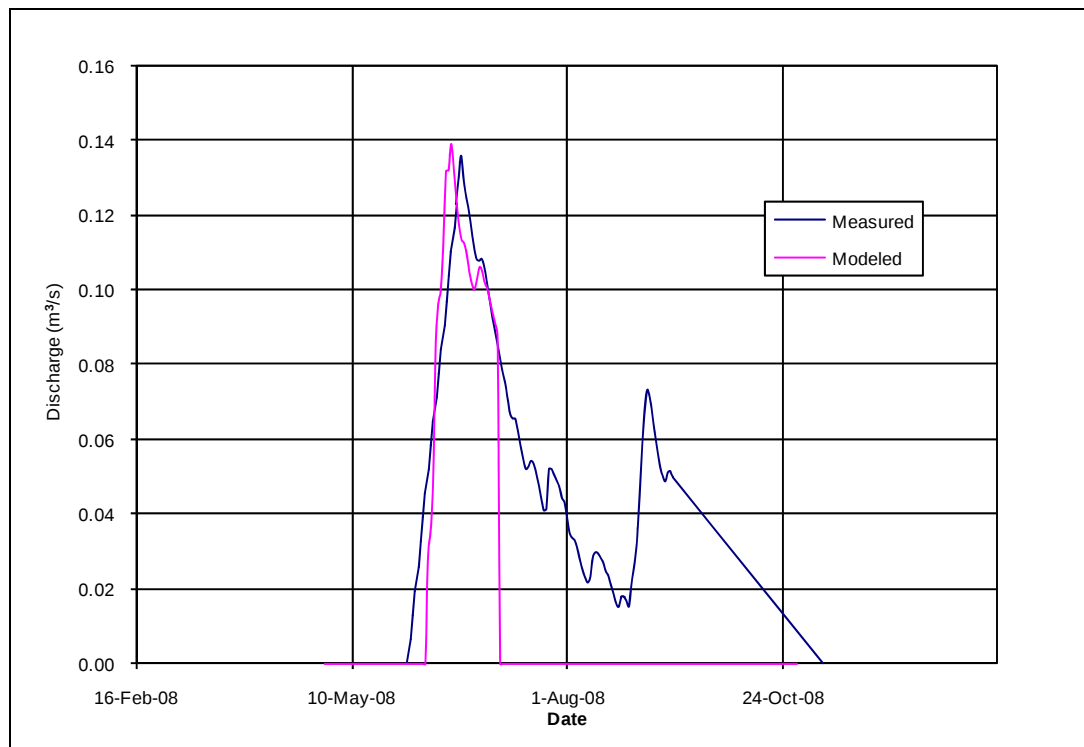


Figure 10 – Measured and Modeled Snowmelt Hydrographs at Tail Lake Outflow, 2008

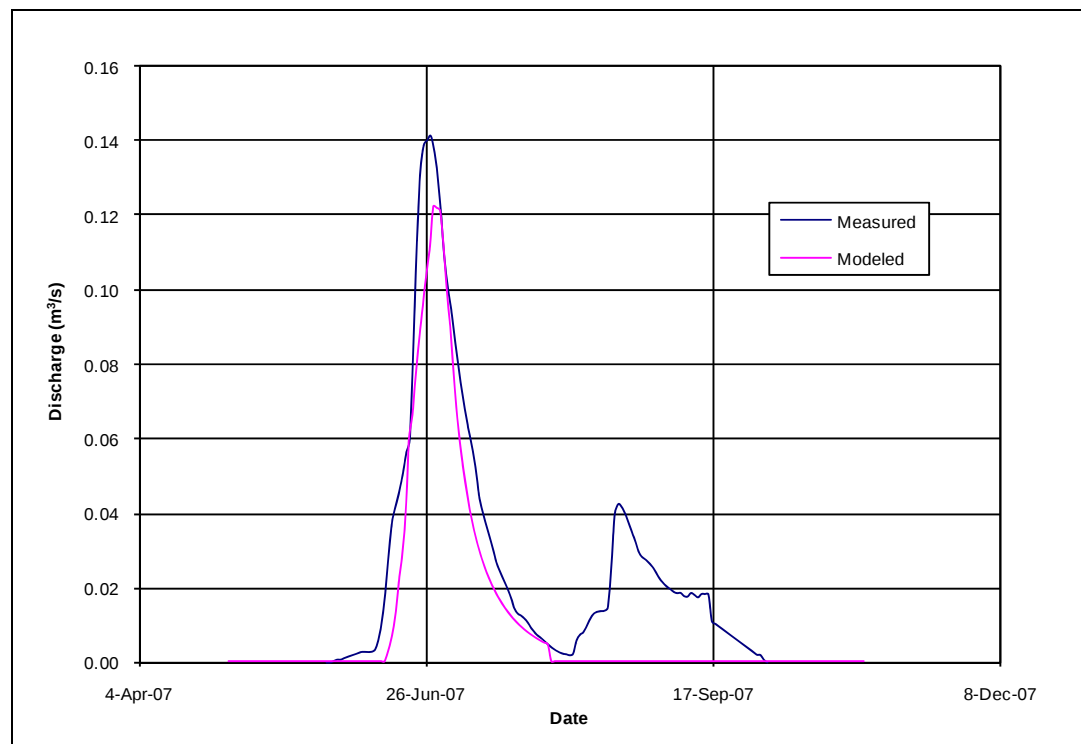


Figure 11 – Measured and Modeled Snowmelt Hydrographs at Tail Lake Outflow, 2007



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

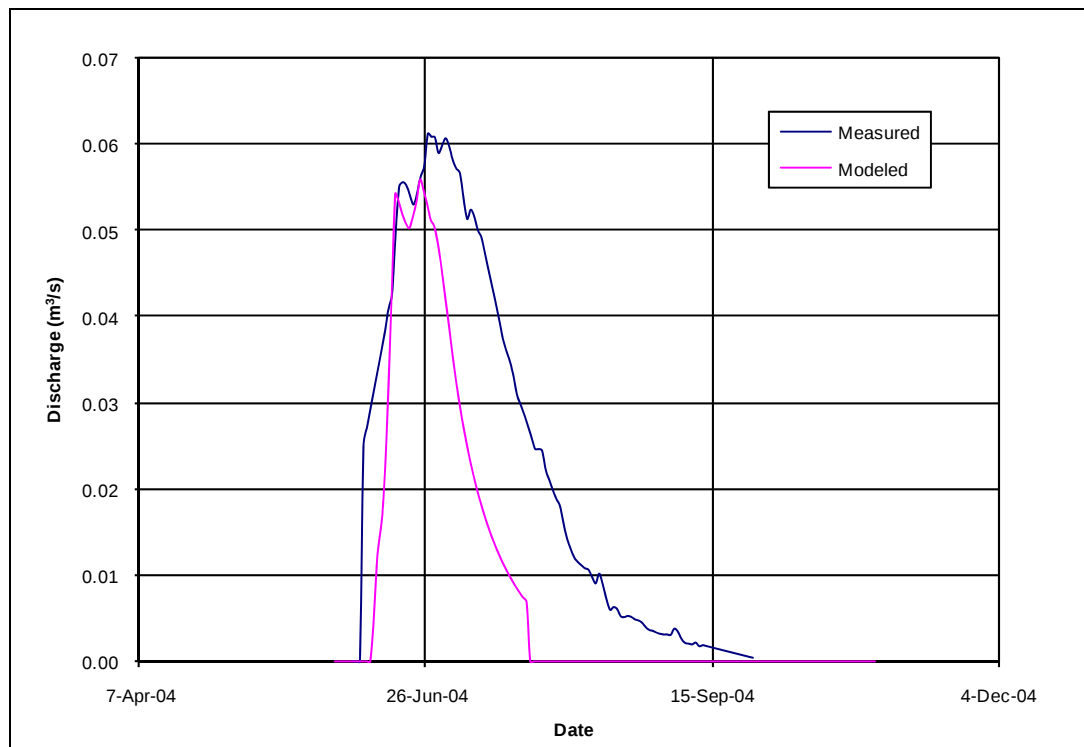


Figure 12 – Measured and Modeled Snowmelt Hydrographs at Tail Lake Outflow, 2004

Comments on the calibration results include:

- The modeled flow peak in 2008 is slightly high, and is slightly low in years 2007 and 2004. It is expected from the modeled snow peaks to be lower than the measured data, to account for the rainfall. Flows in the 2008 early open water season were estimated based on the lake water level measurements and can slightly differ from the actual flows which could have been a little higher. The snowmelt runoff coefficient seems to be appropriate for all years.
- Modeled flow peaks in years 2008 and 2004 take place a few days before the measured data and a few days later in 2007. The error is small, however, so the base temperature is likely to be appropriate for all years.
- Resulting peaks seem wide enough in years 2008 and 2007 and a bit narrow in 2004. However, the rainfall events of late June and early July 2004 that brought close to 12 mm of runoff need to be considered. Therefore, the melt factor seems appropriate for all years.

The parameters that define the snowmelt runoff are presented in Table 3. These parameter values are thought to represent the conditions at the Project site and will be used in the hydrological modeling to incorporate snowmelt runoff in the water balance.



Table 3 – Derived Snowmelt Parameters

Parameter	Value
R_{cs}	0.6
M_f	0.3 mm/°C
T_b	-4.0°C

2.3.4 Lake Outlet Rating Curves

Three years of water level data were obtained at Wolverine Lake without any reliable discharge data. Wolverine Lake outflow is a wide, grassy area with broad, shallow flows that make it difficult to obtain discharge measurements, and there may also be some subsurface flow. A rating curve is required to model the water balance of Wolverine and Patch lakes in the upper Little Roberts Lake watershed.

2.3.4.1 Hydrometric and Meteorological Data

Detailed geographic data were available for the Patch Lake watershed including land surface area and lake surface area of sub-watersheds.

Hydrometric data were available at Patch Lake in 2006, 2007, and 2008, including manual discharge measurements. Water level data were available at Wolverine Lake from 2006 to 2008.

Spring snow water equivalent data were available from 2004 to 2008 from snow course surveys.

A meteorology station was operated at the Doris North project site from March 2004 until the end of December 2008. Available data include daily minimum, maximum and average temperature, rainfall data, and derived lake evaporation.

2.3.4.2 Procedure

The water balance in the Patch Lake sub-watershed is illustrated in Figure 13.

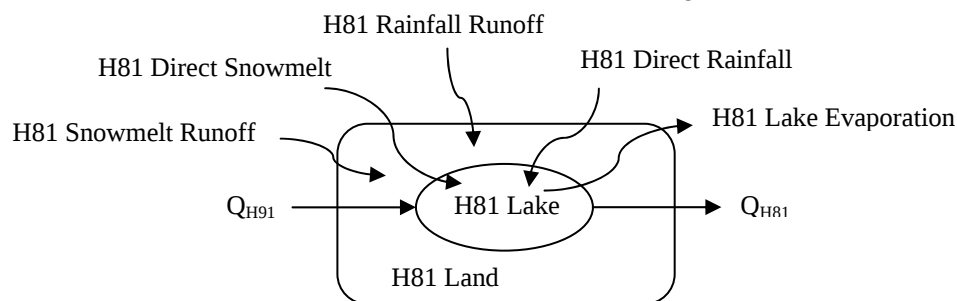


Figure 13 – Schematic Diagram for Patch Lake Water Balance

Where, Q_{H91} is the inflow coming from Wolverine Lake (H91); and

Q_{H81} is the outlet discharge at Patch Lake (H81).

The inflow coming from Wolverine Lake can also be replaced and modeled by combining lake and land areas of the Wolverine Lake and Patch Lake sub-watersheds into one watershed, as illustrated in Figure 14.



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

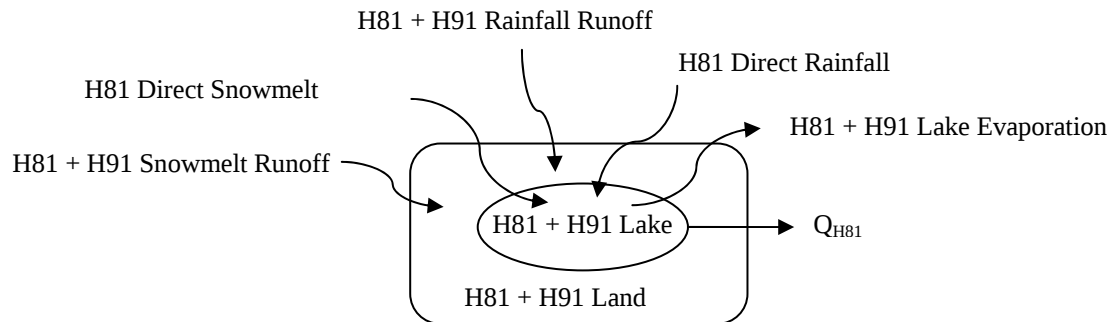


Figure 14 – Schematic Diagram for Patch and Wolverine Lakes Water Balance

A model of the Patch Lake sub-watershed was setup using the above parameters on a daily timestep for 2006. The 2006 data was the most reliable and was therefore chosen for the analysis. The resulting discharges were plotted against the measured discharges for comparison, and the initial water level above the datum was adjusted accordingly. The input parameters coming from the Wolverine Lake sub-watershed were removed from the model as illustrated in Figure 15.

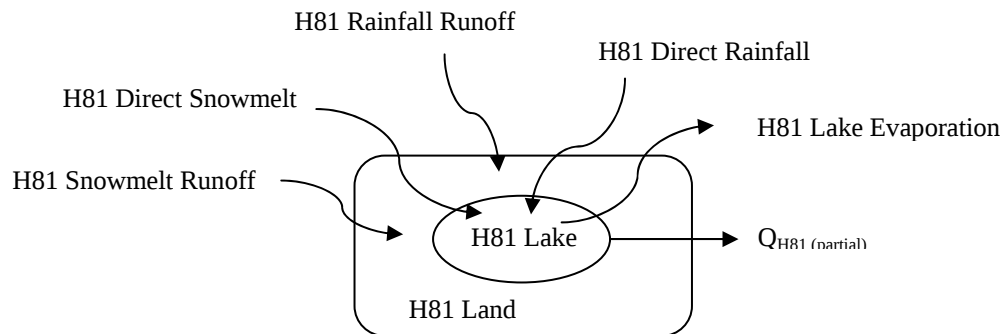


Figure 15 – Schematic Diagram for Patch Lake Water Balance (Excluding Wolverine Lake)

The results were subtracted from the measured discharges to determine the daily inflow coming from Wolverine Lake.

A model of the Wolverine Lake watershed was set up in a similar way, as illustrated in Figure 16.

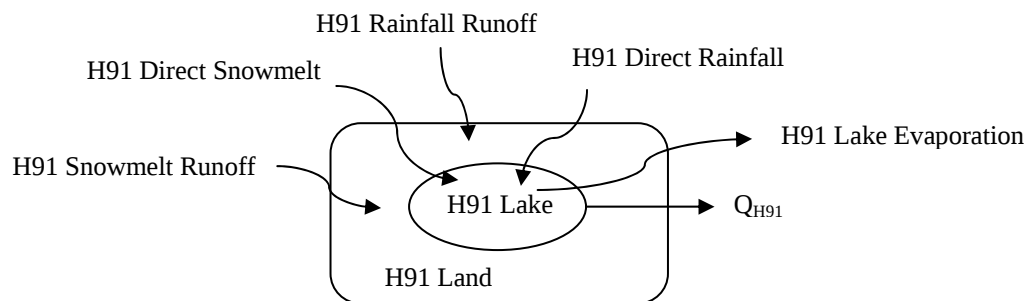


Figure 16 – Schematic Diagram for Wolverine Lake Water Balance



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

A rating curve using an exponential equation with a temporary coefficient and exponent was set up in the model to represent the outflow. The results were plotted along with the discharges found in the previous step for comparison, and the parameters were adjusted accordingly, using a trial-and-error method, until both plots looked similar.

The rating curve was then tested using water level data from 2006 to 2008.

2.3.4.3 Results and Discussion

Results were plotted along with the measured data for comparison in Figures 17 to 22 and the following observations were noted:

- The coefficient adjusts the curve vertically;
- The exponent adjusts the curve both vertically and laterally; and
- The initial elevation shifts the curve vertically.

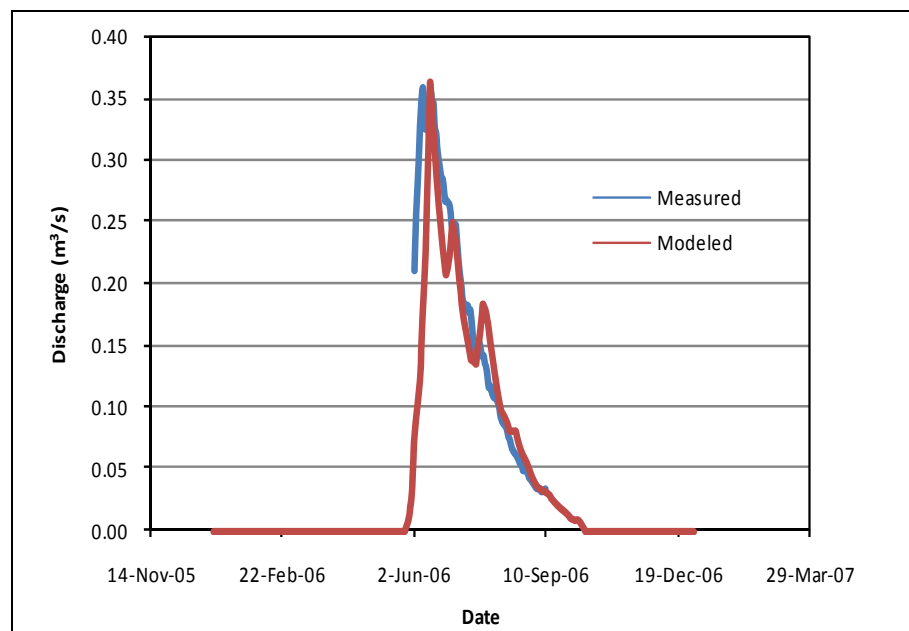


Figure 17 – Patch Lake Outlet Discharge Modeled with Runoff from Wolverine Lake



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

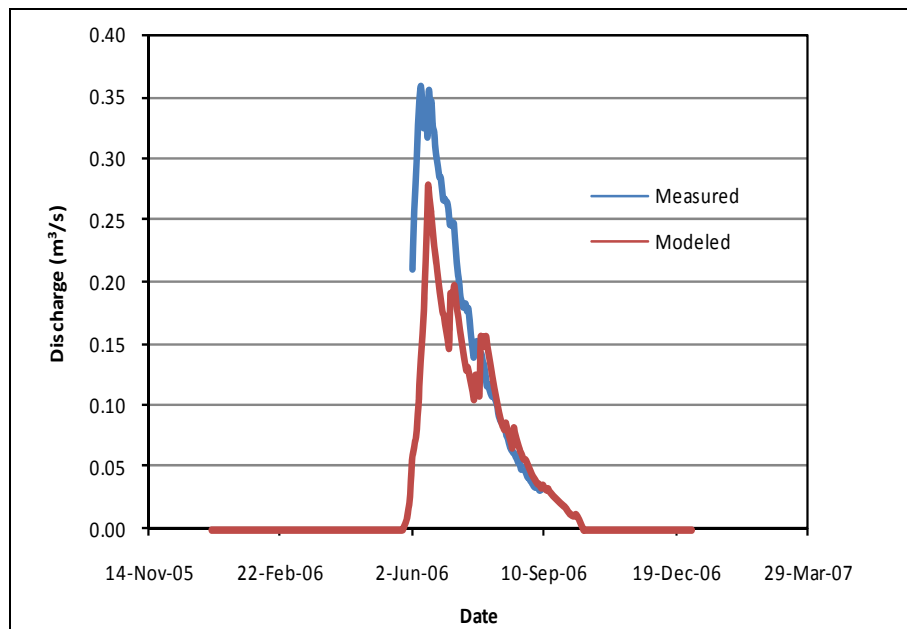


Figure 18 – Patch Lake Outlet Discharge Modeled without Runoff from Wolverine Lake

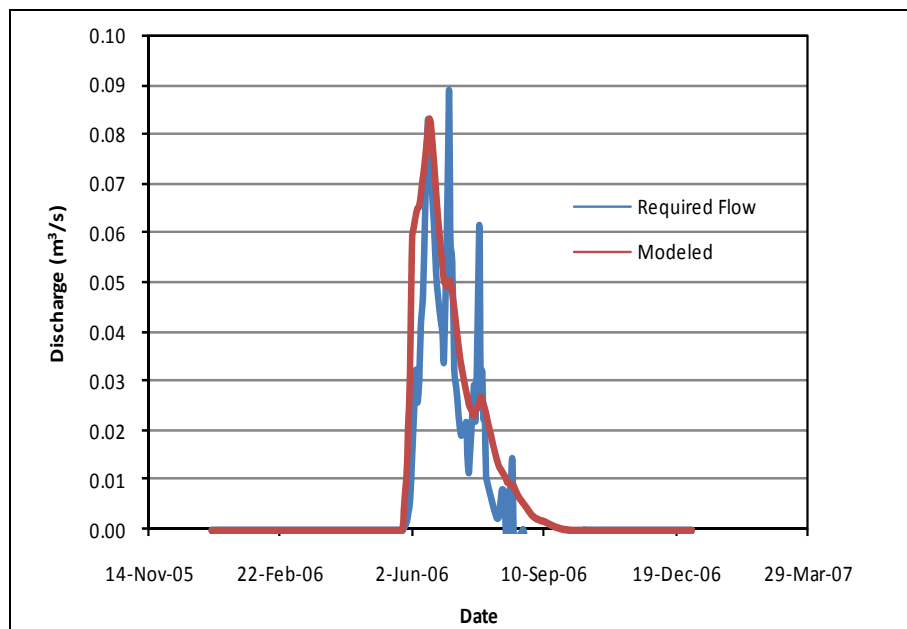


Figure 19 – Wolverine Lake Modeled Discharge



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

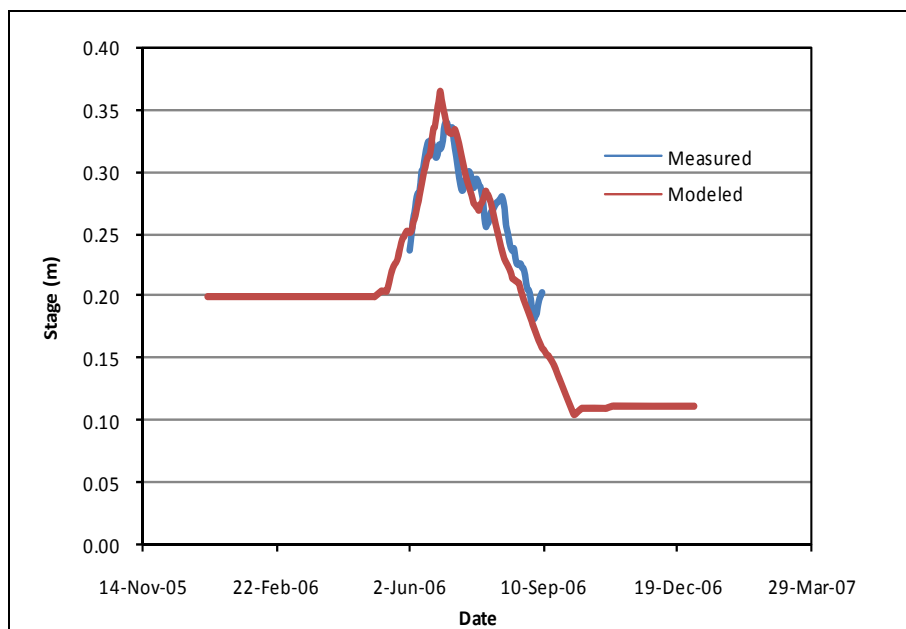


Figure 20 – Wolverine Lake Stage 2006

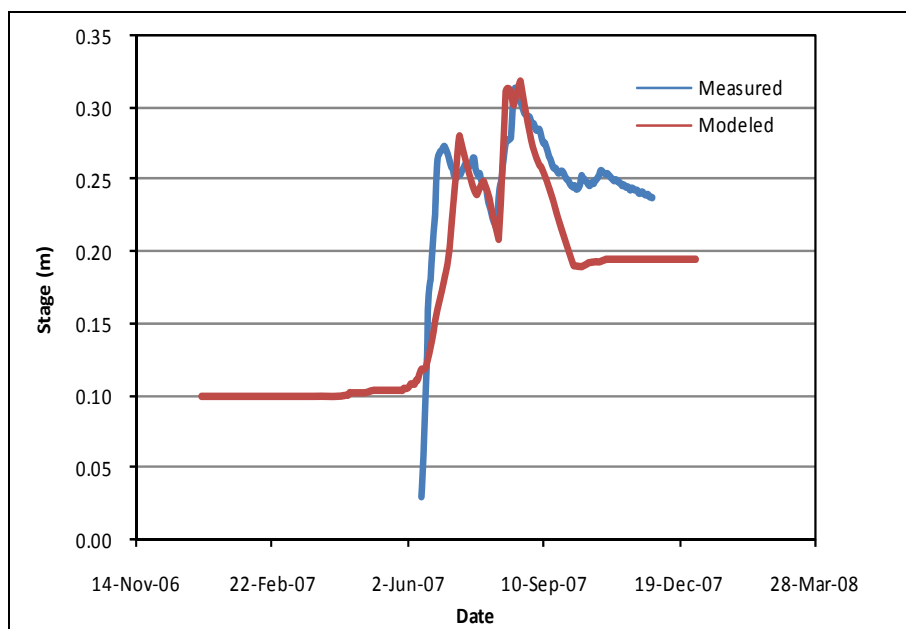


Figure 21 – Wolverine Lake Stage 2007



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

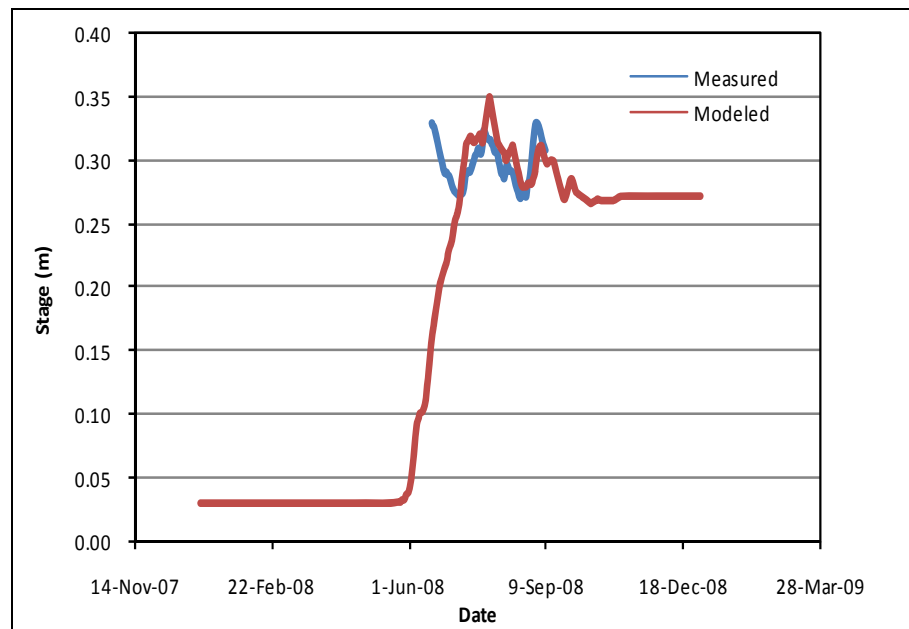


Figure 22 – Wolverine Lake Stage 2008

Figure 18 shows that the runoff coming out of the Patch Lake watershed is mainly affected by the runoff from the Patch Lake sub-watershed, with a minor contribution from the Wolverine Lake watershed during the melting season. After the melting season, the discharge from Wolverine Lake becomes negligible.

The results plotted in Figures 19 to 22 suggest that the derived rating curve simulates well the water level fluctuations of Wolverine Lake.

The measured data in Figure 22 show an initial decrease in water level during the melting season. Typically, the water level rises as the snowmelt runoff accumulates in lakes, which is simulated by the model. The initial decrease in water level shown in Figure 22 is possibly due to disturbance of the pressure transducer.

The parameters that define the estimated rating curve along with the initial elevations for measured years are presented in Table 4. These parameter values are estimated to represent the conditions at Wolverine Lake and the rating curve coefficient and exponent will be used in the long term water balance modeling.

Table 4 – Derived Rating Curve Parameters for Wolverine Lake

Parameter	Value
Coefficient	0.60
Exponent	0.35
Initial Stage 2006	0.20 m
Initial Stage 2007	0.10 m
Initial Stage 2008	0.05 m



3.0 MODEL CALIBRATION AND VALIDATION

3.1 Model

The model described in Section 2 of this appendix includes calibrated sub-modules for lake outflow melt and freeze-up and snowmelt, with consideration of watershed physical characteristics (land and lake areas, lake outflow stage-discharge rating curves). Additional calibration was required to define the runoff coefficient for rainfall. During a rain event, a portion of rainfall is lost to vegetation interception or soil infiltration, leading to evapotranspiration and evaporation, and does not contribute to the basin's runoff. The objective of the analysis is to provide a method to calibrate the model to account for these processes.

3.2 Hydrometric and Meteorological Data

Hydrometric data were available at Doris Lake, Roberts Lake, Little Roberts Lake and Tail Lake from 2004 to 2008; at Windy Lake, Glenn Lake, Wolverine Lake, Patch Lake and Ogama Lake from 2006 to 2008; and at PO Lake in 2008, including lake water levels and corresponding discharges for the open water season. A continuous record of water levels at Doris Lake and Tail Lake was available starting from June 2004.

Spring snow water equivalent data were available from 2004 to 2008 from snow course surveys.

A meteorology station was operated at the Doris North project site from March 2004 until the end of December 2008. Available data include daily minimum, maximum and average temperature, rainfall runoff and derived lake evaporation.

3.3 Model Calibration and Validation

The available hydrometric data were classified as “complete” and “partial” datasets. Complete datasets are datasets that include a reliable outlet rating curve, reliable inflow data for upstream watersheds where applicable and water surface elevation data prior to the outlet opening. Datasets with one or more of these criteria missing are referred to as partial datasets.

Complete datasets include Tail Lake data from 2005 to 2008 and Doris Lake data for years 2006 and 2008. Years 2006 and 2008 were, therefore, used for calibration of the model, using monitoring data for upstream inflows on Doris Lake. Data from all lakes for the years 2005 to 2008 were then used for model validation.

3.3.1 Method

The water balance model was set up using the configuration for each watershed as described in Figure 23.

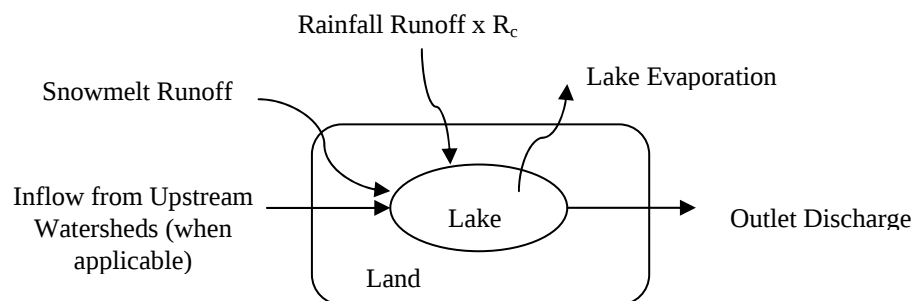


Figure 23 – Schematic of Water Balance Component

R_c is a runoff coefficient applied to rainfall runoff to account for evapotranspiration and evaporation that occurs in local storage. Inflows from upstream watersheds (when applicable) were modeled by adding the monitored



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

discharges to the watershed. The snowmelt runoff, rainfall runoff and lake evaporation were also modeled by considering the monitoring data to the water balance. The outlet discharge was modeled using the applicable lake outflow rating curves (based on the 2008 monitoring program) and was run in conjunction with the outflow melt and freeze-up sub-models previously described. A detailed diagram of this process was presented on Figure 1.

Large land areas and upstream waterbody storage can increase travel time for rainfall and snowmelt runoff. This effect can be observed on hydrographs of watersheds where peaks occur slightly after a rainfall event. These include Glenn Lake, PO Lake and Roberts Lake sub-watersheds. To account for this effect, rainfall events were spread over four days after the event, snowmelt runoff was spread over two days and dispersed using the Erlang distribution built in the GoldSim model software. These delay parameters were calibrated using the same procedure described above.

The calibration process was performed as follows:

- **Calibration on individual watersheds with complete data sets:** The model was run as shown on a daily timestep for years of complete data at Tail Lake and Doris Lake. Tail Lake is a headwater lake in the Little Roberts Lake watershed and was set up without inflow from upstream lakes. Incoming flows from Ogama Lake at Doris Lake were modeled by adding the measured discharge daily to the other components of the water balance. The runoff coefficient was calibrated using a trial and error method with an initial value of 1 and as reduced in increments of 0.05 when required. The modeled outflow discharges and water levels were plotted along with the measured discharges for comparison and the runoff coefficient was adjusted to best match modeled and measured hydrographs.
- **Validation on individual watersheds with partial data sets:** Calibration parameters were then applied to remaining individual watersheds and tested to compare measured and modeled hydrographs. Partial datasets were missing water surface elevation data prior to the outlet opening. Because the model requires an initial water surface elevation above the stage datum prior to being run, this was determined using a trial and error method. Expected results were an accurate hydrograph when plotted against measured data while using an initial assumed and realistic water surface elevation.
- **Validation of entire model for one year:** A test run using all sub-watersheds was performed to confirm the model's accuracy prior to being run using the long term time series with the same configuration. Year 2006 was chosen for the test, as it contains the most complete monitoring data set. Initial water surface elevations above the stage datum were adjusted to fit the measured data. Results of interest include peak magnitude and timing in all sub-watersheds achieved by the runoff coefficient and lag effect calibration. Modeled outlet discharges were plotted along the measured data when available for comparison.

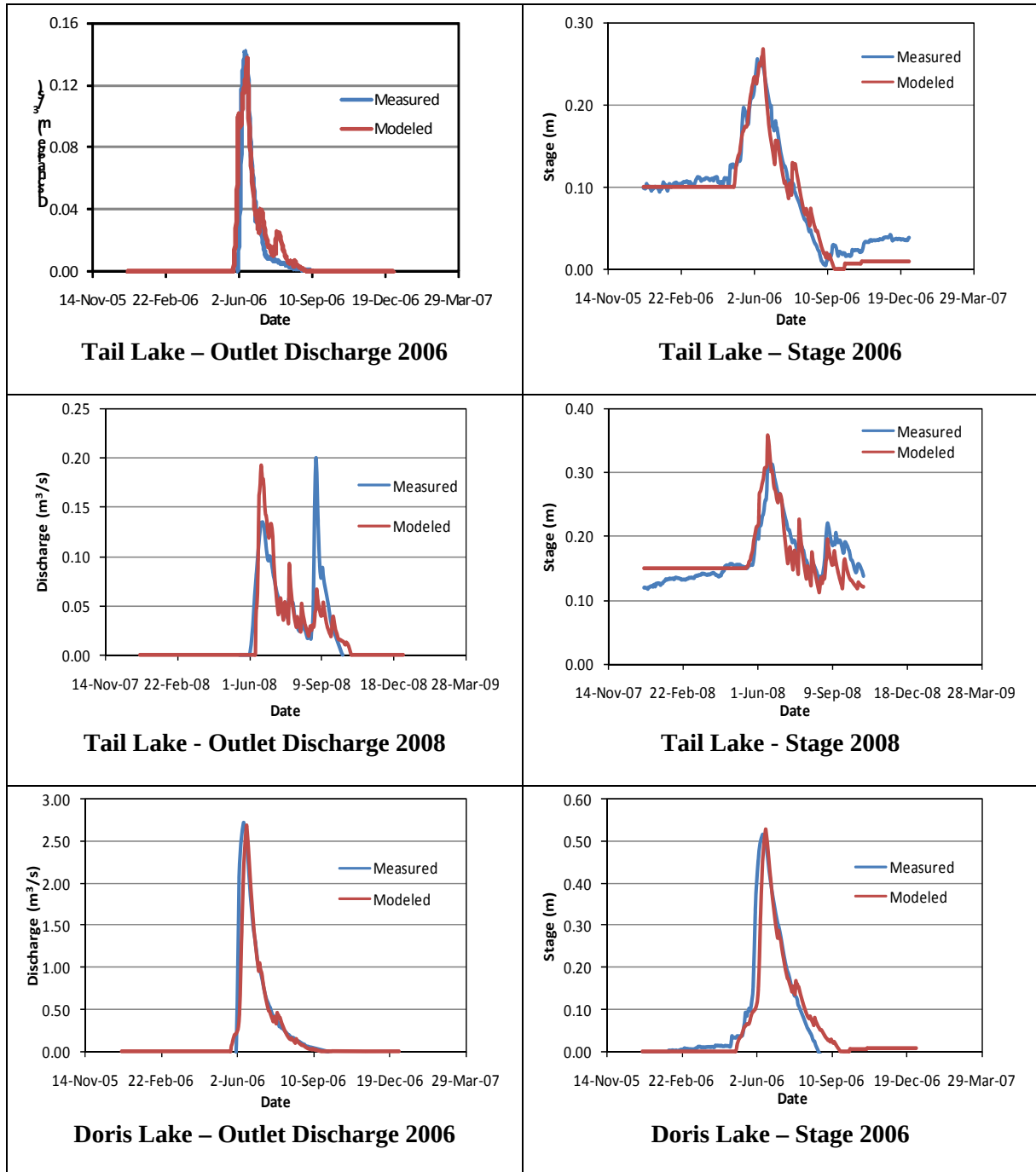
3.4 Results and Discussion

All years were analyzed using the same calibration parameters. Model results were plotted against the measured data for comparison. Calibration results for individual watersheds with complete data sets (Tail and Doris lakes in 2006 and 2008) are presented in graphical form in Table 5. Validation results on individual watersheds are presented in Table 6, and validation results from complete model runs are presented in Table 7.



APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

Table 5 – Water Balance Model Calibration Results (Doris and Tail Lakes 2006 and 2008)





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

Table 5 – Water Balance Model Calibration Results (Doris and Tail Lakes 2006 and 2008) (continued)

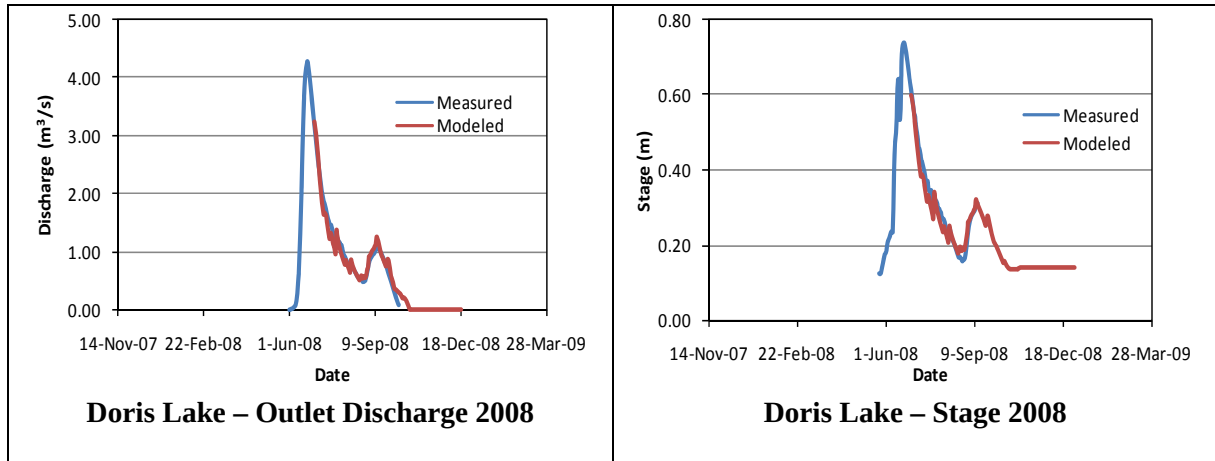
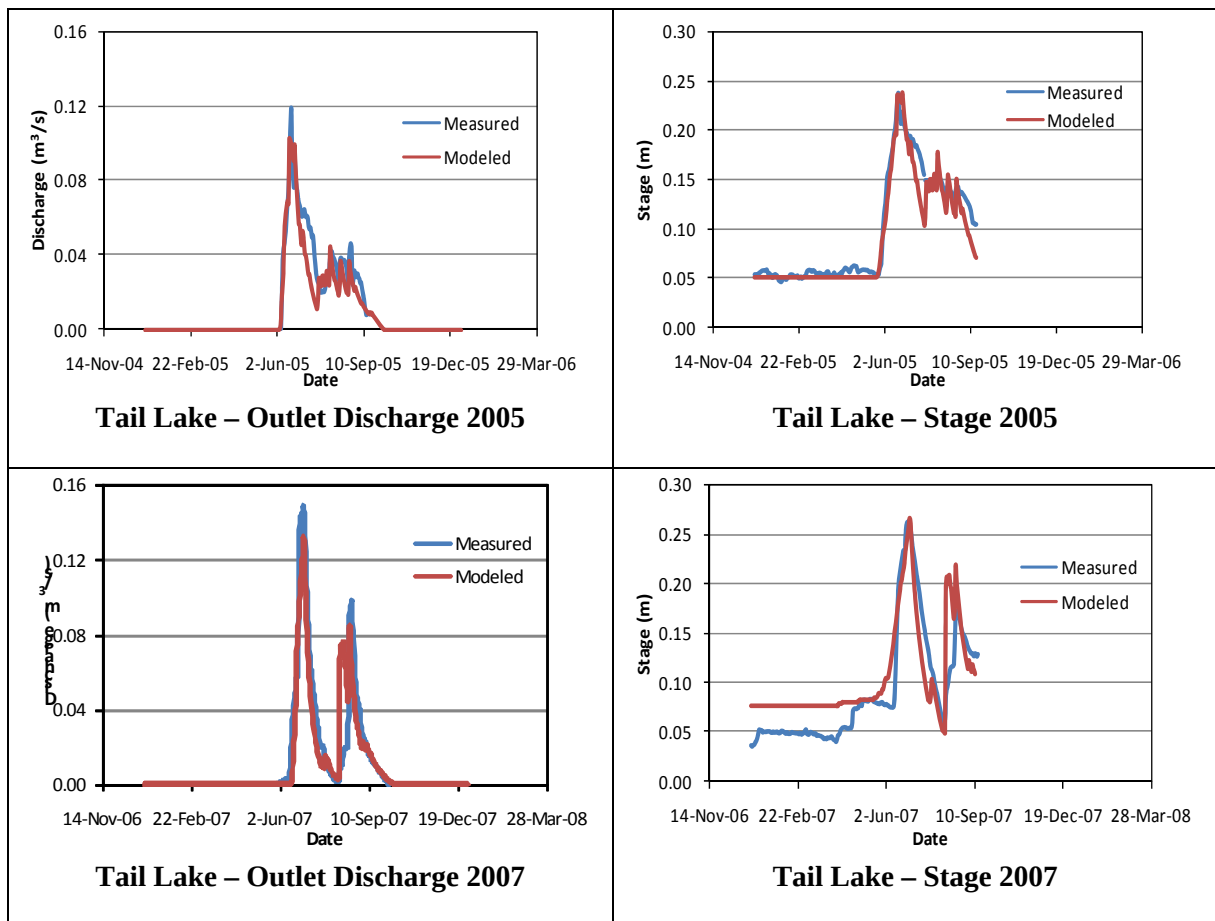


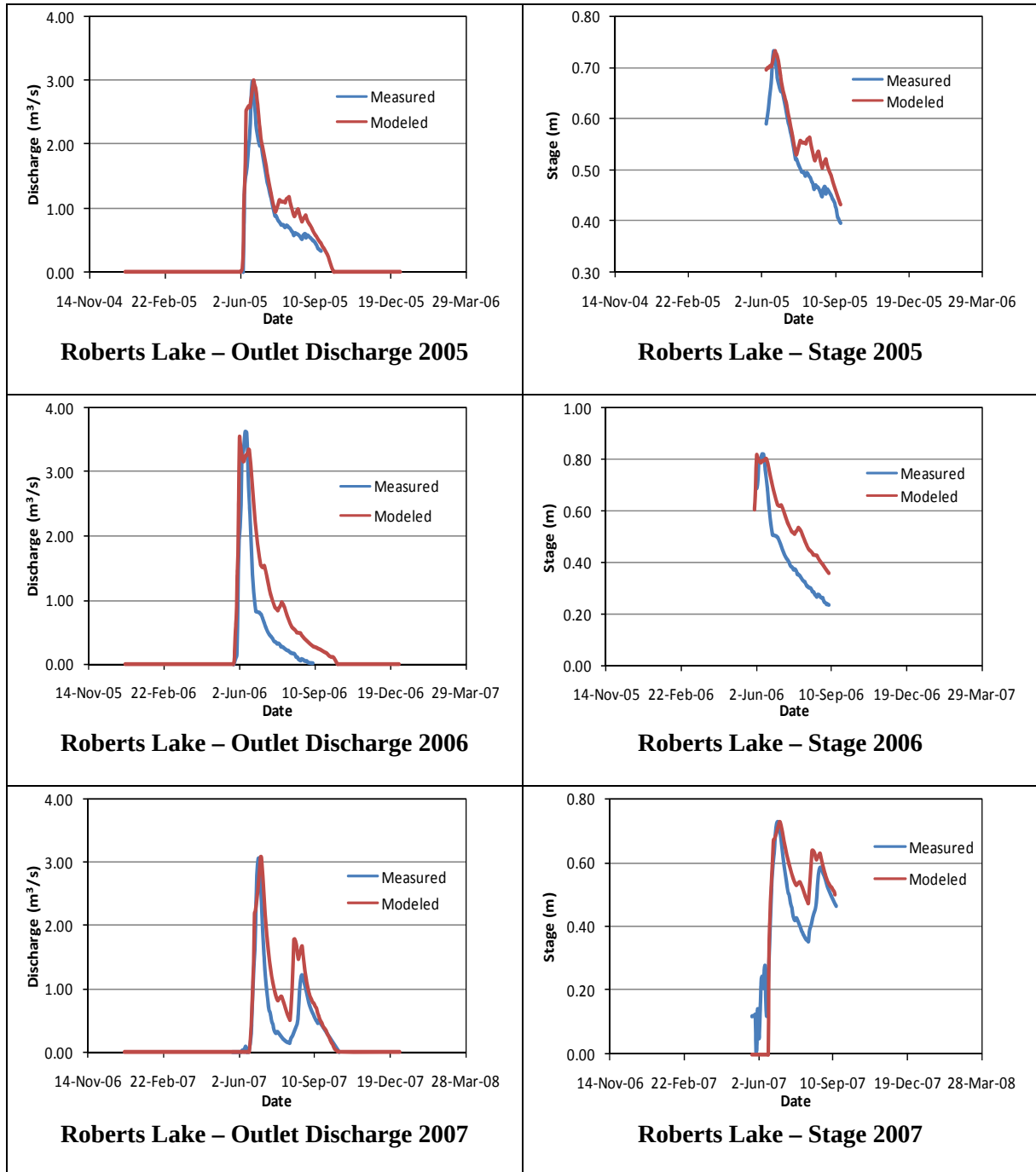
Table 6 – Water Balance Model Validation Results





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

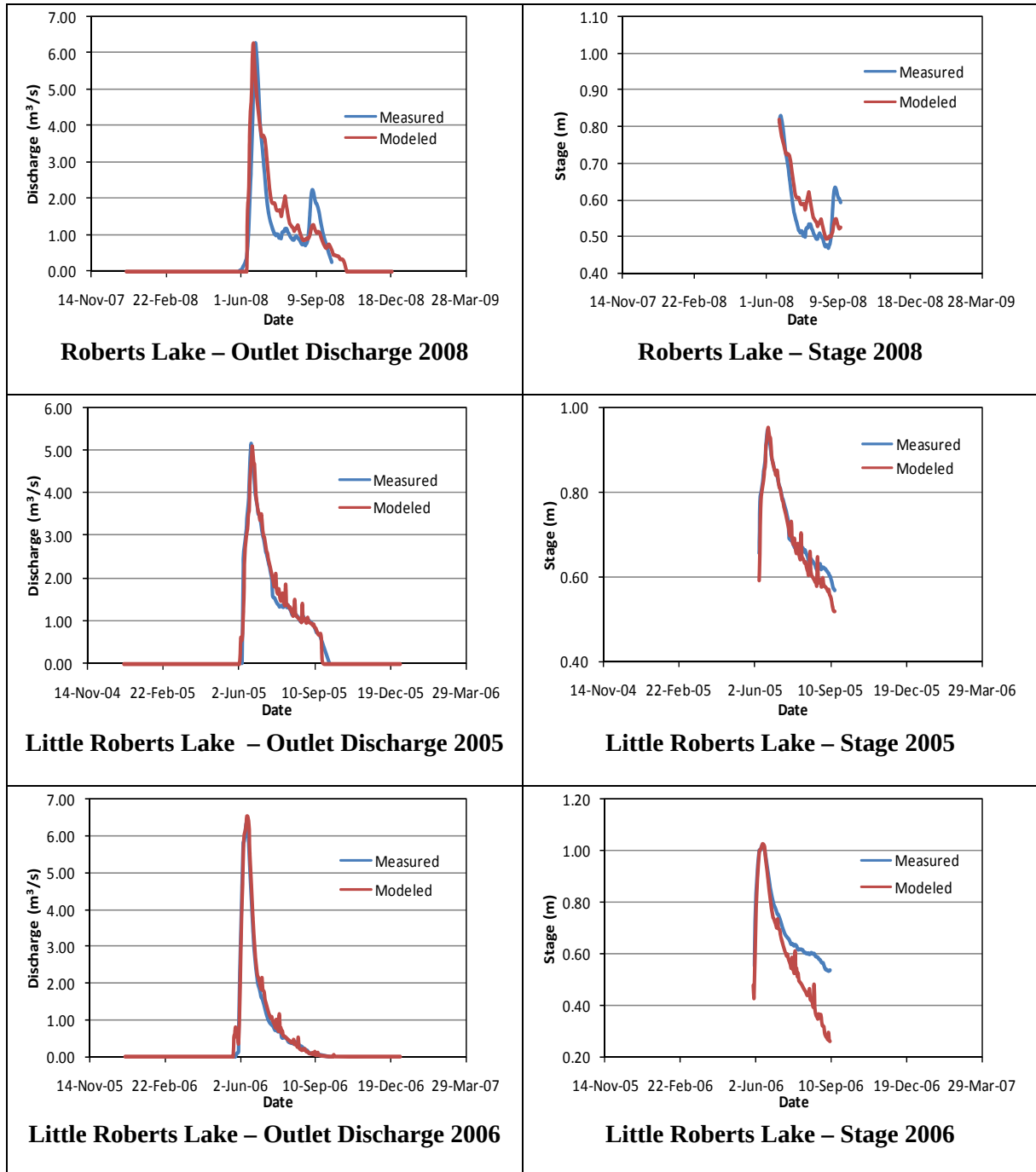
Table 6 – Water Balance Model Validation Results (continued)





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

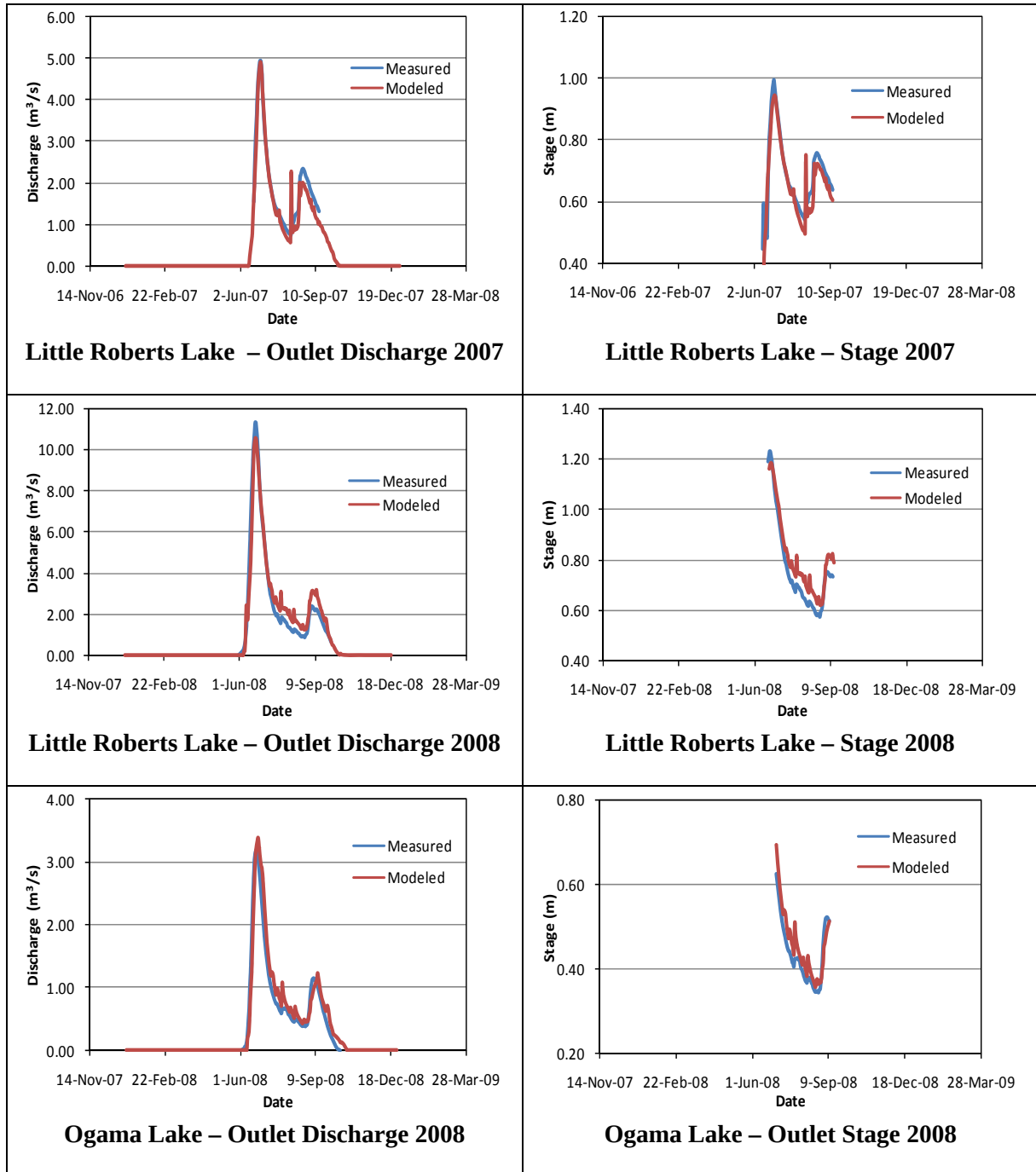
Table 6 – Water Balance Model Validation Results (continued)





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

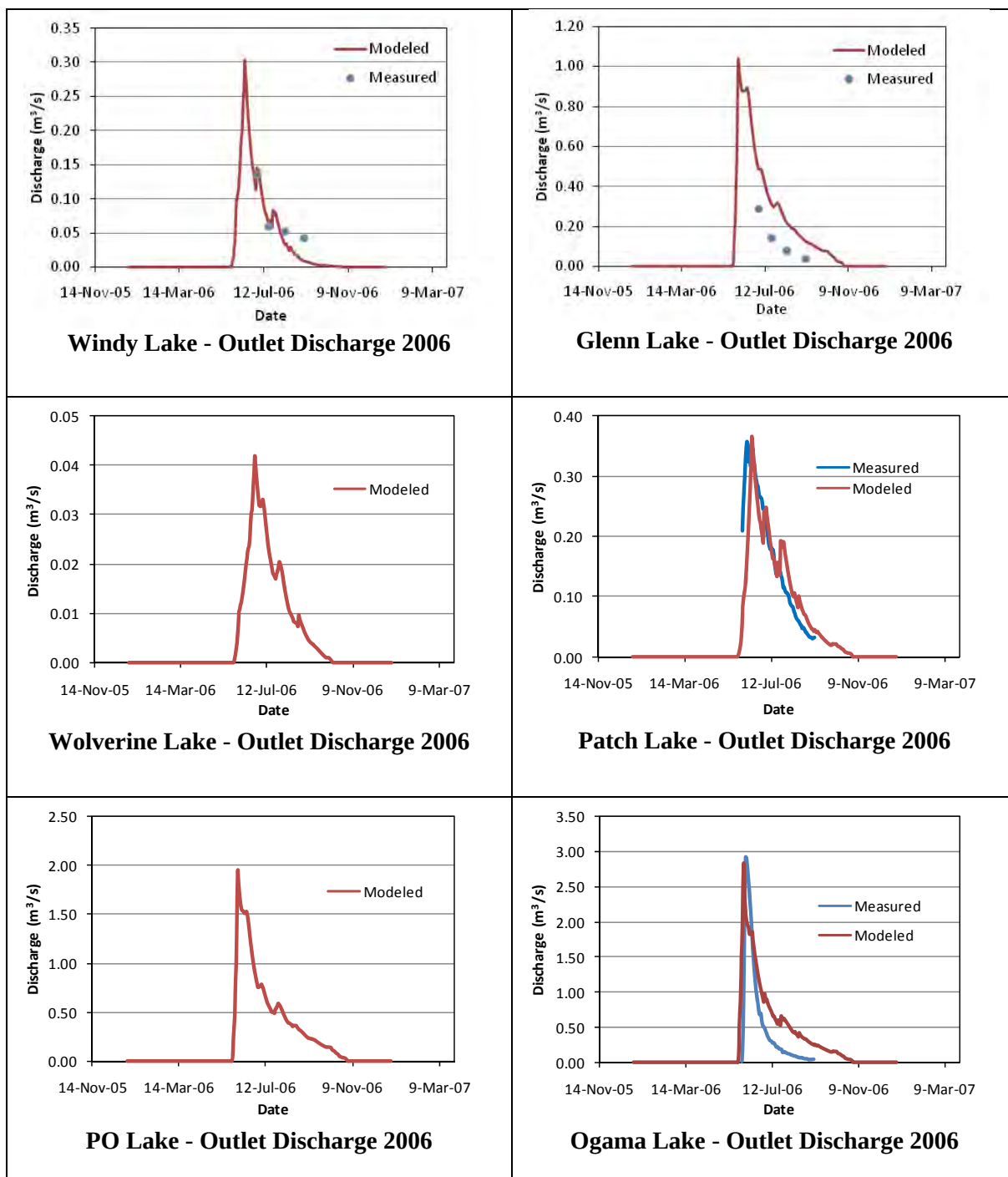
Table 6 – Water Balance Model Validation Results (continued)





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

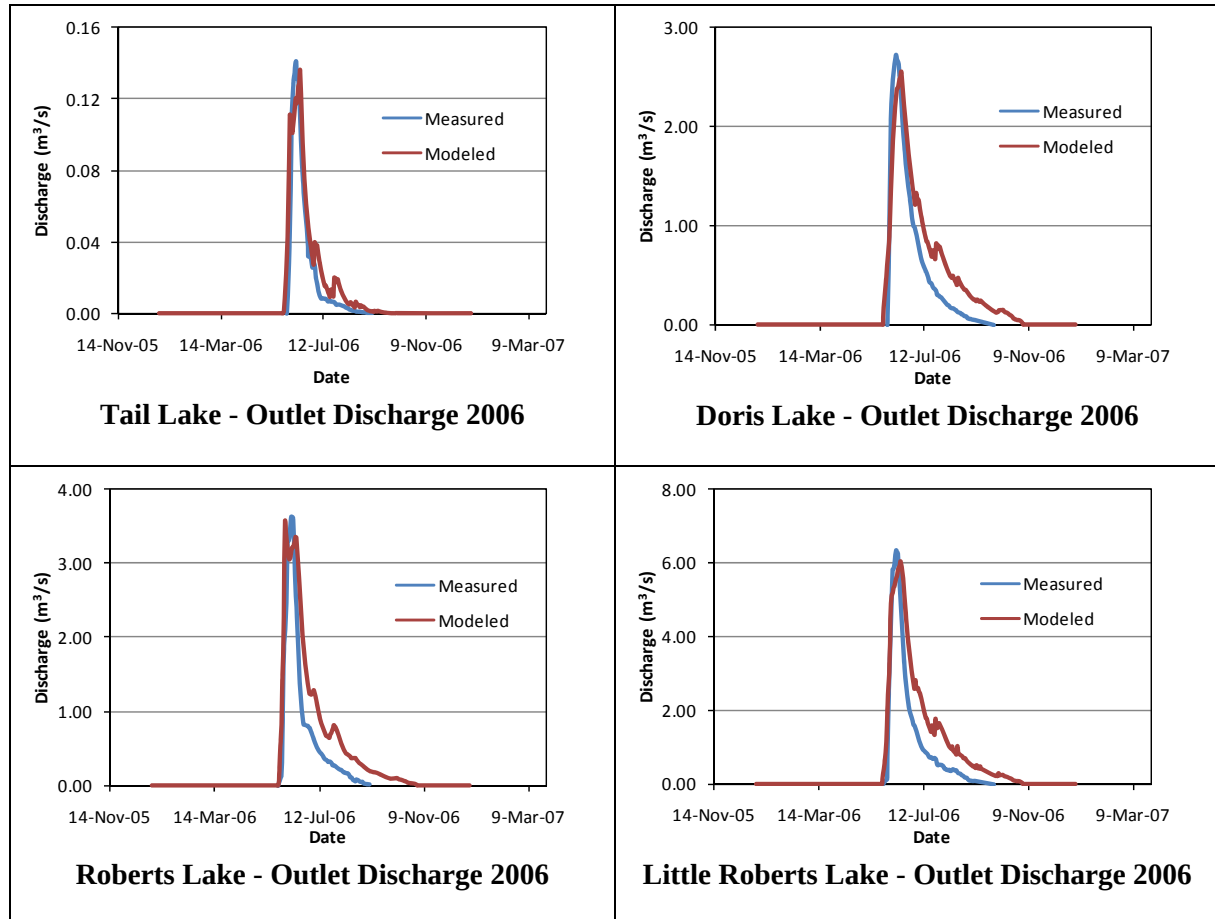
Table 7 – Water Balance Validation Model Results (Complete Model Run for 2006)





APPENDIX E HOPE BAY PROJECT – WATER BALANCE MODELING

Table 7 – Water Balance Validation Model Results (Complete Model Run for 2006) (continued)



Comments on the calibration include:

- The 2008 discharge peak at Tail Lake shown Table 5 could not be matched. The stage at Tail Lake was measured by one set of monitoring equipment and the discharge derived based on stage measurements in the downstream channel by another set of monitoring equipment. This may indicate a problem with the record from the downstream channel, but there is a much greater confidence in the records from the lake water level monitoring station.
- The measured snowmelt peaks at Doris Lake in 2008, presented in Table 5, were estimated and were, therefore, not included in the calibration.
- The snowmelt peaks of all hydrographs appear to be very well simulated by the model. The main areas of disagreement between measured data and model results occur during the rainfall period. It is assumed in the model that the depth of rainfall is the same in all sub-watersheds. In actuality, the rainfall value that is measured by the climate station may be different than the rainfall that occurs at individual sub-watersheds, due to areal differences in rainfall distribution.



APPENDIX E

HOPE BAY PROJECT – WATER BALANCE MODELING

- Reliable data were unavailable at some upstream stations for the open water season of 2006. The adequacy of the model was assessed by the resulting hydrographs of downstream stations. All hydrographs of stations downstream of Ogama Lake had had well-simulated peaks and timing.

The calibrated runoff coefficients, along with initial stages used in the partial data sets, are presented in Table 8. These parameter values are thought to represent the conditions at the Project site for the monitoring years, and the derived rainfall runoff coefficient (Rc) will be used in the long term hydrological modeling of the water balance. Initial stages determined using the same process for 2008 using data from the 2008 field program are also presented but were not used in the final model.

Table 8 – Model Runoff Coefficients and Initial Stage Values for Calibration and Validation Runs

Parameter	Value			
	2005	2006	2007	2008
Rc	0.6	0.6	0.6	0.6
Initial Stage at Roberts Lake (m)	0.60	0.60	0.50	0.70
Initial Stage at Lt. Roberts Lake (m)	0.30	0.30	0.30	0.30
Initial Stage at Ogama Lake (m)	n/a	0.80	0.02	0.30
Initial Stage at PO Lake (m)	n/a	0.75	n/a	0.73
Initial Stage at Patch Lake (m)	n/a	0.25	n/a	0.52
Initial Stage at Wolverine Lake (m)	n/a	0.20	n/a	0.05
Initial Stage at Windy Lake (m)	n/a	0.30	n/a	0.40
Initial Stage at Glenn Lake (m)	n/a	1.60*	n/a	1.20*

Note: * - The initial elevations at Glenn Lake are greater than 1 m due to a low stage datum.



APPENDIX F

HOPE BAY PROJECT – ANNUAL WATER YIELD RECORDED AT REGIONAL
ENVIRONMENT CANADA HYDROMETRIC STATIONS

APPENDIX F – ANNUAL WATER YIELDS RECORDED AT REGIONAL ENVIRONMENT CANADA HYDROMETRIC STATIONS



APPENDIX F
HOPE BAY PROJECT – ANNUAL WATER YIELD RECORDED AT REGIONAL ENVIRONMENT CANADA
HYDROMETRIC STATIONS

Table F-1 Annual Water Yields Recorded at Regional Environment Canada Hydrometric Stations

	10QA001 Tree R.		10QB001 Hood R.		10QC001 Burnside R.		10QC002 Gordon R.		10QD001 Ellice R.		10TF001 Freshwater Ck.	
Year	Water Yield	Days With Data	Water Yield	Days With Data	Water Yield	Days With Data	Water Yield	Days With Data	Water Yield	Days With Data	Water Yield	Days With Data
1969	200	365	0	0	0	0	0	0	0	0	0	0
1970	216	365	0	0	0	0	0	0	0	0	22	133
1971	172	365	0	0	0	0	0	0	0	0	30	157
1972	205	366	0	0	0	0	0	0	0	0	22	289
1973	165	365	0	0	0	0	0	0	0	0	83	164
1974	144	365	0	0	0	0	0	0	0	0	78	116
1975	171	365	0	0	0	0	0	0	0	0	55	365
1976	212	366	0	0	0	0	0	0	0	0	58	346
1977	196	365	0	0	131	365	36	137	0	0	36	341
1978	127	313	0	0	188	365	174	365	0	0	110	365
1979	146	365	0	0	144	365	180	365	0	0	75	365
1980	158	366	0	0	126	366	126	366	0	0	85	366
1981	227	365	0	0	174	243	169	365	0	0	63	365
1982	197	365	0	0	129	304	176	365	0	0	107	365
1983	265	365	0	0	287	365	159	245	0	0	79	365
1984	210	366	0	0	311	366	93	216	158	366	62	202
1985	208	365	0	0	352	365	255	245	255	365	97	184
1986	243	365	0	0	298	365	210	252	214	365	78	195
1987	210	365	0	0	260	365	285	248	234	365	102	199
1988	35	175	0	0	259	366	197	245	214	366	144	201
1989	177	365	0	0	202	365	200	365	158	365	83	365
1990	134	365	0	0	184	365	182	365	181	365	59	365
1991	144	365	0	0	176	365	155	365	112	365	83	365
1992	168	366	0	0	253	366	199	366	156	366	77	366
1993	254	365	0	0	321	365	265	365	180	365	93	365
1994	155	365	130	365	194	365	227	365	146	365	75	365
1995	119	304	114	365	207	365	0	0	127	365	96	365
1996	43	63	226	366	359	366	0	0	199	366	77	319
1997	129	140	105	319	162	348	0	0	123	256	131	365
1998	148	153	159	153	183	153	0	0	126	119	72	365
1999	153	145	166	144	271	147	0	0	37	59	86	365
2000	152	245	137	153	272	366	0	0	138	105	65	366
2001	266	365	156	190	350	365	0	0	159	109	135	365
2002	170	319	141	365	169	318	0	0	170	365	56	365
2003	188	365	0	0	233	365	0	0	153	365	83	365
2004	211	366	0	0	286	366	0	0	133	366	72	366
2005	197	365	0	0	294	365	0	0	133	365	84	365
2006	175	365	0	0	325	365	0	0	202	365	63	365
2007	75	303	0	0	289	365	0	0	148	365	2	92
Mean ^a	194		153		252		197		172		85	

(a) Mean values are calculated based on years with complete data only. Years with less than 365 days (366 in leap years) are deemed complete if missing data are during probable zero-flow periods. Cells with red shading indicate that annual water yields cannot be calculated due to missing data. Cells with green shading indicate that annual water yields can be calculated because complete annual data are available, or that missing data occur during likely zero-flow period.



APPENDIX G HYDROMETRIC DATA 2004-2008

APPENDIX G – HYDROMETRIC DATA 2004-2008



APPENDIX G HYDROMETRIC DATA 2004-2008

H71 - DORIS OUTFLOW – 2004

MEAN DAILY DISCHARGE (m³/s)												
DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	1.316	0.572	0.208	0.078 E	-	-
2	-	-	-	-	-	-	1.327	0.550	0.212	0.073 E	-	-
3	-	-	-	-	-	-	1.307	0.543	0.200	0.067 E	-	-
4	-	-	-	-	-	-	1.297	0.522	0.198	0.061 E	-	-
5	-	-	-	-	-	-	1.282	0.494	0.192	0.056 E	-	-
6	-	-	-	-	-	-	1.262	0.471	0.183	0.050 E	-	-
7	-	-	-	-	-	-	1.246	0.453	0.172	0.045 E	-	-
8	-	-	-	-	-	0.000 E	1.208	0.440	0.168	0.039 E	-	-
9	-	-	-	-	-	0.000 E	1.187	0.425	0.165	0.034 E	-	-
10	-	-	-	-	-	0.000 E	1.175	0.411	0.168	0.028 E	-	-
11	-	-	-	-	-	0.000 E	1.153	0.402	0.168 P	0.022 E	-	-
12	-	-	-	-	-	0.300	1.136	0.387	0.184 E	0.017 E	-	-
13	-	-	-	-	-	0.455	1.096	0.369	0.179 E	0.011 E	-	-
14	-	-	-	-	-	0.560	1.063	0.370	0.173 E	0.006 E	-	-
15	-	-	-	-	-	0.656	1.028	0.347	0.168 E	0.000 E	-	-
16	-	-	-	-	-	0.753	0.990	0.342	0.162 E	-	-	-
17	-	-	-	-	-	0.860	0.958	0.303	0.157 E	-	-	-
18	-	-	-	-	-	0.953	0.923	0.309	0.151 E	-	-	-
19	-	-	-	-	-	1.043	0.892	0.308	0.145 E	-	-	-
20	-	-	-	-	-	1.124	0.859	0.288	0.140 E	-	-	-
21	-	-	-	-	-	1.181	0.837	0.277	0.134 E	-	-	-
22	-	-	-	-	-	1.255	0.807	0.275	0.129 E	-	-	-
23	-	-	-	-	-	1.290	0.775	0.271	0.123 E	-	-	-
24	-	-	-	-	-	1.312	0.759	0.263	0.117 E	-	-	-
25	-	-	-	-	-	1.339	0.731	0.257	0.112 E	-	-	-
26	-	-	-	-	-	1.352	0.709	0.249	0.106 E	-	-	-
27	-	-	-	-	-	1.355	0.684	0.238	0.101 E	-	-	-
28	-	-	-	-	-	1.363	0.661	0.228	0.095 E	-	-	-
29	-	-	-	-	-	1.361	0.655	0.228	0.089 E	-	-	-
30	-	-	-	-	-	1.339	0.599	0.220	0.084 E	-	-	-
31	-	-	-	-	-	-	0.582	0.208	-	-	-	-
MIN	-	-	-	-	-	0.000	0.582	0.208	0.084	0.000	-	-
MEAN	-	-	-	-	-	0.662	0.984	0.356	0.153	0.039	-	-
MAX	-	-	-	-	-	1.363	1.327	0.572	0.212	0.078	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 22.593 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.545	21.388	21.256	-	-	-
2	-	-	-	-	-	-	21.547	21.381	21.258	-	-	-
3	-	-	-	-	-	-	21.543	21.379	21.251	-	-	-
4	-	-	-	-	-	-	21.542	21.373	21.250	-	-	-
5	-	-	-	-	-	-	21.539	21.365	21.247	-	-	-
6	-	-	-	-	-	-	21.535	21.358	21.242	-	-	-
7	-	-	-	-	-	-	21.533	21.352	21.236	-	-	-
8	-	-	-	-	-	21.353 P	21.526	21.348	21.234	-	-	-
9	-	-	-	-	-	21.317	21.522	21.343	21.232	-	-	-
10	-	-	-	-	-	21.286	21.520	21.338	21.234	-	-	-
11	-	-	-	-	-	21.277	21.516	21.335	21.233 P	-	-	-
12	-	-	-	-	-	21.303	21.513	21.330	-	-	-	-
13	-	-	-	-	-	21.353	21.506	21.324	-	-	-	-
14	-	-	-	-	-	21.384	21.499	21.324	-	-	-	-
15	-	-	-	-	-	21.410	21.492	21.316	-	-	-	-
16	-	-	-	-	-	21.434	21.485	21.314	-	-	-	-
17	-	-	-	-	-	21.458	21.478	21.298	-	-	-	-
18	-	-	-	-	-	21.478	21.471	21.301	-	-	-	-
19	-	-	-	-	-	21.495	21.465	21.300	-	-	-	-
20	-	-	-	-	-	21.511	21.458	21.292	-	-	-	-
21	-	-	-	-	-	21.521	21.453	21.288	-	-	-	-
22	-	-	-	-	-	21.534	21.446	21.287	-	-	-	-
23	-	-	-	-	-	21.540	21.439	21.285	-	-	-	-
24	-	-	-	-	-	21.544	21.435	21.281	-	-	-	-
25	-	-	-	-	-	21.549	21.428	21.279	-	-	-	-
26	-	-	-	-	-	21.551	21.423	21.275	-	-	-	-
27	-	-	-	-	-	21.551	21.417	21.270	-	-	-	-
28	-	-	-	-	-	21.553	21.411	21.265	-	-	-	-
29	-	-	-	-	-	21.552	21.410	21.265	-	-	-	-
30	-	-	-	-	-	21.549	21.395	21.261	-	-	-	-
31	-	-	-	-	-	-	21.390	21.256	-	-	-	-
MIN	-	-	-	-	-	21.277	21.390	21.256	-	-	-	-
MEAN	-	-	-	-	-	21.457	21.480	21.315	-	-	-	-
MAX	-	-	-	-	-	21.553	21.547	21.388	-	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H72 – ROBERTS LAKE AND OUTFLOW – 2004

DATE	MEAN DAILY DISCHARGE (m ³ /s)											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	2.087	0.353	0.118	0.041 E	-	-
2	-	-	-	-	-	-	2.059	0.328	0.116	0.038 E	-	-
3	-	-	-	-	-	-	1.971	0.316	0.112	0.035 E	-	-
4	-	-	-	-	-	-	1.867	0.301	0.113	0.032 E	-	-
5	-	-	-	-	-	-	1.776	0.284	0.125	0.029 E	-	-
6	-	-	-	-	-	-	1.666	0.268	0.115	0.026 E	-	-
7	-	-	-	-	-	-	1.573	0.253	0.108	0.023 E	-	-
8	-	-	-	-	-	-	1.478	0.245	0.102	0.021 E	-	-
9	-	-	-	-	-	-	1.389	0.231	0.104	0.018 E	-	-
10	-	-	-	-	-	-	1.336	0.227	0.102	0.015 E	-	-
11	-	-	-	-	-	-	1.258	0.218	0.100	0.012 E	-	-
12	-	-	-	-	-	0.000 E	1.160	0.205	0.096	0.009 E	-	-
13	-	-	-	-	-	0.079 E	1.065	0.199	0.095 P	0.006 E	-	-
14	-	-	-	-	-	0.274 E	0.995	0.193	0.091 E	0.003 E	-	-
15	-	-	-	-	-	0.507 E	0.932	0.192	0.088 E	0.000 E	-	-
16	-	-	-	-	-	0.739 E	0.862	0.193	0.085 E	-	-	-
17	-	-	-	-	-	0.971 E	0.798	0.177	0.082 E	-	-	-
18	-	-	-	-	-	1.204 P	0.737	0.176	0.079 E	-	-	-
19	-	-	-	-	-	1.478	0.689	0.173	0.076 E	-	-	-
20	-	-	-	-	-	1.762	0.649	0.165	0.073 E	-	-	-
21	-	-	-	-	-	1.921	0.601	0.157	0.070 E	-	-	-
22	-	-	-	-	-	2.040	0.560	0.156	0.067 E	-	-	-
23	-	-	-	-	-	2.082	0.529	0.154	0.065 E	-	-	-
24	-	-	-	-	-	2.143	0.498	0.146	0.062 E	-	-	-
25	-	-	-	-	-	2.215	0.469	0.141	0.059 E	-	-	-
26	-	-	-	-	-	2.266	0.448	0.139	0.056 E	-	-	-
27	-	-	-	-	-	2.299	0.424	0.134	0.053 E	-	-	-
28	-	-	-	-	-	2.302	0.405	0.125	0.050 E	-	-	-
29	-	-	-	-	-	2.245	0.401	0.123	0.047 E	-	-	-
30	-	-	-	-	-	2.162	0.390	0.123	0.044 E	-	-	-
31	-	-	-	-	-	-	0.369	0.119	-	-	-	-
MIN	-	-	-	-	-	0.000	0.369	0.119	0.044	-	-	-
MEAN	-	-	-	-	-	1.510	1.014	0.200	0.085	-	-	-
MAX	-	-	-	-	-	2.302	2.087	0.353	0.125	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 6.958 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	5.809	5.579	5.480	-	-	-
2	-	-	-	-	-	-	5.807	5.572	5.479	-	-	-
3	-	-	-	-	-	-	5.800	5.568	5.476	-	-	-
4	-	-	-	-	-	-	5.792	5.563	5.477	-	-	-
5	-	-	-	-	-	-	5.784	5.558	5.485	-	-	-
6	-	-	-	-	-	-	5.774	5.552	5.478	-	-	-
7	-	-	-	-	-	-	5.766	5.547	5.473	-	-	-
8	-	-	-	-	-	-	5.756	5.543	5.469	-	-	-
9	-	-	-	-	-	-	5.747	5.538	5.471	-	-	-
10	-	-	-	-	-	-	5.742	5.536	5.469	-	-	-
11	-	-	-	-	-	-	5.733	5.533	5.467	-	-	-
12	-	-	-	-	-	-	5.722	5.527	5.464	-	-	-
13	-	-	-	-	-	-	5.710	5.524	5.464 P	-	-	-
14	-	-	-	-	-	-	5.701	5.521	-	-	-	-
15	-	-	-	-	-	-	5.692	5.521	-	-	-	-
16	-	-	-	-	-	-	5.682	5.521	-	-	-	-
17	-	-	-	-	-	-	5.673	5.514	-	-	-	-
18	-	-	-	-	-	5.738 P	5.663	5.514	-	-	-	-
19	-	-	-	-	-	5.756	5.655	5.512	-	-	-	-
20	-	-	-	-	-	5.783	5.647	5.508	-	-	-	-
21	-	-	-	-	-	5.796	5.638	5.504	-	-	-	-
22	-	-	-	-	-	5.805	5.630	5.503	-	-	-	-
23	-	-	-	-	-	5.809	5.623	5.502	-	-	-	-
24	-	-	-	-	-	5.813	5.617	5.498	-	-	-	-
25	-	-	-	-	-	5.819	5.610	5.495	-	-	-	-
26	-	-	-	-	-	5.822	5.605	5.494	-	-	-	-
27	-	-	-	-	-	5.825	5.599	5.491	-	-	-	-
28	-	-	-	-	-	5.825	5.594	5.485	-	-	-	-
29	-	-	-	-	-	5.821	5.593	5.484	-	-	-	-
30	-	-	-	-	-	5.815	5.590	5.483	-	-	-	-
31	-	-	-	-	-	-	5.584	5.481	-	-	-	-
MIN	-	-	-	-	-	5.738	5.584	5.481	5.464	-	-	-
MEAN	-	-	-	-	-	5.802	5.688	5.522	5.473	-	-	-
MAX	-	-	-	-	-	5.825	5.809	5.579	5.485	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H73 – LITTLE ROBERTS OUTFLOW – 2004

DATE	MEAN DAILY DISCHARGE (m ³ /s)											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	3.329	1.072	0.313	0.096 E	-	-
2	-	-	-	-	-	-	3.317	1.021	0.314	0.089 E	-	-
3	-	-	-	-	-	-	3.255	0.973	0.308	0.082 E	-	-
4	-	-	-	-	-	0.000 E	3.139	0.930	0.297	0.075 E	-	-
5	-	-	-	-	-	0.075 E	3.025	0.860	0.302	0.068 E	-	-
6	-	-	-	-	-	0.161 A	2.872	0.819	0.278	0.062 E	-	-
7	-	-	-	-	-	0.393 A	2.778	0.767	0.260 P	0.055 E	-	-
8	-	-	-	-	-	0.316 A	2.663	0.728	0.253 E	0.048 E	-	-
9	-	-	-	-	-	0.171 A	2.547	0.703	0.246 E	0.041 E	-	-
10	-	-	-	-	-	0.450 E	2.491	0.678	0.239 E	0.034 E	-	-
11	-	-	-	-	-	0.525 E	2.413	0.664	0.232 E	0.027 E	-	-
12	-	-	-	-	-	0.641 E	2.340	0.619	0.226 E	0.021 E	-	-
13	-	-	-	-	-	1.010 E	2.249	0.586	0.219 E	0.014 E	-	-
14	-	-	-	-	-	1.422 E	2.148	0.563	0.212 E	0.007 E	-	-
15	-	-	-	-	-	1.835 E	2.053	0.542	0.205 E	0.000 E	-	-
16	-	-	-	-	-	2.435 P	1.968	0.528	0.198 E	-	-	-
17	-	-	-	-	-	2.632	1.882	0.467	0.191 E	-	-	-
18	-	-	-	-	-	2.782	1.783	0.475	0.185 E	-	-	-
19	-	-	-	-	-	3.004	1.707	0.500	0.178 E	-	-	-
20	-	-	-	-	-	3.250	1.633	0.468	0.171 E	-	-	-
21	-	-	-	-	-	3.403	1.561	0.440	0.164 E	-	-	-
22	-	-	-	-	-	3.535	1.491	0.432	0.157 E	-	-	-
23	-	-	-	-	-	3.602	1.431	0.432	0.150 E	-	-	-
24	-	-	-	-	-	3.666	1.391	0.416	0.144 E	-	-	-
25	-	-	-	-	-	3.748	1.329	0.404	0.137 E	-	-	-
26	-	-	-	-	-	3.732	1.287	0.396	0.130 E	-	-	-
27	-	-	-	-	-	3.728	1.225	0.375	0.123 E	-	-	-
28	-	-	-	-	-	3.684	1.201	0.351	0.116 E	-	-	-
29	-	-	-	-	-	3.623	1.206	0.343	0.109 E	-	-	-
30	-	-	-	-	-	3.489	1.143	0.337	0.103 E	-	-	-
31	-	-	-	-	-	-	1.093	0.320	-	-	-	-
MIN	-	-	-	-	-	0.000	1.093	0.320	0.103	-	-	-
MEAN	-	-	-	-	-	2.123	2.063	0.587	0.205	-	-	-
MAX	-	-	-	-	-	3.748	3.329	1.072	0.314	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.482 m (ASSUMED)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.000	97.763	97.610	-	-	-
2	-	-	-	-	-	-	97.999	97.755	97.610	-	-	-
3	-	-	-	-	-	-	97.994	97.747	97.608	-	-	-
4	-	-	-	-	-	-	97.985	97.741	97.605	-	-	-
5	-	-	-	-	-	-	97.975	97.729	97.607	-	-	-
6	-	-	-	-	-	97.901 P	97.962	97.722	97.599	-	-	-
7	-	-	-	-	-	97.899	97.954	97.713	97.593 P	-	-	-
8	-	-	-	-	-	97.789	97.943	97.705	-	-	-	-
9	-	-	-	-	-	97.742	97.933	97.701	-	-	-	-
10	-	-	-	-	-	97.729	97.928	97.696	-	-	-	-
11	-	-	-	-	-	97.711	97.920	97.693	-	-	-	-
12	-	-	-	-	-	97.690	97.913	97.684	-	-	-	-
13	-	-	-	-	-	97.824	97.904	97.677	-	-	-	-
14	-	-	-	-	-	97.809	97.894	97.673	-	-	-	-
15	-	-	-	-	-	97.790	97.884	97.668	-	-	-	-
16	-	-	-	-	-	97.913	97.875	97.665	-	-	-	-
17	-	-	-	-	-	97.941	97.866	97.651	-	-	-	-
18	-	-	-	-	-	97.954	97.855	97.653	-	-	-	-
19	-	-	-	-	-	97.973	97.846	97.658	-	-	-	-
20	-	-	-	-	-	97.994	97.837	97.651	-	-	-	-
21	-	-	-	-	-	98.006	97.829	97.644	-	-	-	-
22	-	-	-	-	-	98.016	97.820	97.642	-	-	-	-
23	-	-	-	-	-	98.022	97.812	97.642	-	-	-	-
24	-	-	-	-	-	98.026	97.807	97.638	-	-	-	-
25	-	-	-	-	-	98.033	97.799	97.635	-	-	-	-
26	-	-	-	-	-	98.031	97.793	97.633	-	-	-	-
27	-	-	-	-	-	98.031	97.785	97.628	-	-	-	-
28	-	-	-	-	-	98.028	97.781	97.621	-	-	-	-
29	-	-	-	-	-	98.023	97.782	97.618	-	-	-	-
30	-	-	-	-	-	98.013	97.773	97.617	-	-	-	-
31	-	-	-	-	-	-	97.766	97.612	-	-	-	-
MIN	-	-	-	-	-	97.690	97.766	97.612	97.593	-	-	-
MEAN	-	-	-	-	-	97.916	97.878	97.673	97.605	-	-	-
MAX	-	-	-	-	-	98.033	98.000	97.763	97.610	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H74 – DORIS LAKE – 2004 MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 23.546 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.774	21.554	21.407	-	-	-
2	-	-	-	-	-	-	21.773	21.546	21.406	-	-	-
3	-	-	-	-	-	-	21.769	21.539	21.403	-	-	-
4	-	-	-	-	-	-	21.762	21.533	21.402	-	-	-
5	-	-	-	-	-	-	21.756	21.523	21.405	-	-	-
6	-	-	-	-	-	-	21.751	21.516	21.401	-	-	-
7	-	-	-	-	-	-	21.745	21.509	21.395	-	-	-
8	-	-	-	-	-	-	21.737	21.503	21.392	-	-	-
9	-	-	-	-	-	-	21.730	21.497	21.390	-	-	-
10	-	-	-	-	-	-	21.727	21.493	21.389 P	-	-	-
11	-	-	-	-	-	-	21.720	21.488	-	-	-	-
12	-	-	-	-	-	21.530	21.713	21.483	-	-	-	-
13	-	-	-	-	-	21.579	21.705	21.477	-	-	-	-
14	-	-	-	-	-	21.615	21.696	21.476	-	-	-	-
15	-	-	-	-	-	21.645	21.688	21.471	-	-	-	-
16	-	-	-	-	-	21.672	21.678	21.468	-	-	-	-
17	-	-	-	-	-	21.698	21.670	21.455	-	-	-	-
18	-	-	-	-	-	21.718	21.661	21.453	-	-	-	-
19	-	-	-	-	-	21.739	21.652	21.451	-	-	-	-
20	-	-	-	-	-	21.757	21.644	21.445	-	-	-	-
21	-	-	-	-	-	21.767	21.635	21.440	-	-	-	-
22	-	-	-	-	-	21.774	21.626	21.438	-	-	-	-
23	-	-	-	-	-	21.778	21.618	21.436	-	-	-	-
24	-	-	-	-	-	21.783	21.611	21.432	-	-	-	-
25	-	-	-	-	-	21.787	21.601	21.429	-	-	-	-
26	-	-	-	-	-	21.787	21.594	21.426	-	-	-	-
27	-	-	-	-	-	21.787	21.585	21.423	-	-	-	-
28	-	-	-	-	-	21.786	21.580	21.418	-	-	-	-
29	-	-	-	-	-	21.783	21.577	21.416	-	-	-	-
30	-	-	-	-	-	21.779	21.567	21.412	-	-	-	-
31	-	-	-	-	-	-	21.560	21.409	-	-	-	-
MIN	-	-	-	-	-	21.530	21.560	21.409	21.389	-	-	-
MEAN	-	-	-	-	-	21.724	21.674	21.470	21.399	-	-	-
MAX	-	-	-	-	-	21.787	21.774	21.554	21.407	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H75 – TAIL LAKE – 2004

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 29.339 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	28.288	28.215	28.151	28.126	28.152	28.158
2	-	-	-	-	-	-	28.289	28.213	28.151	28.126	28.152	28.160
3	-	-	-	-	-	-	28.288	28.211	28.151	28.126	28.152	28.160
4	-	-	-	-	-	-	28.285	28.205	28.155	28.126	28.152	28.160
5	-	-	-	-	-	-	28.284	28.199	28.153	28.125	28.152	28.159
6	-	-	-	-	-	-	28.283	28.196	28.147	28.124	28.153	28.159
7	-	-	-	-	-	-	28.279	28.192	28.143	28.124	28.154	28.159
8	-	-	-	-	-	-	28.276	28.191	28.142	28.124	28.154	28.159
9	-	-	-	-	-	-	28.277	28.189	28.142	28.125	28.154	28.159
10	-	-	-	-	-	-	28.276	28.188	28.143 P	28.131	28.155	28.159
11	-	-	-	-	-	-	28.274	28.187	28.131	28.131	28.154	28.159
12	-	-	-	-	-	-	28.272	28.184	28.129	28.134	28.155	28.159
13	-	-	-	-	-	-	28.269	28.181	28.130	28.134	28.151	28.159
14	-	-	-	-	-	-	28.266	28.186	28.135	28.134	28.151	28.160
15	-	-	-	-	-	28.258	28.263	28.181	28.135	28.134	28.156	28.159
16	-	-	-	-	-	28.259	28.260	28.174	28.134	28.134	28.158	28.158
17	-	-	-	-	-	28.262	28.256	28.168	28.132	28.134	28.157	28.158
18	-	-	-	-	-	28.273	28.253	28.169	28.131	28.134	28.157	28.157
19	-	-	-	-	-	28.281	28.250	28.168	28.131	28.131	28.157	28.156
20	-	-	-	-	-	28.282	28.248	28.164	28.130	28.131	28.157	28.156
21	-	-	-	-	-	28.281	28.244	28.163	28.129	28.130	28.157	28.156
22	-	-	-	-	-	28.280	28.240	28.164	28.128	28.130	28.158	28.156
23	-	-	-	-	-	28.278	28.238	28.163	28.128	28.130	28.158	28.155
24	-	-	-	-	-	28.280	28.236	28.162	28.128	28.130	28.159	28.155
25	-	-	-	-	-	28.283	28.233	28.161	28.127	28.132	28.159	28.155
26	-	-	-	-	-	28.284	28.230	28.160	28.126	28.133	28.159	28.153
27	-	-	-	-	-	28.290	28.227	28.157	28.126	28.132	28.159	28.153
28	-	-	-	-	-	28.289	28.227	28.155	28.125	28.138	28.159	28.154
29	-	-	-	-	-	28.289	28.226	28.154	28.125	28.140	28.159	28.154
30	-	-	-	-	-	28.287	28.221	28.152	28.126	28.140	28.159	28.153
31	-	-	-	-	-	-	28.218	28.151		28.151		28.152
MIN	-	-	-	-	-	28.258	28.218	28.151	28.125	28.124	28.151	28.152
MEAN	-	-	-	-	-	28.278	28.257	28.178	28.129	28.131	28.156	28.157
MAX	-	-	-	-	-	28.290	28.289	28.215	28.135	28.151	28.159	28.160

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H76 – TAIL OUTFLOW – 2004

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.055	0.006	0.002	-	-	-
2	-	-	-	-	-	-	0.060	0.006	0.003	-	-	-
3	-	-	-	-	-	-	0.061	0.007	0.003	-	-	-
4	-	-	-	-	-	-	0.062	0.007	0.003	-	-	-
5	-	-	-	-	-	-	0.061	0.006	0.004	-	-	-
6	-	-	-	-	-	0.000 A	0.061	0.005	0.002	-	-	-
7	-	-	-	-	-	0.000 A	0.056	0.004	0.002	-	-	-
8	-	-	-	-	-	0.000 A	0.054	0.004	0.002	-	-	-
9	-	-	-	-	-	0.025 A	0.051	0.004	0.002	-	-	-
10	-	-	-	-	-	0.027 E	0.052	0.004	0.002	-	-	-
11	-	-	-	-	-	0.029 E	0.051	0.005	0.002 P	-	-	-
12	-	-	-	-	-	0.032 E	0.046	0.005	0.002 E	-	-	-
13	-	-	-	-	-	0.034 E	0.038	0.004	0.002 E	-	-	-
14	-	-	-	-	-	0.036 E	0.035	0.005	0.002 E	-	-	-
15	-	-	-	-	-	0.038 E	0.032	0.004	0.002 E	-	-	-
16	-	-	-	-	-	0.040 E	0.030	0.005	0.001 E	-	-	-
17	-	-	-	-	-	0.043 E	0.028	0.003	0.001 E	-	-	-
18	-	-	-	-	-	0.047 E	0.022	0.003	0.001 E	-	-	-
19	-	-	-	-	-	0.047 P	0.019	0.003	0.001 E	-	-	-
20	-	-	-	-	-	0.047	0.017	0.003	0.001 E	-	-	-
21	-	-	-	-	-	0.048	0.015	0.003	0.001 E	-	-	-
22	-	-	-	-	-	0.049	0.013	0.003	0.001 E	-	-	-
23	-	-	-	-	-	0.050	0.011	0.003	0.001 E	-	-	-
24	-	-	-	-	-	0.053	0.011	0.003	0.001 E	-	-	-
25	-	-	-	-	-	0.054	0.009	0.003	0.001 E	-	-	-
26	-	-	-	-	-	0.057	0.009	0.003	0.000 E	-	-	-
27	-	-	-	-	-	0.058	0.009	0.003	0.000 E	-	-	-
28	-	-	-	-	-	0.059	0.008	0.002	0.000 E	-	-	-
29	-	-	-	-	-	0.062	0.008	0.002	0.000 E	-	-	-
30	-	-	-	-	-	0.058	0.006	0.002	0.000 E	-	-	-
31	-	-	-	-	-	-	0.005	0.002	-	-	-	-
MIN	-	-	-	-	-	0.000	0.005	0.002	0.000	-	-	-
MEAN	-	-	-	-	-	0.040	0.032	0.004	0.001	-	-	-
MAX	-	-	-	-	-	0.062	0.062	0.007	0.004	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	24.275	24.172	24.141	-	-	-
2	-	-	-	-	-	-	24.280	24.174	24.145	-	-	-
3	-	-	-	-	-	-	24.281	24.178	24.147	-	-	-
4	-	-	-	-	-	-	24.281	24.180	24.151	-	-	-
5	-	-	-	-	-	-	24.280	24.175	24.163	-	-	-
6	-	-	-	-	-	-	24.281	24.169	24.144	-	-	-
7	-	-	-	-	-	-	24.276	24.164	24.133	-	-	-
8	-	-	-	-	-	-	24.274	24.162	24.131	-	-	-
9	-	-	-	-	-	-	24.271	24.163	24.133	-	-	-
10	-	-	-	-	-	-	24.272	24.164	24.136	-	-	-
11	-	-	-	-	-	-	24.271	24.166	24.132 P	-	-	-
12	-	-	-	-	-	-	24.265	24.165	-	-	-	-
13	-	-	-	-	-	-	24.257	24.159	-	-	-	-
14	-	-	-	-	-	-	24.253	24.167	-	-	-	-
15	-	-	-	-	-	-	24.248	24.160	-	-	-	-
16	-	-	-	-	-	-	24.244	24.166	-	-	-	-
17	-	-	-	-	-	-	24.240	24.147	-	-	-	-
18	-	-	-	-	-	-	24.231	24.149	-	-	-	-
19	-	-	-	-	-	24.267 P	24.224	24.154	-	-	-	-
20	-	-	-	-	-	24.267	24.219	24.149	-	-	-	-
21	-	-	-	-	-	24.268	24.213	24.146	-	-	-	-
22	-	-	-	-	-	24.269	24.206	24.149	-	-	-	-
23	-	-	-	-	-	24.269	24.199	24.153	-	-	-	-
24	-	-	-	-	-	24.272	24.198	24.150	-	-	-	-
25	-	-	-	-	-	24.274	24.191	24.149	-	-	-	-
26	-	-	-	-	-	24.277	24.190	24.149	-	-	-	-
27	-	-	-	-	-	24.278	24.189	24.148	-	-	-	-
28	-	-	-	-	-	24.279	24.189	24.142	-	-	-	-
29	-	-	-	-	-	24.281	24.185	24.142	-	-	-	-
30	-	-	-	-	-	24.278	24.175	24.144	-	-	-	-
31	-	-	-	-	-	-	24.172	24.142	-	-	-	-
MIN	-	-	-	-	-	24.267	24.172	24.142	24.131	-	-	-
MEAN	-	-	-	-	-	24.273	24.236	24.158	24.141	-	-	-
MAX	-	-	-	-	-	24.281	24.281	24.180	24.163	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H71 – DORIS OUTFLOW – 2005

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	1.321	0.678	0.424	-	-	-
2	-	-	-	-	-	-	1.279	0.681	0.426	-	-	-
3	-	-	-	-	-	-	1.249	0.666	0.426	-	-	-
4	-	-	-	-	-	-	1.233	0.661	0.422	-	-	-
5	-	-	-	-	-	-	1.213	0.638	0.418	-	-	-
6	-	-	-	-	-	0.000 E	1.194	0.622	0.415	-	-	-
7	-	-	-	-	-	0.550 E	1.168	0.604	0.412	-	-	-
8	-	-	-	-	-	1.101 E	1.122	0.588	0.396	-	-	-
9	-	-	-	-	-	1.161 E	1.115	0.570	0.391	-	-	-
10	-	-	-	-	-	1.201 E	1.097	0.555	0.381	-	-	-
11	-	-	-	-	-	1.252 E	1.070	0.530	0.365	-	-	-
12	-	-	-	-	-	1.329 E	1.043	0.516	0.345	-	-	-
13	-	-	-	-	-	1.433 E	1.024	0.520	0.328	-	-	-
14	-	-	-	-	-	1.485 E	0.992	0.525	0.325	-	-	-
15	-	-	-	-	-	1.582 E	0.954	0.524	0.320	-	-	-
16	-	-	-	-	-	1.773 E	0.920	0.514	0.319	-	-	-
17	-	-	-	-	-	1.894 E	0.888	0.500	0.317 P	-	-	-
18	-	-	-	-	-	1.975 E	0.851	0.489	0.292 E	-	-	-
19	-	-	-	-	-	1.912 E	0.838	0.482	0.268 E	-	-	-
20	-	-	-	-	-	1.850 E	0.826	0.475	0.244 E	-	-	-
21	-	-	-	-	-	1.789 E	0.810	0.451	0.219 E	-	-	-
22	-	-	-	-	-	1.713 E	0.788	0.441	0.195 E	-	-	-
23	-	-	-	-	-	1.609 E	0.770	0.429	0.171 E	-	-	-
24	-	-	-	-	-	1.564 E	0.752	0.440	0.146 E	-	-	-
25	-	-	-	-	-	1.532 E	0.741	0.445	0.122 E	-	-	-
26	-	-	-	-	-	1.487 E	0.722	0.445	0.097 E	-	-	-
27	-	-	-	-	-	1.416 P	0.722	0.449	0.073 E	-	-	-
28	-	-	-	-	-	1.390	0.709	0.429	0.049 E	-	-	-
29	-	-	-	-	-	1.344	0.700	0.405	0.024 E	-	-	-
30	-	-	-	-	-	1.325	0.685	0.414	0.000 E	-	-	-
31	-	-	-	-	-	-	0.675	0.424	-	-	-	-
MIN	-	-	-	-	-	0.000	0.675	0.405	0.000	-	-	-
MEAN	-	-	-	-	-	1.427	0.951	0.520	0.278	-	-	-
MAX	-	-	-	-	-	1.975	1.321	0.681	0.426	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 22.593 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.590	21.440	21.358	-	-	-
2	-	-	-	-	-	-	21.582	21.441	21.358	-	-	-
3	-	-	-	-	-	-	21.576	21.437	21.358	-	-	-
4	-	-	-	-	-	-	21.572	21.435	21.357	-	-	-
5	-	-	-	-	-	-	21.568	21.428	21.355	-	-	-
6	-	-	-	-	-	-	21.564	21.423	21.354	-	-	-
7	-	-	-	-	-	-	21.559	21.418	21.353	-	-	-
8	-	-	-	-	-	-	21.549	21.413	21.347	-	-	-
9	-	-	-	-	-	-	21.547	21.407	21.345	-	-	-
10	-	-	-	-	-	-	21.544	21.403	21.341	-	-	-
11	-	-	-	-	-	-	21.538	21.395	21.335	-	-	-
12	-	-	-	-	-	-	21.532	21.390	21.327	-	-	-
13	-	-	-	-	-	-	21.527	21.391	21.319	-	-	-
14	-	-	-	-	-	-	21.520	21.393	21.318	-	-	-
15	-	-	-	-	-	-	21.511	21.393	21.316	-	-	-
16	-	-	-	-	-	-	21.503	21.390	21.315	-	-	-
17	-	-	-	-	-	-	21.495	21.385	21.314 P	-	-	-
18	-	-	-	-	-	-	21.486	21.381	-	-	-	-
19	-	-	-	-	-	-	21.483	21.378	-	-	-	-
20	-	-	-	-	-	-	21.480	21.376	-	-	-	-
21	-	-	-	-	-	-	21.476	21.368	-	-	-	-
22	-	-	-	-	-	-	21.470	21.364	-	-	-	-
23	-	-	-	-	-	-	21.465	21.359	-	-	-	-
24	-	-	-	-	-	-	21.461	21.364	-	-	-	-
25	-	-	-	-	-	-	21.457	21.365	-	-	-	-
26	-	-	-	-	-	-	21.452	21.365	-	-	-	-
27	-	-	-	-	-	21.608 P	21.452	21.367	-	-	-	-
28	-	-	-	-	-	21.603	21.449	21.359	-	-	-	-
29	-	-	-	-	-	21.594	21.446	21.351	-	-	-	-
30	-	-	-	-	-	21.591	21.442	21.354	-	-	-	-
31	-	-	-	-	-	-	21.439	21.358	-	-	-	-
MIN	-	-	-	-	-	21.591	21.439	21.351	21.314	-	-	-
MEAN	-	-	-	-	-	21.599	21.508	21.390	21.339	-	-	-
MAX	-	-	-	-	-	21.608	21.590	21.441	21.358	-	-	-

E- ESTIMATED

P – PARTIAL DAILY



APPENDIX G HYDROMETRIC DATA 2004-2008

H72 – ROBERTS LAKE AND OUTFLOW – 2005

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	1.899	0.707	0.556	-	-	-
2	-	-	-	-	-	-	1.821	0.728	0.543	-	-	-
3	-	-	-	-	-	-	1.729	0.726	0.535	-	-	-
4	-	-	-	-	-	-	1.654	0.717	0.522	-	-	-
5	-	-	-	-	-	-	1.606	0.700	0.510	-	-	-
6	-	-	-	-	-	0.000 E	1.531	0.691	0.493	-	-	-
7	-	-	-	-	-	0.687 E	1.462	0.681	0.489	-	-	-
8	-	-	-	-	-	1.374 E	1.389	0.661	0.474	-	-	-
9	-	-	-	-	-	1.477 E	1.352	0.641	0.462	-	-	-
10	-	-	-	-	-	1.547 E	1.296	0.629	0.439	-	-	-
11	-	-	-	-	-	1.635 E	1.241	0.597	0.422	-	-	-
12	-	-	-	-	-	1.771 E	1.194	0.574	0.391	-	-	-
13	-	-	-	-	-	1.958 E	1.146	0.604	0.367	-	-	-
14	-	-	-	-	-	2.052 E	1.086	0.610	0.359	-	-	-
15	-	-	-	-	-	2.231 E	1.033	0.602	0.347	-	-	-
16	-	-	-	-	-	2.591 E	0.980	0.595	0.337	-	-	-
17	-	-	-	-	-	2.821 E	0.924	0.592	0.330 P	-	-	-
18	-	-	-	-	-	2.980 E	0.879	0.582	0.305 E	-	-	-
19	-	-	-	-	-	2.856 E	0.883	0.570	0.280 E	-	-	-
20	-	-	-	-	-	2.737 E	0.868	0.556	0.254 E	-	-	-
21	-	-	-	-	-	2.621 E	0.838	0.539	0.229 E	-	-	-
22	-	-	-	-	-	2.477 E	0.812	0.519	0.203 E	-	-	-
23	-	-	-	-	-	2.282 E	0.794	0.518	0.178 E	-	-	-
24	-	-	-	-	-	2.198 E	0.780	0.568	0.153 E	-	-	-
25	-	-	-	-	-	2.139 E	0.763	0.583	0.127 E	-	-	-
26	-	-	-	-	-	2.056 E	0.741	0.595	0.102 E	-	-	-
27	-	-	-	-	-	2.009 E	0.739	0.595	0.076 E	-	-	-
28	-	-	-	-	-	1.976 E	0.736	0.537	0.051 E	-	-	-
29	-	-	-	-	-	2.016 P	0.737	0.571	0.025 E	-	-	-
30	-	-	-	-	-	1.971	0.722	0.575	0.000 E	-	-	-
31	-	-	-	-	-	-	0.700	0.567	-	-	-	-
MIN	-	-	-	-	-	0.000	0.700	0.518	0.000	-	-	-
MEAN	-	-	-	-	-	2.019	1.107	0.611	0.319	-	-	-
MAX	-	-	-	-	-	2.980	1.899	0.728	0.556	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 6.958 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	6.322	6.167	6.135	-	-	-
2	-	-	-	-	-	-	6.315	6.171	6.132	-	-	-
3	-	-	-	-	-	-	6.306	6.170	6.130	-	-	-
4	-	-	-	-	-	-	6.298	6.168	6.127	-	-	-
5	-	-	-	-	-	-	6.293	6.165	6.124	-	-	-
6	-	-	-	-	-	-	6.285	6.163	6.120	-	-	-
7	-	-	-	-	-	-	6.277	6.161	6.118	-	-	-
8	-	-	-	-	-	-	6.268	6.157	6.115	-	-	-
9	-	-	-	-	-	-	6.264	6.153	6.112	-	-	-
10	-	-	-	-	-	-	6.257	6.151	6.105	-	-	-
11	-	-	-	-	-	-	6.250	6.144	6.101	-	-	-
12	-	-	-	-	-	-	6.244	6.139	6.092	-	-	-
13	-	-	-	-	-	-	6.237	6.145	6.084	-	-	-
14	-	-	-	-	-	-	6.229	6.147	6.082	-	-	-
15	-	-	-	-	-	-	6.221	6.145	6.078	-	-	-
16	-	-	-	-	-	-	6.213	6.143	6.075	-	-	-
17	-	-	-	-	-	-	6.204	6.143	6.073 P	-	-	-
18	-	-	-	-	-	-	6.197	6.141	-	-	-	-
19	-	-	-	-	-	-	6.198	6.138	-	-	-	-
20	-	-	-	-	-	-	6.195	6.135	-	-	-	-
21	-	-	-	-	-	-	6.190	6.131	-	-	-	-
22	-	-	-	-	-	-	6.186	6.126	-	-	-	-
23	-	-	-	-	-	-	6.183	6.125	-	-	-	-
24	-	-	-	-	-	-	6.180	6.138	-	-	-	-
25	-	-	-	-	-	-	6.177	6.141	-	-	-	-
26	-	-	-	-	-	-	6.173	6.144	-	-	-	-
27	-	-	-	-	-	-	6.173	6.143	-	-	-	-
28	-	-	-	-	-	-	6.172	6.130	-	-	-	-
29	-	-	-	-	-	6.333 P	6.172	6.138	-	-	-	-
30	-	-	-	-	-	6.329	6.169	6.139	-	-	-	-
31	-	-	-	-	-	-	6.165	6.137	-	-	-	-
MIN	-	-	-	-	-	6.329	6.165	6.125	6.073	-	-	-
MEAN	-	-	-	-	-	6.331	6.226	6.146	6.106	-	-	-
MAX	-	-	-	-	-	6.333	6.322	6.171	6.135	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H73 – LITTLE ROBERTS OUTFLOW – 2005

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	3.355 E	1.335	1.021 E	-	-	-
2	-	-	-	-	-	-	3.230 E	1.397	1.009 E	-	-	-
3	-	-	-	-	-	-	3.103 E	1.381	1.001 E	-	-	-
4	-	-	-	-	-	-	3.007 E	1.359	0.983 E	-	-	-
5	-	-	-	-	-	-	2.937 E	1.312	0.967 E	-	-	-
6	-	-	-	-	-	0.000 E	2.839 E	1.368 E	0.947 E	-	-	-
7	-	-	-	-	-	1.289 E	2.740 E	1.339 E	0.938 E	-	-	-
8	-	-	-	-	-	2.579 E	2.616 E	1.301 E	0.907 E	-	-	-
9	-	-	-	-	-	2.748 E	2.570 E	1.261 E	0.889 E	-	-	-
10	-	-	-	-	-	2.863 E	2.493 E	1.234 E	0.854 E	-	-	-
11	-	-	-	-	-	3.009 E	2.408 E	1.174 E	0.820 E	-	-	-
12	-	-	-	-	-	3.229 E	2.331 E	1.136 E	0.767 E	-	-	-
13	-	-	-	-	-	3.533 E	2.261 E	1.171 E	0.723 E	-	-	-
14	-	-	-	-	-	3.685 E	2.165 E	1.183 E	0.712 E	-	-	-
15	-	-	-	-	-	3.972 E	2.070 E	1.174 E	0.696 E	-	-	-
16	-	-	-	-	-	4.547 E	1.980 E	1.156 E	0.683 E	-	-	-
17	-	-	-	-	-	4.912 E	1.588	1.138 E	0.674 E	-	-	-
18	-	-	-	-	-	5.163 E	1.548	1.116 E	0.622 E	-	-	-
19	-	-	-	-	-	4.968 E	1.538	1.095 E	0.571 E	-	-	-
20	-	-	-	-	-	4.779 E	1.523	1.075 E	0.519 E	-	-	-
21	-	-	-	-	-	4.595 E	1.475	1.032 E	0.467 E	-	-	-
22	-	-	-	-	-	4.366 E	1.434	1.001 E	0.415 E	-	-	-
23	-	-	-	-	-	4.055 E	1.406	0.986 E	0.363 E	-	-	-
24	-	-	-	-	-	3.920 E	1.383	1.051 E	0.311 E	-	-	-
25	-	-	-	-	-	3.825 E	1.364	1.071 E	0.259 E	-	-	-
26	-	-	-	-	-	3.691 E	1.329	1.084 E	0.207 E	-	-	-
27	-	-	-	-	-	3.569 E	1.336	1.087 E	0.156 E	-	-	-
28	-	-	-	-	-	3.508 E	1.342	1.006 E	0.104 E	-	-	-
29	-	-	-	-	-	3.500 E	1.354	1.017 E	0.052 E	-	-	-
30	-	-	-	-	-	3.435 E	1.337	1.031 E	0.000 E	-	-	-
31	-	-	-	-	-	-	1.317	1.032 E	-	-	-	-
MIN	-	-	-	-	-	0.000	1.329	0.986	0.000	-	-	-
MEAN	-	-	-	-	-	3.590	2.069	1.169	0.621	-	-	-
MAX	-	-	-	-	-	5.163	3.355	1.397	1.021	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.482 m (ASSUMED)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.192 E	98.013	97.972 E	-	-	-
2	-	-	-	-	-	-	98.183 E	98.020	97.970 E	-	-	-
3	-	-	-	-	-	-	98.174 E	98.019	97.969 E	-	-	-
4	-	-	-	-	-	-	98.167 E	98.016	97.966 E	-	-	-
5	-	-	-	-	-	-	98.162 E	98.010	97.964 E	-	-	-
6	-	-	-	-	-	-	98.155 E	98.017 E	97.961 E	-	-	-
7	-	-	-	-	-	98.007 E	98.147 E	98.014 E	97.959 E	-	-	-
8	-	-	-	-	-	98.134 E	98.137 E	98.009 E	97.954 E	-	-	-
9	-	-	-	-	-	98.148 E	98.134 E	98.004 E	97.952 E	-	-	-
10	-	-	-	-	-	98.156 E	98.127 E	98.000 E	97.946 E	-	-	-
11	-	-	-	-	-	98.167 E	98.120 E	97.993 E	97.940 E	-	-	-
12	-	-	-	-	-	98.183 E	98.114 E	97.988 E	97.932 E	-	-	-
13	-	-	-	-	-	98.204 E	98.108 E	97.992 E	97.924 E	-	-	-
14	-	-	-	-	-	98.213 E	98.099 E	97.994 E	97.922 E	-	-	-
15	-	-	-	-	-	98.231 E	98.091 E	97.993 E	97.919 E	-	-	-
16	-	-	-	-	-	98.265 E	98.082 E	97.990 E	97.916 E	-	-	-
17	-	-	-	-	-	98.285 E	98.042	97.988 E	97.915 E	-	-	-
18	-	-	-	-	-	98.298 E	98.038	97.985 E	97.905 E	-	-	-
19	-	-	-	-	-	98.288 E	98.037	97.982 E	97.894 E	-	-	-
20	-	-	-	-	-	98.278 E	98.035	97.979 E	97.883 E	-	-	-
21	-	-	-	-	-	98.268 E	98.030	97.973 E	97.871 E	-	-	-
22	-	-	-	-	-	98.255 E	98.025	97.969 E	97.859 E	-	-	-
23	-	-	-	-	-	98.236 E	98.021	97.966 E	97.845 E	-	-	-
24	-	-	-	-	-	98.228 E	98.019	97.976 E	97.830 E	-	-	-
25	-	-	-	-	-	98.222 E	98.017	97.979 E	97.813 E	-	-	-
26	-	-	-	-	-	98.214 E	98.012	97.980 E	97.794 E	-	-	-
27	-	-	-	-	-	98.206 E	98.013	97.981 E	97.772 E	-	-	-
28	-	-	-	-	-	98.202 E	98.014	97.969 E	97.744 E	-	-	-
29	-	-	-	-	-	98.201 E	98.015	97.971 E	97.705 E	-	-	-
30	-	-	-	-	-	98.197 E	98.013	97.973 E	-	-	-	-
31	-	-	-	-	-	-	98.011	97.973 E	-	-	-	-
MIN	-	-	-	-	-	98.007	98.011	97.966	97.705	-	-	-
MEAN	-	-	-	-	-	98.212	98.082	97.991	97.896	-	-	-
MAX	-	-	-	-	-	98.298	98.192	98.020	97.972	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G

HYDROMETRIC DATA 2004-2008

H74 – DORIS LAKE – 2005

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 23.546 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.826 D	21.619 D	21.513 D	21.434	21.372	21.377
2	-	-	-	-	-	-	21.815 D	21.620 D	21.513 D	21.429	21.371	21.378
3	-	-	-	-	-	-	21.808 D	21.614 D	21.513 D	21.424	21.370	21.378
4	-	-	-	-	-	-	21.803 D	21.612 D	21.512 D	21.421	21.369	21.377
5	-	-	-	-	-	-	21.798 D	21.603 D	21.510 D	21.419	21.369	21.377
6	-	-	-	-	-	-	21.793 D	21.596 D	21.509 D	21.416	21.368	21.378
7	-	-	-	-	-	-	21.786 D	21.589 D	21.507 D	21.413	21.368	21.379
8	-	-	-	-	-	21.761 E	21.772 D	21.582 D	21.500 D	21.412	21.370	21.378
9	-	-	-	-	-	21.777 E	21.770 D	21.575 D	21.498 D	21.412	21.371	21.378
10	-	-	-	-	-	21.787 E	21.765 D	21.569 D	21.494 D	21.410	21.371	21.376
11	-	-	-	-	-	21.800 E	21.757 D	21.558 D	21.487 D	21.408	21.370	21.372
12	-	-	-	-	-	21.819 E	21.748 D	21.553 D	21.478 D	21.407	21.370	21.371
13	-	-	-	-	-	21.842 E	21.742 D	21.554 D	21.470 D	21.410	21.372	21.372
14	-	-	-	-	-	21.854 E	21.732 D	21.556 D	21.469 D	21.407	21.372	21.378
15	-	-	-	-	-	21.875 E	21.719 D	21.556 D	21.466 D	21.404	21.373	21.379
16	-	-	-	-	-	21.913 E	21.708 D	21.552 D	21.466 D	21.401	21.373	21.379
17	-	-	-	-	-	21.935 E	21.697 D	21.546 D	21.465 D	21.398	21.373	21.380
18	-	-	-	-	-	21.950 E	21.684 D	21.541 D	21.483	21.397	21.375	21.384
19	-	-	-	-	-	21.939 E	21.679 D	21.538 D	21.479	21.394	21.376	21.386
20	-	-	-	-	-	21.927 E	21.675 D	21.535 D	21.476	21.392	21.378	21.387
21	-	-	-	-	-	21.916 E	21.669 D	21.524 D	21.474	21.391	21.377	21.384
22	-	-	-	-	-	21.901 E	21.661 D	21.520 D	21.471	21.388	21.377	21.381
23	-	-	-	-	-	21.880 E	21.654 D	21.515 D	21.468	21.386	21.378	21.380
24	-	-	-	-	-	21.871 E	21.647 D	21.520 D	21.465	21.387	21.377	21.379
25	-	-	-	-	-	21.864 E	21.643 D	21.522 D	21.461	21.385	21.377	21.379
26	-	-	-	-	-	21.854 E	21.636 D	21.522 D	21.457	21.383	21.377	21.379
27	-	-	-	-	-	21.848 D	21.636 D	21.523 D	21.455	21.380	21.377	21.379
28	-	-	-	-	-	21.842 D	21.631 D	21.515 D	21.451	21.378	21.376	21.380
29	-	-	-	-	-	21.831 D	21.627 D	21.504 D	21.446	21.376	21.377	21.380
30	-	-	-	-	-	21.827 D	21.621 D	21.508 D	21.443	21.374	21.377	21.380
31	-	-	-	-	-	-	21.618 D	21.512 D	21.439	21.373	-	21.379
MIN	-	-	-	-	-	21.761	21.618	-	-	21.373	21.368	21.371
MEAN	-	-	-	-	-	21.861	21.714	-	-	21.400	21.373	21.379
MAX	-	-	-	-	-	21.950	21.826	-	21.435	21.434	21.378	21.387



APPENDIX G HYDROMETRIC DATA 2004-2008

H75 – TAIL LAKE – 2005

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 29.339 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	28.153	28.145	28.151	28.151	28.157	28.212	28.294	28.251	28.235	28.194		28.200
2	28.153	28.147	28.153	28.152	28.155	28.221	28.294	28.257	28.234	28.192	28.196	28.200
3	28.153	28.148	28.156	28.153	28.156	28.228	28.291	28.257	28.233	28.192	28.191	28.201
4	28.152	28.149	28.157	28.155	28.157	28.242	28.290	28.256	28.231	28.191	28.192	28.200
5	28.153	28.148	28.157	28.153	28.157	28.253	28.291	28.253	28.230	28.191	28.198	28.200
6	28.154	28.149	28.157	28.152	28.157	28.257	28.287	28.250	28.228	28.189	28.197	28.200
7	28.155	28.148	28.157	28.152	28.158	28.260	28.284	28.249	28.227	28.189	28.197	28.202
8	28.156	28.149	28.156	28.152	28.158	28.265	28.283	28.246	28.225	28.187	28.199	28.202
9	28.156	28.150	28.156	28.152	28.158	28.271	28.284	28.243	28.223	28.188	28.201	28.201
10	28.157	28.150	28.157	28.153	28.158	28.275	28.282	28.239	28.220	28.191	28.201	28.199
11	28.157	28.152	28.157	28.154	28.157	28.280	28.280	28.234	28.217	28.191	28.201	28.198
12	28.157	28.153	28.156	28.155	28.157	28.287	28.277	28.231	28.211	28.193	28.197	28.198
13	28.157	28.152	28.155	28.154	28.157	28.296	28.275	28.237	28.206	28.191	28.198	28.199
14	28.157	28.153	28.154	28.156	28.156	28.301	28.271	28.242	28.205	28.194	-	28.200
15	28.158	28.152	28.154	28.157	28.155	28.308	28.268	28.243	28.205	28.199	28.202	28.202
16	28.156	28.151	28.154	28.159	28.155	28.323	28.264	28.241	28.204	28.198	-	28.202
17	28.153	28.151	28.154	28.160	28.156	28.332	28.258	28.240	28.203	28.196	-	28.201
18	28.154	28.151	28.154	28.159	28.155	28.337	28.255 P	28.238	28.201	28.192	-	28.204
19	28.153	28.151	28.154	28.159	28.155	28.313	28.254 E	28.236	28.201	28.194	-	28.206
20	28.152	28.152	28.154	28.157	28.155	28.311	28.253 E	28.235	28.200	28.196	28.193	28.206
21	28.150	28.150	28.153	28.156	28.153	28.307	28.253 E	28.231	28.200	28.198	28.194	28.206
22	28.150	28.149	28.153	28.155	28.153	28.319	28.252 E	28.231	28.203	28.198	28.197	28.205
23	28.151	28.150	28.151	28.157	28.152	28.311	28.252 E	28.231	28.206	28.197	28.199	28.202
24	28.153	28.151	28.152	28.160	28.152	28.307	28.251 E	28.239	28.203	28.195	28.198	28.200
25	28.153	28.149	28.154	28.160	28.153	28.304	28.251 E	28.242	28.196	28.192	28.198	28.199
26	28.153	28.149	28.155	28.161	28.153	28.301	28.250 E	28.242	28.193	28.190	28.198	28.201
27	28.152	28.150	28.156	28.162	28.158	28.299	28.249 E	28.242	28.199	28.188	28.198	28.201
28	28.150	28.150	28.156	28.162	28.161	28.297	28.249 P	28.237	28.198	28.187	28.198	28.200
29	28.147		28.153	28.161	28.164	28.293	28.249	28.235	28.195	28.186	28.200	28.199
30	28.146		28.152	28.161	28.182	28.293	28.247	28.237	28.194	28.187	28.200	28.202
31	28.146		28.151		28.199		28.245	28.237	-	28.188	-	28.201
MIN	28.146	28.145	28.151	28.151	28.152	28.212	28.245	28.231	28.193	28.186	28.191	28.198
MEAN	28.153	28.150	28.154	28.156	28.158	28.287	28.267	28.241	28.211	28.192	28.198	28.201
MAX	28.158	28.153	28.157	28.162	28.199	28.337	28.294	28.257	28.235	28.199	28.202	28.206

MEAN DAILY WATER TEMPERATURE (°C) AT TRANSDUCER

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	2.136	1.912	1.718	1.749	1.949	2.861	3.642	9.878	8.090	-	-	-
2	2.131	1.888	1.725	1.745	1.950	2.890	3.904	10.251	7.929	-	-	-
3	2.133	1.885	1.721	1.744	1.957	2.893	4.059	10.383	8.182	-	-	-
4	2.135	1.891	1.727	1.743	1.964	2.918	3.884	10.943	8.347	-	-	-
5	2.131	1.888	1.725	1.756	1.946	2.935	3.831	11.237	8.644	-	-	-
6	2.120	1.872	1.713	1.765	1.944	2.936	3.886	11.418	8.801	-	-	-
7	2.090	1.862	1.713	1.774	1.954	2.969	4.098	11.691	8.922	-	-	-
8	2.082	1.846	1.727	1.780	1.960	3.031	4.096	11.809	8.907	-	-	-
9	2.089	1.832	1.730	1.788	1.966	3.064	4.065	11.858	8.747	-	-	-
10	2.084	1.817	1.719	1.796	1.974	3.137	4.090	11.913	8.502	-	-	-
11	2.065	1.818	1.727	1.802	1.981	3.216	4.415	11.974	8.016	-	-	-
12	2.054	1.814	1.735	1.805	1.987	3.286	5.284	11.952	7.305	-	-	-
13	2.053	1.812	1.754	1.803	1.993	3.304	6.123	11.761	6.388	-	-	-
14	2.038	1.821	1.752	1.808	1.998	3.356	7.148	11.380	5.688	-	-	-
15	2.035	1.823	1.739	1.815	2.006	3.344	8.110	11.145	5.168	-	-	-
16	2.030	1.810	1.739	1.815	2.016	3.364	8.581	10.712	4.824	-	-	-
17	2.023	1.795	1.738	1.828	2.024	3.490	8.893	10.530	4.677 P	-	-	-
18	2.022	1.786	1.740	1.841	2.031	3.603	9.071 P	10.612	-	-	-	-
19	2.028	1.779	1.740	1.847	2.039	3.673	9.008 E	10.853	-	-	-	-
20	2.010	1.774	1.731	1.857	2.049	3.752	8.944 E	11.295	-	-	-	-
21	1.997	1.756	1.730	1.865	2.056	3.807	8.881 E	11.640	-	-	-	-
22	2.000	1.744	1.730	1.872	2.068	3.885	8.818 E	11.613	-	-	-	-
23	1.997	1.733	1.735	1.882	2.076	3.973	8.755 E	10.846	-	-	-	-
24	1.990	1.731	1.750	1.893	2.083	3.998	8.691 E	10.024	-	-	-	-
25	1.990	1.733	1.741	1.899	2.093	4.042	8.628 E	10.100	-	-	-	-
26	1.981	1.730	1.730	1.907	2.107	4.105	8.565 E	10.350	-	-	-	-
27	1.976	1.720	1.728	1.919	2.132	4.115	8.501 E	10.940	-	-	-	-
28	1.968	1.708	1.747	1.925	2.185	4.150	8.438 P	10.583	-	-	-	-
29	1.951		1.743	1.927	2.330	4.255	8.794	9.505	-	-	-	-
30	1.950		1.733	1.935	2.522	4.136	9.402	8.951	-	-	-	-
31	1.931		1.734		2.706		9.604	8.499	-	-	-	-
MIN	1.931	1.708	1.713	1.743	1.944	2.861	3.642	8.499	4.677	-	-	-
MEAN	2.039	1.806	1.733	1.829	2.066	3.483	6.846	10.860	7.479	-	-	-
MAX	2.136	1.912	1.754	1.935	2.706	4.255	9.604	11.974	8.922	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H76 – TAIL OUTFLOW – 2005

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.060	0.032	0.028	-	-	-
2	-	-	-	-	-	-	0.062	0.038	0.029	-	-	-
3	-	-	-	-	-	-	0.064	0.040	0.029	-	-	-
4	-	-	-	-	-	-	0.062	0.041	0.027	-	-	-
5	-	-	-	-	-	-	0.060	0.039	0.027	-	-	-
6	-	-	-	-	-	0.000 E	0.060	0.038	0.025	-	-	-
7	-	-	-	-	-	0.019 E	0.060	0.037	0.025	-	-	-
8	-	-	-	-	-	0.039 E	0.055	0.036	0.022	-	-	-
9	-	-	-	-	-	0.043 E	0.053	0.033	0.019	-	-	-
10	-	-	-	-	-	0.046 E	0.054	0.031	0.017	-	-	-
11	-	-	-	-	-	0.050 E	0.052	0.028	0.014	-	-	-
12	-	-	-	-	-	0.056 E	0.049	0.026	0.010	-	-	-
13	-	-	-	-	-	0.065 E	0.050	0.035	0.007	-	-	-
14	-	-	-	-	-	0.069 E	0.045	0.038	0.008	-	-	-
15	-	-	-	-	-	0.078 E	0.038	0.038	0.008	-	-	-
16	-	-	-	-	-	0.096 E	0.034	0.036	0.008	-	-	-
17	-	-	-	-	-	0.109 E	0.029	0.037	0.008 P	-	-	-
18	-	-	-	-	-	0.117 E	0.026	0.037	0.007 E	-	-	-
19	-	-	-	-	-	0.083 E	0.025	0.036	0.006 E	-	-	-
20	-	-	-	-	-	0.081 E	0.024	0.035	0.006 E	-	-	-
21	-	-	-	-	-	0.076 E	0.021	0.032	0.005 E	-	-	-
22	-	-	-	-	-	0.090 E	0.019	0.028	0.005 E	-	-	-
23	-	-	-	-	-	0.080 E	0.020	0.025	0.004 E	-	-	-
24	-	-	-	-	-	0.076 E	0.020	0.037	0.004 E	-	-	-
25	-	-	-	-	-	0.073 E	0.020	0.043	0.003 E	-	-	-
26	-	-	-	-	-	0.063 P	0.020	0.046	0.003 E	-	-	-
27	-	-	-	-	-	0.057	0.021	0.044	0.002 E	-	-	-
28	-	-	-	-	-	0.061	0.023	0.024	0.002 E	-	-	-
29	-	-	-	-	-	0.062	0.025	0.026	0.001 E	-	-	-
30	-	-	-	-	-	0.060	0.025	0.031	0.000 E	-	-	-
31	-	-	-	-	-	-	0.026	0.030	-	-	-	-
MIN	-	-	-	-	-	0.000	0.019	0.024	0.000	-	-	-
MEAN	-	-	-	-	-	0.066	0.039	0.035	0.012	-	-	-
MAX	-	-	-	-	-	0.117	0.064	0.046	0.029	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	24.280	24.247	24.241	-	-	-
2	-	-	-	-	-	-	24.281	24.257	24.243	-	-	-
3	-	-	-	-	-	-	24.283	24.259	24.244	-	-	-
4	-	-	-	-	-	-	24.281	24.260	24.240	-	-	-
5	-	-	-	-	-	-	24.280	24.258	24.239	-	-	-
6	-	-	-	-	-	-	24.280	24.257	24.235	-	-	-
7	-	-	-	-	-	-	24.279	24.255	24.236	-	-	-
8	-	-	-	-	-	-	24.275	24.253	24.230	-	-	-
9	-	-	-	-	-	-	24.274	24.250	24.224	-	-	-
10	-	-	-	-	-	-	24.274	24.247	24.218	-	-	-
11	-	-	-	-	-	-	24.272	24.242	24.208	-	-	-
12	-	-	-	-	-	-	24.269	24.239	24.195	-	-	-
13	-	-	-	-	-	-	24.270	24.252	24.184	-	-	-
14	-	-	-	-	-	-	24.265	24.256	24.187	-	-	-
15	-	-	-	-	-	-	24.256	24.256	24.187	-	-	-
16	-	-	-	-	-	-	24.250	24.253	24.187	-	-	-
17	-	-	-	-	-	-	24.243	24.254	24.185 P	-	-	-
18	-	-	-	-	-	-	24.238	24.255	-	-	-	-
19	-	-	-	-	-	-	24.236	24.254	-	-	-	-
20	-	-	-	-	-	-	24.234	24.253	-	-	-	-
21	-	-	-	-	-	-	24.229	24.248	-	-	-	-
22	-	-	-	-	-	-	24.225	24.242	-	-	-	-
23	-	-	-	-	-	-	24.225	24.236	-	-	-	-
24	-	-	-	-	-	-	24.225	24.255	-	-	-	-
25	-	-	-	-	-	-	24.226	24.263	-	-	-	-
26	-	-	-	-	-	24.282 P	24.225	24.265	-	-	-	-
27	-	-	-	-	-	24.277	24.228	24.263	-	-	-	-
28	-	-	-	-	-	24.280	24.233	24.233	-	-	-	-
29	-	-	-	-	-	24.281	24.236	24.239	-	-	-	-
30	-	-	-	-	-	24.280	24.236	24.246	-	-	-	-
31	-	-	-	-	-	-	24.238	24.244	-	-	-	-
MIN	-	-	-	-	-	24.277	24.225	24.233	24.184	-	-	-
MEAN	-	-	-	-	-	24.280	24.253	24.251	24.217	-	-	-
MAX	-	-	-	-	-	24.282	24.283	24.265	24.244	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H71 – DORIS OUTFLOW – 2006

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.369 E	0.988	0.275	0.065	-	-	-
2	-	-	-	-	-	0.843 E	0.957	0.264	0.061	-	-	-
3	-	-	-	-	-	1.428 E	0.928	0.253	0.062	-	-	-
4	-	-	-	-	-	2.101 E	0.880	0.243	0.059	-	-	-
5	-	-	-	-	-	2.284 E	0.834	0.230	0.055	-	-	-
6	-	-	-	-	-	2.450 E	0.788	0.220	0.053	-	-	-
7	-	-	-	-	-	2.543 E	0.746	0.209	0.053	-	-	-
8	-	-	-	-	-	2.611 E	0.701	0.202	0.050 P	-	-	-
9	-	-	-	-	-	2.682 E	0.663	0.199	0.048 E	-	-	-
10	-	-	-	-	-	2.723 E	0.633	0.190	0.046 E	-	-	-
11	-	-	-	-	-	2.679 E	0.608	0.178	0.044 E	-	-	-
12	-	-	-	-	-	2.659 E	0.586	0.172	0.041 E	-	-	-
13	-	-	-	-	-	2.629 E	0.566	0.168	0.039 E	-	-	-
14	-	-	-	-	-	2.507 E	0.543	0.168	0.037 E	-	-	-
15	-	-	-	-	-	2.401 E	0.526	0.165	0.034 E	-	-	-
16	-	-	-	-	-	2.252 E	0.500	0.158	0.032 E	-	-	-
17	-	-	-	-	-	2.098 E	0.472	0.152	0.030 E	-	-	-
18	-	-	-	-	-	1.968 E	0.437	0.147	0.027 E	-	-	-
19	-	-	-	-	-	1.854 E	0.426	0.135	0.025 E	-	-	-
20	-	-	-	-	-	1.744 E	0.423	0.129	0.023 E	-	-	-
21	-	-	-	-	-	1.642 E	0.409	0.126	0.021 E	-	-	-
22	-	-	-	-	-	1.548 E	0.385	0.123	0.018 E	-	-	-
23	-	-	-	-	-	1.458 E	0.371	0.119	0.016 E	-	-	-
24	-	-	-	-	-	1.384 E	0.364	0.108	0.014 E	-	-	-
25	-	-	-	-	-	1.309 P	0.355	0.106	0.011 E	-	-	-
26	-	-	-	-	-	1.260	0.340	0.100	0.009 E	-	-	-
27	-	-	-	-	-	1.193	0.305	0.091	0.007 E	-	-	-
28	-	-	-	-	-	1.099	0.302	0.088	0.005 E	-	-	-
29	-	-	-	-	-	1.042	0.296	0.088	0.002 E	-	-	-
30	-	-	-	-	-	0.997	0.285	0.081	0.000 E	-	-	-
31	-	-	-	-	0.000 E	-	0.282	0.067	-	-	-	-
MIN	-	-	-	-	0.000	0.369	0.282	0.067	0.000	-	-	-
MEAN	-	-	-	-	0.000	1.859	0.545	0.160	0.033	-	-	-
MAX	-	-	-	-	0.000	2.723	0.988	0.275	0.065	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 22.593 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.484	21.286	21.156	-	-	-
2	-	-	-	-	-	-	21.478	21.281	21.153	-	-	-
3	-	-	-	-	-	-	21.472	21.276	21.153	-	-	-
4	-	-	-	-	-	-	21.462	21.272	21.150	-	-	-
5	-	-	-	-	-	-	21.452	21.266	21.146	-	-	-
6	-	-	-	-	-	-	21.441	21.261	21.144	-	-	-
7	-	-	-	-	-	-	21.431	21.255	21.143	-	-	-
8	-	-	-	-	-	-	21.421	21.252	21.141 P	-	-	-
9	-	-	-	-	-	-	21.411	21.250	-	-	-	-
10	-	-	-	-	-	-	21.403	21.245	-	-	-	-
11	-	-	-	-	-	-	21.397	21.239	-	-	-	-
12	-	-	-	-	-	-	21.391	21.235	-	-	-	-
13	-	-	-	-	-	-	21.385	21.233	-	-	-	-
14	-	-	-	-	-	-	21.379	21.233	-	-	-	-
15	-	-	-	-	-	-	21.374	21.231	-	-	-	-
16	-	-	-	-	-	-	21.366	21.227	-	-	-	-
17	-	-	-	-	-	-	21.357	21.223	-	-	-	-
18	-	-	-	-	-	-	21.346	21.221	-	-	-	-
19	-	-	-	-	-	-	21.343	21.213	-	-	-	-
20	-	-	-	-	-	-	21.342	21.209	-	-	-	-
21	-	-	-	-	-	-	21.337	21.207	-	-	-	-
22	-	-	-	-	-	-	21.329	21.205	-	-	-	-
23	-	-	-	-	-	-	21.324	21.202	-	-	-	-
24	-	-	-	-	-	-	21.321	21.194	-	-	-	-
25	-	-	-	-	-	21.543 P	21.318	21.193	-	-	-	-
26	-	-	-	-	-	21.535	21.312	21.188	-	-	-	-
27	-	-	-	-	-	21.523	21.298	21.181	-	-	-	-
28	-	-	-	-	-	21.505	21.297	21.178	-	-	-	-
29	-	-	-	-	-	21.495	21.295	21.178	-	-	-	-
30	-	-	-	-	-	21.486	21.290	21.172	-	-	-	-
31	-	-	-	-	-	-	21.289	21.159	-	-	-	-
MIN	-	-	-	-	-	21.486	21.289	21.159	21.141	-	-	-
MEAN	-	-	-	-	-	21.514	21.372	21.225	21.148	-	-	-
MAX	-	-	-	-	-	21.543	21.484	21.286	21.156	-	-	-

E - ESTIMATED

P - PARTIAL DAILY



APPENDIX G HYDROMETRIC DATA 2004-2008

H72 – ROBERTS LAKE AND OUTFLOW – 2006

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	1.474 E	0.779	0.246	0.029	-	-	-
2	-	-	-	-	-	1.923 E	0.747	0.237	0.027	-	-	-
3	-	-	-	-	-	2.110 E	0.719	0.228	0.025	-	-	-
4	-	-	-	-	-	2.245 E	0.681	0.221	0.021	-	-	-
5	-	-	-	-	-	2.761 E	0.651	0.216	0.022	-	-	-
6	-	-	-	-	-	3.371 E	0.614	0.213	0.021	-	-	-
7	-	-	-	-	-	3.300 E	0.583	0.200	0.020 P	-	-	-
8	-	-	-	-	-	3.339 E	0.553	0.190	0.019	-	-	-
9	-	-	-	-	-	3.503 E	0.524	0.180	0.018	-	-	-
10	-	-	-	-	-	3.622 E	0.501	0.180	0.017	-	-	-
11	-	-	-	-	-	3.622 E	0.479	0.172	0.016	-	-	-
12	-	-	-	-	-	3.607 E	0.463	0.171	0.015	-	-	-
13	-	-	-	-	-	3.372 E	0.446	0.170	0.015	-	-	-
14	-	-	-	-	-	2.922 E	0.436	0.162	0.014	-	-	-
15	-	-	-	-	-	2.647 E	0.419	0.143	0.013	-	-	-
16	-	-	-	-	-	2.407 E	0.404	0.118	0.012	-	-	-
17	-	-	-	-	-	2.135 E	0.379	0.115	0.011	-	-	-
18	-	-	-	-	-	1.828 E	0.362	0.107	0.010	-	-	-
19	-	-	-	-	-	1.566 E	0.353	0.084	0.009	-	-	-
20	-	-	-	-	-	1.329 E	0.349	0.074	0.009	-	-	-
21	-	-	-	-	-	1.156 E	0.336	0.070	0.008	-	-	-
22	-	-	-	-	-	1.018 E	0.322	0.061	0.007	-	-	-
23	-	-	-	-	-	0.926 E	0.325	0.084	0.006	-	-	-
24	-	-	-	-	-	0.828 E	0.327	0.079	0.005	-	-	-
25	-	-	-	-	-	0.823 E	0.317	0.077	0.004	-	-	-
26	-	-	-	-	0.000 E	0.819 E	0.303	0.067	0.003	-	-	-
27	-	-	-	-	0.000 E	0.814 E	0.277	0.057	0.003	-	-	-
28	-	-	-	-	0.000 E	0.810 E	0.279	0.054	0.002	-	-	-
29	-	-	-	-	0.000 E	0.806 P	0.271	0.052	0.001	-	-	-
30	-	-	-	-	0.000 E	0.787	0.267	0.054	0.000	-	-	-
31	-	-	-	-	0.640 E	-	0.257	0.037	-	-	-	-
MIN	-	-	-	-	0.000	0.787	0.257	0.037	0.000	-	-	-
MEAN	-	-	-	-	0.107	2.062	0.443	0.133	0.013	-	-	-
MAX	-	-	-	-	0.640	3.622	0.779	0.246	0.029	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 6.958 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	6.174	6.019	5.924	-	-	-
2	-	-	-	-	-	-	6.168	6.014	5.922	-	-	-
3	-	-	-	-	-	6.365 E	6.161	6.010	5.920	-	-	-
4	-	-	-	-	-	6.379 E	6.153	6.007	5.916	-	-	-
5	-	-	-	-	-	6.428 E	6.146	6.004	5.917	-	-	-
6	-	-	-	-	-	6.479 E	6.137	6.003	5.915 P	-	-	-
7	-	-	-	-	-	6.473 E	6.129	5.996	-	-	-	-
8	-	-	-	-	-	6.476 E	6.122	5.991	-	-	-	-
9	-	-	-	-	-	6.489 E	6.114	5.986	-	-	-	-
10	-	-	-	-	-	6.497 E	6.108	5.985	-	-	-	-
11	-	-	-	-	-	6.497 E	6.101	5.981	-	-	-	-
12	-	-	-	-	-	6.496 E	6.097	5.980	-	-	-	-
13	-	-	-	-	-	6.479 E	6.092	5.979	-	-	-	-
14	-	-	-	-	-	6.442 E	6.089	5.977	-	-	-	-
15	-	-	-	-	-	6.418 E	6.083	5.972	-	-	-	-
16	-	-	-	-	-	6.395 E	6.078	5.965	-	-	-	-
17	-	-	-	-	-	6.368 E	6.070	5.965	-	-	-	-
18	-	-	-	-	-	6.334 E	6.064	5.962	-	-	-	-
19	-	-	-	-	-	6.302 E	6.061	5.955	-	-	-	-
20	-	-	-	-	-	6.269 E	6.060	5.951	-	-	-	-
21	-	-	-	-	-	6.243 E	6.055	5.949	-	-	-	-
22	-	-	-	-	-	6.220 E	6.050	5.944	-	-	-	-
23	-	-	-	-	-	6.204 E	6.051	5.953	-	-	-	-
24	-	-	-	-	-	6.185 E	6.052	5.953	-	-	-	-
25	-	-	-	-	-	6.184 E	6.048	5.952	-	-	-	-
26	-	-	-	-	-	6.183 E	6.042	5.948	-	-	-	-
27	-	-	-	-	-	6.182 E	6.032	5.943	-	-	-	-
28	-	-	-	-	-	6.181 E	6.033	5.942	-	-	-	-
29	-	-	-	-	-	6.180 P	6.029	5.941	-	-	-	-
30	-	-	-	-	-	6.176	6.028	5.941	-	-	-	-
31	-	-	-	-	-	-	6.023	5.931	-	-	-	-
MIN	-	-	-	-	-	6.176	6.023	5.931	5.915	-	-	-
MEAN	-	-	-	-	-	6.340	6.085	5.971	5.919	-	-	-
MAX	-	-	-	-	-	6.497	6.174	6.019	5.924	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H73 – LITTLE ROBERTS OUTFLOW – 2006

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	1.843	1.595	0.528	0.120	-	-	-
2	-	-	-	-	-	2.766	1.534	0.512	0.105	-	-	-
3	-	-	-	-	-	3.538	1.467	0.495	0.104	-	-	-
4	-	-	-	-	-	4.345	1.377	0.448	0.097	-	-	-
5	-	-	-	-	-	5.045	1.304	0.417	0.094	-	-	-
6	-	-	-	-	-	5.821	1.221	0.418	0.090	-	-	-
7	-	-	-	-	-	5.843	1.147	0.395	0.092	-	-	-
8	-	-	-	-	-	5.950	1.085	0.387	0.096 P	-	-	-
9	-	-	-	-	-	6.185	1.022	0.383	0.092 E	-	-	-
10	-	-	-	-	-	6.345	0.977	0.395	0.087 E	-	-	-
11	-	-	-	-	-	6.301	0.937	0.370	0.083 E	-	-	-
12	-	-	-	-	-	6.266	0.915	0.365	0.079 E	-	-	-
13	-	-	-	-	-	6.001	0.889	0.384	0.074 E	-	-	-
14	-	-	-	-	-	5.429	0.868	0.409	0.070 E	-	-	-
15	-	-	-	-	-	5.048	0.849	0.400	0.066 E	-	-	-
16	-	-	-	-	-	4.659	0.821	0.382	0.061 E	-	-	-
17	-	-	-	-	-	4.233	0.779	0.375	0.057 E	-	-	-
18	-	-	-	-	-	3.796	0.738	0.381	0.052 E	-	-	-
19	-	-	-	-	-	3.421	0.727	0.341	0.048 E	-	-	-
20	-	-	-	-	-	3.073	0.737	0.310	0.044 E	-	-	-
21	-	-	-	-	-	2.798	0.721	0.300	0.039 E	-	-	-
22	-	-	-	-	-	2.566	0.693	0.293	0.035 E	-	-	-
23	-	-	-	-	-	2.384	0.699	0.280	0.031 E	-	-	-
24	-	-	-	-	-	2.212	0.716	0.255	0.026 E	-	-	-
25	-	-	-	-	-	2.050	0.701	0.242	0.022 E	-	-	-
26	-	-	-	-	0.000 E	1.946	0.659	0.229	0.017 E	-	-	-
27	-	-	-	-	0.036 E	1.882	0.543	0.204	0.013 E	-	-	-
28	-	-	-	-	0.072 E	1.807	0.519	0.186	0.009 E	-	-	-
29	-	-	-	-	0.108 E	1.705	0.534	0.183	0.004 E	-	-	-
30	-	-	-	-	0.144 P	1.616	0.532	0.178	0.000 E	-	-	-
31	-	-	-	-	0.640	-	0.529	0.146	-	-	-	-
MIN	-	-	-	-	0.000	1.616	0.519	0.146	0.000	-	-	-
MEAN	-	-	-	-	0.072	3.896	0.898	0.342	0.060	-	-	-
MAX	-	-	-	-	0.144	6.345	1.595	0.528	0.120	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.482 m (ASSUMED)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	98.069	98.051	97.915	97.845	-	-	-
2	-	-	-	-	-	98.146	98.045	97.914	97.838	-	-	-
3	-	-	-	-	-	98.194	98.038	97.912	97.838	-	-	-
4	-	-	-	-	-	98.236	98.028	97.907	97.835	-	-	-
5	-	-	-	-	-	98.268	98.019	97.903	97.834	-	-	-
6	-	-	-	-	-	98.300	98.009	97.903	97.832	-	-	-
7	-	-	-	-	-	98.301	98.000	97.901	97.833	-	-	-
8	-	-	-	-	-	98.305	97.992	97.900	97.835 P	-	-	-
9	-	-	-	-	-	98.314	97.983	97.899	-	-	-	-
10	-	-	-	-	-	98.320	97.976	97.901	-	-	-	-
11	-	-	-	-	-	98.318	97.970	97.897	-	-	-	-
12	-	-	-	-	-	98.317	97.967	97.897	-	-	-	-
13	-	-	-	-	-	98.307	97.963	97.899	-	-	-	-
14	-	-	-	-	-	98.284	97.960	97.902	-	-	-	-
15	-	-	-	-	-	98.268	97.957	97.901	-	-	-	-
16	-	-	-	-	-	98.251	97.952	97.899	-	-	-	-
17	-	-	-	-	-	98.231	97.945	97.898	-	-	-	-
18	-	-	-	-	-	98.209	97.937	97.899	-	-	-	-
19	-	-	-	-	-	98.188	97.935	97.893	-	-	-	-
20	-	-	-	-	-	98.167	97.937	97.889	-	-	-	-
21	-	-	-	-	-	98.149	97.934	97.887	-	-	-	-
22	-	-	-	-	-	98.133	97.930	97.886	-	-	-	-
23	-	-	-	-	-	98.120	97.931	97.884	-	-	-	-
24	-	-	-	-	-	98.107	97.933	97.879	-	-	-	-
25	-	-	-	-	-	98.093	97.931	97.877	-	-	-	-
26	-	-	-	-	-	98.085	97.927	97.874	-	-	-	-
27	-	-	-	-	-	98.079	97.917	97.869	-	-	-	-
28	-	-	-	-	-	98.072	97.915	97.864	-	-	-	-
29	-	-	-	-	-	98.062	97.916	97.863	-	-	-	-
30	-	-	-	-	97.852 P	98.053	97.916	97.862	-	-	-	-
31	-	-	-	-	97.930	-	97.916	97.853	-	-	-	-
MIN	-	-	-	-	97.852	98.053	97.915	97.853	97.832	-	-	-
MEAN	-	-	-	-	97.852	98.198	97.962	97.891	97.836	-	-	-
MAX	-	-	-	-	97.852	98.320	98.051	97.915	97.845	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H74 – DORIS LAKE – 2006 MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 23.546 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	21.407	21.412	21.422	21.426	21.451	21.792	21.716	21.506	21.380	21.355	21.362	21.375
2	21.407	21.410	21.422	21.426	21.449	21.820	21.708	21.502	21.376	21.357	21.363	21.375
3	21.407	21.409	21.421	21.426	21.448	21.847	21.700	21.497	21.374	21.358	21.363	21.374
4	21.408	21.411	21.420	21.427	21.449	21.870	21.690	21.491	21.370	21.356	21.364	21.370
5	21.409	21.418	21.421	21.426	21.448	21.890	21.679	21.487	21.368	21.351	21.364	21.372
6	21.409	21.417	21.421	21.426	21.450	21.907	21.668	21.484	21.366	21.352	21.365	21.374
7	21.408	21.418	21.421	21.426	21.452	21.916	21.658	21.478	21.365	21.352	21.366	21.372
8	21.408	21.417	21.421	21.430	21.452	21.923	21.647	21.473	21.365	21.354	21.366	21.372
9	21.408	21.418	21.421	21.429	21.452	21.929	21.637	21.470	21.366	21.353	21.366	21.372
10	21.408	21.418	21.421	21.429	21.452	21.933	21.628	21.467	21.366	21.349	21.366	21.373
11	21.409	21.418	21.421	21.430	21.452	21.929	21.620	21.464	21.365	21.350	21.366	21.374
12	21.409	21.418	21.422	21.429	21.453	21.927	21.612	21.460	21.365	21.349	21.366	21.369
13	21.410	21.418	21.423	21.429	21.453	21.924	21.606	21.458	21.369	21.350	21.366	21.368
14	21.410	21.418	21.424	21.429	21.454	21.913	21.602	21.454	21.367	21.356	21.366	21.368
15	21.410	21.418	21.424	21.429	21.460	21.902	21.595	21.448	21.367	21.355	21.367	21.369
16	21.410	21.417	21.427	21.429	21.475	21.887	21.589	21.443	21.367	21.355	21.367	21.372
17	21.410	21.417	21.427	21.429	21.488	21.870	21.580	21.440	21.370	21.355	21.367	21.376
18	21.410	21.417	21.427	21.428	21.508	21.855	21.571	21.439	21.370	21.356	21.367	21.375
19	21.410	21.418	21.427	21.428	21.505	21.842	21.565	21.433	21.370	21.355	21.368	21.370
20	21.410	21.419	21.426	21.428	21.500	21.828	21.563	21.428	21.371	21.355	21.368	21.369
21	21.409	21.420	21.426	21.429	21.509	21.815	21.556	21.424	21.370	21.355	21.369	21.368
22	21.409	21.420	21.426	21.429	21.513	21.802	21.549	21.420	21.370	21.354	21.369	21.368
23	21.409	21.420	21.425	21.429	21.518	21.789	21.548	21.416	21.367	21.353	21.370	21.368
24	21.410	21.421	21.426	21.429	21.513	21.778	21.547	21.412	21.361	21.353	21.370	21.368
25	21.410	21.420	21.426	21.429	21.517	21.769	21.544	21.410	21.359	21.353	21.370	21.368
26	21.409	21.423	21.426	21.428	21.530	21.759	21.538	21.407	21.362	21.351	21.372	21.368
27	21.410	21.423	21.426	21.427	21.542	21.748	21.527	21.401	21.362	21.348	21.374	21.367
28	21.412	21.422	21.426	21.427	21.560	21.738	21.524	21.398	21.361	21.349	21.374	21.369
29	21.414	-	21.426	21.435	21.609	21.727	21.519	21.395	21.360	21.355	21.374	21.371
30	21.412	-	21.426	21.452	21.671	21.720	21.515	21.393	21.357	21.361	21.375	21.372
31	21.413	-	21.426	-	21.740	-	21.511	21.386	-	21.361	-	21.375
MIN	21.407	21.409	21.420	21.426	21.448	21.720	21.511	21.386	21.357	21.348	21.362	21.367
MEAN	21.409	21.418	21.424	21.429	21.499	21.845	21.597	21.445	21.367	21.354	21.368	21.371
MAX	21.414	21.423	21.427	21.452	21.740	21.933	21.716	21.506	21.380	21.361	21.375	21.376



APPENDIX G HYDROMETRIC DATA 2004-2008

H75 – TAIL LAKE – 2006

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 29.339 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	28.199	28.202	28.207	28.209	28.224	28.313	28.280	28.184	28.113	28.118	28.133	28.139
2	28.199	28.197	28.207	28.208	28.227	28.321	28.272	28.182	28.110	28.120	28.134	28.139
3	28.198	28.196	28.206	28.209	28.227	28.331	28.272	28.179	28.109	28.120	28.133	28.139
4	28.199	28.199	28.205	28.210	28.228	28.339	28.266	28.176	28.107	28.119	28.133	28.140
5	28.204	28.203	28.206	28.210	28.226	28.348	28.259	28.173	28.106	28.116	28.133	28.142
6	28.203	28.204	28.206	28.210	28.223	28.355	28.254	28.171	28.106	28.116	28.133	28.141
7	28.200	28.203	28.204	28.208	28.225	28.351	28.248	28.167	28.105	28.117	28.135	28.138
8	28.200	28.200	28.204	28.211	28.226	28.348	28.243	28.164	28.105	28.117	28.136	28.135
9	28.201	28.202	28.203	28.211	28.228	28.349	28.238	28.162	28.110	28.118	28.136	28.135
10	28.200	28.202	28.203	28.212	28.233	28.351	28.234	28.161	28.112	28.117	28.135	28.136
11	28.197	28.204	28.203	28.212	28.232	28.352	28.230	28.160	28.112	28.116	28.135	28.137
12	28.196	28.205	28.204	28.212	28.232	28.348	28.227	28.158	28.113	28.116	28.135	28.137
13	28.198	28.205	28.206	28.206	28.232	28.348	28.225	28.157	28.118	28.117	28.135	28.137
14	28.198	28.205	28.209	28.206	28.234	28.346	28.225	28.154	28.116	28.124	28.135	28.137
15	28.198	28.206	28.210	28.205	28.247	28.342	28.222	28.150	28.116	28.123	28.135	28.137
16	28.200	28.204	28.212	28.205	28.270	28.336	28.219	28.146	28.120	28.123	28.135	28.137
17	28.200	28.203	28.212	28.206	28.288	28.330	28.214	28.146	28.128	28.123	28.136	28.137
18	28.200	28.203	28.212	28.206	28.296	28.325	28.208	28.148	28.130	28.124	28.136	28.137
19	28.200	28.204	28.211	28.203	28.296	28.320	28.205	28.144	28.129	28.123	28.135	28.137
20	28.199	28.204	28.210	28.204	28.293	28.315	28.208	28.141	28.129	28.123	28.136	28.136
21	28.198	28.203	28.208	28.208	28.290	28.310	28.205	28.139	28.129	28.123	28.137	28.137
22	28.197	28.203	28.209	28.211	28.285	28.305	28.201	28.136	28.127	28.124	28.136	28.136
23	28.194	28.205	28.209	28.211	28.280	28.300	28.202	28.134	28.123	28.123	28.136	28.137
24	28.197	28.205	28.209	28.211	28.276	28.297	28.205	28.131	28.118	28.121	28.136	28.136
25	28.198	28.206	28.209	28.211	28.278	28.298	28.204	28.131	28.116	28.121	28.137	28.136
26	28.198	28.206	28.210	28.210	28.293	28.280	28.202	28.129	28.121	28.122	28.138	28.136
27	28.201	28.206	28.211	28.204	28.301	28.273	28.194	28.127	28.121	28.122	28.138	28.135
28	28.206	28.207	28.211	28.201	28.306	28.275	28.193	28.124	28.120	28.123	28.139	28.136
29	28.205	-	28.211	28.211	28.311	28.269	28.190	28.123	28.120	28.127	28.139	28.136
30	28.200	-	28.211	28.226	28.309	28.274	28.188	28.121	28.119	28.131	28.139	28.138
31	28.202	-	28.210	-	28.310	-	28.186	28.117	-	28.133	-	28.138
MIN	28.194	28.196	28.203	28.201	28.223	28.269	28.186	28.117	28.105	28.116	28.133	28.135
MEAN	28.199	28.203	28.208	28.209	28.262	28.322	28.223	28.149	28.117	28.121	28.136	28.137
MAX	28.206	28.207	28.212	28.226	28.311	28.355	28.280	28.184	28.130	28.133	28.139	28.142



APPENDIX G HYDROMETRIC DATA 2004-2008

H76 – TAIL OUTFLOW – 2006

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.008 E	0.027	0.005	0.000	-	-	-
2	-	-	-	-	-	0.019 E	0.028	0.005	0.000	-	-	-
3	-	-	-	-	-	0.035 E	0.026	0.005	0.000	-	-	-
4	-	-	-	-	-	0.055 E	0.020	0.004	0.000	-	-	-
5	-	-	-	-	-	0.083 E	0.018	0.004	0.000	-	-	-
6	-	-	-	-	-	0.114 E	0.015	0.004	0.000	-	-	-
7	-	-	-	-	-	0.122 E	0.013	0.004	0.000	-	-	-
8	-	-	-	-	-	0.131 E	0.011	0.003	0.000 P	-	-	-
9	-	-	-	-	-	0.134 E	0.010	0.003	0.000 E	-	-	-
10	-	-	-	-	-	0.140 E	0.009	0.003	0.000 E	-	-	-
11	-	-	-	-	-	0.141 E	0.008	0.003	0.000 E	-	-	-
12	-	-	-	-	-	0.132 E	0.009	0.002	0.000 E	-	-	-
13	-	-	-	-	-	0.133 E	0.008	0.002	0.000 E	-	-	-
14	-	-	-	-	-	0.128 E	0.008	0.002	0.000 E	-	-	-
15	-	-	-	-	-	0.118 E	0.008	0.002	0.000 E	-	-	-
16	-	-	-	-	-	0.104 E	0.008	0.002	0.000 E	-	-	-
17	-	-	-	-	-	0.093 E	0.008	0.002	0.000 E	-	-	-
18	-	-	-	-	-	0.083 E	0.007	0.002	0.000 E	-	-	-
19	-	-	-	-	-	0.075 E	0.007	0.001	0.000 E	-	-	-
20	-	-	-	-	-	0.067 E	0.007	0.001	0.000 E	-	-	-
21	-	-	-	-	-	0.060 E	0.007	0.001	0.000 E	-	-	-
22	-	-	-	-	-	0.054 E	0.007	0.001	0.000 E	-	-	-
23	-	-	-	-	-	0.049 E	0.007	0.001	0.000 E	-	-	-
24	-	-	-	-	-	0.046 E	0.007	0.001	0.000 E	-	-	-
25	-	-	-	-	-	0.032	0.007	0.001	0.000 E	-	-	-
26	-	-	-	-	-	0.033	0.006	0.001	0.000 E	-	-	-
27	-	-	-	-	-	0.034	0.005	0.001	0.000 E	-	-	-
28	-	-	-	-	-	0.032	0.005	0.001	0.000 E	-	-	-
29	-	-	-	-	-	0.029	0.005	0.001	0.000 E	-	-	-
30	-	-	-	-	-	0.026	0.005	0.001	0.000 E	-	-	-
31	-	-	-	-	0.000 P	-	0.005	0.001	-	-	-	-
MIN	-	-	-	-	-	0.008	0.005	0.001	0.000	-	-	-
MEAN	-	-	-	-	-	0.077	0.010	0.002	0.000	-	-	-
MAX	-	-	-	-	-	0.141	0.028	0.005	0.000	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	24.166	24.093	24.048	-	-	-
2	-	-	-	-	-	-	24.167	24.092	24.045	-	-	-
3	-	-	-	-	-	-	24.163	24.090	24.045	-	-	-
4	-	-	-	-	-	-	24.152	24.089	24.045	-	-	-
5	-	-	-	-	-	-	24.146	24.087	24.045	-	-	-
6	-	-	-	-	-	-	24.139	24.086	24.045	-	-	-
7	-	-	-	-	-	-	24.130	24.084	24.044	-	-	-
8	-	-	-	-	-	-	24.124	24.082	24.044 P	-	-	-
9	-	-	-	-	-	-	24.119	24.080	-	-	-	-
10	-	-	-	-	-	-	24.114	24.080	-	-	-	-
11	-	-	-	-	-	-	24.113	24.079	-	-	-	-
12	-	-	-	-	-	-	24.114	24.075	-	-	-	-
13	-	-	-	-	-	-	24.114	24.074	-	-	-	-
14	-	-	-	-	-	-	24.113	24.073	-	-	-	-
15	-	-	-	-	-	-	24.113	24.070	-	-	-	-
16	-	-	-	-	-	-	24.112	24.068	-	-	-	-
17	-	-	-	-	-	-	24.110	24.069	-	-	-	-
18	-	-	-	-	-	-	24.106	24.071	-	-	-	-
19	-	-	-	-	-	-	24.106	24.066	-	-	-	-
20	-	-	-	-	-	-	24.107	24.063	-	-	-	-
21	-	-	-	-	-	-	24.106	24.062	-	-	-	-
22	-	-	-	-	-	-	24.105	24.062	-	-	-	-
23	-	-	-	-	-	-	24.105	24.061	-	-	-	-
24	-	-	-	-	-	-	24.104	24.062	-	-	-	-
25	-	-	-	-	-	-	24.104	24.061	-	-	-	-
26	-	-	-	-	-	24.175 P	24.102	24.060	-	-	-	-
27	-	-	-	-	-	24.175	24.096	24.058	-	-	-	-
28	-	-	-	-	-	24.173	24.093	24.055	-	-	-	-
29	-	-	-	-	-	24.167	24.094	24.055	-	-	-	-
30	-	-	-	-	-	24.163	24.094	24.055	-	-	-	-
31	-	-	-	-	-	-	24.094	24.052	-	-	-	-
MIN	-	-	-	-	-	24.163	24.093	24.052	24.044	-	-	-
MEAN	-	-	-	-	-	24.171	24.117	24.071	24.045	-	-	-
MAX	-	-	-	-	-	24.175	24.167	24.093	24.048	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H81 – PATCH LAKE AND OUTFLOW – 2006

DATE	MEAN DAILY DISCHARGE (m ³ /s)											
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.205 P	0.243	0.105	0.035	-	-	-
2	-	-	-	-	-	0.222	0.240	0.104	0.033	-	-	-
3	-	-	-	-	-	0.253	0.242	0.103	0.033	-	-	-
4	-	-	-	-	-	0.276	0.227	0.100	0.033	-	-	-
5	-	-	-	-	-	0.299	0.213	0.097	0.032	-	-	-
6	-	-	-	-	-	0.324	0.203	0.090	0.030	-	-	-
7	-	-	-	-	-	0.342	0.195	0.086	0.031	-	-	-
8	-	-	-	-	-	0.351	0.184	0.084	0.031	-	-	-
9	-	-	-	-	-	0.337	0.180	0.083	0.032 P	-	-	-
10	-	-	-	-	-	0.318	0.175	0.082	-	-	-	-
11	-	-	-	-	-	0.335	0.178	0.078	-	-	-	-
12	-	-	-	-	-	0.335	0.177	0.073	-	-	-	-
13	-	-	-	-	-	0.311	0.172	0.071	-	-	-	-
14	-	-	-	-	-	0.347	0.174	0.067	-	-	-	-
15	-	-	-	-	-	0.336	0.164	0.063	-	-	-	-
16	-	-	-	-	-	0.339	0.153	0.062	-	-	-	-
17	-	-	-	-	-	0.319	0.144	0.060	-	-	-	-
18	-	-	-	-	-	0.315	0.136	0.059	-	-	-	-
19	-	-	-	-	-	0.302	0.142	0.057	-	-	-	-
20	-	-	-	-	-	0.292	0.147	0.055	-	-	-	-
21	-	-	-	-	-	0.287	0.148	0.052	-	-	-	-
22	-	-	-	-	-	0.279	0.142	0.051	-	-	-	-
23	-	-	-	-	-	0.278	0.137	0.047	-	-	-	-
24	-	-	-	-	-	0.269	0.138	0.048	-	-	-	-
25	-	-	-	-	-	0.261	0.132	0.048	-	-	-	-
26	-	-	-	-	-	0.261	0.129	0.046	-	-	-	-
27	-	-	-	-	-	0.259	0.122	0.043	-	-	-	-
28	-	-	-	-	-	0.258	0.113	0.041	-	-	-	-
29	-	-	-	-	-	0.252	0.114	0.040	-	-	-	-
30	-	-	-	-	-	0.241	0.110	0.038	-	-	-	-
31	-	-	-	-	0.000 E	-	0.107	0.036	-	-	-	-
MIN	-	-	-	-	0.000	0.205	0.107	0.036	0.030	-	-	-
MEAN	-	-	-	-	0.000	0.293	0.164	0.067	0.032	-	-	-
MAX	-	-	-	-	0.000	0.351	0.243	0.105	0.035	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	98.950 P	98.970	98.878	98.785	-	-	-
2	-	-	-	-	-	98.959	98.968	98.878	98.782	-	-	-
3	-	-	-	-	-	98.975	98.969	98.877	98.780	-	-	-
4	-	-	-	-	-	98.985	98.962	98.874	98.780	-	-	-
5	-	-	-	-	-	98.995	98.954	98.871	98.779	-	-	-
6	-	-	-	-	-	99.006	98.948	98.864	98.775	-	-	-
7	-	-	-	-	-	99.012	98.944	98.860	98.776	-	-	-
8	-	-	-	-	-	99.015	98.937	98.858	98.778	-	-	-
9	-	-	-	-	-	99.011	98.935	98.856	98.780 P	-	-	-
10	-	-	-	-	-	99.003	98.932	98.855	-	-	-	-
11	-	-	-	-	-	99.009	98.933	98.851	-	-	-	-
12	-	-	-	-	-	99.010	98.933	98.845	-	-	-	-
13	-	-	-	-	-	98.999	98.930	98.843	-	-	-	-
14	-	-	-	-	-	99.015	98.931	98.837	-	-	-	-
15	-	-	-	-	-	99.010	98.925	98.833	-	-	-	-
16	-	-	-	-	-	99.012	98.917	98.830	-	-	-	-
17	-	-	-	-	-	99.004	98.911	98.828	-	-	-	-
18	-	-	-	-	-	99.002	98.904	98.827	-	-	-	-
19	-	-	-	-	-	98.997	98.909	98.823	-	-	-	-
20	-	-	-	-	-	98.993	98.913	98.820	-	-	-	-
21	-	-	-	-	-	98.990	98.913	98.816	-	-	-	-
22	-	-	-	-	-	98.987	98.909	98.815	-	-	-	-
23	-	-	-	-	-	98.986	98.906	98.808	-	-	-	-
24	-	-	-	-	-	98.982	98.906	98.810	-	-	-	-
25	-	-	-	-	-	98.978	98.902	98.809	-	-	-	-
26	-	-	-	-	-	98.978	98.899	98.806	-	-	-	-
27	-	-	-	-	-	98.978	98.893	98.802	-	-	-	-
28	-	-	-	-	-	98.977	98.886	98.797	-	-	-	-
29	-	-	-	-	-	98.974	98.887	98.796	-	-	-	-
30	-	-	-	-	-	98.969	98.883	98.791	-	-	-	-
31	-	-	-	-	-	-	98.880	98.789	-	-	-	-
MIN	-	-	-	-	-	98.950	98.880	98.789	98.775	-	-	-
MEAN	-	-	-	-	-	98.992	98.922	98.834	98.779	-	-	-
MAX	-	-	-	-	-	99.015	98.970	98.878	98.785	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H81 – PATCH LAKE – 2007

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.970	98.948	98.986	-	-	-
2	-	-	-	-	-	-	98.971	98.941	98.981	-	-	-
3	-	-	-	-	-	-	98.968	98.938	98.981	-	-	-
4	-	-	-	-	-	-	98.966	98.933	98.973	-	-	-
5	-	-	-	-	-	-	98.966	98.926	98.969	-	-	-
6	-	-	-	-	-	-	98.970	98.921	98.967	-	-	-
7	-	-	-	-	-	-	98.969	98.917	98.966	-	-	-
8	-	-	-	-	-	-	98.971	98.918	98.962	-	-	-
9	-	-	-	-	-	-	98.969	98.920	98.954	-	-	-
10	-	-	-	-	-	-	98.970	98.922	98.947	-	-	-
11	-	-	-	-	-	-	98.969	98.927	98.942	-	-	-
12	-	-	-	-	-	-	98.970	98.933	98.942 P	-	-	-
13	-	-	-	-	-	-	98.969	98.939	-	-	-	-
14	-	-	-	-	-	-	98.973	98.944	-	-	-	-
15	-	-	-	-	-	-	98.979	98.946	-	-	-	-
16	-	-	-	-	-	-	98.979	98.944	-	-	-	-
17	-	-	-	-	-	-	98.984	98.947	-	-	-	-
18	-	-	-	-	-	-	98.988	98.947	-	-	-	-
19	-	-	-	-	-	-	98.992	98.966	-	-	-	-
20	-	-	-	-	-	-	98.986	98.985	-	-	-	-
21	-	-	-	-	-	-	98.994	98.991	-	-	-	-
22	-	-	-	-	-	-	98.989	98.993	-	-	-	-
23	-	-	-	-	-	-	98.974	98.994	-	-	-	-
24	-	-	-	-	-	-	98.968	98.993	-	-	-	-
25	-	-	-	-	-	98.899	98.966	98.992	-	-	-	-
26	-	-	-	-	-	98.918	98.967	98.990	-	-	-	-
27	-	-	-	-	-	98.931	98.961	98.988	-	-	-	-
28	-	-	-	-	-	98.945	98.960	98.985	-	-	-	-
29	-	-	-	-	-	98.957	98.957	98.985	-	-	-	-
30	-	-	-	-	-	98.965	98.957	98.984	-	-	-	-
31	-	-	-	-	-	-	98.957	98.986	-	-	-	-
MIN	-	-	-	-	-	98.899	98.957	98.917	98.942	-	-	-
MEAN	-	-	-	-	-	98.936	98.972	98.956	98.964	-	-	-
MAX	-	-	-	-	-	98.965	98.994	98.994	98.986	-	-	-

E- ESTIMATED

P – PARTIAL DAILY



APPENDIX G HYDROMETRIC DATA 2004-2008

H82 – OGAMA OUTFLOW – 2006 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.039	0.580	0.146	0.040	-	-	-
2	-	-	-	-	-	0.334	0.560	0.137	0.040	-	-	-
3	-	-	-	-	-	0.947	0.530	0.132	0.043	-	-	-
4	-	-	-	-	-	2.002	0.490	0.130	0.042	-	-	-
5	-	-	-	-	-	3.122	0.466	0.127	0.043	-	-	-
6	-	-	-	-	-	3.514	0.426	0.123	0.043	-	-	-
7	-	-	-	-	-	3.497	0.404	0.116	0.045	-	-	-
8	-	-	-	-	-	3.388	0.378	0.111	0.045 P	-	-	-
9	-	-	-	-	-	3.281	0.356	0.108	-	-	-	-
10	-	-	-	-	-	3.119	0.344	0.105	-	-	-	-
11	-	-	-	-	-	2.901	0.338	0.098	-	-	-	-
12	-	-	-	-	-	2.726	0.329	0.095	-	-	-	-
13	-	-	-	-	-	2.568	0.308	0.093	-	-	-	-
14	-	-	-	-	-	2.380	0.306	0.092	-	-	-	-
15	-	-	-	-	-	2.101	0.305	0.086	-	-	-	-
16	-	-	-	-	-	1.881	0.290	0.079	-	-	-	-
17	-	-	-	-	-	1.721	0.269	0.076	-	-	-	-
18	-	-	-	-	-	1.530	0.242	0.075	-	-	-	-
19	-	-	-	-	-	1.393	0.236	0.069	-	-	-	-
20	-	-	-	-	-	1.246	0.240	0.068	-	-	-	-
21	-	-	-	-	-	1.140	0.229	0.068	-	-	-	-
22	-	-	-	-	-	1.043	0.211	0.068	-	-	-	-
23	-	-	-	-	-	0.981	0.207	0.068	-	-	-	-
24	-	-	-	-	-	0.866	0.206	0.061	-	-	-	-
25	-	-	-	-	-	0.794	0.203	0.059	-	-	-	-
26	-	-	-	-	-	0.795	0.190	0.055	-	-	-	-
27	-	-	-	-	-	0.808	0.152	0.051	-	-	-	-
28	-	-	-	-	-	0.702	0.157	0.053	-	-	-	-
29	-	-	-	-	-	0.630	0.157	0.052	-	-	-	-
30	-	-	-	-	-	0.590	0.160	0.051	-	-	-	-
31	-	-	-	-	0.017 P	-	0.149	0.045	-	-	-	-
MIN	-	-	-	-	0.017	0.039	0.149	0.045	0.040	-	-	-
MEAN	-	-	-	-	0.017	1.735	0.304	0.087	0.042	-	-	-
MAX	-	-	-	-	0.017	3.514	0.580	0.146	0.045	-	-	-

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	97.569	97.761	97.647	97.573	-	-	-
2	-	-	-	-	-	97.699	97.758	97.643	97.573	-	-	-
3	-	-	-	-	-	97.811	97.752	97.640	97.577	-	-	-
4	-	-	-	-	-	97.906	97.745	97.639	97.576	-	-	-
5	-	-	-	-	-	97.973	97.740	97.638	97.576	-	-	-
6	-	-	-	-	-	97.992	97.732	97.636	97.577	-	-	-
7	-	-	-	-	-	97.992	97.727	97.632	97.578	-	-	-
8	-	-	-	-	-	97.986	97.721	97.629	97.579 P	-	-	-
9	-	-	-	-	-	97.981	97.716	97.628	-	-	-	-
10	-	-	-	-	-	97.973	97.713	97.626	-	-	-	-
11	-	-	-	-	-	97.962	97.711	97.621	-	-	-	-
12	-	-	-	-	-	97.952	97.709	97.620	-	-	-	-
13	-	-	-	-	-	97.943	97.703	97.618	-	-	-	-
14	-	-	-	-	-	97.932	97.703	97.618	-	-	-	-
15	-	-	-	-	-	97.914	97.703	97.614	-	-	-	-
16	-	-	-	-	-	97.899	97.698	97.609	-	-	-	-
17	-	-	-	-	-	97.887	97.692	97.607	-	-	-	-
18	-	-	-	-	-	97.871	97.684	97.606	-	-	-	-
19	-	-	-	-	-	97.859	97.682	97.601	-	-	-	-
20	-	-	-	-	-	97.845	97.683	97.600	-	-	-	-
21	-	-	-	-	-	97.835	97.680	97.601	-	-	-	-
22	-	-	-	-	-	97.824	97.673	97.600	-	-	-	-
23	-	-	-	-	-	97.817	97.672	97.600	-	-	-	-
24	-	-	-	-	-	97.803	97.672	97.595	-	-	-	-
25	-	-	-	-	-	97.794	97.670	97.593	-	-	-	-
26	-	-	-	-	-	97.794	97.666	97.589	-	-	-	-
27	-	-	-	-	-	97.795	97.649	97.585	-	-	-	-
28	-	-	-	-	-	97.780	97.652	97.587	-	-	-	-
29	-	-	-	-	-	97.769	97.652	97.587	-	-	-	-
30	-	-	-	-	-	97.763	97.653	97.585	-	-	-	-
31	-	-	-	-	97.536 P	-	97.649	97.578	-	-	-	-
MIN	-	-	-	-	97.536	97.569	97.649	97.578	97.573	-	-	-
MEAN	-	-	-	-	97.536	97.864	97.697	97.612	97.576	-	-	-
MAX	-	-	-	-	97.536	97.992	97.761	97.647	97.579	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H91 – WOLVERINE OUTFLOW – 2006 MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	98.237 P	98.335	98.267	98.186	-	-	-
2	-	-	-	-	-	98.244	98.335	98.268	98.182	-	-	-
3	-	-	-	-	-	98.256	98.335	98.271	98.183	-	-	-
4	-	-	-	-	-	98.264	98.325	98.273	98.186	-	-	-
5	-	-	-	-	-	98.269	98.318	98.275	98.192	-	-	-
6	-	-	-	-	-	98.278	98.311	98.276	98.197	-	-	-
7	-	-	-	-	-	98.282	98.303	98.277	98.200	-	-	-
8	-	-	-	-	-	98.282	98.295	98.278	98.202 P	-	-	-
9	-	-	-	-	-	98.289	98.289	98.280	-	-	-	-
10	-	-	-	-	-	98.300	98.285	98.276	-	-	-	-
11	-	-	-	-	-	98.302	98.285	98.270	-	-	-	-
12	-	-	-	-	-	98.309	98.290	98.257	-	-	-	-
13	-	-	-	-	-	98.315	98.294	98.252	-	-	-	-
14	-	-	-	-	-	98.321	98.296	98.247	-	-	-	-
15	-	-	-	-	-	98.324	98.300	98.241	-	-	-	-
16	-	-	-	-	-	98.322	98.299	98.238	-	-	-	-
17	-	-	-	-	-	98.325	98.296	98.236	-	-	-	-
18	-	-	-	-	-	98.322	98.290	98.238	-	-	-	-
19	-	-	-	-	-	98.317	98.287	98.231	-	-	-	-
20	-	-	-	-	-	98.312	98.292	98.226	-	-	-	-
21	-	-	-	-	-	98.311	98.294	98.225	-	-	-	-
22	-	-	-	-	-	98.314	98.292	98.225	-	-	-	-
23	-	-	-	-	-	98.321	98.289	98.225	-	-	-	-
24	-	-	-	-	-	98.318	98.287	98.223	-	-	-	-
25	-	-	-	-	-	98.320	98.282	98.222	-	-	-	-
26	-	-	-	-	-	98.326	98.276	98.218	-	-	-	-
27	-	-	-	-	-	98.337	98.262	98.211	-	-	-	-
28	-	-	-	-	-	98.339	98.256	98.205	-	-	-	-
29	-	-	-	-	-	98.339	98.258	98.204	-	-	-	-
30	-	-	-	-	-	98.335	98.259	98.201	-	-	-	-
31	-	-	-	-	-	-	98.264	98.193	-	-	-	-
MIN	-	-	-	-	-	98.237	98.256	98.193	98.182	-	-	-
MEAN	-	-	-	-	-	98.304	98.293	98.243	98.191	-	-	-
MAX	-	-	-	-	-	98.339	98.335	98.280	98.202	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE



APPENDIX G HYDROMETRIC DATA 2004-2008

H93 – GLENN LAKE AND OUTFLOW – 2006 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	97.147	97.052	96.991	-	-	-	-
2	-	-	-	-	-	97.136	97.052	96.990	-	-	-	-
3	-	-	-	-	-	97.133	97.051	96.988	-	-	-	-
4	-	-	-	-	-	97.130	97.048	96.987	-	-	-	-
5	-	-	-	-	-	97.131	97.045	96.986	-	-	-	-
6	-	-	-	-	-	97.131	97.041	96.984	-	-	-	-
7	-	-	-	-	-	97.123	97.037	96.982	-	-	-	-
8	-	-	-	-	-	97.116	97.033	96.980	-	-	-	-
9	-	-	-	-	-	97.115	97.030	96.980	-	-	-	-
10	-	-	-	-	-	97.114	97.027	96.978	-	-	-	-
11	-	-	-	-	-	97.112	97.025	96.974	-	-	-	-
12	-	-	-	-	-	97.110	97.023	96.973	-	-	-	-
13	-	-	-	-	-	97.108	97.021	-	-	-	-	-
14	-	-	-	-	-	97.105	97.021	-	-	-	-	-
15	-	-	-	-	-	97.099	97.020	-	-	-	-	-
16	-	-	-	-	-	97.091	97.017	-	-	-	-	-
17	-	-	-	-	-	97.084	97.014	-	-	-	-	-
18	-	-	-	-	-	97.079	97.009	-	-	-	-	-
19	-	-	-	-	-	97.076	97.008	-	-	-	-	-
20	-	-	-	-	-	97.074	97.009	-	-	-	-	-
21	-	-	-	-	-	97.070	97.007	-	-	-	-	-
22	-	-	-	-	-	97.066	97.003	-	-	-	-	-
23	-	-	-	-	-	97.063	97.005	-	-	-	-	-
24	-	-	-	-	-	97.059	97.007	-	-	-	-	-
25	-	-	-	-	-	97.060	97.006	-	-	-	-	-
26	-	-	-	-	-	97.054	97.002	-	-	-	-	-
27	-	-	-	-	-	97.052	96.994	-	-	-	-	-
28	-	-	-	-	-	97.051	96.995	-	-	-	-	-
29	-	-	-	-	97.151 P	97.048	96.994	-	-	-	-	-
30	-	-	-	-	97.163	97.048	96.992	-	-	-	-	-
31	-	-	-	-	97.162	-	96.992	-	-	-	-	-
MIN	-	-	-	-	97.151	97.048	96.992	96.973	-	-	-	-
MEAN	-	-	-	-	97.159	97.093	97.019	96.983	-	-	-	-
MAX	-	-	-	-	97.163	97.147	97.052	96.991	-	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.819	0.272	0.118	-	-	-	-
2	-	-	-	-	-	0.732	0.272	0.116	-	-	-	-
3	-	-	-	-	-	0.705	0.269	0.113	-	-	-	-
4	-	-	-	-	-	0.687	0.261	0.111	-	-	-	-
5	-	-	-	-	-	0.693	0.249	0.109	-	-	-	-
6	-	-	-	-	-	0.693	0.236	0.106	-	-	-	-
7	-	-	-	-	-	0.634	0.225	0.103	-	-	-	-
8	-	-	-	-	-	0.585	0.214	0.100	-	-	-	-
9	-	-	-	-	-	0.579	0.203	0.100	-	-	-	-
10	-	-	-	-	-	0.577	0.195	0.097	-	-	-	-
11	-	-	-	-	-	0.561	0.190	0.091	-	-	-	-
12	-	-	-	-	-	0.545	0.186	0.089	-	-	-	-
13	-	-	-	-	-	0.534	0.182	-	-	-	-	-
14	-	-	-	-	-	0.516	0.180	-	-	-	-	-
15	-	-	-	-	-	0.484	0.178	-	-	-	-	-
16	-	-	-	-	-	0.441	0.170	-	-	-	-	-
17	-	-	-	-	-	0.404	0.164	-	-	-	-	-
18	-	-	-	-	-	0.383	0.152	-	-	-	-	-
19	-	-	-	-	-	0.369	0.152	-	-	-	-	-
20	-	-	-	-	-	0.357	0.153	-	-	-	-	-
21	-	-	-	-	-	0.340	0.148	-	-	-	-	-
22	-	-	-	-	-	0.324	0.141	-	-	-	-	-
23	-	-	-	-	-	0.313	0.144	-	-	-	-	-
24	-	-	-	-	-	0.300	0.149	-	-	-	-	-
25	-	-	-	-	-	0.304	0.146	-	-	-	-	-
26	-	-	-	-	-	0.278	0.139	-	-	-	-	-
27	-	-	-	-	-	0.273	0.124	-	-	-	-	-
28	-	-	-	-	-	0.268	0.125	-	-	-	-	-
29	-	-	-	-	0.858 P	0.258	0.123	-	-	-	-	-
30	-	-	-	-	0.967	0.260	0.120	-	-	-	-	-
31	-	-	-	-	0.962	-	0.119	-	-	-	-	-
MIN	-	-	-	-	0.858	0.258	0.119	0.089	-	-	-	-
MEAN	-	-	-	-	0.929	0.474	0.180	0.105	-	-	-	-
MAX	-	-	-	-	0.967	0.819	0.272	0.118	-	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H92 – WINDY OUTFLOW – 2006 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	0.135 A	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	0.042 A	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	0.052 A	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	0.059 A	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
MIN	-	-	-	-	-	-	-	-	-	-	-	-
MEAN	-	-	-	-	-	-	-	-	-	-	-	-
MAX	-	-	-	-	-	-	-	-	-	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	98.435 A	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	98.317 A	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	98.405 A	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	98.364 A	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-
MIN	-	-	-	-	-	-	-	-	-	-	-	-
MEAN	-	-	-	-	-	-	-	-	-	-	-	-
MAX	-	-	-	-	-	-	-	-	-	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED

A – MANUAL MEASUREMENT



APPENDIX G HYDROMETRIC DATA 2004-2008

H71 – DORIS OUTFLOW – 2007

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	1.875	0.533	0.802	0.225 E	-	-
2	-	-	-	-	-	-	1.831	0.513	0.781	0.205 E	-	-
3	-	-	-	-	-	-	1.778	0.487	0.764	0.184 E	-	-
4	-	-	-	-	-	-	1.704	0.464	0.743	0.164 E	-	-
5	-	-	-	-	-	-	1.626	0.431	0.734	0.143 E	-	-
6	-	-	-	-	-	-	1.564	0.422	0.723	0.123 E	-	-
7	-	-	-	-	-	-	1.505	0.401	0.704	0.102 E	-	-
8	-	-	-	-	-	-	1.452	0.394	0.691	0.082 E	-	-
9	-	-	-	-	-	-	1.395	0.456	0.666	0.061 E	-	-
10	-	-	-	-	-	-	1.347	0.470	0.645	0.041 E	-	-
11	-	-	-	-	-	-	1.297	0.475	0.644	0.020 E	-	-
12	-	-	-	-	-	-	1.257	0.489	0.623	0.000 E	-	-
13	-	-	-	-	-	-	1.204	0.511	0.594	-	-	-
14	-	-	-	-	-	0.000 E	1.154	0.510	0.580 P	-	-	-
15	-	-	-	-	-	0.025 E	1.113	0.510	0.555 E	-	-	-
16	-	-	-	-	-	0.055 E	1.057	0.518	0.532 E	-	-	-
17	-	-	-	-	-	0.135 E	1.007	0.522	0.512 E	-	-	-
18	-	-	-	-	-	0.227 E	0.969	0.530	0.491 E	-	-	-
19	-	-	-	-	-	0.406 E	0.928	0.612	0.471 E	-	-	-
20	-	-	-	-	-	0.623 E	0.906	0.708	0.450 E	-	-	-
21	-	-	-	-	-	0.832 E	0.886	0.746	0.430 E	-	-	-
22	-	-	-	-	-	0.960 E	0.815	0.767	0.409 E	-	-	-
23	-	-	-	-	-	1.042 P	0.786	0.783	0.389 E	-	-	-
24	-	-	-	-	-	1.122	0.762	0.800	0.368 E	-	-	-
25	-	-	-	-	-	1.283	0.734	0.803	0.348 E	-	-	-
26	-	-	-	-	-	1.397	0.709	0.820	0.327 E	-	-	-
27	-	-	-	-	-	1.486	0.672	0.809	0.307 E	-	-	-
28	-	-	-	-	-	1.653	0.638	0.810	0.287 E	-	-	-
29	-	-	-	-	-	1.926	0.614	0.813	0.266 E	-	-	-
30	-	-	-	-	-	2.002	0.592	0.822	0.246 E	-	-	-
31	-	-	-	-	-	-	0.557	0.823	-	-	-	-
MIN	-	-	-	-	-	0.000	0.557	0.394	0.246	-	-	-
MEAN	-	-	-	-	-	0.892	1.121	0.605	0.536	-	-	-
MAX	-	-	-	-	-	2.002	1.875	0.823	0.802	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 22.593 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.629	21.376	21.444	-	-	-
2	-	-	-	-	-	-	21.623	21.370	21.439	-	-	-
3	-	-	-	-	-	-	21.615	21.362	21.435	-	-	-
4	-	-	-	-	-	-	21.605	21.355	21.431	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	21.593	21.344	21.428	-	-	-
7	-	-	-	-	-	-	21.584	21.341	21.426	-	-	-
8	-	-	-	-	-	-	21.575	21.334	21.421	-	-	-
9	-	-	-	-	-	-	21.566	21.332	21.418	-	-	-
10	-	-	-	-	-	-	21.557	21.352	21.412	-	-	-
11	-	-	-	-	-	-	21.549	21.357	21.406	-	-	-
12	-	-	-	-	-	-	21.541	21.358	21.406	-	-	-
13	-	-	-	-	-	-	21.534	21.363	21.401	-	-	-
14	-	-	-	-	-	-	21.525	21.369	21.393	-	-	-
15	-	-	-	-	-	-	21.516	21.369	21.389 P	-	-	-
16	-	-	-	-	-	-	21.508	21.369	-	-	-	-
17	-	-	-	-	-	-	21.498	21.371	-	-	-	-
18	-	-	-	-	-	-	21.488	21.372	-	-	-	-
19	-	-	-	-	-	-	21.480	21.375	-	-	-	-
20	-	-	-	-	-	-	21.472	21.397	-	-	-	-
21	-	-	-	-	-	-	21.467	21.422	-	-	-	-
22	-	-	-	-	-	-	21.463	21.431	-	-	-	-
23	-	-	-	-	-	-	21.447	21.436	-	-	-	-
24	-	-	-	-	-	21.495 P	21.441	21.440	-	-	-	-
25	-	-	-	-	-	21.510	21.435	21.444	-	-	-	-
26	-	-	-	-	-	21.538	21.428	21.445	-	-	-	-
27	-	-	-	-	-	21.557	21.422	21.448	-	-	-	-
28	-	-	-	-	-	21.572	21.413	21.446	-	-	-	-
29	-	-	-	-	-	21.597	21.404	21.446	-	-	-	-
30	-	-	-	-	-	21.635	21.398	21.447	-	-	-	-
31	-	-	-	-	-	21.646	21.392	21.449	-	-	-	-
MIN	-	-	-	-	-	21.495	21.383	21.332	21.389	-	-	-
MEAN	-	-	-	-	-	21.569	21.502	21.393	21.418	-	-	-
MAX	-	-	-	-	-	21.646	21.629	21.449	21.444	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H72 – ROBERTS LAKE AND OUTFLOW – 2007

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	2.527	0.186	0.834	-	-	-
2	-	-	-	-	-	-	2.277	0.178	0.784	-	-	-
3	-	-	-	-	-	-	2.017	0.168	0.740	-	-	-
4	-	-	-	-	-	-	1.771	0.161	0.704	-	-	-
5	-	-	-	-	-	-	1.548	0.154	0.676	-	-	-
6	-	-	-	-	-	-	1.336	0.151	0.644	-	-	-
7	-	-	-	-	-	-	1.178	0.147	0.618	-	-	-
8	-	-	-	-	-	-	1.046	0.144	0.595	-	-	-
9	-	-	-	-	-	-	0.935	0.198	0.566	-	-	-
10	-	-	-	-	-	-	0.832	0.229	0.535	-	-	-
11	-	-	-	-	-	-	0.711	0.243	0.513	-	-	-
12	-	-	-	-	-	-	0.652	0.268	0.493	-	-	-
13	-	-	-	-	-	-	0.627	0.303	0.475	-	-	-
14	-	-	-	-	-	-	0.567	0.333	0.458 P	-	-	-
15	-	-	-	-	-	0.010 P	0.498	0.361	0.501 E	-	-	-
16	-	-	-	-	-	0.082	0.458	0.387	0.482 E	-	-	-
17	-	-	-	-	-	0.132	0.428	0.414	0.464 E	-	-	-
18	-	-	-	-	-	0.253	0.357	0.463	0.445 E	-	-	-
19	-	-	-	-	-	0.490	0.330	0.578	0.427 E	-	-	-
20	-	-	-	-	-	0.858	0.306	0.787	0.408 E	-	-	-
21	-	-	-	-	-	1.134	0.298	0.982	0.390 E	-	-	-
22	-	-	-	-	-	1.398	0.316	1.121	0.371 E	-	-	-
23	-	-	-	-	-	1.618	0.319	1.196	0.353 E	-	-	-
24	-	-	-	-	-	2.013	0.308	1.216	0.334 E	-	-	-
25	-	-	-	-	-	2.536	0.292	1.195	0.315 E	-	-	-
26	-	-	-	-	-	2.867	0.272	1.151	0.297 E	-	-	-
27	-	-	-	-	-	3.022	0.254	1.089	0.278 E	-	-	-
28	-	-	-	-	-	3.060	0.240	1.037	0.260 E	-	-	-
29	-	-	-	-	-	2.976	0.226	0.997	0.241 E	-	-	-
30	-	-	-	-	-	2.787	0.208	0.949	0.223 E	-	-	-
31	-	-	-	-	-	-	0.199	0.891	-	-	-	-
MIN	-	-	-	-	-	0.010	0.199	0.144	0.223	-	-	-
MEAN	-	-	-	-	-	1.577	0.753	0.570	0.481	-	-	-
MAX	-	-	-	-	-	3.060	2.527	1.216	0.834	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 6.958 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	6.372	6.051	6.211	-	-	-
2	-	-	-	-	-	-	6.355	6.047	6.203	-	-	-
3	-	-	-	-	-	-	6.336	6.042	6.196	-	-	-
4	-	-	-	-	-	-	6.316	6.038	6.190	-	-	-
5	-	-	-	-	-	-	6.295	6.034	6.185	-	-	-
6	-	-	-	-	-	-	6.274	6.033	6.179	-	-	-
7	-	-	-	-	-	-	6.257	6.031	6.174	-	-	-
8	-	-	-	-	-	-	6.240	6.029	6.170	-	-	-
9	-	-	-	-	-	-	6.226	6.056	6.164	-	-	-
10	-	-	-	-	-	-	6.211	6.070	6.158	-	-	-
11	-	-	-	-	-	-	6.191	6.075	6.153	-	-	-
12	-	-	-	-	-	-	6.181	6.085	6.148	-	-	-
13	-	-	-	-	-	-	6.176	6.097	6.144	-	-	-
14	-	-	-	-	-	-	6.164	6.106	6.140 P	-	-	-
15	-	-	-	-	-	5.889 P	6.149	6.115	-	-	-	-
16	-	-	-	-	-	5.958	6.140	6.122	-	-	-	-
17	-	-	-	-	-	6.020	6.133	6.129	-	-	-	-
18	-	-	-	-	-	6.078	6.113	6.141	-	-	-	-
19	-	-	-	-	-	6.146	6.105	6.166	-	-	-	-
20	-	-	-	-	-	6.214	6.098	6.203	-	-	-	-
21	-	-	-	-	-	6.251	6.095	6.232	-	-	-	-
22	-	-	-	-	-	6.281	6.101	6.250	-	-	-	-
23	-	-	-	-	-	6.302	6.102	6.259	-	-	-	-
24	-	-	-	-	-	6.335	6.098	6.261	-	-	-	-
25	-	-	-	-	-	6.372	6.093	6.259	-	-	-	-
26	-	-	-	-	-	6.393	6.086	6.253	-	-	-	-
27	-	-	-	-	-	6.402	6.080	6.246	-	-	-	-
28	-	-	-	-	-	6.404	6.074	6.239	-	-	-	-
29	-	-	-	-	-	6.399	6.069	6.234	-	-	-	-
30	-	-	-	-	-	6.388	6.061	6.228	-	-	-	-
31	-	-	-	-	-	-	6.057	6.219	-	-	-	-
MIN	-	-	-	-	-	5.889	6.057	6.029	6.140	-	-	-
MEAN	-	-	-	-	-	6.240	6.169	6.140	6.173	-	-	-
MAX	-	-	-	-	-	6.404	6.372	6.261	6.211	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H73 – LITTLE ROBERTS OUTFLOW – 2007 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	7.539	0.950	2.322	-	-	-
2	-	-	-	-	-	-	6.358	0.922	2.217	-	-	-
3	-	-	-	-	-	-	5.517	0.890	2.129	-	-	-
4	-	-	-	-	-	-	4.808	0.860	2.041	-	-	-
5	-	-	-	-	-	-	4.312	0.824	1.990	-	-	-
6	-	-	-	-	-	-	3.952	0.812	1.932	-	-	-
7	-	-	-	-	-	-	3.632	0.786	1.876	-	-	-
8	-	-	-	-	-	-	3.137	0.773	1.822	-	-	-
9	-	-	-	-	-	-	2.931	0.997	1.749	-	-	-
10	-	-	-	-	-	-	2.690	1.101	1.663	-	-	-
11	-	-	-	-	-	-	2.490	1.113	1.630	-	-	-
12	-	-	-	-	-	-	2.324	1.182	1.587	-	-	-
13	-	-	-	-	-	0.729 P	2.155	1.298	1.516	-	-	-
14	-	-	-	-	-	1.098	2.013	1.346	1.455 P	-	-	-
15	-	-	-	-	-	0.917	1.903	1.370	1.422 E	-	-	-
16	-	-	-	-	-	0.745	1.797	1.395	1.369 E	-	-	-
17	-	-	-	-	-	0.446	1.689	1.433	1.316 E	-	-	-
18	-	-	-	-	-	0.324	1.625	1.500	1.264 E	-	-	-
19	-	-	-	-	-	0.278	1.563	2.026	1.211 E	-	-	-
20	-	-	-	-	-	1.715	1.529	2.613	1.158 E	-	-	-
21	-	-	-	-	-	2.756	1.495	2.692	1.106 E	-	-	-
22	-	-	-	-	-	4.019	1.393	2.817	1.053 E	-	-	-
23	-	-	-	-	-	4.691	1.362	2.904	1.000 E	-	-	-
24	-	-	-	-	-	5.761	1.332	2.922	0.948 E	-	-	-
25	-	-	-	-	-	6.990	1.290	2.875	0.895 E	-	-	-
26	-	-	-	-	-	7.659	1.235	2.804	0.842 E	-	-	-
27	-	-	-	-	-	8.301	1.184	2.699	0.790 E	-	-	-
28	-	-	-	-	-	8.687	1.134	2.610	0.737 E	-	-	-
29	-	-	-	-	-	8.720	1.089	2.554	0.684 E	-	-	-
30	-	-	-	-	-	8.528	1.063	2.479	0.632 E	-	-	-
31	-	-	-	-	-	-	1.006	2.425	-	-	-	-
MIN	-	-	-	-	-	0.278	1.006	0.773	0.632	-	-	-
MEAN	-	-	-	-	-	4.020	2.501	1.741	1.412	-	-	-
MAX	-	-	-	-	-	8.720	7.539	2.922	2.322	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.482 m (ASSUMED)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.360	97.972	98.115	-	-	-
2	-	-	-	-	-	-	98.320	97.968	98.107	-	-	-
3	-	-	-	-	-	-	98.288	97.963	98.100	-	-	-
4	-	-	-	-	-	-	98.258	97.958	98.093	-	-	-
5	-	-	-	-	-	-	98.235	97.952	98.088	-	-	-
6	-	-	-	-	-	-	98.217	97.950	98.083	-	-	-
7	-	-	-	-	-	-	98.200	97.946	98.078	-	-	-
8	-	-	-	-	-	-	98.171	97.944	98.073	-	-	-
9	-	-	-	-	-	-	98.158	97.979	98.066	-	-	-
10	-	-	-	-	-	-	98.142	97.994	98.058	-	-	-
11	-	-	-	-	-	-	98.128	97.995	98.055	-	-	-
12	-	-	-	-	-	-	98.116	98.004	98.051	-	-	-
13	-	-	-	-	-	97.843 P	98.102	98.019	98.043	-	-	-
14	-	-	-	-	-	97.992	98.090	98.024	98.037 P	-	-	-
15	-	-	-	-	-	97.967	98.081	98.027	-	-	-	-
16	-	-	-	-	-	97.939	98.071	98.030	-	-	-	-
17	-	-	-	-	-	97.906	98.061	98.034	-	-	-	-
18	-	-	-	-	-	97.891	98.054	98.041	-	-	-	-
19	-	-	-	-	-	97.883	98.048	98.090	-	-	-	-
20	-	-	-	-	-	98.058	98.045	98.137	-	-	-	-
21	-	-	-	-	-	98.145	98.041	98.142	-	-	-	-
22	-	-	-	-	-	98.220	98.030	98.151	-	-	-	-
23	-	-	-	-	-	98.253	98.026	98.157	-	-	-	-
24	-	-	-	-	-	98.297	98.023	98.158	-	-	-	-
25	-	-	-	-	-	98.342	98.018	98.155	-	-	-	-
26	-	-	-	-	-	98.364	98.011	98.150	-	-	-	-
27	-	-	-	-	-	98.383	98.005	98.143	-	-	-	-
28	-	-	-	-	-	98.395	97.998	98.137	-	-	-	-
29	-	-	-	-	-	98.395	97.992	98.133	-	-	-	-
30	-	-	-	-	-	98.390	97.989	98.127	-	-	-	-
31	-	-	-	-	-	-	97.981	98.123	-	-	-	-
MIN	-	-	-	-	-	97.843	97.981	97.944	98.037	0.053	-	-
MEAN	-	-	-	-	-	98.148	98.105	98.052	98.075	0.317	-	-
MAX	-	-	-	-	-	98.395	98.360	98.158	98.115	0.581	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H74 – DORIS LAKE – 2007

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 23.546 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	21.359	21.378	21.384	21.385	21.409	21.416	2.893	21.565	21.646	21.518	21.460	21.482
2	21.360	21.378	21.386	21.385	21.410	21.416	2.905	21.556	21.642	21.508	21.458	21.483
3	21.362	21.379	21.387	21.385	21.411	21.420	2.931	21.547	21.638	21.502	21.458	21.485
4	21.362	21.381	21.387	21.385	21.417	21.421	2.938	21.540	21.633	21.501	21.456	21.484
5	21.364	21.381	21.385	21.385	21.419	21.420	3.023	21.532	21.630	21.503	21.456	21.481
6	21.366	21.382	21.384	21.385	21.416	21.416	3.026	21.527	21.626	21.496	21.454	21.475
7	21.366	21.382	21.384	21.384	21.420	21.414	3.045	21.521	21.623	21.494	21.454	21.474
8	21.366	21.381	21.386	21.387	21.420	21.415	3.097	21.520	21.620	21.498	21.454	21.475
9	21.369	21.381	21.387	21.390	21.420	21.415	3.096	21.542	21.614	21.500	21.454	21.476
10	21.375	21.382	21.386	21.389	21.420	21.416	3.155	21.546	21.607	21.503	21.455	21.478
11	21.374	21.382	21.386	21.389	21.422	21.416	3.321	21.547	21.603	21.490	21.456	21.480
12	21.374	21.385	21.386	21.388	21.421	21.422	3.393	21.552	21.598	21.486	21.457	21.479
13	21.374	21.383	21.386	21.389	21.420	21.438	3.859	21.558	21.593	21.482	21.458	21.478
14	21.372	21.382	21.386	21.390	21.424	21.456	4.561	21.560	21.587	21.476	21.460	21.476
15	21.374	21.381	21.385	21.390	21.425	21.479	4.575	21.561	21.582	21.479	21.463	21.476
16	21.375	21.381	21.384	21.390	21.423	21.504	5.235	21.562	21.578	21.479	21.467	21.477
17	21.377	21.381	21.385	21.390	21.425	21.526	4.784	21.563	21.574	21.477	21.470	21.477
18	21.376	21.380	21.385	21.392	21.426	21.551	6.248	21.567	21.574	21.474	21.472	21.476
19	21.376	21.379	21.385	21.395	21.424	21.600	5.954	21.592	21.575	21.471	21.472	21.478
20	21.377	21.377	21.385	21.394	21.422	21.658	8.758	21.619	21.570	21.471	21.473	21.480
21	21.379	21.379	21.382	21.394	21.421	21.715	9.309	21.630	21.565	21.472	21.475	21.481
22	21.378	21.382	21.379	21.394	21.424	21.750	6.865	21.637	21.560	21.468	21.477	21.481
23	21.375	21.382	21.379	21.395	21.424	21.780	8.562	21.642	21.557	21.468	21.479	21.482
24	21.376	21.381	21.378	21.393	21.422	21.811	8.081	21.647	21.553	21.470	21.480	21.483
25									21.548	21.471	21.482	21.483
26	21.378	21.382	21.378	21.394	21.419	21.841	8.720	21.649				
27	21.379	21.382	21.378	21.407	21.418	21.859	8.605	21.650	21.542	21.473	21.482	21.482
28	21.379	21.382	21.378	21.408	21.419	21.874	9.050	21.649	21.538	21.469	21.481	21.484
29	21.379	21.383	21.379	21.409	21.418	21.885	9.344	21.649	21.535	21.466	21.482	21.487
30	21.380	-	21.378	21.409	21.418	21.889	9.503	21.650	21.531	21.466	21.481	21.487
31	21.380	-	21.378	21.409	21.417	21.888	10.355	21.649	21.523	21.465	-	21.485
31	21.379	-	21.383	-	21.416	-	10.240	21.648	-	-	-	-
MIN	21.359	21.377	21.378	21.384	21.409	21.414	2.893	21.520	21.52	21.46	21.45	21.47
MEAN	21.373	21.381	21.383	21.393	21.420	21.584	5.788	21.586	21.59	21.48	21.47	21.48
MAX	21.380	21.385	21.387	21.409	21.426	21.889	10.355	21.650	21.65	21.52	21.48	21.49



APPENDIX G HYDROMETRIC DATA 2004-2008

H75 – TAIL LAKE – 2007

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 29.339 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	28.137	28.149	28.149	28.145	28.174	28.177	28.347	28.179	28.241	28.203	28.222	28.225
2	28.136	28.149	28.150	28.145	28.174	28.178	28.338	28.175	28.238	28.201	28.222	28.225
3	28.136	28.150	28.152	28.144	28.177	28.178	28.332	28.170	28.235	28.195	28.223	28.225
4	28.137	28.151	28.152	28.143	28.179	28.177	28.327	28.166	28.233	28.200	28.224	28.223
5	28.138	28.151	28.149	28.142	28.179	28.177	28.321	28.162	28.231	28.202	28.224	28.218
6	28.140	28.151	28.148	28.141	28.177	28.176	28.314	28.161	28.230	28.198	28.224	28.218
7	28.142	28.150	28.148	28.140	28.182	28.175	28.308	28.159	28.229	28.198	28.224	28.217
8	28.144	28.149	28.149	28.143	28.182	28.175	28.302	28.162	28.229	28.205	28.224	28.217
9	28.148	28.149	28.150	28.147	28.183	28.175	28.296	28.186	28.227	28.208	28.224	28.217
10	28.152	28.150	28.150	28.147	28.182	28.175	28.291	28.194	28.227	28.210	28.224	28.217
11	28.152	28.150	28.149	28.149	28.181	28.176	28.284	28.197	28.229	28.205	28.225	28.218
12	28.152	28.148	28.148	28.152	28.181	28.184	28.274	28.203	28.228	28.205	28.224	28.217
13	28.152	28.148	28.148	28.153	28.181	28.211	28.269	28.210	28.226	28.204	28.223	28.216
14	28.150	28.148	28.149	28.154	28.182	28.239	28.263	28.214	28.228	28.202	28.224	28.215
15	28.150	28.149	28.148	28.155	28.183	28.267	28.258	28.215	28.228	28.203	28.225	28.216
16	28.150	28.150	28.147	28.155	28.183	28.291	28.253	28.216	28.227	28.207	28.227	28.216
17	28.150	28.150	28.147	28.155	28.183	28.305	28.246	28.216	28.223	28.208	28.227	28.215
18	28.150	28.149	28.147	28.155	28.183	28.311	28.241	28.219	28.220	28.207	28.226	28.214
19	28.151	28.149	28.146	28.154	28.181	28.316	28.237	28.242	28.219	28.206	28.226	28.213
20	28.151	28.149	28.146	28.154	28.181	28.322	28.232	28.268	28.218	28.208	28.225	28.214
21	28.151	28.149	28.146	28.154	28.180	28.328	28.226	28.272	28.216	28.213	28.225	28.215
22	28.151	28.149	28.145	28.154	28.180	28.333	28.219	28.271	28.214	28.212	28.226	28.219
23	28.150	28.149	28.145	28.154	28.179	28.333	28.214	28.268	28.214	28.214	28.227	28.214
24	28.150	28.148	28.143	28.154	28.179	28.342	28.212	28.265	28.213	28.220	28.226	28.219
25	28.150	28.149	28.143	28.158	28.178	28.356	28.210	28.261	28.212	28.221	28.226	28.220
26	28.150	28.149	28.144	28.171	28.178	28.360	28.206	28.256	28.210	28.221	28.226	28.220
27	28.150	28.148	28.143	28.173	28.179	28.361	28.201	28.251	28.208	28.221	28.225	28.220
28	28.150	28.148	28.144	28.174	28.180	28.362	28.196	28.249	28.207	28.222	28.225	28.220
29	28.150	-	28.144	28.174	28.179	28.359	28.192	28.248	28.206	28.222	28.224	28.219
30	28.150	-	28.144	28.173	28.178	28.355	28.189	28.246	28.204	28.222	-	28.219
31	28.150	-	28.144	-	28.178	-	28.184	28.244	-	-	-	-
MIN	28.136	28.148	28.143	28.140	28.174	28.175	28.184	28.159	28.204	28.195	28.222	28.213
MEAN	28.147	28.149	28.147	28.154	28.180	28.262	28.258	28.218	28.222	28.209	28.225	28.218
MAX	28.152	28.151	28.152	28.174	28.183	28.362	28.347	28.272	28.241	28.222	28.227	28.225



APPENDIX G HYDROMETRIC DATA 2004-2008

H76 – TAIL OUTFLOW – 2007

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
						MEAN DAILY DISCHARGE (m ³ /s)						
1	-	-	-	-	-	0.001 E	0.125	0.004	0.036	0.002 E	-	-
2	-	-	-	-	-	0.001 E	0.109	0.003	0.031	0.001 E	-	-
3	-	-	-	-	-	0.001 E	0.097	0.003	0.028	-	-	-
4	-	-	-	-	-	0.001 E	0.085	0.002	0.025	-	-	-
5	-	-	-	-	-	0.002 E	0.077	0.002	0.025	-	-	-
6	-	-	-	-	-	0.002 E	0.069	0.002	0.023	-	-	-
7	-	-	-	-	-	0.002 E	0.062	0.002	0.023	-	-	-
8	-	-	-	-	-	0.003 E	0.059	0.003	0.021	-	-	-
9	-	-	-	-	-	0.003 E	0.054	0.008	0.019	-	-	-
10	-	-	-	-	-	0.003 E	0.049	0.010	0.016	-	-	-
11	-	-	-	-	-	0.003 E	0.046	0.010	0.016	-	-	-
12	-	-	-	-	-	0.004 E	0.041	0.014	0.016	-	-	-
13	-	-	-	-	-	0.006 E	0.037	0.018	0.014	-	-	-
14	-	-	-	-	-	0.012 E	0.033	0.020	0.013 P	-	-	-
15	-	-	-	-	-	0.020 E	0.030	0.020	0.012 E	-	-	-
16	-	-	-	-	-	0.030 E	0.027	0.020	0.012 E	-	-	-
17	-	-	-	-	-	0.039 E	0.023	0.020	0.011 E	-	-	-
18	-	-	-	-	-	0.042 E	0.021	0.022	0.010 E	-	-	-
19	-	-	-	-	-	0.046 E	0.020	0.055	0.010 E	-	-	-
20	-	-	-	-	-	0.051 E	0.020	0.090	0.009 E	-	-	-
21	-	-	-	-	-	0.056 E	0.020	0.094	0.008 E	-	-	-
22	-	-	-	-	-	0.060 E	0.014	0.098	0.008 E	-	-	-
23	-	-	-	-	-	0.119 P	0.013	0.087	0.007 E	-	-	-
24	-	-	-	-	-	0.128	0.012	0.078	0.006 E	-	-	-
25	-	-	-	-	-	0.142	0.011	0.068	0.006 E	-	-	-
26	-	-	-	-	-	0.143	0.010	0.060	0.005 E	-	-	-
27	-	-	-	-	-	0.143	0.008	0.051	0.004 E	-	-	-
28	-	-	-	-	-	0.146	0.007	0.047	0.003 E	-	-	-
29	-	-	-	-	-	0.148	0.006	0.045	0.003 E	-	-	-
30	-	-	-	-	-	0.139	0.006	0.042	0.002 E	-	-	-
31	-	-	-	-	-	-	0.005	0.040	-	-	-	-
MIN	-	-	-	-	-	0.001	0.005	0.002	0.002	0.001	-	-
MEAN	-	-	-	-	-	0.050	0.039	0.033	0.014	0.001	-	-
MAX	-	-	-	-	-	0.148	0.125	0.098	0.036	0.002	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	24.246	24.084	24.178	-	-	-
2	-	-	-	-	-	-	24.238	24.078	24.171	-	-	-
3	-	-	-	-	-	-	24.231	24.073	24.166	-	-	-
4	-	-	-	-	-	-	24.224	24.067	24.162	-	-	-
5	-	-	-	-	-	-	24.218	24.061	24.161	-	-	-
6	-	-	-	-	-	-	24.212	24.060	24.158	-	-	-
7	-	-	-	-	-	-	24.207	24.055	24.156	-	-	-
8	-	-	-	-	-	-	24.204	24.071	24.154	-	-	-
9	-	-	-	-	-	-	24.199	24.109	24.149	-	-	-
10	-	-	-	-	-	-	24.195	24.120	24.142	-	-	-
11	-	-	-	-	-	-	24.191	24.122	24.141	-	-	-
12	-	-	-	-	-	-	24.185	24.134	24.140	-	-	-
13	-	-	-	-	-	-	24.180	24.146	24.134	-	-	-
14	-	-	-	-	-	-	24.174	24.150	24.130 P	-	-	-
15	-	-	-	-	-	-	24.170	24.150	-	-	-	-
16	-	-	-	-	-	-	24.164	24.151	-	-	-	-
17	-	-	-	-	-	-	24.156	24.150	-	-	-	-
18	-	-	-	-	-	-	24.152	24.155	-	-	-	-
19	-	-	-	-	-	-	24.151	24.197	-	-	-	-
20	-	-	-	-	-	-	24.151	24.227	-	-	-	-
21	-	-	-	-	-	-	24.151	24.229	-	-	-	-
22	-	-	-	-	-	-	24.135	24.232	-	-	-	-
23	-	-	-	-	-	24.243 P	24.130	24.225	-	-	-	-
24	-	-	-	-	-	24.247	24.127	24.219	-	-	-	-
25	-	-	-	-	-	24.253	24.125	24.212	-	-	-	-
26	-	-	-	-	-	24.254	24.120	24.205	-	-	-	-
27	-	-	-	-	-	24.254	24.113	24.196	-	-	-	-
28	-	-	-	-	-	24.255	24.107	24.192	-	-	-	-
29	-	-	-	-	-	24.256	24.101	24.190	-	-	-	-
30	-	-	-	-	-	24.252	24.099	24.186	-	-	-	-
31	-	-	-	-	-	-	24.094	24.184	-	-	-	-
MIN	-	-	-	-	-	24.243	24.094	24.055	24.130	-	-	-
MEAN	-	-	-	-	-	24.252	24.166	24.149	24.153	-	-	-
MAX	-	-	-	-	-	24.256	24.246	24.232	24.178	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H81 – PATCH LAKE – 2007

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.970	98.948	98.986	-	-	-
2	-	-	-	-	-	-	98.971	98.941	98.981	-	-	-
3	-	-	-	-	-	-	98.968	98.938	98.981	-	-	-
4	-	-	-	-	-	-	98.966	98.933	98.973	-	-	-
5	-	-	-	-	-	-	98.966	98.926	98.969	-	-	-
6	-	-	-	-	-	-	98.970	98.921	98.967	-	-	-
7	-	-	-	-	-	-	98.969	98.917	98.966	-	-	-
8	-	-	-	-	-	-	98.971	98.918	98.962	-	-	-
9	-	-	-	-	-	-	98.969	98.920	98.954	-	-	-
10	-	-	-	-	-	-	98.970	98.922	98.947	-	-	-
11	-	-	-	-	-	-	98.969	98.927	98.942	-	-	-
12	-	-	-	-	-	-	98.970	98.933	98.942 P	-	-	-
13	-	-	-	-	-	-	98.969	98.939	-	-	-	-
14	-	-	-	-	-	-	98.973	98.944	-	-	-	-
15	-	-	-	-	-	-	98.979	98.946	-	-	-	-
16	-	-	-	-	-	-	98.979	98.944	-	-	-	-
17	-	-	-	-	-	-	98.984	98.947	-	-	-	-
18	-	-	-	-	-	-	98.988	98.947	-	-	-	-
19	-	-	-	-	-	-	98.992	98.966	-	-	-	-
20	-	-	-	-	-	-	98.986	98.985	-	-	-	-
21	-	-	-	-	-	-	98.994	98.991	-	-	-	-
22	-	-	-	-	-	-	98.989	98.993	-	-	-	-
23	-	-	-	-	-	-	98.974	98.994	-	-	-	-
24	-	-	-	-	-	-	98.968	98.993	-	-	-	-
25	-	-	-	-	-	98.899	98.966	98.992	-	-	-	-
26	-	-	-	-	-	98.918	98.967	98.990	-	-	-	-
27	-	-	-	-	-	98.931	98.961	98.988	-	-	-	-
28	-	-	-	-	-	98.945	98.960	98.985	-	-	-	-
29	-	-	-	-	-	98.957	98.957	98.985	-	-	-	-
30	-	-	-	-	-	98.965	98.957	98.984	-	-	-	-
31	-	-	-	-	-	-	98.957	98.986	-	-	-	-
MIN	-	-	-	-	-	98.899	98.957	98.917	98.942	-	-	-
MEAN	-	-	-	-	-	98.936	98.972	98.956	98.964	-	-	-
MAX	-	-	-	-	-	98.965	98.994	98.994	98.986	-	-	-

E- ESTIMATED

P – PARTIAL DAILY



APPENDIX G HYDROMETRIC DATA 2004-2008

H82 – OGAMA OUTFLOW – 2007 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.940	0.256	1.415	0.270 E	-	-
2	-	-	-	-	-	-	0.879	0.247	1.330	0.240 E	-	-
3	-	-	-	-	-	-	0.811	0.241	1.249	0.210 E	-	-
4	-	-	-	-	-	-	0.741	0.234	1.173	0.180 E	-	-
5	-	-	-	-	-	-	0.677	0.230	1.145	0.150 E	-	-
6	-	-	-	-	-	-	0.620	0.236	1.103	0.120 E	-	-
7	-	-	-	-	-	-	0.570	0.236	1.048	0.090 E	-	-
8	-	-	-	-	-	-	0.536	0.238	1.008	0.060 E	-	-
9	-	-	-	-	-	-	0.520	0.346	0.950	0.030 E	-	-
10	-	-	-	-	-	-	0.531	0.394	0.906	-	-	-
11	-	-	-	-	-	-	0.568	0.428	0.906	-	-	-
12	-	-	-	-	-	-	0.583	0.483	0.862	-	-	-
13	-	-	-	-	-	-	0.562	0.562	0.805	-	-	-
14	-	-	-	-	-	-	0.536	0.631	0.780 P	-	-	-
15	-	-	-	-	-	0.079 E	0.517	0.692	0.750 E	-	-	-
16	-	-	-	-	-	0.179 E	0.482	0.779	0.720 E	-	-	-
17	-	-	-	-	-	0.279 E	0.449	0.853	0.690 E	-	-	-
18	-	-	-	-	-	0.378 E	0.435	0.935	0.660 E	-	-	-
19	-	-	-	-	-	0.478 P	0.422	1.183	0.630 E	-	-	-
20	-	-	-	-	-	0.578	0.429	1.499	0.600 E	-	-	-
21	-	-	-	-	-	0.615	0.417	1.707	0.570 E	-	-	-
22	-	-	-	-	-	0.620	0.371	1.859	0.540 E	-	-	-
23	-	-	-	-	-	0.711	0.354	1.915	0.510 E	-	-	-
24	-	-	-	-	-	0.865	0.345	1.926	0.480 E	-	-	-
25	-	-	-	-	-	0.986	0.338	1.885	0.450 E	-	-	-
26	-	-	-	-	-	1.076	0.321	1.819	0.420 E	-	-	-
27	-	-	-	-	-	1.118	0.305	1.703	0.390 E	-	-	-
28	-	-	-	-	-	1.116	0.294	1.661	0.360 E	-	-	-
29	-	-	-	-	-	1.080	0.285	1.596	0.330 E	-	-	-
30	-	-	-	-	-	1.016	0.287	1.551	0.300 E	-	-	-
31	-	-	-	-	-	-	0.267	1.502	-	-	-	-
MIN	-	-	-	-	-	0.079	0.267	0.230	0.300	0.030	-	-
MEAN	-	-	-	-	-	0.698	0.497	0.962	0.769	0.150	-	-
MAX	-	-	-	-	-	1.118	0.940	1.926	1.415	0.270	-	-

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.478	98.349	98.528	-	-	-
2	-	-	-	-	-	-	98.471	98.346	98.521	-	-	-
3	-	-	-	-	-	-	98.462	98.344	98.513	-	-	-
4	-	-	-	-	-	-	98.451	98.341	98.505	-	-	-
5	-	-	-	-	-	-	98.442	98.340	98.502	-	-	-
6	-	-	-	-	-	-	98.432	98.342	98.497	-	-	-
7	-	-	-	-	-	-	98.424	98.342	98.491	-	-	-
8	-	-	-	-	-	-	98.417	98.342	98.487	-	-	-
9	-	-	-	-	-	-	98.414	98.375	98.480	-	-	-
10	-	-	-	-	-	-	98.417	98.387	98.474	-	-	-
11	-	-	-	-	-	-	98.423	98.395	98.474	-	-	-
12	-	-	-	-	-	-	98.426	98.407	98.469	-	-	-
13	-	-	-	-	-	-	98.422	98.422	98.461	-	-	-
14	-	-	-	-	-	-	98.418	98.434	98.457 P	-	-	-
15	-	-	-	-	-	-	98.414	98.444	-	-	-	-
16	-	-	-	-	-	-	98.407	98.457	-	-	-	-
17	-	-	-	-	-	-	98.400	98.467	-	-	-	-
18	-	-	-	-	-	-	98.397	98.478	-	-	-	-
19	-	-	-	-	-	98.405 P	98.394	98.505	-	-	-	-
20	-	-	-	-	-	98.425	98.395	98.536	-	-	-	-
21	-	-	-	-	-	98.432	98.393	98.553	-	-	-	-
22	-	-	-	-	-	98.432	98.382	98.565	-	-	-	-
23	-	-	-	-	-	98.447	98.377	98.569	-	-	-	-
24	-	-	-	-	-	98.469	98.375	98.570	-	-	-	-
25	-	-	-	-	-	98.484	98.373	98.567	-	-	-	-
26	-	-	-	-	-	98.494	98.368	98.562	-	-	-	-
27	-	-	-	-	-	98.499	98.364	98.553	-	-	-	-
28	-	-	-	-	-	98.499	98.361	98.549	-	-	-	-
29	-	-	-	-	-	98.495	98.358	98.544	-	-	-	-
30	-	-	-	-	-	98.488	98.359	98.540	-	-	-	-
31	-	-	-	-	-	-	98.352	98.536	-	-	-	-
MIN	-	-	-	-	-	98.405	98.352	98.340	98.457	-	-	-
MEAN	-	-	-	-	-	98.464	98.405	98.457	98.490	-	-	-
MAX	-	-	-	-	-	98.499	98.478	98.570	98.528	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE



APPENDIX G HYDROMETRIC DATA 2004-2008

H92 – WINDY OUTFLOW – 2007 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.052	0.051	-	-	-	-
2	-	-	-	-	-	-	0.053	0.050	-	-	-	-
3	-	-	-	-	-	-	0.053	0.050	-	-	-	-
4	-	-	-	-	-	-	0.052	0.049	-	-	-	-
5	-	-	-	-	-	-	0.052	-	-	-	-	-
6	-	-	-	-	-	-	0.052	-	-	-	-	-
7	-	-	-	-	-	-	0.053	-	-	-	-	-
8	-	-	-	-	-	-	0.052	-	-	-	-	-
9	-	-	-	-	-	-	0.052	-	-	-	-	-
10	-	-	-	-	-	-	0.053	-	-	-	-	-
11	-	-	-	-	-	-	0.052	-	-	-	-	-
12	-	-	-	-	-	-	0.052	-	-	-	-	-
13	-	-	-	-	-	-	0.052	-	-	-	-	-
14	-	-	-	-	-	-	0.052	-	-	-	-	-
15	-	-	-	-	-	-	0.052	-	-	-	-	-
16	-	-	-	-	-	-	0.052	-	-	-	-	-
17	-	-	-	-	-	-	0.051	-	-	-	-	-
18	-	-	-	-	-	-	0.051	-	-	-	-	-
19	-	-	-	-	-	-	0.052	-	-	-	-	-
20	-	-	-	-	-	-	0.053	-	-	-	-	-
21	-	-	-	-	-	-	0.054	-	-	-	-	-
22	-	-	-	-	-	0.011 P	0.053	-	-	-	-	-
23	-	-	-	-	-	0.022	0.053	-	-	-	-	-
24	-	-	-	-	-	0.031	0.053	-	-	-	-	-
25	-	-	-	-	-	0.040	0.053	-	-	-	-	-
26	-	-	-	-	-	0.044	0.053	-	-	-	-	-
27	-	-	-	-	-	0.047	0.053	-	-	-	-	-
28	-	-	-	-	-	0.049	0.053	-	-	-	-	-
29	-	-	-	-	-	0.050	0.052	-	-	-	-	-
30	-	-	-	-	-	0.051	0.052	-	-	-	-	-
31	-	-	-	-	-	-	0.052	-	-	-	-	-
MIN	-	-	-	-	-	0.011	0.051	0.049	-	-	-	-
MEAN	-	-	-	-	-	0.038	0.052	0.050	-	-	-	-
MAX	-	-	-	-	-	0.051	0.054	0.051	-	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.387	98.377	-	-	-	-
2	-	-	-	-	-	-	98.387	98.376	-	-	-	-
3	-	-	-	-	-	-	98.387	98.373	-	-	-	-
4	-	-	-	-	-	-	98.386	98.374 P	-	-	-	-
5	-	-	-	-	-	-	98.386	-	-	-	-	-
6	-	-	-	-	-	-	98.387	-	-	-	-	-
7	-	-	-	-	-	-	98.387	-	-	-	-	-
8	-	-	-	-	-	-	98.387	-	-	-	-	-
9	-	-	-	-	-	-	98.387	-	-	-	-	-
10	-	-	-	-	-	-	98.387	-	-	-	-	-
11	-	-	-	-	-	-	98.386	-	-	-	-	-
12	-	-	-	-	-	-	98.384	-	-	-	-	-
13	-	-	-	-	-	-	98.384	-	-	-	-	-
14	-	-	-	-	-	-	98.383	-	-	-	-	-
15	-	-	-	-	-	-	98.384	-	-	-	-	-
16	-	-	-	-	-	-	98.383	-	-	-	-	-
17	-	-	-	-	-	-	98.380	-	-	-	-	-
18	-	-	-	-	-	-	98.381	-	-	-	-	-
19	-	-	-	-	-	-	98.385	-	-	-	-	-
20	-	-	-	-	-	-	98.387	-	-	-	-	-
21	-	-	-	-	-	-	98.396	-	-	-	-	-
22	-	-	-	-	-	98.160 P	98.387	-	-	-	-	-
23	-	-	-	-	-	98.218	98.387	-	-	-	-	-
24	-	-	-	-	-	98.271	98.390	-	-	-	-	-
25	-	-	-	-	-	98.318	98.391	-	-	-	-	-
26	-	-	-	-	-	98.340	98.390	-	-	-	-	-
27	-	-	-	-	-	98.355	98.389	-	-	-	-	-
28	-	-	-	-	-	98.367	98.388	-	-	-	-	-
29	-	-	-	-	-	98.375	98.386	-	-	-	-	-
30	-	-	-	-	-	98.381	98.387	-	-	-	-	-
31	-	-	-	-	-	-	98.383	-	-	-	-	-
MIN	-	-	-	-	-	98.160	98.380	98.373	-	-	-	-
MEAN	-	-	-	-	-	98.310	98.386	98.375	-	-	-	-
MAX	-	-	-	-	-	98.381	98.396	98.377	-	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E - ESTIMATED

A – MANUAL MEASUREMENT



APPENDIX G HYDROMETRIC DATA 2004-2008

H93 – GLENN OUTFLOW – 2007 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.501	1.073	-	-	-	-	-
2	-	-	-	-	-	0.432	0.866	-	-	-	-	-
3	-	-	-	-	-	0.330	0.633	-	-	-	-	-
4	-	-	-	-	-	0.375	-	-	-	-	-	-
5	-	-	-	-	-	0.410	-	-	-	-	-	-
6	-	-	-	-	-	0.477	-	-	-	-	-	-
7	-	-	-	-	-	0.535	-	-	-	-	-	-
8	-	-	-	-	-	0.493	-	-	-	-	-	-
9	-	-	-	-	-	0.477	-	-	-	-	-	-
10	-	-	-	-	-	0.546	-	-	-	-	-	-
11	-	-	-	-	-	0.552	-	-	-	-	-	-
12	-	-	-	-	-	0.501	-	-	-	-	-	-
13	-	-	-	-	-	0.519	-	-	-	-	-	-
14	-	-	-	-	-	0.508	-	-	-	-	-	-
15	-	-	-	-	-	0.529	-	-	-	-	-	-
16	-	-	-	-	-	0.630	-	-	-	-	-	-
17	-	-	-	-	-	0.755	-	-	-	-	-	-
18	-	-	-	-	-	0.954	-	-	-	-	-	-
19	-	-	-	-	-	1.091	-	-	-	-	-	-
20	-	-	-	-	-	0.973	-	-	-	-	-	-
21	-	-	-	-	-	0.876	-	-	-	-	-	-
22	-	-	-	-	-	0.759	-	-	-	-	-	-
23	-	-	-	-	-	0.704	-	-	-	-	-	-
24	-	-	-	-	0.433 P	0.724	-	-	-	-	-	-
25	-	-	-	-	0.495	0.651	-	-	-	-	-	-
26	-	-	-	-	0.538	0.649	-	-	-	-	-	-
27	-	-	-	-	0.403	0.750	-	-	-	-	-	-
28	-	-	-	-	0.333	0.604	-	-	-	-	-	-
29	-	-	-	-	0.481	0.613	-	-	-	-	-	-
30	-	-	-	-	0.416	0.622	-	-	-	-	-	-
31	-	-	-	-	0.452	-	-	-	-	-	-	-
MIN	-	-	-	-	0.333	0.330	0.633	-	-	-	-	-
MEAN	-	-	-	-	0.444	0.618	0.857	-	-	-	-	-
MAX	-	-	-	-	0.538	1.091	1.073	-	-	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	97.233	97.367	-	-	-	-	-
2	-	-	-	-	-	97.207	97.334	-	-	-	-	-
3	-	-	-	-	-	97.163	97.273	-	-	-	-	-
4	-	-	-	-	-	97.184	-	-	-	-	-	-
5	-	-	-	-	-	97.198	-	-	-	-	-	-
6	-	-	-	-	-	97.224	-	-	-	-	-	-
7	-	-	-	-	-	97.244	-	-	-	-	-	-
8	-	-	-	-	-	97.230	-	-	-	-	-	-
9	-	-	-	-	-	97.224	-	-	-	-	-	-
10	-	-	-	-	-	97.248	-	-	-	-	-	-
11	-	-	-	-	-	97.250	-	-	-	-	-	-
12	-	-	-	-	-	97.232	-	-	-	-	-	-
13	-	-	-	-	-	97.238	-	-	-	-	-	-
14	-	-	-	-	-	97.235	-	-	-	-	-	-
15	-	-	-	-	-	97.242	-	-	-	-	-	-
16	-	-	-	-	-	97.275	-	-	-	-	-	-
17	-	-	-	-	-	97.309	-	-	-	-	-	-
18	-	-	-	-	-	97.356	-	-	-	-	-	-
19	-	-	-	-	-	97.386	-	-	-	-	-	-
20	-	-	-	-	-	97.362	-	-	-	-	-	-
21	-	-	-	-	-	97.339	-	-	-	-	-	-
22	-	-	-	-	-	97.310	-	-	-	-	-	-
23	-	-	-	-	-	97.292	-	-	-	-	-	-
24	-	-	-	-	97.208 P	97.298	-	-	-	-	-	-
25	-	-	-	-	97.230	97.277	-	-	-	-	-	-
26	-	-	-	-	97.245	97.276	-	-	-	-	-	-
27	-	-	-	-	97.194	97.297	-	-	-	-	-	-
28	-	-	-	-	97.164	97.261	-	-	-	-	-	-
29	-	-	-	-	97.225	97.265	-	-	-	-	-	-
30	-	-	-	-	97.201	97.269	-	-	-	-	-	-
31	-	-	-	-	97.215	-	-	-	-	-	-	-
MIN	-	-	-	-	97.164	97.163	97.273	-	-	-	-	-
MEAN	-	-	-	-	97.210	97.264	97.325	-	-	-	-	-
MAX	-	-	-	-	97.245	97.386	97.367	-	-	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H89 – PO OUTFLOW – 2007

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.670	0.132	0.414	0.109 E	-	-
2	-	-	-	-	-	-	0.602	0.126	0.397	0.100 E	-	-
3	-	-	-	-	-	-	0.557	0.120	0.381	0.091 E	-	-
4	-	-	-	-	-	-	0.521	0.115	0.364	0.082 E	-	-
5	-	-	-	-	-	-	0.498	0.108	0.358	0.073 E	-	-
6	-	-	-	-	-	-	0.488	0.107	0.347	0.064 E	-	-
7	-	-	-	-	-	-	0.451	0.103	0.334	0.055 E	-	-
8	-	-	-	-	-	-	0.456	0.102	0.328	0.046 E	-	-
9	-	-	-	-	-	-	0.433	0.147	0.320	0.037 E	-	-
10	-	-	-	-	-	-	0.461	0.187	0.307	0.028 E	-	-
11	-	-	-	-	-	-	0.438	0.213	0.304	0.019 E	-	-
12	-	-	-	-	-	-	0.406	0.251	0.295	0.010 E	-	-
13	-	-	-	-	-	-	0.377	0.321	0.272	-	-	-
14	-	-	-	-	-	-	0.354	0.383	0.263	-	-	-
15	-	-	-	-	-	-	0.332	0.419	0.254 E	-	-	-
16	-	-	-	-	-	-	0.302	0.441	0.245 E	-	-	-
17	-	-	-	-	-	-	0.278	0.438	0.236 E	-	-	-
18	-	-	-	-	-	0.817 P	0.263	0.424	0.227 E	-	-	-
19	-	-	-	-	-	0.792	0.249	0.500	0.218 E	-	-	-
20	-	-	-	-	-	0.740	0.238	0.686	0.209 E	-	-	-
21	-	-	-	-	-	0.732	0.228	0.753	0.200 E	-	-	-
22	-	-	-	-	-	0.678	0.202	0.724	0.191 E	-	-	-
23	-	-	-	-	-	0.615	0.192	0.664	0.182 E	-	-	-
24	-	-	-	-	-	0.713	0.186	0.622	0.173 E	-	-	-
25	-	-	-	-	-	0.853	0.182	0.578	0.164 E	-	-	-
26	-	-	-	-	-	0.901	0.175	0.540	0.155 E	-	-	-
27	-	-	-	-	-	0.891	0.167	0.498	0.146 E	-	-	-
28	-	-	-	-	-	0.855	0.159	0.476	0.137 E	-	-	-
29	-	-	-	-	-	0.785	0.154	0.461	0.128 E	-	-	-
30	-	-	-	-	-	0.724	0.151	0.451	0.118 E	-	-	-
31	-	-	-	-	-	-	0.141	0.439	-	-	-	-
MIN	-	-	-	-	-	0.615	0.141	0.102	0.118	0.010	-	-
MEAN	-	-	-	-	-	0.777	0.333	0.372	0.255	0.060	-	-
MAX	-	-	-	-	-	0.901	0.670	0.753	0.414	0.109	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	99.086	99.042	99.217	-	-	-
2	-	-	-	-	-	-	99.084	99.037	99.208	-	-	-
3	-	-	-	-	-	-	99.079	99.032	99.200	-	-	-
4	-	-	-	-	-	-	99.073	99.026	99.192	-	-	-
5	-	-	-	-	-	-	99.068	99.020	99.189	-	-	-
6	-	-	-	-	-	-	99.062	99.019	99.183	-	-	-
7	-	-	-	-	-	-	99.059	99.015	99.176	-	-	-
8	-	-	-	-	-	-	99.054	99.014	99.173	-	-	-
9	-	-	-	-	-	-	99.045	99.054	99.169	-	-	-
10	-	-	-	-	-	-	99.239	99.085	99.162	-	-	-
11	-	-	-	-	-	-	99.228	99.104	99.160	-	-	-
12	-	-	-	-	-	-	99.213	99.128	99.154	-	-	-
13	-	-	-	-	-	-	99.198	99.169	99.141	-	-	-
14	-	-	-	-	-	-	99.187	99.201	99.136 P	-	-	-
15	-	-	-	-	-	-	99.175	99.219	-	-	-	-
16	-	-	-	-	-	-	99.158	99.229	-	-	-	-
17	-	-	-	-	-	-	99.145	99.228	-	-	-	-
18	-	-	-	-	-	99.235 P	99.136	99.222	-	-	-	-
19	-	-	-	-	-	99.221	99.127	99.255	-	-	-	-
20	-	-	-	-	-	99.206	99.120	99.330	-	-	-	-
21	-	-	-	-	-	99.192	99.114	99.354	-	-	-	-
22	-	-	-	-	-	99.181	99.096	99.344	-	-	-	-
23	-	-	-	-	-	99.167	99.089	99.322	-	-	-	-
24	-	-	-	-	-	99.151	99.085	99.306	-	-	-	-
25	-	-	-	-	-	99.139	99.082	99.288	-	-	-	-
26	-	-	-	-	-	99.132	99.077	99.273	-	-	-	-
27	-	-	-	-	-	99.123	99.071	99.255	-	-	-	-
28	-	-	-	-	-	99.118	99.064	99.245	-	-	-	-
29	-	-	-	-	-	99.104	99.060	99.238	-	-	-	-
30	-	-	-	-	-	99.093	99.058	99.234	-	-	-	-
31	-	-	-	-	-	-	99.049	99.228	-	-	-	-
MIN	-	-	-	-	-	99.093	99.045	99.014	99.136	-	-	-
MEAN	-	-	-	-	-	99.159	99.109	99.178	99.176	-	-	-
MAX	-	-	-	-	-	99.235	99.239	99.354	99.217	-	-	-

NOTES: P - PARTIAL DAILY AVERAGE

E – ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H71 – DORIS OUTFLOW – 2008

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	3.086	1.114	0.720	0.347 E	-	-
2	-	-	-	-	-	-	2.946	1.052	0.801	0.300 E	-	-
3	-	-	-	-	-	0.011 E	2.801	0.979	0.854	0.253 E	-	-
4	-	-	-	-	-	0.018 E	2.654	0.942	0.889	0.206 E	-	-
5	-	-	-	-	-	0.026 E	2.513	0.917	0.913	0.159 E	-	-
6	-	-	-	-	-	0.039 E	2.391	0.884	0.939	0.112 E	-	-
7	-	-	-	-	-	0.057 E	2.273	0.846	0.958	0.086 E	-	-
8	-	-	-	-	-	0.075 E	2.153	0.809	0.971	0.058 E	-	-
9	-	-	-	-	-	0.125 E	2.051	0.773	0.998	0.038 E	-	-
10	-	-	-	-	-	0.239 E	1.956	0.755	1.045	0.017 E	-	-
11	-	-	-	-	-	0.433 E	1.891	0.736	1.073	0.000 E	-	-
12	-	-	-	-	-	0.638 E	1.843	0.753	1.074	0.000 E	-	-
13	-	-	-	-	-	1.019 E	1.795	0.744	1.060 E	0.000 E	-	-
14	-	-	-	-	-	1.484 E	1.722	0.730	1.045 E	0.000 E	-	-
15	-	-	-	-	-	1.928 E	1.651	0.703	1.020 E	0.000 E	-	-
16	-	-	-	-	-	2.580 E	1.589	0.678	0.988 E	0.000 E	-	-
17	-	-	-	-	-	3.130 E	1.536	0.647	0.958 E	0.000 E	-	-
18	-	-	-	-	-	3.600 E	1.484	0.628	0.928 E	0.000 E	-	-
19	-	-	-	-	-	3.934 E	1.472	0.591	0.891 E	0.000 E	-	-
20	-	-	-	-	-	4.121 E	1.459	0.575	0.854 E	0.000 E	-	-
21	-	-	-	-	-	4.203 E	1.402	0.548	0.817 E	0.000 E	-	-
22	-	-	-	-	-	4.293 P	1.335	0.536	0.770 E	0.000 E	-	-
23	-	-	-	-	-	4.231	1.293	0.536	0.723 E	0.000 E	-	-
24	-	-	-	-	-	4.130	1.242	0.525	0.676 E	-	-	-
25	-	-	-	-	-	3.996	1.191	0.507	0.629 E	-	-	-
26	-	-	-	-	-	3.852	1.273	0.485	0.582 E	-	-	-
27	-	-	-	-	-	3.670	1.245	0.504	0.535 E	-	-	-
28	-	-	-	-	-	3.500	1.209	0.494	0.488 E	-	-	-
29	-	-	-	-	-	3.355	1.175	0.515	0.441 E	-	-	-
30	-	-	-	-	-	3.215	1.156	0.573	0.394 E	-	-	-
31	-	-	-	-	-	-	1.114	0.640	-	-	-	-
MIN	-	-	-	-	-	0.011	1.114	0.485	0.394	-	-	-
MEAN	-	-	-	-	-	2.211	1.771	0.701	0.834	-	-	-
MAX	-	-	-	-	-	4.293	3.086	1.114	1.074	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 22.593 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	21.770	21.508	21.425	-	-	-
2	-	-	-	-	-	-	21.756	21.496	21.444	-	-	-
3	-	-	-	-	-	-	21.741	21.482	21.456	-	-	-
4	-	-	-	-	-	-	21.724	21.475	21.464	-	-	-
5	-	-	-	-	-	-	21.709	21.470	21.468	-	-	-
6	-	-	-	-	-	-	21.694	21.462	21.474	-	-	-
7	-	-	-	-	-	-	21.680	21.454	21.478	-	-	-
8	-	-	-	-	-	-	21.665	21.446	21.480	-	-	-
9	-	-	-	-	-	-	21.652	21.438	21.486	-	-	-
10	-	-	-	-	-	-	21.640	21.433	21.495	-	-	-
11	-	-	-	-	-	-	21.631	21.429	21.500	-	-	-
12	-	-	-	-	-	-	21.624	21.433	21.501 P	-	-	-
13	-	-	-	-	-	-	21.618	21.431	-	-	-	-
14	-	-	-	-	-	-	21.607	21.428	-	-	-	-
15	-	-	-	-	-	-	21.597	21.421	-	-	-	-
16	-	-	-	-	-	-	21.588	21.415	-	-	-	-
17	-	-	-	-	-	-	21.580	21.407	-	-	-	-
18	-	-	-	-	-	-	21.572	21.402	-	-	-	-
19	-	-	-	-	-	-	21.570	21.392	-	-	-	-
20	-	-	-	-	-	-	21.567	21.388	-	-	-	-
21	-	-	-	-	-	-	21.558	21.380	-	-	-	-
22	-	-	-	-	-	21.881 P	21.547	21.377	-	-	-	-
23	-	-	-	-	-	21.876	21.540	21.377	-	-	-	-
24	-	-	-	-	-	21.867	21.531	21.373	-	-	-	-
25	-	-	-	-	-	21.856	21.522	21.368	-	-	-	-
26	-	-	-	-	-	21.843	21.537	21.361	-	-	-	-
27	-	-	-	-	-	21.827	21.532	21.367	-	-	-	-
28	-	-	-	-	-	21.811	21.526	21.364	-	-	-	-
29	-	-	-	-	-	21.797	21.519	21.370	-	-	-	-
30	-	-	-	-	-	21.783	21.516	21.387	-	-	-	-
31	-	-	-	-	-	-	21.508	21.405	-	-	-	-
MIN	-	-	-	-	-	21.783	21.508	21.361	21.425	-	-	-
MEAN	-	-	-	-	-	21.838	21.607	21.417	21.473	-	-	-
MAX	-	-	-	-	-	21.881	21.770	21.508	21.501	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H72 – ROBERTS LAKE AND OUTFLOW – 2008

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	3.175	1.152	1.535	0.195 E	-	-
2	-	-	-	-	-	-	2.901	1.115	1.886	0.155 E	-	-
3	-	-	-	-	-	0.045 E	2.631	1.051	2.119	0.115 E	-	-
4	-	-	-	-	-	0.085 E	2.405	1.024	2.218	0.077 E	-	-
5	-	-	-	-	-	0.132 E	2.166	0.979	2.212	0.056 E	-	-
6	-	-	-	-	-	0.164 E	1.960	0.937	2.137	0.034 E	-	-
7	-	-	-	-	-	0.208 E	1.791	0.908	2.031	0.024 E	-	-
8	-	-	-	-	-	0.271 E	1.639	0.889	1.928	0.018 E	-	-
9	-	-	-	-	-	0.340 E	1.484	0.855	1.859 P	-	-	-
10	-	-	-	-	-	0.520 E	1.400	0.853	1.841 E	-	-	-
11	-	-	-	-	-	0.760 E	1.331	0.851	1.786 E	-	-	-
12	-	-	-	-	-	1.160 E	1.249	0.905	1.727 E	-	-	-
13	-	-	-	-	-	1.710 E	1.199	0.926	1.620 E	-	-	-
14	-	-	-	-	-	2.200 E	1.131	0.955	1.520 E	-	-	-
15	-	-	-	-	-	2.740 E	1.073	0.923	1.400 E	-	-	-
16	-	-	-	-	-	3.400 E	1.015	0.904	1.280 E	-	-	-
17	-	-	-	-	-	4.010 E	1.006	0.873	1.170 E	-	-	-
18	-	-	-	-	-	4.860 E	0.970	0.864	1.070 E	-	-	-
19	-	-	-	-	-	5.775 P	0.999	0.825	0.980 E	-	-	-
20	-	-	-	-	-	6.119	0.998	0.774	0.910 E	-	-	-
21	-	-	-	-	-	6.270	0.987	0.737	0.840 E	-	-	-
22	-	-	-	-	-	6.090	0.907	0.720	0.770 E	-	-	-
23	-	-	-	-	-	5.771	0.912	0.739	0.700 E	-	-	-
24	-	-	-	-	-	5.419	0.925	0.727	0.630 E	-	-	-
25	-	-	-	-	-	5.011	0.891	0.739	0.560 E	-	-	-
26	-	-	-	-	-	4.574	1.036	0.696	0.490 E	-	-	-
27	-	-	-	-	-	4.148	1.065	0.728	0.420 E	-	-	-
28	-	-	-	-	-	3.775	1.075	0.754	0.350 E	-	-	-
29	-	-	-	-	-	3.577	1.077	0.817	0.300 E	-	-	-
30	-	-	-	-	-	3.399	1.146	0.971	0.235 E	-	-	-
31	-	-	-	-	-	-	1.107	1.212	-	-	-	-
MIN	-	-	-	-	-	0.045	0.891	0.696	0.235	-	-	-
MEAN	-	-	-	-	-	2.948	1.408	0.884	1.284	-	-	-
MAX	-	-	-	-	-	6.270	3.175	1.212	2.218	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 6.958 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	6.441	6.238	6.202	-	-	-
2	-	-	-	-	-	-	6.431	6.247	6.224	-	-	-
3	-	-	-	-	-	-	6.422	6.242	6.254	-	-	-
4	-	-	-	-	-	-	6.409	6.247	6.289	-	-	-
5	-	-	-	-	-	-	6.393	6.243	6.321	-	-	-
6	-	-	-	-	-	-	6.376	6.235	6.339	-	-	-
7	-	-	-	-	-	-	6.360	6.231	6.347	-	-	-
8	-	-	-	-	-	-	6.343	6.225	6.347	-	-	-
9	-	-	-	-	-	-	6.327	6.220	6.341	-	-	-
10	-	-	-	-	-	-	6.313	6.216	6.333	-	-	-
11	-	-	-	-	-	-	6.299	6.213	6.324	-	-	-
12	-	-	-	-	-	-	6.284	6.208	6.319 P	-	-	-
13	-	-	-	-	-	-	6.275	6.207	-	-	-	-
14	-	-	-	-	-	-	6.268	6.207	-	-	-	-
15	-	-	-	-	-	-	6.259	6.215	-	-	-	-
16	-	-	-	-	-	-	6.253	6.218	-	-	-	-
17	-	-	-	-	-	-	6.245	6.222	-	-	-	-
18	-	-	-	-	-	-	6.238	6.218	-	-	-	-
19	-	-	-	-	-	-	6.230	6.215	-	-	-	-
20	-	-	-	-	-	-	6.229	6.210	-	-	-	-
21	-	-	-	-	-	-	6.224	6.209	-	-	-	-
22	-	-	-	-	-	6.526 P	6.228	6.203	-	-	-	-
23	-	-	-	-	-	6.539	6.228	6.195	-	-	-	-
24	-	-	-	-	-	6.544	6.227	6.189	-	-	-	-
25	-	-	-	-	-	6.538	6.215	6.186	-	-	-	-
26	-	-	-	-	-	6.526	6.216	6.189	-	-	-	-
27	-	-	-	-	-	6.513	6.218	6.187	-	-	-	-
28	-	-	-	-	-	6.497	6.213	6.189	-	-	-	-
29	-	-	-	-	-	6.478	6.233	6.182	-	-	-	-
30	-	-	-	-	-	6.459	6.237	6.187	-	-	-	-
31	-	-	-	-	-	-	6.238	6.192	-	-	-	-
MIN	-	-	-	-	-	6.459	6.213	6.182	6.202	-	-	-
MEAN	-	-	-	-	-	6.513	6.286	6.212	6.303	-	-	-
MAX	-	-	-	-	-	6.544	6.441	6.247	6.347	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE

E – ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H73 – LITTLE ROBERTS OUTFLOW – 2008

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.096 E	6.383	1.615	1.892	0.571 E	-	-
2	-	-	-	-	-	0.132 E	5.997	1.548	2.171	0.473 E	-	-
3	-	-	-	-	-	0.168 E	5.617	1.437	2.299	0.375 E	-	-
4	-	-	-	-	-	0.214 E	5.245	1.384	2.376	0.312 E	-	-
5	-	-	-	-	-	0.260 E	4.880	1.363	2.379	0.249 E	-	-
6	-	-	-	-	-	0.368 E	4.496	1.348	2.339	0.190 E	-	-
7	-	-	-	-	-	0.521 E	4.163	1.289	2.272	0.153 E	-	-
8	-	-	-	-	-	0.781 E	3.835	1.245	2.206	0.116 E	-	-
9	-	-	-	-	-	1.230 E	3.517	1.182	2.184	0.089 E	-	-
10	-	-	-	-	-	1.830 E	3.238	1.150	2.237	0.062 E	-	-
11	-	-	-	-	-	2.540 E	2.991	1.142	2.229	0.035 E	-	-
12	-	-	-	-	-	3.460 E	2.847	1.259	2.174 P	0.008 E	-	-
13	-	-	-	-	-	4.440 E	2.715	1.246	2.100 E	-	-	-
14	-	-	-	-	-	5.500 E	2.523	1.219	2.010 E	-	-	-
15	-	-	-	-	-	6.700 E	2.352	1.171	1.940 E	-	-	-
16	-	-	-	-	-	7.680 E	2.208	1.137	1.840 E	-	-	-
17	-	-	-	-	-	8.610 E	2.091	1.090	1.750 E	-	-	-
18	-	-	-	-	-	9.600 E	2.023	1.073	1.670 E	-	-	-
19	-	-	-	-	-	10.330 P	1.933	1.025	1.580 E	-	-	-
20	-	-	-	-	-	10.803	2.009	0.971	1.480 E	-	-	-
21	-	-	-	-	-	11.301	1.909	0.934	1.370 E	-	-	-
22	-	-	-	-	-	11.278	1.782	0.914	1.260 E	-	-	-
23	-	-	-	-	-	10.838	1.696	0.939	1.200 E	-	-	-
24	-	-	-	-	-	10.379	1.633	0.935	1.170 E	-	-	-
25	-	-	-	-	-	9.767	1.573	0.921	1.100 E	-	-	-
26	-	-	-	-	-	9.049	1.842	0.885	1.030 E	-	-	-
27	-	-	-	-	-	8.082	1.840	0.986	0.950 E	-	-	-
28	-	-	-	-	-	7.561	1.782	1.027	0.863 E	-	-	-
29	-	-	-	-	-	7.173	1.741	1.091	0.767 E	-	-	-
30	-	-	-	-	0.022 E	6.679	1.713	1.321	0.669 E	-	-	-
31	-	-	-	-	0.056 E	-	1.642	1.587	-	-	-	-
MIN	-	-	-	-	0.022	0.096	1.573	0.885	0.669	0.008	-	-
MEAN	-	-	-	-	0.039	5.579	2.910	1.175	1.717	0.219	-	-
MAX	-	-	-	-	0.056	11.301	6.383	1.615	2.379	0.571	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.016 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.406	98.079	98.107	-	-	-
2	-	-	-	-	-	-	98.385	98.071	98.134	-	-	-
3	-	-	-	-	-	-	98.365	98.058	98.145	-	-	-
4	-	-	-	-	-	-	98.344	98.052	98.152	-	-	-
5	-	-	-	-	-	-	98.323	98.049	98.152	-	-	-
6	-	-	-	-	-	-	98.300	98.047	98.148	-	-	-
7	-	-	-	-	-	-	98.279	98.040	98.143	-	-	-
8	-	-	-	-	-	-	98.258	98.034	98.137	-	-	-
9	-	-	-	-	-	-	98.237	98.025	98.135	-	-	-
10	-	-	-	-	-	-	98.217	98.020	98.140	-	-	-
11	-	-	-	-	-	-	98.200	98.019	98.139	-	-	-
12	-	-	-	-	-	-	98.189	98.036	98.134 P	-	-	-
13	-	-	-	-	-	-	98.179	98.034	-	-	-	-
14	-	-	-	-	-	-	98.164	98.030	-	-	-	-
15	-	-	-	-	-	-	98.150	98.023	-	-	-	-
16	-	-	-	-	-	-	98.137	98.018	-	-	-	-
17	-	-	-	-	-	-	98.126	98.011	-	-	-	-
18	-	-	-	-	-	-	98.120	98.009	-	-	-	-
19	-	-	-	-	-	98.587 P	98.111	98.001	-	-	-	-
20	-	-	-	-	-	98.608	98.119	97.992	-	-	-	-
21	-	-	-	-	-	98.589	98.109	97.985	-	-	-	-
22	-	-	-	-	-	98.564	98.097	97.982	-	-	-	-
23	-	-	-	-	-	98.533	98.088	97.986	-	-	-	-
24	-	-	-	-	-	98.489	98.081	97.985	-	-	-	-
25	-	-	-	-	-	98.464	98.074	97.983	-	-	-	-
26	-	-	-	-	-	98.445	98.103	97.976	-	-	-	-
27	-	-	-	-	-	98.421	98.102	97.994	-	-	-	-
28	-	-	-	-	-	98.406	98.096	98.001	-	-	-	-
29	-	-	-	-	-	98.385	98.092	98.011	-	-	-	-
30	-	-	-	-	-	98.365	98.089	98.043	-	-	-	-
31	-	-	-	-	-	-	98.082	98.076	-	-	-	-
MIN	-	-	-	-	-	98.365	98.074	97.976	98.107	-	-	-
MEAN	-	-	-	-	-	98.488	98.181	98.022	98.139	-	-	-
MAX	-	-	-	-	-	98.608	98.406	98.079	98.152	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H74 – DORIS LAKE – 2008

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 23.546 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	21.490	21.503	21.506	21.512	21.521	21.577	21.992	21.689	21.625	-	-	-
2	21.488	21.502	21.507	21.512	21.520	21.583	21.969	21.686	21.646	-	-	-
3	21.485	21.502	21.505	21.512	21.520	21.602	21.951	21.671	21.659	-	-	-
4	21.485	21.504	21.506	21.512	21.520	21.611	21.944	21.670	21.668	-	-	-
5	21.485	21.502	21.508	21.512	21.521	21.617	21.917	21.668	21.675	-	-	-
6	21.483	21.502	21.506	21.511	21.521	21.623	21.902	21.662	21.680	-	-	-
7	21.485	21.502	21.505	21.511	21.521	21.633	21.885	21.653	21.685	-	-	-
8	21.486	21.503	21.505	21.511	21.521	21.635	21.863	21.636	21.688	-	-	-
9	21.489	21.502	21.506	21.509	21.521	21.634	21.856	21.636	21.693	-	-	-
10	21.491	21.501	21.506	21.506	21.520	21.727	21.844	21.615	21.703	-	-	-
11	21.492	21.504	21.506	21.507	21.520	21.838	21.827	21.623	21.709	-	-	-
12	21.492	21.508	21.506	21.509	21.519	21.883	21.822	21.643	21.711	-	-	-
13	21.491	21.509	21.506	21.507	21.518	21.907	21.809	21.621	-	-	-	-
14	21.492	21.510	21.506	21.509	21.518	21.991	21.800	21.614	-	-	-	-
15	21.493	21.509	21.506	21.515	21.516	22.041	21.789	21.612	-	-	-	-
16	21.493	21.509	21.507	21.516	21.512	22.042	21.771	21.607	-	-	-	-
17	21.494	21.509	21.508	21.516	21.513	21.936	21.749	21.601	-	-	-	-
18	21.494	21.509	21.508	21.514	21.513	21.969	21.770	21.594	-	-	-	-
19	21.498	21.506	21.510	21.515	21.515	22.100	21.749	21.587	-	-	-	-
20	21.499	21.503	21.511	21.520	21.516	22.130	21.744	21.580	-	-	-	-
21	21.499	21.503	21.512	21.522	21.519	22.139	21.740	21.572	-	-	-	-
22	21.498	21.502	21.513	21.520	21.521	22.139	21.745	21.566	-	-	-	-
23	21.494	21.502	21.513	21.521	21.522	22.129	21.737	21.568	-	-	-	-
24	21.495	21.501	21.512	21.521	21.522	22.115	21.710	21.564	-	-	-	-
25	21.495	21.502	21.511	21.521	21.523	22.099	21.722	21.561	-	-	-	-
26	21.496	21.507	21.511	21.522	21.522	22.081	21.725	21.556	-	-	-	-
27	21.497	21.508	21.511	21.522	21.526	22.060	21.718	21.560	-	-	-	-
28	21.498	21.507	21.511	21.522	21.538	22.040	21.715	21.561	-	-	-	-
29	21.501	21.504	21.511	21.521	21.549	22.023	21.708	21.566	-	-	-	-
30	21.502	-	21.512	21.521	21.562	22.009	21.689	21.583	-	-	-	-
31	21.503	-	21.512	-	21.573	-	21.696	21.604	-	-	-	-
MIN	21.48	21.50	21.50	21.51	21.51	21.58	21.69	21.56	21.63	-	-	-
MEAN	21.49	21.50	21.51	21.51	21.52	21.90	21.80	21.61	21.68	-	-	-
MAX	21.50	21.51	21.51	21.52	21.57	22.14	21.99	21.69	21.71	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H75 – TAIL LAKE – 2008

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 29.339 m

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	28.221	28.233	28.236	28.243	28.255	28.298	28.365	28.278	28.314	-	-	-
2	28.221	28.234	28.236	28.244	28.255	28.297	28.359	28.272	28.321	-	-	-
3	28.220	28.234	28.236	28.244	28.256	28.319	28.354	28.266	28.319	-	-	-
4	28.220	28.235	28.237	28.243	28.256	28.320	28.348	28.264	28.312	-	-	-
5	28.220	28.234	28.236	28.242	28.257	28.318	28.343	28.263	28.305	-	-	-
6	28.219	28.235	28.236	28.240	28.256	28.324	28.338	28.259	28.299	-	-	-
7	28.221	28.235	28.236	28.240	28.256	28.332	28.333	28.254	28.292	-	-	-
8	28.222	28.235	28.236	28.240	28.256	28.335	28.328	28.250	28.289	-	-	-
9	28.222	28.235	28.238	28.238	28.255	28.340	28.324	28.247	28.287	-	-	-
10	28.223	28.234	28.239	28.238	28.254	28.351	28.318	28.244	28.290	-	-	-
11	28.223	28.235	28.239	28.239	28.254	28.357	28.312	28.247	28.291	-	-	-
12	28.223	28.236	28.240	28.240	28.253	28.358	28.311	28.256	28.288 P	-	-	-
13	28.222	28.236	28.239	28.240	28.253	28.375	28.311	28.258	-	-	-	-
14	28.225	28.236	28.240	28.244	28.253	28.416	28.306	28.257	-	-	-	-
15	28.224	28.236	28.241	28.245	28.252	28.417	28.301	28.255	-	-	-	-
16	28.223	28.235	28.240	28.247	28.251	28.409	28.296	28.253	-	-	-	-
17	28.227	28.235	28.241	28.248	28.251	28.406	28.292	28.249	-	-	-	-
18	28.226	28.235	28.242	28.254	28.252	28.413	28.292	28.247	-	-	-	-
19	28.227	28.234	28.243	28.254	28.254	28.410	28.295	28.243	-	-	-	-
20	28.228	28.233	28.242	28.256	28.256	28.413	28.294	28.239	-	-	-	-
21	28.227	28.233	28.242	28.255	28.256	28.410	28.290	28.235	-	-	-	-
22	28.227	28.233	28.242	28.254	28.256	28.402	28.286	28.233	-	-	-	-
23	28.225	28.233	28.242	28.255	28.256	28.394	28.280	28.238	-	-	-	-
24	28.227	28.233	28.241	28.256	28.257	28.388	28.275	28.238	-	-	-	-
25	28.227	28.233	28.240	28.258	28.256	28.384	28.276	28.236	-	-	-	-
26	28.228	28.233	28.241	28.258	28.261	28.378	28.292	28.233	-	-	-	-
27	28.230	28.234	28.241	28.258	28.272	28.372	28.292	28.245	-	-	-	-
28	28.231	28.235	28.241	28.257	28.287	28.367	28.289	28.252	-	-	-	-
29	28.232	28.235	28.241	28.256	28.295	28.367	28.287	28.262	-	-	-	-
30	28.234	-	28.242	28.255	28.306	28.367	28.285	28.280	-	-	-	-
31	28.234	-	28.243	-	28.308	-	28.280	28.298	-	-	-	-
MIN	28.219	28.233	28.236	28.238	28.251	28.297	28.275	28.233	28.287	-	-	-
MEAN	28.225	28.234	28.240	28.248	28.261	28.368	28.308	28.253	28.301	-	-	-
MAX	28.234	28.236	28.243	28.258	28.308	28.417	28.365	28.298	28.321	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H76 – TAIL OUTFLOW – 2008												
MEAN DAILY DISCHARGE (m³/s)												
DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.099	0.053	0.186	0.015 E	-	-
2	-	-	-	-	-	-	0.095	0.048	0.200	0.013 E	-	-
3	-	-	-	-	-	0.004 E	0.090	0.041	0.185	0.011 E	-	-
4	-	-	-	-	-	0.009 E	0.085	0.038	0.157	0.009 E	-	-
5	-	-	-	-	-	0.018 E	0.080	0.037	0.130	0.007 E	-	-
6	-	-	-	-	-	0.028 E	0.077	0.033	0.109	0.005 E	-	-
7	-	-	-	-	-	0.038 E	0.074	0.029	0.092	0.003 E	-	-
8	-	-	-	-	-	0.048 E	0.069	0.026	0.082	0.001 E	-	-
9	-	-	-	-	-	0.059 E	0.065	0.025	0.078	-	-	-
10	-	-	-	-	-	0.069 E	0.063	0.024	0.088	-	-	-
11	-	-	-	-	-	0.079 E	0.061	0.026	0.088	-	-	-
12	-	-	-	-	-	0.089 E	0.058	0.031	0.080 P	-	-	-
13	-	-	-	-	-	0.098 E	0.057	0.033	0.075 E	-	-	-
14	-	-	-	-	-	0.107 E	0.053	0.034	0.071 E	-	-	-
15	-	-	-	-	-	0.116 E	0.049	0.030	0.067 E	-	-	-
16	-	-	-	-	-	0.123 E	0.046	0.029	0.063 E	-	-	-
17	-	-	-	-	-	0.129 E	0.045	0.026	0.059 E	-	-	-
18	-	-	-	-	-	0.134 E	0.047	0.025	0.055 E	-	-	-
19	-	-	-	-	-	0.132 E	0.048	0.022	0.051 E	-	-	-
20	-	-	-	-	-	0.135 E	0.047	0.020	0.046 E	-	-	-
21	-	-	-	-	-	0.132 E	0.049	0.017	0.041 E	-	-	-
22	-	-	-	-	-	0.132 P	0.045	0.017	0.036 E	-	-	-
23	-	-	-	-	-	0.123	0.039	0.021	0.032 E	-	-	-
24	-	-	-	-	-	0.116	0.039	0.020	0.029 E	-	-	-
25	-	-	-	-	-	0.108	0.040	0.019	0.027 E	-	-	-
26	-	-	-	-	-	0.103	0.056	0.016	0.025 E	-	-	-
27	-	-	-	-	-	0.097	0.058	0.026	0.023 E	-	-	-
28	-	-	-	-	-	0.096	0.056	0.029	0.021 E	-	-	-
29	-	-	-	-	-	0.097	0.055	0.045	0.019 E	-	-	-
30	-	-	-	-	-	0.100	0.055	0.092	0.017 E	-	-	-
31	-	-	-	-	-	-	0.052	0.144	-	-	-	-
MIN	-	-	-	-	-	0.004	0.039	0.016	0.017	-	-	-
MEAN	-	-	-	-	-	0.090	0.060	0.035	0.074	-	-	-
MAX	-	-	-	-	-	0.135	0.099	0.144	0.200	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 26.301 m												
DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	24.252	24.218	24.289	-	-	-
2	-	-	-	-	-	-	24.250	24.213	24.294	-	-	-
3	-	-	-	-	-	-	24.247	24.205	24.290	-	-	-
4	-	-	-	-	-	-	24.244	24.202	24.279	-	-	-
5	-	-	-	-	-	-	24.241	24.200	24.268	-	-	-
6	-	-	-	-	-	-	24.239	24.195	24.258	-	-	-
7	-	-	-	-	-	-	24.236	24.188	24.248	-	-	-
8	-	-	-	-	-	-	24.232	24.184	24.242	-	-	-
9	-	-	-	-	-	-	24.229	24.181	24.239	-	-	-
10	-	-	-	-	-	-	24.227	24.180	24.246	-	-	-
11	-	-	-	-	-	-	24.225	24.183	24.246	-	-	-
12	-	-	-	-	-	-	24.223	24.192	24.240 P	-	-	-
13	-	-	-	-	-	-	24.222	24.194	-	-	-	-
14	-	-	-	-	-	-	24.218	24.196	-	-	-	-
15	-	-	-	-	-	-	24.214	24.190	-	-	-	-
16	-	-	-	-	-	-	24.211	24.188	-	-	-	-
17	-	-	-	-	-	-	24.210	24.182	-	-	-	-
18	-	-	-	-	-	-	24.212	24.181	-	-	-	-
19	-	-	-	-	-	-	24.214	24.175	-	-	-	-
20	-	-	-	-	-	-	24.213	24.170	-	-	-	-
21	-	-	-	-	-	-	24.214	24.164	-	-	-	-
22	-	-	-	-	-	24.269 P	24.210	24.164	-	-	-	-
23	-	-	-	-	-	24.265	24.203	24.172	-	-	-	-
24	-	-	-	-	-	24.262	24.202	24.170	-	-	-	-
25	-	-	-	-	-	24.257	24.204	24.168	-	-	-	-
26	-	-	-	-	-	24.255	24.222	24.162	-	-	-	-
27	-	-	-	-	-	24.251	24.223	24.183	-	-	-	-
28	-	-	-	-	-	24.251	24.221	24.188	-	-	-	-
29	-	-	-	-	-	24.251	24.220	24.208	-	-	-	-
30	-	-	-	-	-	24.253	24.220	24.247	-	-	-	-
31	-	-	-	-	-	-	24.218	24.274	-	-	-	-
MIN	-	-	-	-	-	24.251	24.202	24.162	24.239	-	-	-
MEAN	-	-	-	-	-	24.257	24.223	24.191	24.262	-	-	-
MAX	-	-	-	-	-	24.269	24.252	24.274	24.294	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H93 – GLENN LAKE AND OUTFLOW – 2008

MEAN DAILY DISCHARGE (m³/s)												
DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	0.755	0.410	0.496	0.110 E	-	-
2	-	-	-	-	-	-	0.733	0.392	0.560	0.093 E	-	-
3	-	-	-	-	-	0.007 E	0.702	0.375	0.581	0.076 E	-	-
4	-	-	-	-	-	0.013 E	0.670	0.371	0.569	0.059 E	-	-
5	-	-	-	-	-	0.019 E	0.640	0.372	0.549	0.042 E	-	-
6	-	-	-	-	-	0.025 E	0.617	0.363	0.527	0.025 E	-	-
7	-	-	-	-	-	0.033 E	0.592	0.353	0.499	0.013 E	-	-
8	-	-	-	-	-	0.055 E	0.570	0.346	0.479	0.006 E	-	-
9	-	-	-	-	-	0.086 E	0.555	0.338	0.469 P	-	-	-
10	-	-	-	-	-	0.141 E	0.538	0.332	0.453 E	-	-	-
11	-	-	-	-	-	0.239 E	0.526	0.335	0.439 E	-	-	-
12	-	-	-	-	-	0.351 E	0.522	0.353	0.424 E	-	-	-
13	-	-	-	-	-	0.449 E	0.520	0.357	0.408 E	-	-	-
14	-	-	-	-	-	0.519 E	0.502	0.356	0.392 E	-	-	-
15	-	-	-	-	-	0.598 E	0.486	0.353	0.376 E	-	-	-
16	-	-	-	-	-	0.670 E	0.470	0.347	0.355 E	-	-	-
17	-	-	-	-	-	0.714 E	0.459	0.333	0.334 E	-	-	-
18	-	-	-	-	-	0.746 E	0.458	0.330	0.313 E	-	-	-
19	-	-	-	-	-	0.763 E	0.464	0.318	0.292 E	-	-	-
20	-	-	-	-	-	0.778 E	0.465	0.306	0.271 E	-	-	-
21	-	-	-	-	-	0.788 E	0.456	0.297	0.251 E	-	-	-
22	-	-	-	-	-	0.790 E	0.441	0.292	0.237 E	-	-	-
23	-	-	-	-	-	0.798 P	0.431	0.297	0.224 E	-	-	-
24	-	-	-	-	-	0.786	0.419	0.296	0.214 E	-	-	-
25	-	-	-	-	-	0.790	0.413	0.290	0.201 E	-	-	-
26	-	-	-	-	-	0.790	0.441	0.283	0.187 E	-	-	-
27	-	-	-	-	-	0.788	0.441	0.302	0.177 E	-	-	-
28	-	-	-	-	-	0.777	0.437	0.309	0.161 E	-	-	-
29	-	-	-	-	-	0.764	0.431	0.328	0.144 E	-	-	-
30	-	-	-	-	-	0.767	0.425	0.369	0.127 E	-	-	-
31	-	-	-	-	-	-	0.412	0.426	-	-	-	-
MIN	-	-	-	-	-	0.007	0.412	0.283	0.127	0.006	-	-
MEAN	-	-	-	-	-	0.502	0.516	0.340	0.357	0.053	-	-
MAX	-	-	-	-	-	0.798	0.755	0.426	0.581	0.110	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	98.690	98.578	98.611	-	-	-
2	-	-	-	-	-	-	98.684	98.571	98.633	-	-	-
3	-	-	-	-	-	-	98.675	98.564	98.640	-	-	-
4	-	-	-	-	-	-	98.666	98.562	98.636	-	-	-
5	-	-	-	-	-	-	98.658	98.562	98.629	-	-	-
6	-	-	-	-	-	-	98.651	98.558	98.622	-	-	-
7	-	-	-	-	-	-	98.643	98.554	98.612	-	-	-
8	-	-	-	-	-	-	98.636	98.551	98.605	-	-	-
9	-	-	-	-	-	-	98.631	98.547	98.601 P	-	-	-
10	-	-	-	-	-	-	98.626	98.544	-	-	-	-
11	-	-	-	-	-	-	98.622	98.546	-	-	-	-
12	-	-	-	-	-	-	98.620	98.554	-	-	-	-
13	-	-	-	-	-	-	98.619	98.556	-	-	-	-
14	-	-	-	-	-	-	98.613	98.555	-	-	-	-
15	-	-	-	-	-	-	98.608	98.554	-	-	-	-
16	-	-	-	-	-	-	98.602	98.551	-	-	-	-
17	-	-	-	-	-	-	98.598	98.545	-	-	-	-
18	-	-	-	-	-	-	98.597	98.543	-	-	-	-
19	-	-	-	-	-	-	98.599	98.538	-	-	-	-
20	-	-	-	-	-	-	98.600	98.532	-	-	-	-
21	-	-	-	-	-	-	98.596	98.527	-	-	-	-
22	-	-	-	-	-	-	98.591	98.524	-	-	-	-
23	-	-	-	-	-	98.701 P	98.587	98.527	-	-	-	-
24	-	-	-	-	-	98.698	98.582	98.526	-	-	-	-
25	-	-	-	-	-	98.699	98.580	98.523	-	-	-	-
26	-	-	-	-	-	98.699	98.591	98.519	-	-	-	-
27	-	-	-	-	-	98.698	98.591	98.529	-	-	-	-
28	-	-	-	-	-	98.695	98.589	98.533	-	-	-	-
29	-	-	-	-	-	98.692	98.587	98.542	-	-	-	-
30	-	-	-	-	-	98.693	98.585	98.561	-	-	-	-
31	-	-	-	-	-	-	98.579	98.585	-	-	-	-
MIN	-	-	-	-	-	98.692	98.579	98.519	98.601	-	-	-
MEAN	-	-	-	-	-	98.697	98.616	98.547	98.621	-	-	-
MAX	-	-	-	-	-	98.701	98.690	98.585	98.640	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE

E – ESTIMATED



APPENDIX G HYDROMETRIC DATA 2004-2008

H82 – OGAMA LAKE AND OUTFLOW – 2008 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	2.000 E	0.672	0.791	0.178 E	-	-
2	-	-	-	-	-	-	1.838 P	0.625	0.945	0.152 E	-	-
3	-	-	-	-	-	0.008 E	1.739	0.581	1.062	0.126 E	-	-
4	-	-	-	-	-	0.016 E	1.609	0.567	1.124	0.100 E	-	-
5	-	-	-	-	-	0.024 E	1.500	0.551	1.142	0.074 E	-	-
6	-	-	-	-	-	0.042 E	1.401	0.530	1.149	0.054 E	-	-
7	-	-	-	-	-	0.062 E	1.302	0.506	1.138	0.034 E	-	-
8	-	-	-	-	-	0.072 E	1.208	0.488	1.113	0.023 E	-	-
9	-	-	-	-	-	0.130 E	1.129	0.470	1.102 P	0.016 E	-	-
10	-	-	-	-	-	0.218 E	1.070	0.463	1.070 E	0.010 E	-	-
11	-	-	-	-	-	0.400 E	1.016	0.456	1.026 E	-	-	-
12	-	-	-	-	-	0.578 E	0.962	0.489	0.981 E	-	-	-
13	-	-	-	-	-	0.859 E	0.927	0.494	0.934 E	-	-	-
14	-	-	-	-	-	1.164 E	0.877	0.494	0.881 E	-	-	-
15	-	-	-	-	-	1.463 E	0.832	0.477	0.828 E	-	-	-
16	-	-	-	-	-	1.848 E	0.793	0.469	0.775 E	-	-	-
17	-	-	-	-	-	2.233 E	0.767	0.452	0.722 E	-	-	-
18	-	-	-	-	-	2.618 E	0.743	0.443	0.669 E	-	-	-
19	-	-	-	-	-	2.900 E	0.741	0.420	0.616 E	-	-	-
20	-	-	-	-	-	3.100 E	0.717	0.408	0.584 E	-	-	-
21	-	-	-	-	-	3.180 E	0.690	0.394	0.535 E	-	-	-
22	-	-	-	-	-	0.000 E	0.659	0.388	0.490 E	-	-	-
23	-	-	-	-	-	3.140 E	0.629	0.394	0.449 E	-	-	-
24	-	-	-	-	-	3.000 E	0.615	0.392	0.404 E	-	-	-
25	-	-	-	-	-	2.900 E	0.591	0.393	0.367 E	-	-	-
26	-	-	-	-	-	2.780 E	0.662	0.385	0.326 E	-	-	-
27	-	-	-	-	-	2.640 E	0.665	0.403	0.290 E	-	-	-
28	-	-	-	-	-	2.500 E	0.665	0.407	0.258 E	-	-	-
29	-	-	-	-	-	2.330 E	0.669	0.450	0.226 E	-	-	-
30	-	-	-	-	-	2.150 E	0.673	0.542	0.200 E	-	-	-
31	-	-	-	-	-	-	0.654	0.655	-	-	-	-
MIN	-	-	-	-	-	0.000	0.591	0.385	0.200	0.010	-	-
MEAN	-	-	-	-	-	1.513	0.979	0.479	0.740	0.077	-	-
MAX	-	-	-	-	-	3.180	2.000	0.672	1.149	0.178	-	-

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK ELEVATION 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	-	98.425	98.453	-	-	-
2	-	-	-	-	-	-	98.625 P	98.414	98.485	-	-	-
3	-	-	-	-	-	-	98.612	98.403	98.507	-	-	-
4	-	-	-	-	-	-	98.594	98.399	98.518	-	-	-
5	-	-	-	-	-	-	98.578	98.395	98.521	-	-	-
6	-	-	-	-	-	-	98.563	98.389	98.522	-	-	-
7	-	-	-	-	-	-	98.548	98.382	98.521	-	-	-
8	-	-	-	-	-	-	98.533	98.377	98.516	-	-	-
9	-	-	-	-	-	-	98.519	98.371	98.514 P	-	-	-
10	-	-	-	-	-	-	98.508	98.369	-	-	-	-
11	-	-	-	-	-	-	98.498	98.367	-	-	-	-
12	-	-	-	-	-	-	98.488	98.377	-	-	-	-
13	-	-	-	-	-	-	98.481	98.379	-	-	-	-
14	-	-	-	-	-	-	98.471	98.379	-	-	-	-
15	-	-	-	-	-	-	98.462	98.374	-	-	-	-
16	-	-	-	-	-	-	98.453	98.371	-	-	-	-
17	-	-	-	-	-	-	98.448	98.366	-	-	-	-
18	-	-	-	-	-	-	98.442	98.363	-	-	-	-
19	-	-	-	-	-	-	98.442	98.356	-	-	-	-
20	-	-	-	-	-	-	98.436	98.352	-	-	-	-
21	-	-	-	-	-	-	98.430	98.347	-	-	-	-
22	-	-	-	-	-	-	98.423	98.345	-	-	-	-
23	-	-	-	-	-	-	98.415	98.347	-	-	-	-
24	-	-	-	-	-	-	98.412	98.347	-	-	-	-
25	-	-	-	-	-	-	98.405	98.347	-	-	-	-
26	-	-	-	-	-	-	98.423	98.344	-	-	-	-
27	-	-	-	-	-	-	98.424	98.350	-	-	-	-
28	-	-	-	-	-	-	98.424	98.351	-	-	-	-
29	-	-	-	-	-	-	98.425	98.365	-	-	-	-
30	-	-	-	-	-	-	98.426	98.392	-	-	-	-
31	-	-	-	-	-	-	98.421	98.422	-	-	-	-
MIN	-	-	-	-	-	-	98.405	98.344	98.453	-	-	-
MEAN	-	-	-	-	-	-	98.478	98.373	98.506	-	-	-
MAX	-	-	-	-	-	-	98.625	98.425	98.522	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H81 – PATCH LAKE AND OUTFLOW – 2008

MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	0.006 E	0.827	0.381	0.350	0.090 E	-	-
2	-	-	-	-	-	0.009 E	0.780	0.370	0.390	0.071 E	-	-
3	-	-	-	-	-	0.013 E	0.739	0.360	0.417	0.057 E	-	-
4	-	-	-	-	-	0.018 E	0.699	0.355	0.437	0.045 E	-	-
5	-	-	-	-	-	0.019 E	0.661	0.358	0.444	0.034 E	-	-
6	-	-	-	-	-	0.029 E	0.627	0.346	0.448	0.023 E	-	-
7	-	-	-	-	-	0.040 E	0.592	0.326	0.450	0.016 E	-	-
8	-	-	-	-	-	0.060 E	0.559	0.305	0.446	0.008 E	-	-
9	-	-	-	-	-	0.099 E	0.537	0.296	0.436 P	-	-	-
10	-	-	-	-	-	0.176 E	0.507	0.281	0.427 E	-	-	-
11	-	-	-	-	-	0.270 E	0.490	0.290	0.414 E	-	-	-
12	-	-	-	-	-	0.359 E	0.487	0.309	0.401 E	-	-	-
13	-	-	-	-	-	0.483 E	0.489	0.298	0.388 E	-	-	-
14	-	-	-	-	-	0.573 E	0.472	0.286	0.371 E	-	-	-
15	-	-	-	-	-	0.700 E	0.451	0.285	0.354 E	-	-	-
16	-	-	-	-	-	0.816 E	0.431	0.280	0.337 E	-	-	-
17	-	-	-	-	-	0.959 E	0.420	0.282	0.320 E	-	-	-
18	-	-	-	-	-	1.088 E	0.414	0.260	0.303 E	-	-	-
19	-	-	-	-	-	1.165 E	0.415	0.247	0.286 E	-	-	-
20	-	-	-	-	-	1.190 E	0.423	0.241	0.269 E	-	-	-
21	-	-	-	-	-	1.199 P	0.414	0.228	0.252 E	-	-	-
22	-	-	-	-	-	1.190	0.420	0.218	0.235 E	-	-	-
23	-	-	-	-	-	1.163	0.402	0.232	0.218 E	-	-	-
24	-	-	-	-	-	1.127	0.373	0.226	0.201 E	-	-	-
25	-	-	-	-	-	1.085	0.382	0.214	0.184 E	-	-	-
26	-	-	-	-	-	1.018	0.422	0.203	0.167 E	-	-	-
27	-	-	-	-	-	0.954	0.416	0.222	0.150 E	-	-	-
28	-	-	-	-	-	0.918	0.405	0.229	0.134 E	-	-	-
29	-	-	-	-	-	0.888	0.397	0.243	0.120 E	-	-	-
30	-	-	-	-	-	0.867	0.391	0.271	0.102 E	-	-	-
31	-	-	-	-	-	-	0.388	0.306	-	-	-	-
MIN	-	-	-	-	-	0.006	0.373	0.203	0.102	0.008	-	-
MEAN	-	-	-	-	-	0.616	0.498	0.282	0.315	0.043	-	-
MAX	-	-	-	-	-	1.199	0.827	0.381	0.450	0.090	-	-

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK ELEVATION 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	99.145	99.039	99.028	-	-	-
2	-	-	-	-	-	-	99.136	99.035	99.042	-	-	-
3	-	-	-	-	-	-	99.128	99.032	99.050	-	-	-
4	-	-	-	-	-	-	99.120	99.030	99.056	-	-	-
5	-	-	-	-	-	-	99.112	99.031	99.058	-	-	-
6	-	-	-	-	-	-	99.104	99.027	99.059	-	-	-
7	-	-	-	-	-	-	99.096	99.019	99.060	-	-	-
8	-	-	-	-	-	-	99.089	99.012	99.058	-	-	-
9	-	-	-	-	-	-	99.083	99.008	99.056 P	-	-	-
10	-	-	-	-	-	-	99.076	99.002	-	-	-	-
11	-	-	-	-	-	-	99.071	99.005	-	-	-	-
12	-	-	-	-	-	-	99.070	99.013	-	-	-	-
13	-	-	-	-	-	-	99.071	99.009	-	-	-	-
14	-	-	-	-	-	-	99.066	99.004	-	-	-	-
15	-	-	-	-	-	-	99.060	99.003	-	-	-	-
16	-	-	-	-	-	-	99.054	99.001	-	-	-	-
17	-	-	-	-	-	-	99.051	99.002	-	-	-	-
18	-	-	-	-	-	-	99.049	98.993	-	-	-	-
19	-	-	-	-	-	-	99.049	98.987	-	-	-	-
20	-	-	-	-	-	-	99.052	98.984	-	-	-	-
21	-	-	-	-	-	-	99.049	98.978	-	-	-	-
22	-	-	-	-	-	-	99.051	98.973	-	-	-	-
23	-	-	-	-	-	99.198 P	99.045	98.980	-	-	-	-
24	-	-	-	-	-	99.192	99.036	98.977	-	-	-	-
25	-	-	-	-	-	99.186	99.039	98.971	-	-	-	-
26	-	-	-	-	-	99.176	99.052	98.965	-	-	-	-
27	-	-	-	-	-	99.166	99.050	98.975	-	-	-	-
28	-	-	-	-	-	99.160	99.046	98.978	-	-	-	-
29	-	-	-	-	-	99.155	99.044	98.985	-	-	-	-
30	-	-	-	-	-	99.152	99.042	98.998	-	-	-	-
31	-	-	-	-	-	-	99.041	99.012	-	-	-	-
MIN	-	-	-	-	-	99.152	99.036	98.965	99.028	-	-	-
MEAN	-	-	-	-	-	99.173	99.070	99.001	99.052	-	-	-
MAX	-	-	-	-	-	99.198	99.145	99.039	99.060	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE



APPENDIX G HYDROMETRIC DATA 2004-2008

H89 – PO OUTFLOW – 2008 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	1.646	0.567	0.913	0.122 E	-	-
2	-	-	-	-	-	-	1.564	0.520	1.064	0.099 E	-	-
3	-	-	-	-	-	0.009 E	1.478	0.477	1.071	0.076 E	-	-
4	-	-	-	-	-	0.016 E	1.402	0.459	1.015	0.053 E	-	-
5	-	-	-	-	-	0.020 E	1.316	0.451	0.958	0.040 E	-	-
6	-	-	-	-	-	0.030 E	1.245	0.437	0.905	0.030 E	-	-
7	-	-	-	-	-	0.050 E	1.172	0.419	0.854	0.027 E	-	-
8	-	-	-	-	-	0.070 E	1.094	0.404	0.805	0.020 E	-	-
9	-	-	-	-	-	0.133 E	1.039	0.384	0.786 P	0.011 E	-	-
10	-	-	-	-	-	0.200 E	0.998	0.372	0.759 E	-	-	-
11	-	-	-	-	-	0.350 E	0.948	0.373	0.733 E	-	-	-
12	-	-	-	-	-	0.520 E	0.898	0.389	0.705 E	-	-	-
13	-	-	-	-	-	0.700 E	0.880	0.392	0.677 E	-	-	-
14	-	-	-	-	-	1.000 E	0.847	0.385	0.649 E	-	-	-
15	-	-	-	-	-	1.200 E	0.809	0.371	0.620 E	-	-	-
16	-	-	-	-	-	1.450 E	0.776	0.359	0.591 E	-	-	-
17	-	-	-	-	-	1.740 E	0.744	0.343	0.558 E	-	-	-
18	-	-	-	-	-	1.980 E	0.705	0.337	0.525 E	-	-	-
19	-	-	-	-	-	2.190 E	0.704	0.321	0.492 E	-	-	-
20	-	-	-	-	-	2.400 E	0.698	0.307	0.459 E	-	-	-
21	-	-	-	-	-	2.451 P	0.666	0.295	0.426 E	-	-	-
22	-	-	-	-	-	2.377	0.632	0.287	0.393 E	-	-	-
23	-	-	-	-	-	2.280	0.609	0.299	0.360 E	-	-	-
24	-	-	-	-	-	2.179	0.590	0.309	0.327 E	-	-	-
25	-	-	-	-	-	2.063	0.569	0.312	0.294 E	-	-	-
26	-	-	-	-	-	1.971	0.648	0.303	0.261 E	-	-	-
27	-	-	-	-	-	1.873	0.672	0.347	0.230 E	-	-	-
28	-	-	-	-	-	1.796	0.664	0.393	0.199 E	-	-	-
29	-	-	-	-	-	1.780	0.649	0.456	0.168 E	-	-	-
30	-	-	-	-	-	1.705	0.627	0.583	0.145 E	-	-	-
31	-	-	-	-	-	-	0.584	0.739	-	-	-	-
MIN	-	-	-	-	-	0.009	0.569	0.287	0.145	-	-	-
MEAN	-	-	-	-	-	1.233	0.899	0.400	0.598	-	-	-
MAX	-	-	-	-	-	2.451	1.646	0.739	1.071	-	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	99.604	99.284	99.407	-	-	-
2	-	-	-	-	-	-	99.584	99.265	99.453	-	-	-
3	-	-	-	-	-	-	99.564	99.246	99.455	-	-	-
4	-	-	-	-	-	-	99.545	99.238	99.438	-	-	-
5	-	-	-	-	-	-	99.522	99.234	99.421	-	-	-
6	-	-	-	-	-	-	99.504	99.228	99.405	-	-	-
7	-	-	-	-	-	-	99.484	99.219	99.388	-	-	-
8	-	-	-	-	-	-	99.462	99.212	99.372	-	-	-
9	-	-	-	-	-	-	99.446	99.202	99.365 P	-	-	-
10	-	-	-	-	-	-	99.433	99.196	-	-	-	-
11	-	-	-	-	-	-	99.418	99.197	-	-	-	-
12	-	-	-	-	-	-	99.402	99.205	-	-	-	-
13	-	-	-	-	-	-	99.397	99.206	-	-	-	-
14	-	-	-	-	-	-	99.386	99.202	-	-	-	-
15	-	-	-	-	-	-	99.373	99.196	-	-	-	-
16	-	-	-	-	-	-	99.362	99.189	-	-	-	-
17	-	-	-	-	-	-	99.351	99.181	-	-	-	-
18	-	-	-	-	-	-	99.337	99.178	-	-	-	-
19	-	-	-	-	-	-	99.337	99.169	-	-	-	-
20	-	-	-	-	-	-	99.334	99.162	-	-	-	-
21	-	-	-	-	-	-	99.322	99.155	-	-	-	-
22	-	-	-	-	-	-	99.310	99.150	-	-	-	-
23	-	-	-	-	-	99.738 P	99.301	99.157	-	-	-	-
24	-	-	-	-	-	99.718	99.293	99.163	-	-	-	-
25	-	-	-	-	-	99.695	99.285	99.164	-	-	-	-
26	-	-	-	-	-	99.676	99.316	99.159	-	-	-	-
27	-	-	-	-	-	99.655	99.325	99.183	-	-	-	-
28	-	-	-	-	-	99.638	99.322	99.207	-	-	-	-
29	-	-	-	-	-	99.634	99.316	99.236	-	-	-	-
30	-	-	-	-	-	99.617	99.308	99.290	-	-	-	-
31	-	-	-	-	-	-	99.291	99.349	-	-	-	-
MIN	-	-	-	-	-	99.617	99.285	99.150	99.365	-	-	-
MEAN	-	-	-	-	-	99.671	99.395	99.207	99.412	-	-	-
MAX	-	-	-	-	-	99.738	99.604	99.349	99.455	-	-	-



APPENDIX G HYDROMETRIC DATA 2004-2008

H90 – PO LAKE – 2008

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	99.574	99.257	99.420	-	-	-
2	-	-	-	-	-	-	99.555	99.235	99.439	-	-	-
3	-	-	-	-	-	-	99.534	99.222	99.429	-	-	-
4	-	-	-	-	-	-	99.514	99.217	99.411	-	-	-
5	-	-	-	-	-	-	99.493	99.212	99.392	-	-	-
6	-	-	-	-	-	-	99.475	99.205	99.379	-	-	-
7	-	-	-	-	-	-	99.453	99.195	99.358	-	-	-
8	-	-	-	-	-	-	99.433	99.189	99.349	-	-	-
9	-	-	-	-	-	-	99.420	99.180	99.347 P	-	-	-
10	-	-	-	-	-	-	99.406	99.175	-	-	-	-
11	-	-	-	-	-	-	99.390	99.187	-	-	-	-
12	-	-	-	-	-	-	99.381	99.185	-	-	-	-
13	-	-	-	-	-	-	99.372	99.188	-	-	-	-
14	-	-	-	-	-	-	99.360	99.179	-	-	-	-
15	-	-	-	-	-	-	99.349	99.174	-	-	-	-
16	-	-	-	-	-	-	99.337	99.166	-	-	-	-
17	-	-	-	-	-	-	99.323	99.160	-	-	-	-
18	-	-	-	-	-	-	99.319	99.156	-	-	-	-
19	-	-	-	-	-	-	99.315	99.146	-	-	-	-
20	-	-	-	-	-	-	99.311	99.138	-	-	-	-
21	-	-	-	-	-	-	99.297	99.133	-	-	-	-
22	-	-	-	-	-	-	99.287	99.135	-	-	-	-
23	-	-	-	-	-	99.710 P	99.277	99.141	-	-	-	-
24	-	-	-	-	-	99.688	99.267	99.147	-	-	-	-
25	-	-	-	-	-	99.665	99.282	99.141	-	-	-	-
26	-	-	-	-	-	99.645	99.306	99.149	-	-	-	-
27	-	-	-	-	-	99.626	99.304	99.180	-	-	-	-
28	-	-	-	-	-	99.616	99.301	99.201	-	-	-	-
29	-	-	-	-	-	99.608	99.293	99.245	-	-	-	-
30	-	-	-	-	-	99.592	99.281	99.305	-	-	-	-
31	-	-	-	-	-	-	99.266	99.360	-	-	-	-
MIN	-	-	-	-	-	99.592	99.266	99.133	99.347	-	-	-
MEAN	-	-	-	-	-	99.644	99.370	99.190	99.391	-	-	-
MAX	-	-	-	-	-	99.710	99.574	99.360	99.439	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE



APPENDIX G HYDROMETRIC DATA 2004-2008

H92 – WINDY LAKE AND OUTFLOW – 2008 MEAN DAILY DISCHARGE (m³/s)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	-	0.260	0.217	0.046 E	-	-
2	-	-	-	-	-	-	0.294	0.248	0.228	0.037 E	-	-
3	-	-	-	-	-	-	0.288	0.237	0.236	0.028 E	-	-
4	-	-	-	-	-	0.003 E	0.279	0.232	0.229	0.022 E	-	-
5	-	-	-	-	-	0.004 E	0.267	0.233	0.224	0.016 E	-	-
6	-	-	-	-	-	0.007 E	0.259	0.224	0.216	0.010 E	-	-
7	-	-	-	-	-	0.016 E	0.248	0.216	0.206	0.006 E	-	-
8	-	-	-	-	-	0.028 E	0.237	0.209	0.193	0.003 E	-	-
9	-	-	-	-	-	0.073 E	0.228	0.197	0.197 P	-	-	-
10	-	-	-	-	-	0.115 E	0.219	0.196	0.205 E	-	-	-
11	-	-	-	-	-	0.178 E	0.212	0.193	0.203 E	-	-	-
12	-	-	-	-	-	0.221 E	0.213	0.227	0.198 E	-	-	-
13	-	-	-	-	-	0.283 E	0.219	0.219	0.192 E	-	-	-
14	-	-	-	-	-	0.308 E	0.212	0.212	0.186 E	-	-	-
15	-	-	-	-	-	0.313 E	0.208	0.204	0.180 E	-	-	-
16	-	-	-	-	-	0.318 E	0.200	0.197	0.175 E	-	-	-
17	-	-	-	-	-	0.321 E	0.198	0.187	0.166 E	-	-	-
18	-	-	-	-	-	0.322 E	0.205	0.181	0.157 E	-	-	-
19	-	-	-	-	-	0.322 E	0.220	0.169	0.149 E	-	-	-
20	-	-	-	-	-	0.322 E	0.238	0.159	0.140 E	-	-	-
21	-	-	-	-	-	0.323 E	0.226	0.145	0.132 E	-	-	-
22	-	-	-	-	-	0.322 E	0.216	0.142	0.123 E	-	-	-
23	-	-	-	-	-	0.320 E	0.215	0.147	0.114 E	-	-	-
24	-	-	-	-	-	0.318 E	0.215	0.145	0.106 E	-	-	-
25	-	-	-	-	-	0.316 E	0.219	0.140	0.097 E	-	-	-
26	-	-	-	-	-	0.313 E	0.261	0.130	0.089 E	-	-	-
27	-	-	-	-	-	0.311 E	0.261	0.142	0.080 E	-	-	-
28	-	-	-	-	-	0.308 E	0.250	0.138	0.071 E	-	-	-
29	-	-	-	-	-	0.305 E	0.254	0.145	0.063 E	-	-	-
30	-	-	-	-	-	0.302 E	0.258	0.167	0.054 E	-	-	-
31	-	-	-	-	-	-	0.246	0.187	-	-	-	-
MIN	-	-	-	-	-	0.003	0.198	0.130	0.054	0.003	-	-
MEAN	-	-	-	-	-	0.233	0.236	0.188	0.161	0.021	-	-
MAX	-	-	-	-	-	0.323	0.294	0.260	0.236	0.046	-	-

MEAN DAILY WATER SURFACE ELEVATION (m) BASED ON BENCHMARK ELEVATION 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	-	98.566	98.555	-	-	-
2	-	-	-	-	-	-	98.578 P	98.564	98.559	-	-	-
3	-	-	-	-	-	-	98.577	98.562	98.561	-	-	-
4	-	-	-	-	-	-	98.574	98.560	98.559	-	-	-
5	-	-	-	-	-	-	98.571	98.560	98.557	-	-	-
6	-	-	-	-	-	-	98.569	98.558	98.555	-	-	-
7	-	-	-	-	-	-	98.565	98.555	98.551	-	-	-
8	-	-	-	-	-	-	98.562	98.552	98.546	-	-	-
9	-	-	-	-	-	-	98.559	98.548	98.548 P	-	-	-
10	-	-	-	-	-	-	98.556	98.547	-	-	-	-
11	-	-	-	-	-	-	98.553	98.546	-	-	-	-
12	-	-	-	-	-	-	98.554	98.558	-	-	-	-
13	-	-	-	-	-	-	98.556	98.556	-	-	-	-
14	-	-	-	-	-	-	98.553	98.553	-	-	-	-
15	-	-	-	-	-	-	98.552	98.550	-	-	-	-
16	-	-	-	-	-	-	98.549	98.548	-	-	-	-
17	-	-	-	-	-	-	98.548	98.544	-	-	-	-
18	-	-	-	-	-	-	98.551	98.542	-	-	-	-
19	-	-	-	-	-	-	98.556	98.536	-	-	-	-
20	-	-	-	-	-	-	98.562	98.532	-	-	-	-
21	-	-	-	-	-	-	98.558	98.526	-	-	-	-
22	-	-	-	-	-	-	98.555	98.524	-	-	-	-
23	-	-	-	-	-	-	98.554	98.526	-	-	-	-
24	-	-	-	-	-	-	98.554	98.526	-	-	-	-
25	-	-	-	-	-	-	98.556	98.523	-	-	-	-
26	-	-	-	-	-	-	98.569	98.518	-	-	-	-
27	-	-	-	-	-	-	98.569	98.524	-	-	-	-
28	-	-	-	-	-	-	98.566	98.522	-	-	-	-
29	-	-	-	-	-	-	98.567	98.526	-	-	-	-
30	-	-	-	-	-	-	98.567	98.536	-	-	-	-
31	-	-	-	-	-	-	98.565	98.544	-	-	-	-
MIN	-	-	-	-	-	-	98.548	98.518	98.546	-	-	-
MEAN	-	-	-	-	-	-	98.561	98.543	98.555	-	-	-
MAX	-	-	-	-	-	-	98.578	98.566	98.561	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE

E – ESTIMATED

A – MANUAL MEASUREMENT



APPENDIX G HYDROMETRIC DATA 2004-2008

H91 – WOLVERINE LAKE – 2008

MEAN DAILY WATER LEVELS (m) BASED ON BENCHMARK EL. 100.000 m (NON-GEODETIC)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	-	-	-	-	-	-	96.188	96.213	96.223	-	-	-
2	-	-	-	-	-	-	96.185	96.211	96.229	-	-	-
3	-	-	-	-	-	-	96.181	96.207	96.229	-	-	-
4	-	-	-	-	-	-	96.178	96.206	96.227	-	-	-
5	-	-	-	-	-	-	96.176	96.206	96.223	-	-	-
6	-	-	-	-	-	-	96.175	96.200	96.219	-	-	-
7	-	-	-	-	-	-	96.174	96.195	96.214	-	-	-
8	-	-	-	-	-	-	96.173	96.190	96.211	-	-	-
9	-	-	-	-	-	-	96.174	96.189	96.208 P	-	-	-
10	-	-	-	-	-	-	96.174	96.186	-	-	-	-
11	-	-	-	-	-	-	96.175	96.191	-	-	-	-
12	-	-	-	-	-	-	96.180	96.197	-	-	-	-
13	-	-	-	-	-	-	96.189	96.195	-	-	-	-
14	-	-	-	-	-	-	96.190	96.192	-	-	-	-
15	-	-	-	-	-	-	96.192	96.192	-	-	-	-
16	-	-	-	-	-	-	96.191	96.191	-	-	-	-
17	-	-	-	-	-	-	96.193	96.188	-	-	-	-
18	-	-	-	-	-	96.229 P	96.197	96.183	-	-	-	-
19	-	-	-	-	-	96.227	96.200	96.179	-	-	-	-
20	-	-	-	-	-	96.226	96.204	96.176	-	-	-	-
21	-	-	-	-	-	96.222	96.205	96.172	-	-	-	-
22	-	-	-	-	-	96.217	96.209	96.171	-	-	-	-
23	-	-	-	-	-	96.212	96.209	96.180	-	-	-	-
24	-	-	-	-	-	96.207	96.205	96.179	-	-	-	-
25	-	-	-	-	-	96.202	96.209	96.175	-	-	-	-
26	-	-	-	-	-	96.198	96.223	96.172	-	-	-	-
27	-	-	-	-	-	96.193	96.222	96.181	-	-	-	-
28	-	-	-	-	-	96.190	96.219	96.184	-	-	-	-
29	-	-	-	-	-	96.191	96.217	96.190	-	-	-	-
30	-	-	-	-	-	96.189	96.216	96.201	-	-	-	-
31	-	-	-	-	-	-	96.216	96.212	-	-	-	-
MIN	-	-	-	-	-	96.189	96.173	96.171	96.208	-	-	-
MEAN	-	-	-	-	-	96.208	96.195	96.190	96.220	-	-	-
MAX	-	-	-	-	-	96.229	96.223	96.213	96.229	-	-	-

NOTES: P – PARTIAL DAILY AVERAGE

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