ANNEX X: APPENDIX C

HISTORICAL HYDROMETRIC DATA

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Abbreviations

Abbreviations	Definition
AEMP	Aquatic Effects Monitoring Program
DDMI	Diavik Diamond Mines Inc.
Diavik Mine	Diavik Diamond Mine
e.g.,	for example
Ekati Mine	Ekati Diamond Mine
NAD	North American Datum
UTM	Universal Transverse Mercator
n/a	not available

Units of Measure

Unit	Definition
km^2	square kilometre
$L/s/km^2$	litres per second per square kilometre
m	metre
m^3/s	cubic metres per second
mm	millimetre

C1 INTRODUCTION

This appendix presents available local hydrometric data, including data from the Lac du Sauvage and Lac de Gras basins, used for calibration of the Lac de Gras and Lac du Sauvage basin water balance model. It also presents a summary of hydrometric data from the adjacent Ekati Diamond Mine (Ekati Mine), located within the Lac de Gras basin, but outside of the Lac du Sauvage basin.

Data are presented at varying levels of detail, depending on the relevance to the baseline:

- detailed Lac de Gras data are presented in Section C2, as these data were used for calibration of the water balance model;
- detailed Lac du Sauvage tributary data are presented in Section C3, as these data were used for calibration of the water balance model; and,
- summaries of Lac de Gras tributary data are provided in Section C4, as these data only provide context to local conditions.

Data collected as part of the 2013 field program are not presented in this appendix, but are compiled in 2013 Field Program Data (Appendix E).

C2 LAC DE GRAS HYDROMETRIC DATA

Hydrometric data are available for Lac de Gras at two locations on the East Island (Diavik Diamond Mine) for the periods 1995 to 1997 and 2004 to 2013. These data include water surface elevations only. Discharges and water surface elevations are available at the Lac de Gras outlet for the periods 1995 to 1997 and 2010 to 2012. These data are presented in the following sections.

C2.1 Lac de Gras East Island – Water Surface Elevations

Station LDG-1 was operated at the Lac de Gras East Island (64° 29’ 12” north latitude, 110° 15’ 48” west longitude) to monitor water levels only, from July 7 to September 26, 1995, and from July 19 to September 15, 1996 (Vista 1997). The water level hydrograph from 1995 is presented in Figure C2-1 with accompanying mean daily data in Table C2-1; the water level hydrograph from 1996 is presented in Figure C2-2 with the accompanying mean daily data in Table C2-1. These figures and tables are referenced to a non-geodetic datum, but provide an indication of annual water surface elevation variation.

Lac de Gras water level measurements were collected periodically by Diavik Diamond Mines Inc. (DDMI) (Rio Tinto 2012; DDMI 2013) adjacent to the North Inlet at the East Island, to support operational water management. The available data are presented in Figure C2-3 and in Table C2-2.

C2.2 Lac de Gras Outlet – Discharges and Water Surface Elevations

Station LDG-2 was operated at the Lac de Gras outlet (64° 34’ 54” north latitude, 111° 09’ 54” west longitude) to monitor water levels and discharges, from July 7 to September 25,1995, from May 13 to October 2, 1996, and from March 11 to July 27, 1997 (Vista 1997). The water level hydrograph from 1995 is presented in Figure C2-4 with accompanying mean daily data in Table C2-3. The water level hydrograph from 1996 is presented in Figure C2-5 with the accompanying mean daily data in Table C2-3. Vista (1997) did not prepare a water level hydrograph for 1997, when only four manual measurements were completed, but those data are presented in Table C2-3. Discharge hydrographs, derived using a rating curve based on data presented by Vista (1997) and ERM Rescan (2013a), are presented in Figure C2-6 for 1995, in Figure C2-7 for 1996, and in Figure C2-8 for 1997. Accompanying mean daily data are provided in Table C2-4.

Station LDG-01 was operated at the Lac de Gras outlet (64° 35’ 07” north latitude, 111° 11’ 27” west longitude) to monitor water levels and discharges, from June 6 to September 26, 2010, from June 5 to September 23, 2011, and from June 2 to October 31, 2012 (ERM Rescan 2013a). The water level hydrograph from 2010 is presented in Figure C2-9 with accompanying mean daily data in Table C2-5. The water level hydrograph from 2011 is presented in Figure C2-10 with the accompanying mean daily data in Table C2-5. The water level hydrograph from 2012 is presented in Figure C2-11 with the accompanying mean daily data in Table C2-5. Discharge hydrographs, derived using a rating curve based on data presented by Vista (1997) and ERM Rescan (2013a), are presented in Figure C-12 for 2010, in Figure C-13 for 2011, and in Figure C2-14 for 2012. Accompanying mean daily data are provided in Table C2-6.

The Lac de Gras outlet stage-discharge rating curve, derived based on the combined Vista (1997) and ERM Rescan (2013a) data sets, is presented in Figure C2-15, with the contributing data tabulated in Table C2-7.

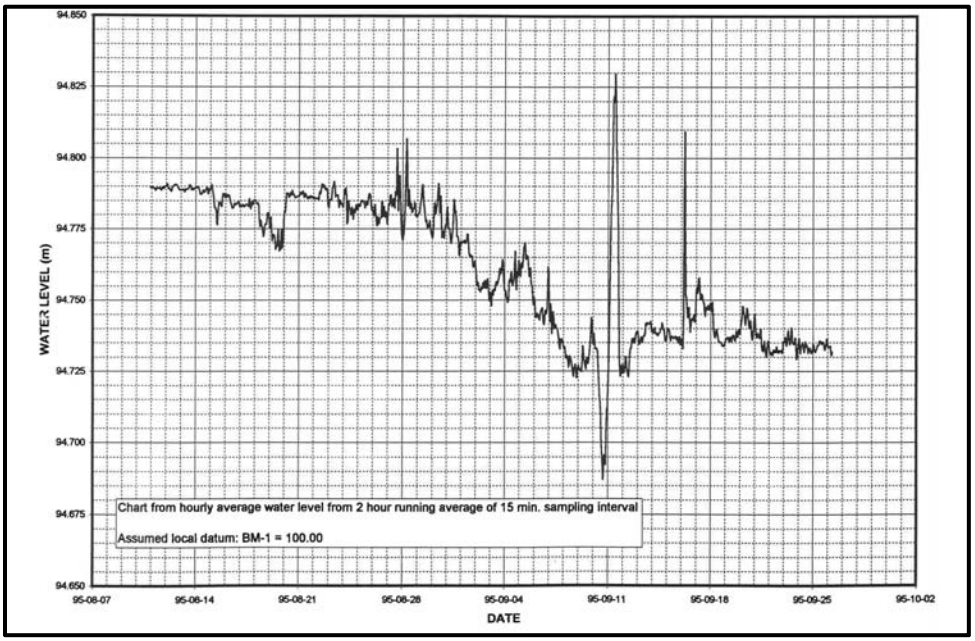
Table C2-1 Station LDG-1 Water Level Data (m, non-geodetic)

Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]	
	1995	1996		1995	1996		1995	1996
1-Jul	-	-	1-Aug	-	94.83	1-Sep	94.77	94.77
2-Jul	-	-	2-Aug	-	94.84	2-Sep	94.76	94.78
3-Jul	-	-	3-Aug	-	94.83	3-Sep	94.75	94.81
4-Jul	-	-	4-Aug	-	94.84	4-Sep	**94.78**	94.80
5-Jul	-	-	5-Aug	-	94.82	5-Sep	94.77	94.80
6-Jul	-	-	6-Aug	-	94.81	6-Sep	94.75	94.80
7-Jul	**94.76**	-	7-Aug	-	94.81	7-Sep	94.75	94.80
8-Jul	-	-	8-Aug	-	94.81	8-Sep	94.73	94.81
9-Jul	-	-	9-Aug	-	94.81	9-Sep	94.73	94.80
10-Jul	-	-	10-Aug	**94.79**	94.81	10-Sep	94.73	94.80
11-Jul	-	-	11-Aug	94.79	94.81	11-Sep	94.76	94.79
12-Jul	-	-	12-Aug	94.79	94.81	12-Sep	**94.75**	94.77
13-Jul	-	-	13-Aug	**94.79**	94.80	13-Sep	94.74	94.81
14-Jul	-	-	14-Aug	94.79	94.86	14-Sep	94.74	94.81
15-Jul	-	-	15-Aug	94.78	94.82	15-Sep	94.74	**94.83**
16-Jul	-	-	16-Aug	94.78	94.80	16-Sep	94.77	-
17-Jul	-	-	17-Aug	94.78	94.80	17-Sep	94.75	-
18-Jul	-	-	18-Aug	94.78	94.80	18-Sep	94.74	-
19-Jul	-	**94.86**	19-Aug	94.77	94.81	19-Sep	94.74	-
20-Jul	-	94.86	20-Aug	94.78	94.80	20-Sep	94.74	-
21-Jul	-	94.86	21-Aug	94.79	94.85	21-Sep	94.74	-
22-Jul	-	94.86	22-Aug	94.79	94.80	22-Sep	94.73	-
23-Jul	-	94.85	23-Aug	94.79	94.79	23-Sep	94.74	-
24-Jul	-	94.85	24-Aug	94.78	94.79	24-Sep	94.73	-
25-Jul	-	94.85	25-Aug	94.78	94.79	25-Sep	94.73	-
26-Jul	-	94.84	26-Aug	94.78	94.77	26-Sep	**94.73**	-
27-Jul	**94.79**	94.84	27-Aug	94.78	94.79	27-Sep	-	-
28-Jul	-	94.84	28-Aug	94.79	94.79	28-Sep	-	-
29-Jul	-	94.83	29-Aug	94.79	94.78	29-Sep	-	-
30-Jul	-	94.83	30-Aug	**94.82**	94.78	30-Sep	-	-
31-Jul	-	94.83	31-Aug	94.78	94.77			

a) Digitized from figures, except **bold** values, which were surveyed.

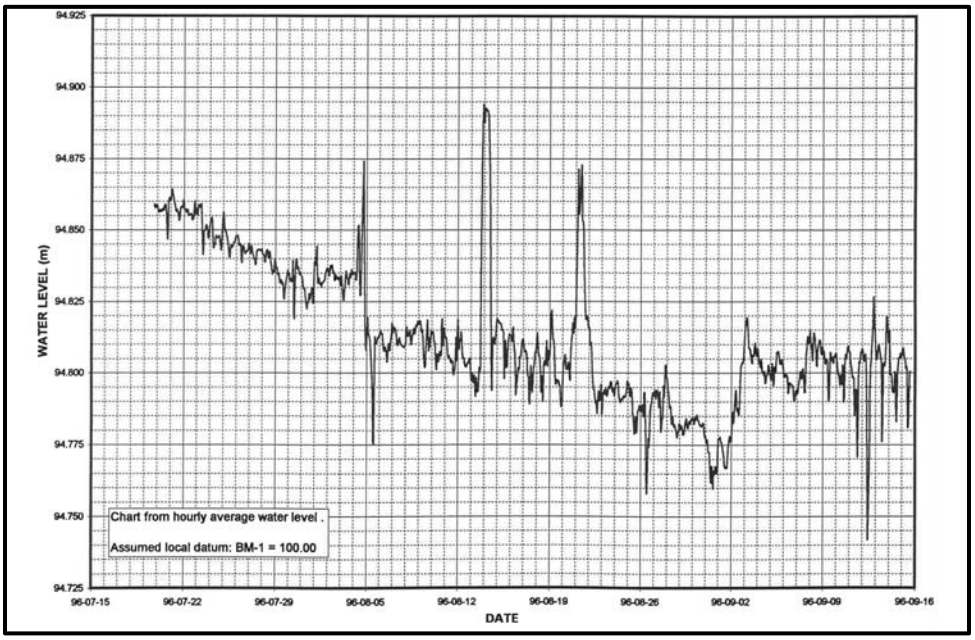
m = metre; – = no recorded or derived value.

Figure C2-1 Station LDG-1 Water Level Hydrograph, 1995



Source: Vista (1997).
m = metre.

Figure C2-2 Station LDG-1 Water Level Hydrograph, 1996



Source: Vista (1997).
m = metre.

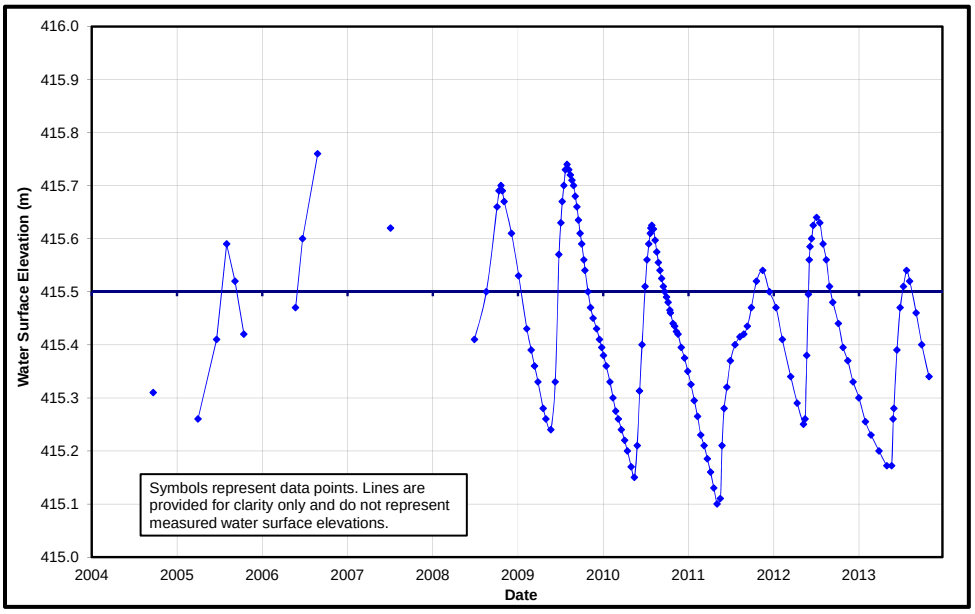
Table C2-2 Lac de Gras East Island North Inlet Water Level Data

Date	Water Surface Elevation[a] (m)	Date	Water Surface Elevation[a] (m)	Date	Water Surface Elevation[a] (m)	Date	Water Surface Elevation[a] (m)
2004		17-Aug-09	415.72	30-Aug-10	415.56	**2012**	
21-Sep-04	415.31	24-Aug-09	415.71	06-Sep-10	415.54	17-Jan-12	415.47
2005		31-Aug-09	415.70	13-Sep-10	415.53	13-Feb-12	415.41
01-Apr-05	415.26	07-Sep-09	415.68	20-Sep-10	415.51	20-Mar-12	415.34
20-Jun-05	415.41	14-Sep-09	415.66	27-Sep-10	415.50	17-Apr-12	415.29
02-Aug-05	415.59	21-Sep-09	415.64	04-Oct-10	415.49	14-May-12	415.25
07-Sep-05	415.52	28-Sep-09	415.61	11-Oct-10	415.48	21-May-12	415.26
15-Oct-05	415.42	05-Oct-09	415.59	18-Oct-10	415.47	28-May-12	415.38
2006		14-Oct-09	415.56	21-Oct-10	415.46	04-Jun-12	415.50
25-May-06	415.47	19-Oct-09	415.54	01-Nov-10	415.44	08-Jun-12	415.56
24-Jun-06	415.6	01-Nov-09	415.50	08-Nov-10	415.44	11-Jun-12	415.59
28-Aug-06	415.76	12-Nov-09	415.47	15-Nov-10	415.43	18-Jun-12	415.60
2007		23-Nov-09	415.45	22-Nov-10	415.42	25-Jun-12	415.63
07-Jul-07	415.62	08-Dec-09	415.43	06-Dec-10	415.40	09-Jul-12	415.64
2008		20-Dec-09	415.41	20-Dec-10	415.38	23-Jul-12	415.63
01-Jul-08	415.41	30-Dec-09	415.40	**2011**		06-Aug-12	415.59
21-Aug-08	415.50	**2010**		03-Jan-11	415.35	20-Aug-12	415.56
06-Oct-08	415.66	06-Jan-10	415.38	17-Jan-11	415.33	03-Sep-12	415.51
15-Oct-08	415.69	18-Jan-10	415.36	31-Jan-11	415.30	17-Sep-12	415.48
23-Oct-08	415.70	03-Feb-10	415.33	14-Feb-11	415.27	11-Oct-12	415.44
29-Oct-08	415.69	16-Feb-10	415.30	28-Feb-11	415.23	31-Oct-12	415.40
06-Nov-08	415.67	28-Feb-10	415.28	14-Mar-11	415.21	20-Nov-12	415.37
07-Dec-08	415.61	11-Mar-10	415.26	28-Mar-11	415.19	13-Dec-12	415.33
2009		24-Mar-10	415.24	11-Apr-11	415.16	**2013**	
07-Jan-09	415.53	07-Apr-10	415.22	25-Apr-11	415.13	07-Jan-13	415.30
11-Feb-09	415.43	19-Apr-10	415.20	09-May-11	415.10	04-Feb-13	415.26
02-Mar-09	415.39	05-May-10	415.17	23-May-11	415.11	28-Feb-13	415.23
16-Mar-09	415.36	19-May-10	415.15	30-May-11	415.21	03-Apr-13	415.20
31-Mar-09	415.33	31-May-10	415.21	08-Jun-11	415.28	07-May-13	415.17
22-Apr-09	415.28	10-Jun-10	415.31	20-Jun-11	415.32	27-May-13	415.17
04-May-09	415.26	21-Jun-10	415.40	05-Jul-11	415.37	03-Jun-13	415.26
25-May-09	415.24	04-Jul-10	415.51	25-Jul-11	415.40	06-Jun-13	415.28
13-Jun-09	415.33	12-Jul-10	415.56	15-Aug-11	415.42	19-Jun-13	415.39
29-Jun-09	415.57	20-Jul-10	415.59	01-Sep-11	415.42	03-Jul-13	415.47
07-Jul-09	415.63	26-Jul-10	415.61	16-Sep-11	415.44	17-Jul-13	415.51
13-Jul-09	415.67	29-Jul-10	415.62	03-Oct-11	415.47	31-Jul-13	415.54
20-Jul-09	415.70	02-Aug-10	415.63	25-Oct-11	415.52	13-Aug-13	415.52
27-Jul-09	415.73	09-Aug-10	415.62	21-Nov-11	415.54	10-Sep-13	415.46
03-Aug-09	415.74	16-Aug-10	415.60	20-Dec-11	415.50	04-Oct-13	415.40
10-Aug-09	415.73	23-Aug-10	415.58			04-Nov-13	415.34

a) 2004 to 2007 data provided by Rio Tinto (2012); 2008 to 2013 data provided by DDMI (2013).

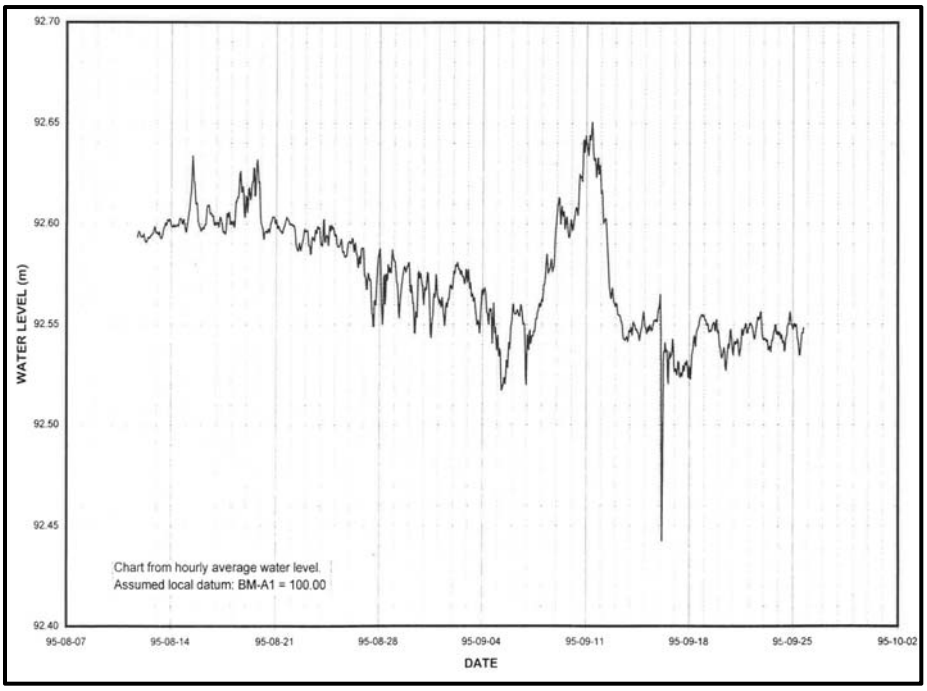
m = metre.

Figure C2-3 Lac de Gras East Island North Inlet Water Level Data



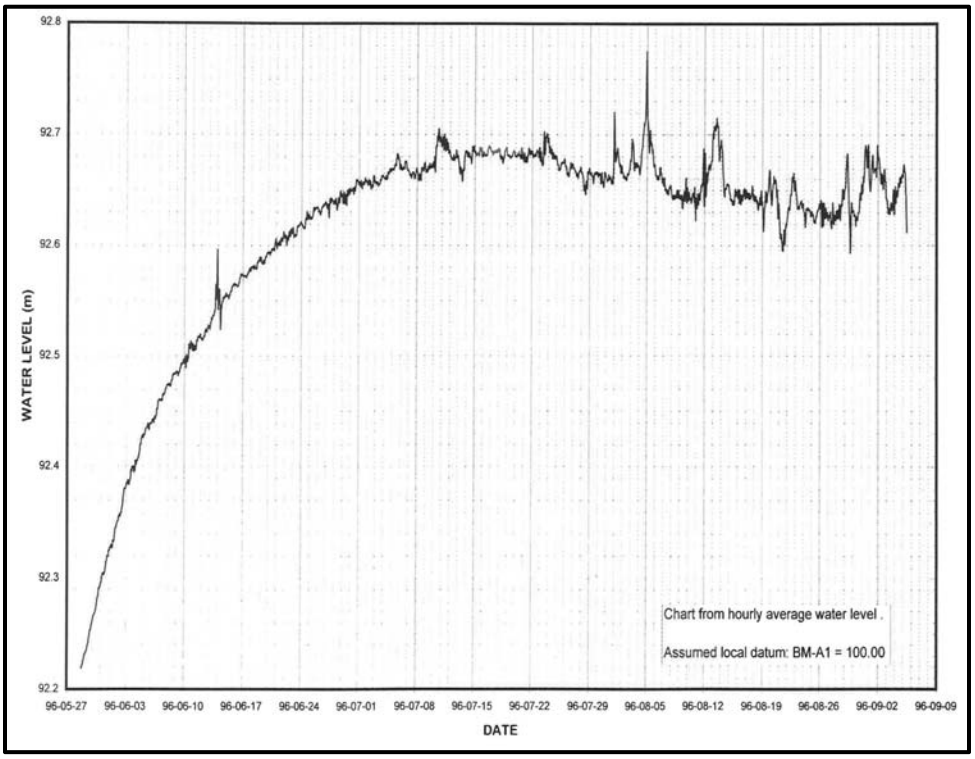
Source: Rio Tinto (2012); DDMI (2013).
m = metre.

Figure C2-4 Station LDG-2 Water Level Hydrograph, 1995



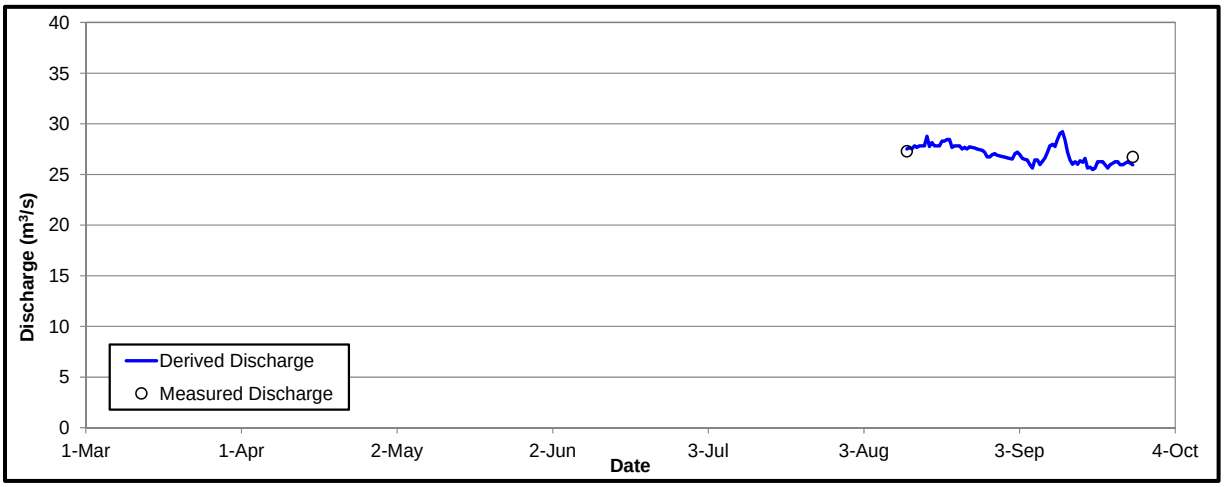
Source: Vista (1997).
m = metre.

Figure C2-5 Station LDG-2 Water Level Hydrograph, 1996



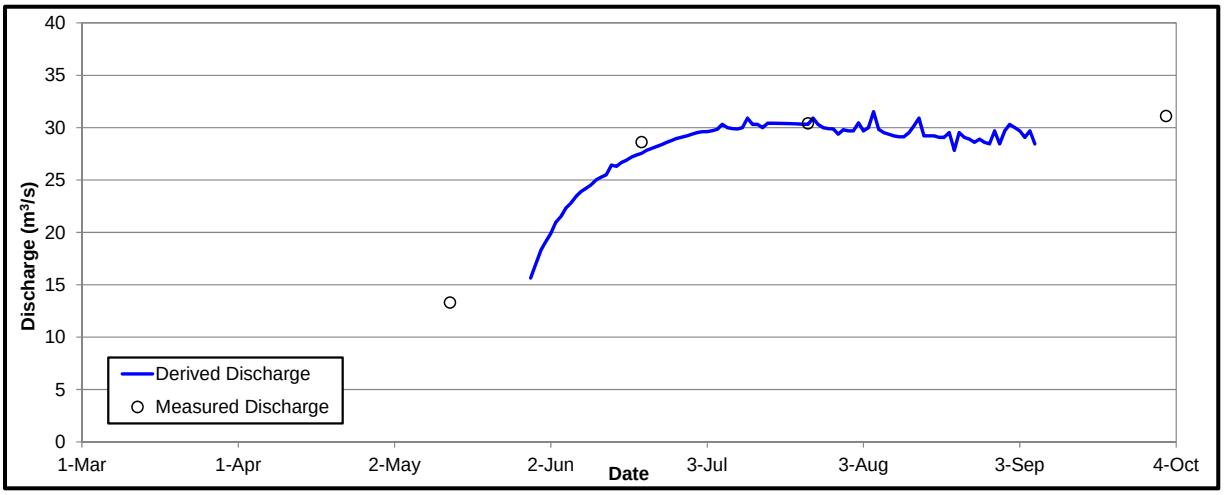
Source: Vista 1997.
m = metre.

Figure C2-6 Station LDG-2 Derived Discharge Hydrograph, 1995



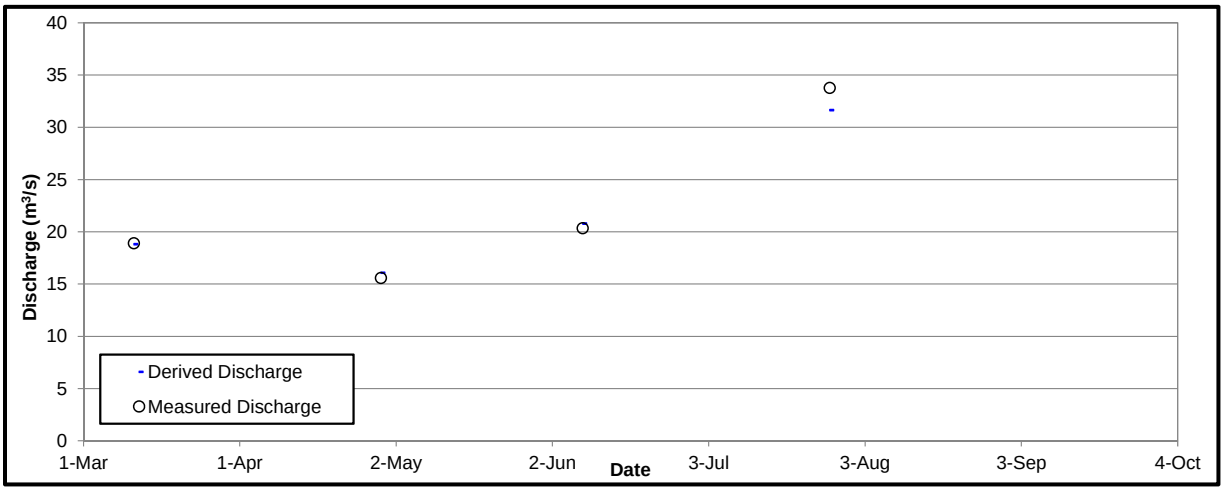
Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Figure C2-7 Station LDG-2 Derived Discharge Hydrograph, 1996



Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Figure C2-8 Station LDG-2 Derived Discharge Hydrograph, 1997



Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Table C2-3 Station LDG-2 Water Level Data (m, non-geodetic)

Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]	
	1995	1996		1995	1996		1995	1996		1995	1996
1-Jun	-	92.33	1-Jul	-	92.66	1-Aug	-	92.66	1-Sep	92.56	92.68
2-Jun	-	92.35	2-Jul	-	92.66	2-Aug	-	92.69	2-Sep	92.58	92.67
3-Jun	-	92.38	3-Jul	-	92.66	3-Aug	-	92.66	3-Sep	92.57	92.66
4-Jun	-	92.40	4-Jul	-	92.66	4-Aug	-	92.67	4-Sep	92.56	92.64
5-Jun	-	92.43	5-Jul	-	92.67	5-Aug	-	92.72	5-Sep	92.54	**92.64**
6-Jun	-	92.44	6-Jul	-	92.68	6-Aug	-	92.67	6-Sep	92.56	92.62
7-Jun	-	92.46	7-Jul	-	92.67	7-Aug	-	92.66	7-Sep	92.55	-
8-Jun	-	92.48	8-Jul	**92.49**	92.67	8-Aug	-	92.65	8-Sep	92.57	-
9-Jun	-	92.49	9-Jul	-	92.67	9-Aug	-	92.65	9-Sep	92.60	-
10-Jun	-	92.50	10-Jul	-	92.67	10-Aug	-	92.64	10-Sep	92.61	-
11-Jun	-	92.51	11-Jul	-	92.70	11-Aug	**92.59**	92.64	11-Sep	92.64	-
12-Jun	-	92.52	12-Jul	-	92.68	12-Aug	92.59	92.66	12-Sep	92.60	-
13-Jun	-	92.53	13-Jul	-	92.68	13-Aug	92.60	92.68	13-Sep	92.55	-
14-Jun	-	92.56	14-Jul	-	92.67	14-Aug	92.60	92.70	14-Sep	92.55	-
15-Jun	-	92.55	15-Jul	-	92.68	15-Aug	92.62	92.65	15-Sep	92.55	-
16-Jun	-	92.56	16-Jul	-	92.68	16-Aug	92.60	92.65	16-Sep	92.55	-
17-Jun	-	92.57	17-Jul	-	92.68	17-Aug	92.60	92.65	17-Sep	92.53	-
18-Jun	-	92.58	18-Jul	-	92.68	18-Aug	92.61	92.64	18-Sep	92.54	-
19-Jun	-	92.59	19-Jul	-	92.68	19-Aug	92.62	92.64	19-Sep	92.55	-
20-Jun	-	**92.60**	20-Jul	-	92.68	20-Aug	92.61	92.66	20-Sep	92.54	-
21-Jun	-	92.60	21-Jul	-	92.68	21-Aug	92.60	92.60	21-Sep	92.54	-
22-Jun	-	92.61	22-Jul	-	92.68	22-Aug	92.60	92.66	22-Sep	92.55	-
23-Jun	-	92.61	23-Jul	-	**92.69**	23-Aug	92.59	92.64	23-Sep	92.54	-
24-Jun	-	92.62	24-Jul	-	92.70	24-Aug	92.60	92.64	24-Sep	92.55	-
25-Jun	-	92.63	25-Jul	-	92.68	25-Aug	92.59	92.63	25-Sep	**92.54**	-
26-Jun	-	92.63	26-Jul	-	92.67	26-Aug	92.59	92.64	26-Sep	-	-
27-Jun	-	92.64	27-Jul	-	92.67	27-Aug	92.57	92.63	27-Sep	-	-
28-Jun	-	92.64	28-Jul	-	92.67	28-Aug	92.57	92.62	28-Sep	-	-
29-Jun	-	92.65	29-Jul	-	92.65	29-Aug	92.57	92.66	29-Sep	-	-
30-Jun	-	92.65	30-Jul	-	92.66	30-Aug	92.57	92.62	30-Sep	-	-
			31-Jul	-	92.66	31-Aug	92.56	92.66			

a) Digitized from figures, except **bold** values, which were surveyed.

b) Additional data from 1996 include 13 May (92.17 m), 28 May (92.22 m), 30 May (92.26 m), 31 May (92.30 m), and 2 Oct (92.61 m). Additional data from 1997 include 11 Mar (92.32 m), 29 Apr (92.23 m), 8 Jun (92.38 m), and 6 Sep (92.72 m). All of these data were surveyed.

m = metre; – = no recorded or derived value.

Table C2-4 Station LDG-2 Derived Mean Daily Discharge Data

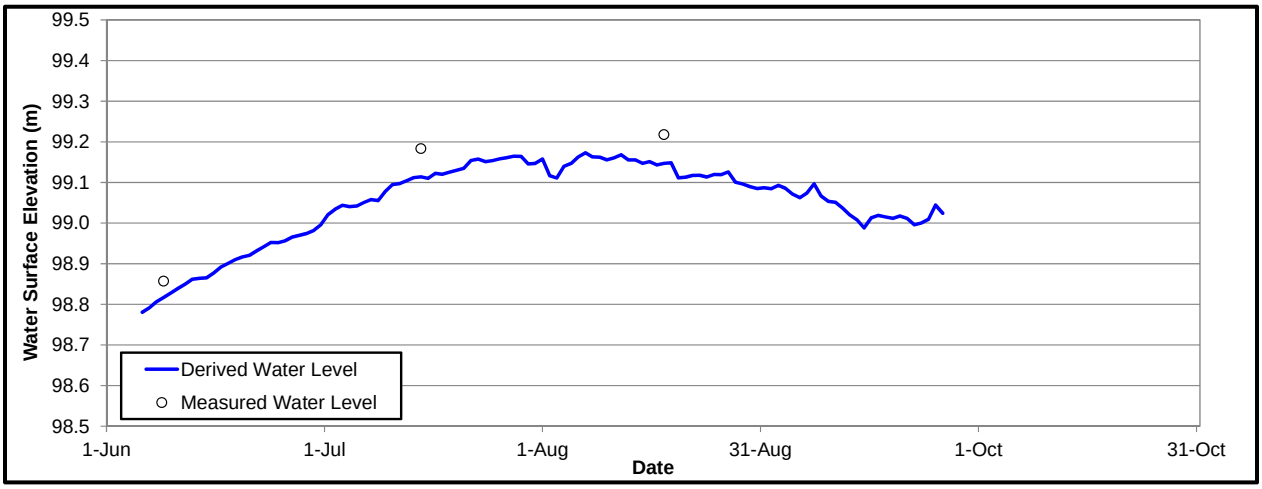
Day of Month	Daily Mean Discharge (m^3/s) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]		Day of Month	Water Surface Elevation (m) by Year[a]	
	1995	1996		1995	1996		1995	1996		1995	1996
1-Jun	-	19.1	1-Jul	-	29.5	1-Aug	-	29.7	1-Sep	26.5	30.3
2-Jun	-	19.9	2-Jul	-	29.6	2-Aug	-	30.5	2-Sep	27.1	30.0
3-Jun	-	21.0	3-Jul	-	29.6	3-Aug	-	29.7	3-Sep	26.8	29.7
4-Jun	-	21.5	4-Jul	-	29.7	4-Aug	-	30.0	4-Sep	26.5	29.1
5-Jun	-	22.4	5-Jul	-	29.8	5-Aug	-	31.5	5-Sep	25.8	29.7
6-Jun	-	22.8	6-Jul	-	30.3	6-Aug	-	29.8	6-Sep	26.4	28.4
7-Jun	-	23.4	7-Jul	-	30.0	7-Aug	-	29.5	7-Sep	26.1	-
8-Jun	-	23.9	8-Jul	**13.7**	29.9	8-Aug	-	29.4	8-Sep	26.9	-
9-Jun	-	24.2	9-Jul	-	29.9	9-Aug	-	29.2	9-Sep	27.9	-
10-Jun	-	24.5	10-Jul	-	30.0	10-Aug	-	29.1	10-Sep	28.1	-
11-Jun	-	25.0	11-Jul	-	30.9	11-Aug	**27.3**	29.1	11-Sep	29.1	-
12-Jun	-	25.3	12-Jul	-	30.3	12-Aug	27.6	29.5	12-Sep	27.8	-
13-Jun	-	25.5	13-Jul	-	30.3	13-Aug	27.7	30.1	13-Sep	26.2	-
14-Jun	-	26.4	14-Jul	-	30.0	14-Aug	27.8	30.9	14-Sep	26.1	-
15-Jun	-	26.3	15-Jul	-	30.4	15-Aug	28.3	29.2	15-Sep	26.3	-
16-Jun	-	26.7	16-Jul	-	30.4	16-Aug	27.9	29.2	16-Sep	26.1	-
17-Jun	-	26.9	17-Jul	-	30.4	17-Aug	27.8	29.2	17-Sep	25.6	-
18-Jun	-	27.2	18-Jul	-	30.4	18-Aug	28.1	29.1	18-Sep	26.0	-
19-Jun	-	27.4	19-Jul	-	30.4	19-Aug	28.4	29.1	19-Sep	26.3	-
20-Jun	-	**28.6**	20-Jul	-	30.4	20-Aug	28.1	29.5	20-Sep	25.8	-
21-Jun	-	27.8	21-Jul	-	30.4	21-Aug	27.8	27.8	21-Sep	26.0	-
22-Jun	-	28.0	22-Jul	-	30.3	22-Aug	27.7	29.5	22-Sep	26.3	-
23-Jun	-	28.2	23-Jul	-	**30.4**	23-Aug	27.6	29.1	23-Sep	26.0	-
24-Jun	-	28.4	24-Jul	-	30.9	24-Aug	27.7	28.9	24-Sep	26.2	-
25-Jun	-	28.6	25-Jul	-	30.3	25-Aug	27.6	28.6	25-Sep	**26.7**	-
26-Jun	-	28.8	26-Jul	-	30.0	26-Aug	27.4	28.9	26-Sep	-	-
27-Jun	-	29.0	27-Jul	-	29.9	27-Aug	27.0	28.6	27-Sep	-	-
28-Jun	-	29.1	28-Jul	-	29.9	28-Aug	26.8	28.4	28-Sep	-	-
29-Jun	-	29.2	29-Jul	-	29.4	29-Aug	27.0	29.7	29-Sep	-	-
30-Jun	-	29.4	30-Jul	-	29.8	30-Aug	26.8	28.4	30-Sep	-	-
			31-Jul	-	29.7	31-Aug	26.7	29.7			

a) Digitized from figures, except bold values, which were measured.

b) Additional data from 1996 include 13 May (13.3 m^3/s) and 2 Oct (31.1 m^3/s). Additional data from 1997 include 11 Mar (18.9 m^3/s), 29 Apr (15.6 m^3/s), 8 Jun (20.3 m^3/s), and 27 Jul (33.8 m^3/s). All of these data were measured.

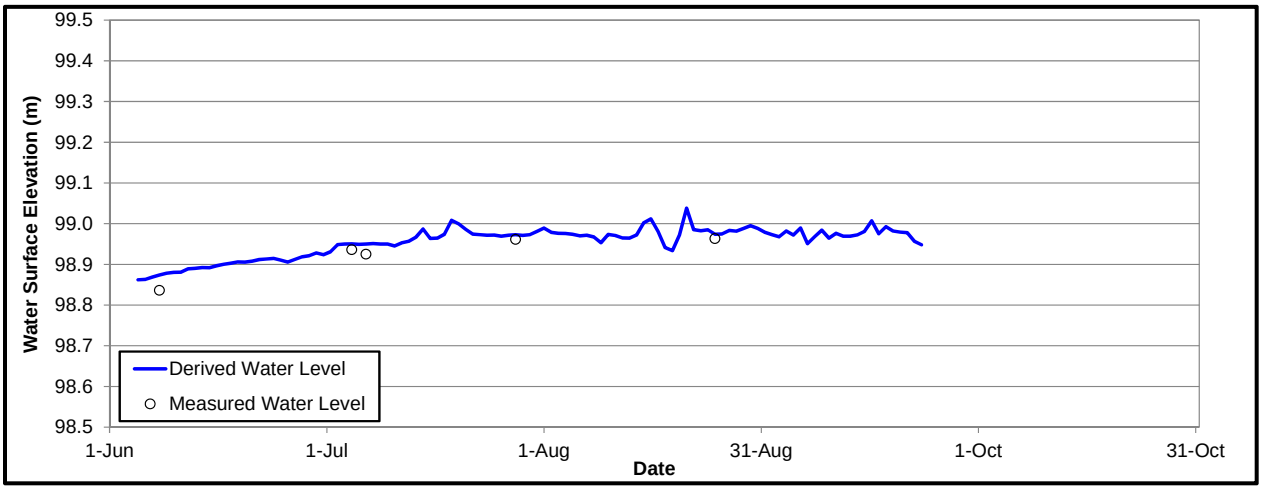
m^3/s = cubic metres per second; – = no recorded or derived value.

Figure C2-9 Station LDG-01 Water Level Hydrograph, 2010



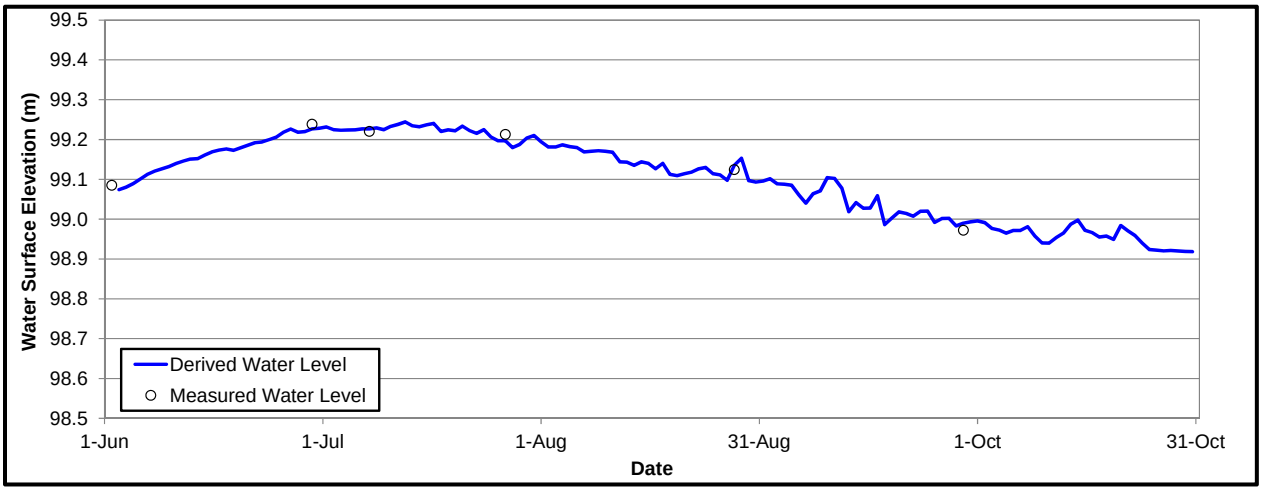
Source: ERM Rescan (2013a).
m = metre.

Figure C2-10 Station LDG-01 Water Level Hydrograph, 2011



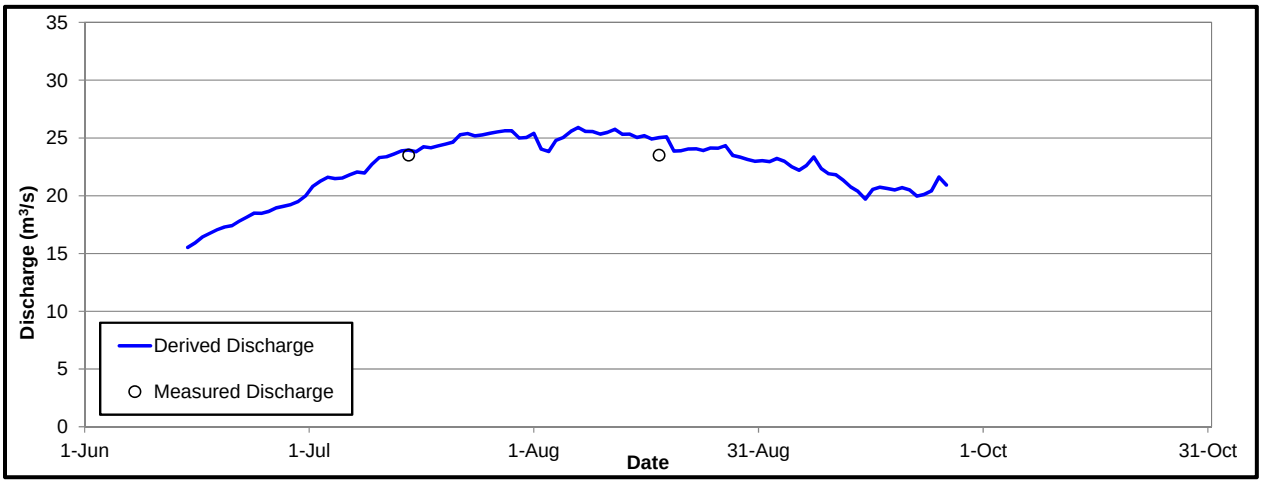
Source: ERM Rescan (2013a).
m = metre.

Figure C2-11 Station LDG-01 Water Level Hydrograph, 2012



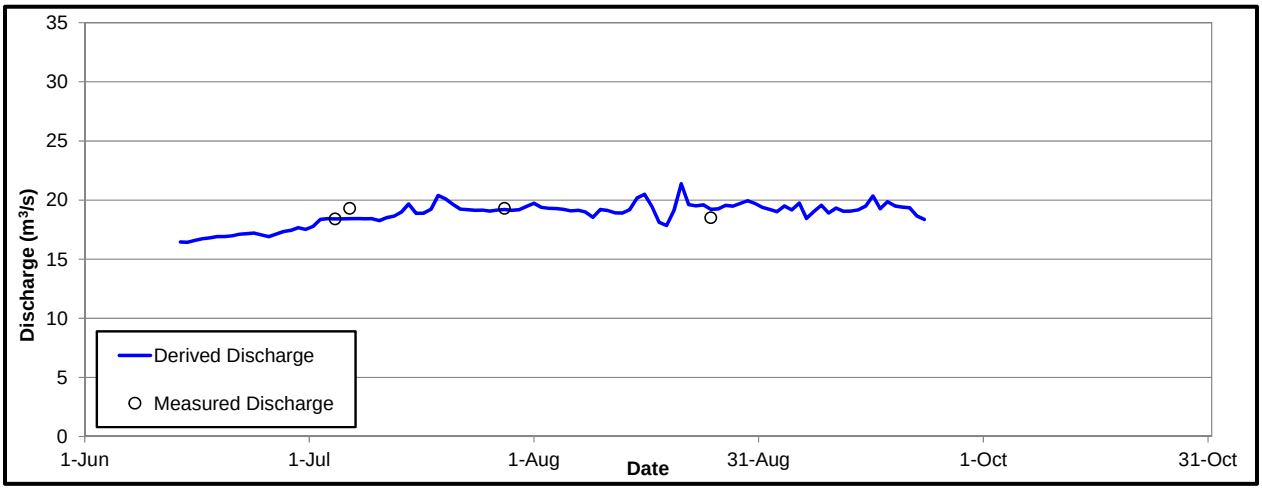
Source: ERM Rescan (2013a).
m = metre.

Figure C2-12 Station LDG-01 Derived Discharge Hydrograph, 2010



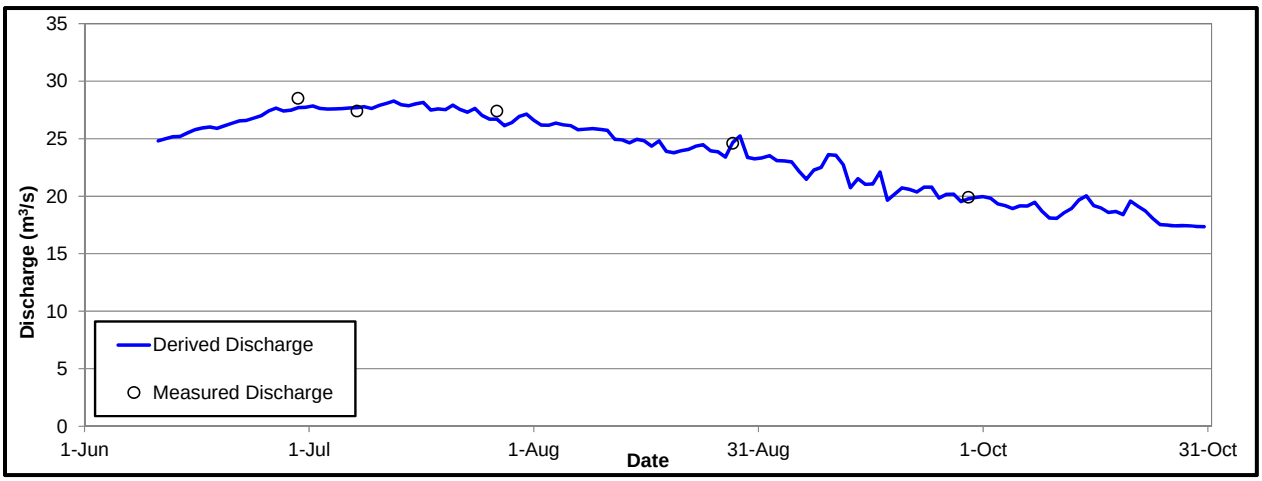
Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Figure C2-13 Station LDG-01 Derived Discharge Hydrograph, 2011



Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Figure C2-14 Station LDG-01 Derived Discharge Hydrograph, 2012



Sources: Vista (1997) and ERM Rescan (2013a).
m^3/s = cubic metres per second.

Table C2-5 Station LDG-01 Water Surface Elevation Data (m, non-geodetic)

Day of Month	Water Surface Elevation (m) by Year[a]			Day of Month	Water Surface Elevation (m) by Year[a]			Day of Month	Water Surface Elevation (m) by Year[a]			Day of Month	Water Surface Elevation (m) by Year[a]			Day of Month	Water Surface Elevation (m) by Year[a]		
	2010	2011	2012		2010	2011	2012		2010	2011	2012		2010	2011	2012		2010	2011	2012
1-Jun	-	-	-	1-Jul	98.996	98.924	99.228	1-Aug	99.158	98.989	99.194	1-Sep	99.087	98.979	99.096	1-Oct	-	-	98.996
2-Jun	-	-	**99.085**	2-Jul	99.021	98.931	99.232	2-Aug	99.117	98.979	99.181	2-Sep	99.084	98.973	99.101	2-Oct	-	-	98.991
3-Jun	-	-	99.074	3-Jul	99.034	98.948	99.225	3-Aug	99.111	98.976	99.181	3-Sep	99.093	98.968	99.089	3-Oct	-	-	98.977
4-Jun	-	-	99.080	4-Jul	99.044	98.950	99.223	4-Aug	99.140	98.976	99.187	4-Sep	99.086	98.982	99.088	4-Oct	-	-	98.973
5-Jun	-	98.862	99.089	5-Jul	99.041	**98.936**	99.224	5-Aug	99.147	98.974	99.182	5-Sep	99.071	98.972	99.085	5-Oct	-	-	98.965
6-Jun	98.781	98.863	99.101	6-Jul	99.042	98.949	99.224	6-Aug	99.163	98.970	99.180	6-Sep	99.062	98.989	99.061	6-Oct	-	-	98.972
7-Jun	98.791	98.869	99.112	7-Jul	99.050	**98.925**	99.227	7-Aug	99.173	98.971	99.169	7-Sep	99.074	98.951	99.040	7-Oct	-	-	98.972
8-Jun	98.806	**98.836**	99.120	8-Jul	99.058	98.951	**99.220**	8-Aug	99.163	98.967	99.170	8-Sep	99.097	98.968	99.064	8-Oct	-	-	98.981
9-Jun	**98.857**	98.878	99.127	9-Jul	99.055	98.950	99.229	9-Aug	99.162	98.954	99.172	9-Sep	99.067	98.984	99.071	9-Oct	-	-	98.958
10-Jun	98.828	98.880	99.132	10-Jul	99.078	98.950	99.225	10-Aug	99.156	98.973	99.170	10-Sep	99.053	98.964	99.104	10-Oct	-	-	98.940
11-Jun	98.839	98.881	99.140	11-Jul	99.095	98.945	99.233	11-Aug	99.160	98.971	99.168	11-Sep	99.051	98.976	99.102	11-Oct	-	-	98.940
12-Jun	98.850	98.889	99.146	12-Jul	99.097	98.953	99.238	12-Aug	99.168	98.965	99.144	12-Sep	99.037	98.969	99.078	12-Oct	-	-	98.954
13-Jun	98.861	98.890	99.151	13-Jul	99.104	98.956	99.244	13-Aug	99.155	98.964	99.143	13-Sep	99.020	98.969	99.019	13-Oct	-	-	98.965
14-Jun	98.864	98.892	99.152	14-Jul	99.112	98.967	99.234	14-Aug	99.156	98.973	99.135	14-Sep	99.008	98.972	99.042	14-Oct	-	-	98.987
15-Jun	98.865	98.892	99.161	15-Jul	**99.183**	98.987	99.232	15-Aug	99.147	99.002	99.144	15-Sep	98.988	98.981	99.027	15-Oct	-	-	98.998
16-Jun	98.877	98.896	99.169	16-Jul	99.110	98.964	99.237	16-Aug	99.152	99.011	99.140	16-Sep	99.013	99.007	99.028	16-Oct	-	-	98.972
17-Jun	98.892	98.900	99.173	17-Jul	99.123	98.964	99.241	17-Aug	99.143	98.980	99.126	17-Sep	99.019	98.975	99.059	17-Oct	-	-	98.967
18-Jun	98.901	98.903	99.176	18-Jul	99.120	98.974	99.221	18-Aug	**99.218**	98.941	99.140	18-Sep	99.015	98.993	98.986	18-Oct	-	-	98.955
19-Jun	98.910	98.906	99.173	19-Jul	99.125	99.008	99.224	19-Aug	99.149	98.934	99.113	19-Sep	99.012	98.982	99.002	19-Oct	-	-	98.958
20-Jun	98.917	98.906	99.179	20-Jul	99.130	99.000	99.222	20-Aug	99.112	98.971	99.109	20-Sep	99.018	98.979	99.018	20-Oct	-	-	98.949
21-Jun	98.921	98.908	99.186	21-Jul	99.135	98.986	99.234	21-Aug	99.113	99.038	99.114	21-Sep	99.012	98.978	99.014	21-Oct	-	-	98.984
22-Jun	98.932	98.912	99.192	22-Jul	99.154	98.974	99.223	22-Aug	99.117	98.985	99.118	22-Sep	98.996	98.957	99.008	22-Oct	-	-	98.971
23-Jun	98.942	98.913	99.194	23-Jul	99.157	98.973	99.215	23-Aug	99.118	98.982	99.126	23-Sep	99.000	98.948	99.020	23-Oct	-	-	98.959
24-Jun	98.952	98.915	99.200	24-Jul	99.151	98.971	99.225	24-Aug	99.113	98.985	99.130	24-Sep	99.009	-	99.020	24-Oct	-	-	98.940
25-Jun	98.952	98.910	99.206	25-Jul	99.154	98.972	99.206	25-Aug	99.120	**98.963**	99.114	25-Sep	99.045	-	98.992	25-Oct	-	-	98.924
26-Jun	98.957	98.906	99.218	26-Jul	99.158	98.969	99.197	26-Aug	99.119	98.975	99.111	26-Sep	99.024	-	99.002	26-Oct	-	-	98.923
27-Jun	98.966	98.912	99.226	27-Jul	99.161	98.972	**99.213**	27-Aug	99.126	98.984	99.098	27-Sep	-	-	99.002	27-Oct	-	-	98.921
28-Jun	98.970	98.918	99.218	28-Jul	99.165	**98.961**	99.180	28-Aug	99.101	98.982	99.136	28-Sep	-	-	98.983	28-Oct	-	-	98.922
29-Jun	98.974	98.921	99.220	29-Jul	99.164	98.971	99.188	29-Aug	99.096	98.988	99.153	29-Sep	-	-	98.990	29-Oct	-	-	98.920
30-Jun	98.982	98.928	**99.238**	30-Jul	99.145	98.973	99.204	30-Aug	99.090	98.995	99.097	30-Sep	-	-	98.993	30-Oct	-	-	98.919
				31-Jul	99.147	98.981	99.210	31-Aug	99.085	98.988	99.093					31-Oct	-	-	98.918

a) **Bold** values were surveyed.

m = metre; – = no recorded or derived value.

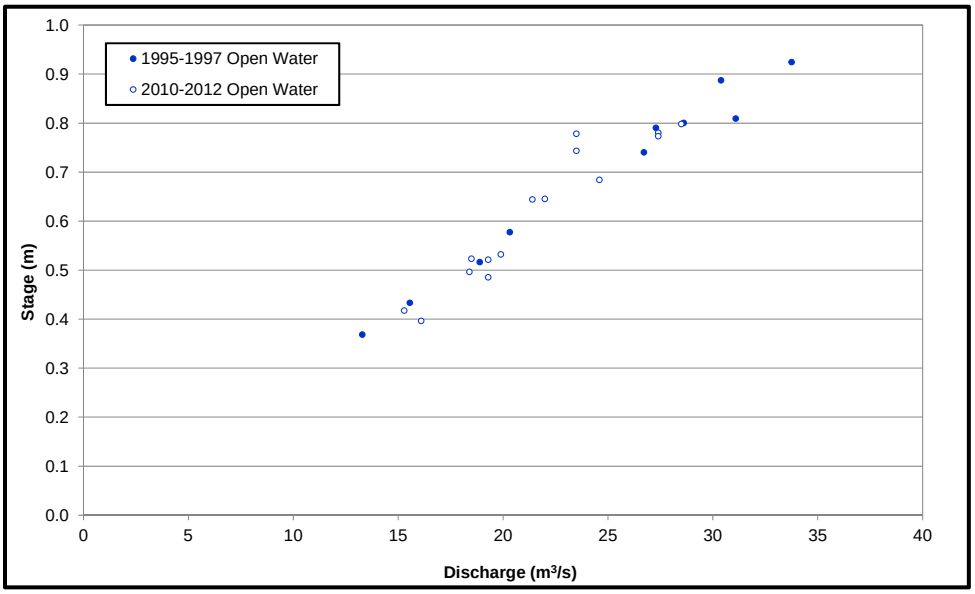
Table C2-6 Station LDG-01 Derived Mean Daily Discharge Data

Day of Month	Mean Daily Discharge (m^3/s) by Year[a]			Day of Month	Mean Daily Discharge (m^3/s) by Year[a]			Day of Month	Mean Daily Discharge (m^3/s) by Year[a]			Day of Month	Mean Daily Discharge (m^3/s) by Year[a]			Day of Month	Mean Daily Discharge (m^3/s) by Year[a]		
	2010	2011	2012		2010	2011	2012		2010	2011	2012		2010	2011	2012		2010	2011	2012
1-Jun	-	-	-	1-Jul	20.0	17.5	27.7	1-Aug	25.4	19.7	26.6	1-Sep	23.0	19.4	23.3	1-Oct	-	-	20.0
2-Jun	-	-	**21.7**	2-Jul	20.8	17.8	27.8	2-Aug	24.0	19.4	26.2	2-Sep	22.9	19.2	23.5	2-Oct	-	-	19.8
3-Jun	-	-	22.6	3-Jul	21.3	18.4	27.6	3-Aug	23.8	19.3	26.2	3-Sep	23.2	19.0	23.1	3-Oct	-	-	19.3
4-Jun	-	-	22.8	4-Jul	21.6	18.4	27.6	4-Aug	24.8	19.3	26.4	4-Sep	23.0	19.5	23.1	4-Oct	-	-	19.2
5-Jun	-	15.4	23.1	5-Jul	21.5	**18.4**	27.6	5-Aug	25.0	19.2	26.2	5-Sep	22.5	19.2	23.0	5-Oct	-	-	18.9
6-Jun	12.6	15.4	23.5	6-Jul	21.5	18.4	27.6	6-Aug	25.6	19.1	26.1	6-Sep	22.2	19.7	22.2	6-Oct	-	-	19.2
7-Jun	13.0	15.7	23.9	7-Jul	21.8	**19.3**	27.7	7-Aug	25.9	19.1	25.8	7-Sep	22.6	18.5	21.5	7-Oct	-	-	19.2
8-Jun	13.5	**16.1**	24.2	8-Jul	22.1	18.4	**27.4**	8-Aug	25.6	19.0	25.8	8-Sep	23.4	19.0	22.3	8-Oct	-	-	19.5
9-Jun	**15.3**	16.0	24.4	9-Jul	22.0	18.4	27.8	9-Aug	25.6	18.5	25.9	9-Sep	22.4	19.6	22.5	9-Oct	-	-	18.7
10-Jun	14.2	16.0	24.5	10-Jul	22.7	18.4	27.6	10-Aug	25.3	19.2	25.8	10-Sep	21.9	18.9	23.6	10-Oct	-	-	18.1
11-Jun	14.6	16.1	24.8	11-Jul	23.3	18.3	27.9	11-Aug	25.5	19.1	25.7	11-Sep	21.8	19.3	23.5	11-Oct	-	-	18.1
12-Jun	15.0	16.3	25.0	12-Jul	23.4	18.5	28.1	12-Aug	25.7	18.9	24.9	12-Sep	21.3	19.1	22.7	12-Oct	-	-	18.6
13-Jun	15.4	16.4	25.2	13-Jul	23.6	18.6	28.3	13-Aug	25.3	18.9	24.9	13-Sep	20.8	19.1	20.7	13-Oct	-	-	18.9
14-Jun	15.5	16.5	25.2	14-Jul	23.9	19.0	27.9	14-Aug	25.3	19.2	24.6	14-Sep	20.4	19.2	21.5	14-Oct	-	-	19.7
15-Jun	15.5	16.4	25.5	15-Jul	**23.5**	19.7	27.9	15-Aug	25.0	20.2	24.9	15-Sep	19.7	19.5	21.0	15-Oct	-	-	20.0
16-Jun	15.9	16.6	25.8	16-Jul	23.8	18.9	28.0	16-Aug	25.2	20.5	24.8	16-Sep	20.6	20.3	21.1	16-Oct	-	-	19.2
17-Jun	16.4	16.7	25.9	17-Jul	24.2	18.9	28.1	17-Aug	24.9	19.4	24.3	17-Sep	20.7	19.3	22.1	17-Oct	-	-	19.0
18-Jun	16.7	16.8	26.0	18-Jul	24.1	19.2	27.5	18-Aug	**23.5**	18.1	24.8	18-Sep	20.6	19.9	19.6	18-Oct	-	-	18.6
19-Jun	17.1	16.9	25.9	19-Jul	24.3	20.4	27.6	19-Aug	25.1	17.9	23.9	19-Sep	20.5	19.5	20.2	19-Oct	-	-	18.7
20-Jun	17.3	16.9	26.1	20-Jul	24.5	20.1	27.5	20-Aug	23.9	19.1	23.8	20-Sep	20.7	19.4	20.7	20-Oct	-	-	18.4
21-Jun	17.4	17.0	26.3	21-Jul	24.6	19.6	27.9	21-Aug	23.9	21.4	23.9	21-Sep	20.5	19.4	20.6	21-Oct	-	-	19.6
22-Jun	17.8	17.1	26.5	22-Jul	25.3	19.2	27.5	22-Aug	24.1	19.6	24.1	22-Sep	20.0	18.6	20.4	22-Oct	-	-	19.1
23-Jun	18.1	17.2	26.6	23-Jul	25.4	19.2	27.3	23-Aug	24.1	19.5	24.4	23-Sep	20.1	18.4	20.8	23-Oct	-	-	18.7
24-Jun	18.5	17.2	26.8	24-Jul	25.2	19.1	27.6	24-Aug	23.9	19.6	24.5	24-Sep	20.4	-	20.8	24-Oct	-	-	18.1
25-Jun	18.5	17.1	27.0	25-Jul	25.3	19.2	27.0	25-Aug	24.1	**18.5**	23.9	25-Sep	21.6	-	19.8	25-Oct	-	-	17.5
26-Jun	18.6	16.9	27.4	26-Jul	25.4	19.1	26.7	26-Aug	24.1	19.3	23.9	26-Sep	20.9	-	20.2	26-Oct	-	-	17.5
27-Jun	18.9	17.1	27.7	27-Jul	25.5	19.2	**27.4**	27-Aug	24.3	19.6	23.4	27-Sep	-	-	20.2	27-Oct	-	-	17.4
28-Jun	19.1	17.3	27.4	28-Jul	25.6	**19.3**	26.1	28-Aug	23.5	19.5	**24.6**	28-Sep	-	-	19.5	28-Oct	-	-	17.5
29-Jun	19.2	17.4	27.5	29-Jul	25.6	19.1	26.4	29-Aug	23.3	19.7	25.2	29-Sep	-	-	**19.9**	29-Oct	-	-	17.4
30-Jun	19.5	17.7	**28.5**	30-Jul	25.0	19.2	26.9	30-Aug	23.1	19.9	23.4	30-Sep	-	-	19.9	30-Oct	-	-	17.4
				31-Jul	25.0	19.5	27.1	31-Aug	23.0	19.7	23.2					31-Oct	-	-	17.3

a) **Bold** values were measured.

m^3/s = cubic metres per second; – = no recorded or derived value.

Figure C2-15 Stage-Discharge Rating Curve at the Lac de Gras Outlet



Sources: Vista (1997) and ERM Rescan (2013a).
m = metre; m^3/s = cubic metres per second.

Table C2-7 Stage-Discharge Rating Curve Data at the Lac de Gras Outlet

Vista (1997) Data			ERM Rescan (2013a) Data		
Date	**Discharge (m^3/s)**	**Stage[(a)] (m)**	**Date**	**Discharge (m^3/s)**	**Stage[(b)] (m)**
11-Aug-95	27.294	0.790	09-Jun-10	15.300	0.417
25-Sep-95	26.718	0.740	15-Jul-10	23.500	0.743
13-May-96	13.299	0.368	18-Aug-10	23.500	0.778
20-Jun-96	28.612	0.800	08-Jun-11	16.100	0.396
23-Jul-96	30.400	0.887	05-Jul-11	18.400	0.496
02-Oct-96	31.100	0.809	07-Jul-11	19.300	0.485
11-Mar-97	18.895	0.516	28-Jul-11	19.300	0.521
29-Apr-97	15.567	0.433	25-Aug-11	18.500	0.523
08-Jun-97	20.332	0.577	02-Jun-12	22.000	0.645
27-Jul-97	33.762	0.924	02-Jun-12	21.400	0.644
			30-Jun-12	28.500	0.798
			08-Jul-12	27.400	0.780
			27-Jul-12	27.400	0.773
			28-Aug-12	24.600	0.684
			29-Sep-12	19.900	0.532

a) Derived by subtracting 91.800 m from the reported non-geodetic water surface elevation.
b) Derived by subtracting 98.400 m from the reported non-geodetic water surface elevation.
m^3/s = cubic metres per second; m = metre.

C3 LAC DU SAUVAGE BASIN HYDROMETRIC DATA

Hydrometric data are available at several locations within the Lac du Sauvage basin, and these locations are listed in Table C3-1. The hydrometric data includes water surface levels and discharges at Lake B4 (Cujo Lake), and water surface levels for Lake B1 (Christine Lake) outlet stream. Lake B4 (Cujo) and Lake B1 (Christine) are within a watershed that is significantly altered from baseline hydrological conditions due to pumping from the King Pond Settling Facility (BHP Billiton 2011). In addition, water surface elevations and derived discharges are available at Lake E10 (Ursula Lake) and Lake D3 (Counts Lake) outlet stream, which are within watersheds that are not significantly impacted from water management at the Ekati Mine, and therefore serve as reference watersheds.

Data presented in the summary tables for Lake B4 (Cujo) and Lake D3 (Counts) stations were extracted from Aquatic Effects Monitoring Program (AEMP) reports (BHP Billiton 2010, 2011, 2012, 2013) or derived based on data from those reports. The daily water levels and discharges from Lake D3 (Counts), Lake B1 (Christine), and Lake E10 (Ursula) stations were provided by ERM Rescan (2013b).

Table C3-1 Historical Hydrometric Stations on Lac du Sauvage Tributaries

Station Number	Station Name	Location		Drainage Area (km^2)	Period of Record	
		Geographic (Degrees North, West)	UTM (NAD 83, Zone 12)		Dates	Years
WGL-46 (AEMP)	Lake B4 (Cujo)	64°34'55" 110°11'08"	539000 E 7162100 N	2.9	1999-2012	14
WGS-35 (AEMP)	Lake D3 (Counts)	64°39'02" 110°15'41"	535280 E 7169713 N	4.25	1997-2012	16
n/a	Lake B1 (Christine)(Christine-Lac du Sauvage)	64°35'51" 110°09'45"	540089 E 7163853 N	13.4	2000-2001, 2004	3
n/a	Lake E10 (Ursula)	64°47'23" 110°21'16"	530677 E 7185194 N	94.6	2001-2003, 2005	4

AEMP = Aquatic Effects Monitoring Program; n/a = not available; UTM = Universal Transverse Mercator; NAD = North American Datum; km^2 = square kilometres; E = east; N = north.

C3.1 Lake B4 (Cujo Lake)

A summary of hydrometry from Station WGL-46 Lake B4 (Cujo) is provided in Table C3-2. The Lake B4 (Cujo) basin is considered disturbed because it receives mine water from King Pond that originates outside of the basin. The data available for Lake B4 (Cujo) are not suitable for water balance model calibration.

Table C3-2 WGL-46 Lake B4 (Cujo) Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s) [(a)]	Runoff Depth (mm)	Runoff Coefficient (-)
1999	4 Jun - 18 Jul, 4 Aug - 29 Sep	0.390 (5 Jun)	161.5	0.009 (17 Aug)	0.4	nr	141	nr
2000	10 Jun - 4 Oct	0.622 (11 Jun)	214.3	0.0003 (14 Aug)	0.1	0.046	160	0.57
2001	7 Jun - 25 Sep	0.224 (7 Jun)	77.4	0.003 (17 Aug)	1.0	0.042	137	nr
2002	3 Jun - 27 Sep	0.447 (20 Sep)	154	0.002 (6 Aug)	0.7	0.061	261	0.81
2003	31 May - 27 Sep	0.171 (5 Jun)	59	0.012 (5 Jul)	4.2	0.054	198	0.69
2004	10 Jun - 23 Sep	0.272 (10 Jun)	93.9	0.002 (25 Aug)	0.6	0.053	202	0.91
2005	7 Jun - 21 Sep	0.270 (8 Jun)	93.1	0.002 (28 Aug)	0.7	0.035	111	0.45
2006	19 May - 20 Sep	0.145 (21 May)	50	0.002 (16 Jul)	0.6	0.047	176	0.41
2007	16 Jun - 16 Sep	0.111 (14 Jul) [(b)]	38.4	0.001 (25 Aug)	0.5	0.026	94	0.37
2008	5 Jun - 17 Sep	0.064 (5 Jun)	22.1	0.002 (13 Aug)	0.7	0.023	73	0.23
2009	13 Jun - 5 Oct	0.162 (13 Jun)	55.3	0.000 (24 Aug)	0	0.026	112	0.45
2010	6 Jun - 18 Sep	0.147 (14 Aug)	50.5	0.015 (13 Sep)	5.3	0.043	180	0.64
2011	2 Jun - 23 Sep	0.166 (10 Sep)	57.2	0.000 (30 Aug)	0	0.021	95	0.25
2012	31 May - 21 Sep	0.202 (1 Jul)	76.2	0.000 (12 Aug)	0	0.048	172	0.34

a) Over the monitoring period.

b) Peak flow occurred prior to monitoring period and was not measured.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

C3.2 Lake D3 (Counts Lake)

A summary of hydrometry from Station WGS-35 (Lake D3; Counts) is provided in Table C3-3.
The Lake D3 (Counts) basin is considered undisturbed and data are suitable for model calibration.
The station is located in the stream outflowing from Counts Lake.

Table C3-3 WGS-35 Lake D3 (Counts) Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s) [(a)]	Runoff Depth (mm)	Runoff Coefficient (-)
1998	20 May - 26 Sep	0.069 (22 May)	16.3	0.003 (22 Aug)	0.6	nr	17	nr
1999	11 May - 29 Sep	0.235 (7 Jun)	55.2	0.009 (22 Aug)	2.2	0.033	95	nr
2000	10 Jun - 30 Jul	0.288 (16 Jun)	67.8	0.012 (14 Jun)	2.8	0.104	108	nr
2001	7 Jun - 25 Sep	0.511 (7 Jun)	120.1	0.012 (23 Sep)	2.8	0.100	225	nr
2002	6 Jun - 28 Sep	0.065 (26 Jun)	15.3	0.030 (9 Aug)	7.1	0.050	122	0.38
2003	3 Jun - 27 Sep	0.188 (12 Jun)	44.3	0.019 (22 Aug)	4.5	0.059	138	0.48
2004	13 Jun - 23 Sep	0.121 (20 Jun)	28.6	0.017 (15 Jun)	4	0.054	116	0.52
2005	12 Jun - 21 Sep	0.189 (16 Jun)	44.4	0.001 (25 Aug)	0.2	0.063	130	0.52
2006	27 May - 20 Sep	0.166 (6 Jun)	39	0.012 (18 Sep)	2.8	0.052	124	0.29
2007	16 Jun - 16 Sep	0.155 (16 Jun) [(b)]	36.6	0.005 (16 Sep)	1.2	0.046	117	0.46
2008	7 Jun - 17 Sep	0.093 (17 Jun)	21.8	0.008 (13 Aug)	1.8	0.044	92	0.28
2009	17 Jun - 4 Oct	0.226 (20 Jun)	53.1	0.008 (7 Sep)	1.9	0.052	133	0.53
2010	6 Jun - 18 Sep	0.150 (22 Jun)	35.2	0.005 (10 Jun)	1.1	0.050	122	0.43
2011	14 Jun - 23 Sep	0.102 (20 Jun)	24	0.013 (15 Aug)	3	0.035	97	0.25
2012	4 Jun - 25 Sep	0.244 (30 May) [(b)]	54.3	0.000 (25 Sep)	0	0.048	145	0.29

a) Over the monitoring period.

b) Peak flow occurred prior to monitoring period and was not measured.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

Water levels and derived daily discharges that were provided from ERM Rescan (2013b) are shown in Tables C3-4 and C3-5. Stage data from over the monitoring period had different annual datums as each annual rating curve had a common shape, but was set to a different datum with a zero flow stage ranging between 0.2 and 0.6 m. The different datum for each open-water season is likely a product of re-installing the staff gauge each water year. The data were inspected, outliers were removed from the data set, and each annual set of stages was corrected to a common stage (using the staff reading [0.53 m] and measured discharge [0.0277 m^3/s] at time of the 2013 field survey). Interpolated discharges on the rising and falling limb of the hydrograph were interpolated where stage values are not reported.

Table C3-4 WGS-35 Lake D3 (Counts) Station Daily Water Level (Outlet Stream Station)

Day of Month	Daily Mean Water Surface Elevation (m, non geodetic) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
27-May	-	-	-	-	-	-	0.394	-	-	-	-	-	-
28-May	-	-	-	-	-	-	0.657	-	-	-	-	-	-
29-May	-	-	-	-	-	-	0.661	-	-	-	-	-	-
30-May	-	-	-	-	-	-	0.662	-	-	-	-	-	-
31-May	-	-	-	-	-	-	0.662	-	-	-	-	-	-
1-Jun	-	-	-	-	-	-	0.668	-	-	-	-	-	-
2-Jun	-	-	-	-	-	-	0.673	-	-	-	-	-	-
3-Jun	-	-	-	0.508	-	-	0.690	-	-	-	-	-	-
4-Jun	-	-	-	0.495	-	-	0.710	-	-	-	-	-	0.759
5-Jun	-	-	-	0.510	-	-	0.725	-	-	-	-	-	0.756
6-Jun	-	-	-	0.726	-	-	0.728	-	-	-	0.462	-	0.752
7-Jun	-	-	-	0.727	-	-	0.725	-	0.624	-	0.457	0.594	0.752
8-Jun	-	-	-	0.724	-	-	0.719	-	0.619	-	0.449	0.590	0.749
9-Jun	-	-	-	0.720	-	-	0.714	-	0.616	-	0.437	0.587	0.744
10-Jun	0.758	-	-	0.719	-	-	0.709	-	0.615	-	0.430	0.585	0.738
11-Jun	0.657	-	-	0.725	-	-	0.705	-	0.616	-	0.445	0.584	0.733
12-Jun	0.564	-	-	0.729	-	0.744	0.702	-	0.614	-	0.637	0.582	0.726
13-Jun	0.483	-	-	0.727	0.503	0.742	0.697	-	0.614	0.204	0.641	0.582	0.718
14-Jun	0.461	-	-	0.724	0.500	0.743	0.690	-	0.613	0.160	0.643	0.583	0.710
15-Jun	-	-	-	0.721	0.494	0.747	0.686	-	0.611	0.131	0.644	0.578	0.703
16-Jun	0.783	-	-	0.719	0.493	0.747	0.682	0.714	0.625	0.113	0.645	0.573	0.695
17-Jun	0.777	-	-	0.717	0.531	0.744	0.674	0.709	0.643	0.060	0.661	0.570	0.688
18-Jun	0.772	-	-	0.716	0.669	0.740	0.666	0.704	0.642	0.045	0.661	0.566	0.680
19-Jun	0.766	-	-	0.712	0.680	0.742	0.656	0.700	0.641	0.236	0.661	0.572	0.672
20-Jun	0.759	-	-	0.706	0.685	0.740	0.648	0.694	0.639	0.327	0.660	0.570	0.667
21-Jun	0.751	-	-	0.703	0.683	0.739	0.640	0.691	0.635	0.518	0.664	0.564	0.657
22-Jun	0.743	-	-	0.699	0.681	0.734	0.631	0.687	0.632	0.745	0.671	0.559	0.651
23-Jun	0.735	-	-	0.693	0.680	0.729	0.624	0.684	0.629	0.741	0.668	0.556	0.642
24-Jun	0.725	-	-	0.687	0.678	0.725	0.618	0.681	0.628	0.742	0.662	0.552	0.634
25-Jun	0.717	-	-	0.684	0.678	0.721	0.612	0.678	0.626	0.745	0.659	0.547	0.629
26-Jun	0.711	-	-	0.680	0.676	0.718	0.605	0.676	0.621	0.741	0.655	0.543	0.625
27-Jun	0.705	-	-	0.675	0.674	0.714	0.599	0.674	0.616	0.735	0.651	0.538	0.621
28-Jun	0.697	-	-	0.668	0.672	0.709	0.599	0.670	0.613	0.731	0.647	0.531	0.616
29-Jun	0.688	-	-	0.662	0.670	0.703	0.603	0.666	0.609	0.727	0.643	0.526	0.613
30-Jun	0.679	-	-	0.657	0.669	0.696	0.629	0.663	0.606	0.721	0.640	0.523	0.609
1-Jul	0.671	-	-	0.652	0.666	0.692	0.626	0.658	0.606	0.718	0.651	0.517	0.604
2-Jul	0.664	-	-	0.647	0.662	0.686	0.622	0.654	0.602	0.713	0.662	0.518	0.598
3-Jul	0.658	-	-	0.643	0.659	0.681	0.617	0.649	0.599	0.708	0.658	0.525	0.592
4-Jul	0.651	-	-	0.639	0.656	0.680	0.611	0.642	0.597	0.701	0.656	0.523	0.587
5-Jul	0.646	-	-	0.634	0.653	0.679	0.605	0.636	0.592	0.694	0.654	0.519	0.581
6-Jul	0.640	-	-	0.630	0.649	0.675	0.602	0.629	0.589	0.687	0.650	0.515	0.574
7-Jul	0.636	-	-	0.627	0.646	0.672	0.597	0.625	0.585	0.680	0.646	0.510	0.568
8-Jul	0.634	-	-	0.625	0.644	0.669	0.591	0.620	0.581	0.674	0.644	0.507	0.563
9-Jul	0.629	-	-	0.623	0.643	0.665	0.585	0.616	0.578	0.670	0.648	0.505	0.559
10-Jul	0.626	-	-	0.622	0.643	0.661	0.579	0.612	0.575	0.668	0.641	0.503	0.553
11-Jul	0.622	-	-	0.619	0.643	0.657	0.574	0.608	0.574	0.663	0.638	0.503	0.549
12-Jul	0.614	-	-	0.623	0.641	0.653	0.569	0.619	0.570	0.654	0.634	0.501	0.553
13-Jul	0.605	-	-	0.621	0.639	0.649	0.565	0.624	0.566	0.648	0.629	0.496	0.552
14-Jul	0.595	-	-	0.618	0.637	0.645	0.561	0.622	0.561	0.642	0.626	0.491	0.546
15-Jul	0.583	-	-	0.615	0.635	0.639	0.557	0.617	0.558	0.641	0.621	0.487	0.542

Table C3-4 WGS-35 Lake D3 (Counts) Station Daily Water Level (Outlet Stream Station)

Day of Month	Daily Mean Water Surface Elevation (m, non geodetic) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
16-Jul	0.576	-	-	0.612	0.633	0.634	0.554	0.612	0.555	0.640	0.617	0.486	0.538
17-Jul	0.568	-	-	0.608	0.632	0.633	0.549	0.607	0.551	0.634	0.612	0.501	0.537
18-Jul	0.562	-	-	0.605	0.629	0.630	0.545	0.600	0.546	0.633	0.612	0.512	0.534
19-Jul	0.556	-	-	0.600	0.624	0.624	0.543	0.594	0.541	0.628	0.606	0.513	0.531
20-Jul	0.550	-	-	0.595	0.618	0.617	0.541	0.592	0.537	0.622	0.600	0.512	0.527
21-Jul	0.545	-	-	0.590	0.614	0.609	0.537	0.588	0.534	0.617	0.595	0.506	0.523
22-Jul	0.550	-	-	0.586	0.610	0.604	0.535	0.583	0.537	0.614	0.592	0.505	0.520
23-Jul	0.546	-	-	0.582	0.607	0.599	0.534	0.577	0.535	0.611	-	0.525	0.516
24-Jul	0.546	-	-	0.581	0.606	0.593	0.536	0.571	0.532	0.609	-	0.527	0.514
25-Jul	0.544	-	-	0.578	0.602	0.590	0.533	0.566	0.527	0.608	-	0.525	0.510
26-Jul	0.540	-	-	0.574	0.598	0.590	0.528	0.565	0.522	0.606	-	0.526	0.509
27-Jul	0.537	-	-	0.568	0.595	0.589	0.524	0.563	0.518	0.600	-	0.524	0.508
28-Jul	0.537	-	-	0.562	0.592	0.587	0.516	0.558	0.511	0.594	-	0.523	0.504
29-Jul	0.547	-	-	0.560	0.588	0.585	0.510	0.553	0.505	0.589	-	0.520	0.498
30-Jul	0.575	-	-	0.559	0.585	0.581	0.507	0.550	0.500	0.584	-	0.518	0.495
31-Jul	-	-	-	0.547	0.582	0.581	0.504	0.545	0.496	0.580	-	0.515	-
1-Aug	-	-	-	0.545	0.578	0.577	0.500	0.537	0.493	0.575	-	0.510	-
2-Aug	-	-	-	0.546	0.576	0.573	0.497	0.533	0.489	0.569	-	0.506	-
3-Aug	-	-	-	0.548	0.572	0.567	0.494	0.529	0.486	0.564	-	0.502	-
4-Aug	-	-	-	0.546	0.572	0.564	0.492	0.526	0.485	0.559	-	0.503	-
5-Aug	-	-	-	0.542	0.571	0.561	0.490	0.520	0.482	0.555	-	0.504	-
6-Aug	-	-	-	0.540	0.568	0.557	0.493	0.515	0.477	0.552	-	0.528	-
7-Aug	-	-	-	0.544	0.565	0.555	0.491	0.514	0.473	0.550	-	0.528	-
8-Aug	-	-	-	0.541	0.562	0.557	0.488	0.509	0.469	0.546	-	0.529	-
9-Aug	-	-	-	0.534	0.559	0.554	0.486	0.506	0.467	0.540	-	0.524	-
10-Aug	-	-	-	0.529	0.556	0.556	0.494	0.504	0.463	0.535	-	0.524	-
11-Aug	-	-	-	0.527	0.558	0.552	0.497	0.505	0.461	0.529	-	0.533	-
12-Aug	-	-	-	0.525	0.558	0.553	0.492	0.503	0.454	0.524	-	0.532	-
13-Aug	-	-	-	0.522	0.558	0.555	0.489	0.503	0.445	0.521	-	0.529	-
14-Aug	-	-	-	0.518	0.559	0.553	0.486	0.501	0.475	0.518	-	0.527	-
15-Aug	-	-	-	0.515	0.553	0.553	0.483	0.498	0.475	0.514	-	0.525	-
16-Aug	-	-	-	0.514	0.549	0.551	0.479	0.496	0.476	0.513	-	0.521	-
17-Aug	-	-	-	0.517	0.544	0.549	0.479	0.494	0.472	0.511	-	0.521	-
18-Aug	-	-	-	0.516	0.540	0.545	0.475	0.492	0.470	0.511	-	0.519	-
19-Aug	-	-	-	0.511	0.538	0.542	0.471	0.489	0.476	0.510	-	0.519	-
20-Aug	-	-	-	0.506	0.541	0.218	0.468	0.485	0.472	0.508	-	0.517	-
21-Aug	-	-	-	0.503	0.538	0.062	0.465	0.486	0.470	0.505	-	0.517	-
22-Aug	-	-	-	0.499	0.535	0.064	0.461	0.483	0.467	0.496	-	0.516	-
23-Aug	-	-	-	0.497	0.534	0.060	0.460	0.479	0.471	0.484	-	0.516	-
24-Aug	-	-	-	0.518	0.533	0.148	0.468	0.474	0.474	0.481	-	0.513	-
25-Aug	-	-	-	0.514	0.531	0.341	0.482	0.470	0.501	0.479	-	0.594	-
26-Aug	-	-	-	0.512	0.536	0.331	0.483	0.466	0.550	0.477	-	0.590	-
27-Aug	-	-	-	0.510	0.538	0.318	0.480	0.464	0.550	0.489	-	0.587	-
28-Aug	-	-	-	0.508	0.536	0.286	0.476	0.465	0.549	0.496	-	0.585	-
29-Aug	-	-	-	0.506	0.534	0.389	0.479	0.465	0.549	0.478	-	0.584	-
30-Aug	-	-	-	0.503	0.532	0.422	0.480	0.464	0.547	0.476	-	0.582	-
31-Aug	-	-	-	0.501	0.535	0.420	0.482	0.463	0.552	0.485	-	0.582	-
1-Sep	-	-	-	0.499	0.535	0.418	0.486	0.463	0.555	0.490	-	0.583	-
2-Sep	-	-	-	0.497	0.533	0.417	0.485	0.463	0.555	0.484	-	0.578	-
3-Sep	-	-	-	0.500	0.529	0.417	0.484	0.462	0.555	0.474	-	0.573	-

Table C3-4 WGS-35 Lake D3 (Counts) Station Daily Water Level (Outlet Stream Station)

Day of Month	Daily Mean Water Surface Elevation (m, non geodetic) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4-Sep	-	-	-	0.509	0.533	0.418	0.484	0.457	0.553	0.462	-	0.570	-
5-Sep	-	-	-	0.505	0.545	0.417	0.483	0.451	0.551	0.459	-	0.566	-
6-Sep	-	-	-	0.504	0.546	0.414	0.482	0.449	0.548	0.457	-	0.572	-
7-Sep	-	-	-	0.504	0.543	0.417	0.478	0.447	0.546	0.450	-	0.570	-
8-Sep	-	-	-	0.504	-	0.417	0.474	-	0.542	0.455	-	0.564	-
9-Sep	-	-	-	0.502	-	0.421	0.474	-	0.539	0.454	-	0.559	-
10-Sep	-	-	-	0.498	-	0.419	0.473	-	0.537	0.452	-	0.556	-
11-Sep	-	-	-	0.495	-	0.423	0.474	-	0.533	0.453	-	0.552	-
12-Sep	-	-	-	0.494	-	0.425	0.474	-	0.528	0.465	-	0.547	-
13-Sep	-	-	-	0.494	-	0.420	0.469	-	0.527	0.461	-	0.543	-
14-Sep	-	-	-	0.508	-	0.417	0.465	-	0.525	0.451	-	0.538	-
15-Sep	-	-	-	0.507	-	0.414	0.463	-	0.522	0.451	-	0.531	-
16-Sep	-	-	-	0.505	-	0.413	0.460	-	0.516	0.451	-	0.526	-
17-Sep	-	-	-	0.503	-	0.420	0.459	-	0.514	0.450	-	0.523	-
18-Sep	-	-	-	0.501	-	0.419	0.457	-	-	0.468	-	0.517	-
19-Sep	-	-	-	0.499	-	0.418	0.455	-	-	0.473	-	0.518	-
20-Sep	-	-	-	0.499	-	0.414	0.453	-	-	0.475	-	0.525	-
21-Sep	-	-	-	0.501	-	0.412	-	-	-	0.463	-	0.523	-
22-Sep	-	-	-	0.499	-	-	-	-	-	0.461	-	0.519	-
23-Sep	-	-	-	0.497	-	-	-	-	-	0.463	-	0.515	-
24-Sep	-	-	-	0.496	-	-	-	-	-	0.469	-	0.510	-
25-Sep	-	-	-	0.494	-	-	-	-	-	0.484	-	-	-
26-Sep	-	-	-	0.494	-	-	-	-	-	0.457	-	-	-
27-Sep	-	-	-	0.493	-	-	-	-	-	0.453	-	-	-
28-Sep	-	-	-	-	-	-	-	-	-	0.452	-	-	-
29-Sep	-	-	-	-	-	-	-	-	-	0.450	-	-	-
30-Sep	-	-	-	-	-	-	-	-	-	0.455	-	-	-
1-Oct	-	-	-	-	-	-	-	-	-	0.454	-	-	-
2-Oct	-	-	-	-	-	-	-	-	-	0.453	-	-	-
3-Oct	-	-	-	-	-	-	-	-	-	0.452	-	-	-
4-Oct	-	-	-	-	-	-	-	-	-	0.453	-	-	-
5-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
6-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
7-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
8-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
9-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
10-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
11-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
12-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
13-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
14-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
15-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
16-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
17-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
18-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
19-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-
20-Oct	-	-	-	-	-	-	-	-	-	-	-	-	-

m = metre; – = no recorded or derived value.

Table C3-5 WGS-35 Lake D3 (Counts) Station Mean Daily Discharge (Outlet Stream Station)

Day of Month	Daily Mean Discharge (m^3/s) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
27-May	-	-	-	-	-	-	0.081	-	-	-	-	-	-
28-May	-	-	-	-	-	-	0.092	-	-	-	-	-	-
29-May	-	-	-	-	-	-	0.095	-	-	-	-	-	-
30-May	-	-	-	-	-	-	0.097	-	-	-	-	-	-
31-May	-	-	-	-	-	-	0.097	-	-	-	-	-	-
1-Jun	-	-	-	-	-	-	0.102	-	-	-	-	0.000	-
2-Jun	-	-	-	-	-	-	0.106	-	-	-	-	0.000	-
3-Jun	-	-	-	-	-	-	0.123	0.000	-	-	-	0.000	-
4-Jun	-	-	-	-	-	-	0.144	0.001	0.000	-	0.000	0.000	0.229
5-Jun	-	-	-	-	-	-	0.163	0.017	0.026	-	0.005	0.001	0.226
6-Jun	-	-	-	-	-	0.000	0.166	0.034	0.052	-	0.010	0.001	0.221
7-Jun	-	-	-	0.000	-	0.026	0.163	0.051	0.078	-	0.009	0.002	0.221
8-Jun	-	-	-	0.058	-	0.052	0.155	0.069	0.074	-	0.007	0.004	0.217
9-Jun	-	-	-	0.116	-	0.079	0.148	0.086	0.072	-	0.006	0.007	0.211
10-Jun	0.249	-	-	0.173	-	0.105	0.142	0.103	0.071	-	0.005	0.012	0.205
11-Jun	0.104	-	-	0.183	-	0.131	0.138	0.120	0.072	-	0.012	0.020	0.199
12-Jun	0.042	-	-	0.188	-	0.157	0.134	0.160	0.071	-	0.106	0.034	0.192
13-Jun	0.016	-	-	0.186	0.000	0.183	0.129	0.200	0.071	-	0.112	0.057	0.183
14-Jun	0.012	-	-	0.181	0.000	0.182	0.122	0.185	0.070	-	0.113	-	0.175
15-Jun	-	-	-	0.177	0.000	0.182	0.118	0.170	0.068	-	0.115	-	0.167
16-Jun	0.288	-	-	0.173	0.000	0.189	0.114	0.155	0.079	-	0.116	-	0.159
17-Jun	0.275	-	-	0.171	0.000	0.188	0.107	0.150	0.093	0.000	0.136	-	0.152
18-Jun	0.264	-	-	0.169	0.000	0.184	0.099	0.145	0.092	0.013	0.135	-	0.144
19-Jun	0.254	-	-	0.164	0.000	0.179	0.091	0.140	0.091	0.135	0.136	-	0.136
20-Jun	0.239	-	-	0.156	0.000	0.181	0.085	0.134	0.089	0.226	0.135	-	0.131
21-Jun	0.225	-	-	0.151	0.000	0.178	0.079	0.131	0.086	0.217	0.140	-	0.122
22-Jun	0.211	-	-	0.146	0.000	0.177	0.073	0.127	0.084	0.208	0.150	-	0.117
23-Jun	0.196	-	-	0.139	0.000	0.170	0.069	0.125	0.081	0.203	0.145	-	0.109
24-Jun	0.182	-	-	0.132	0.000	0.164	0.065	0.121	0.081	0.204	0.137	-	0.102
25-Jun	0.170	-	-	0.128	0.000	0.158	0.062	0.118	0.079	0.208	0.133	-	0.097
26-Jun	0.162	-	-	0.124	0.019	0.154	0.058	0.117	0.075	0.202	0.128	-	0.095
27-Jun	0.153	-	-	0.118	0.018	0.149	0.055	0.115	0.072	0.194	0.123	-	0.091
28-Jun	0.143	-	-	0.111	0.017	0.144	0.055	0.111	0.070	0.189	0.118	-	0.087
29-Jun	0.132	-	-	0.105	0.017	0.139	0.056	0.108	0.067	0.183	0.114	-	0.085
30-Jun	0.123	-	-	0.100	0.034	0.132	0.072	0.105	0.065	0.176	0.110	-	0.081
1-Jul	0.114	-	-	0.096	0.105	0.125	0.070	0.101	0.065	0.171	0.123	-	0.077
2-Jul	0.107	-	-	0.091	0.116	0.121	0.068	0.097	0.062	0.165	0.138	-	0.073
3-Jul	0.101	-	-	0.088	0.121	0.115	0.065	0.093	0.061	0.158	0.131	-	0.069
4-Jul	0.095	-	-	0.085	0.119	0.110	0.061	0.088	0.059	0.151	0.129	-	0.065
5-Jul	0.090	-	-	0.081	0.117	0.109	0.058	0.083	0.057	0.142	0.126	-	0.061
6-Jul	0.086	-	-	0.078	0.115	0.108	0.056	0.079	0.055	0.134	0.122	-	0.056
7-Jul	0.083	-	-	0.076	0.114	0.105	0.054	0.075	0.052	0.127	0.117	0.067	0.052
8-Jul	0.081	-	-	0.074	0.113	0.102	0.051	0.072	0.050	0.121	0.115	0.064	0.049
9-Jul	0.078	-	-	0.073	0.111	0.099	0.048	0.070	0.049	0.117	0.119	0.061	0.047
10-Jul	0.076	-	-	0.072	0.110	0.096	0.045	0.067	0.047	0.115	0.111	0.060	0.043
11-Jul	0.072	-	-	0.070	0.107	0.092	0.043	0.064	0.047	0.110	0.108	0.059	0.040
12-Jul	0.067	-	-	0.072	0.106	0.089	0.041	0.072	0.045	0.102	0.103	0.057	0.040
13-Jul	0.061	-	-	0.071	0.105	0.086	0.040	0.075	0.043	0.097	0.098	0.057	0.040
14-Jul	0.056	-	-	0.069	0.102	0.083	0.038	0.073	0.040	0.092	0.095	0.058	0.036
15-Jul	0.049	-	-	0.067	0.098	0.080	0.037	0.071	0.039	0.091	0.090	0.054	0.034

Table C3-5 WGS-35 Lake D3 (Counts) Station Mean Daily Discharge (Outlet Stream Station)

Day of Month	Daily Mean Discharge (m^3/s) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
16-Jul	0.046	-	-	0.065	0.095	0.076	0.035	0.067	0.038	0.090	0.086	0.051	0.032
17-Jul	0.042	-	-	0.063	0.093	0.073	0.034	0.064	0.036	0.086	0.081	0.049	0.031
18-Jul	0.039	-	-	0.061	0.090	0.072	0.032	0.060	0.034	0.085	0.081	0.047	0.030
19-Jul	0.037	-	-	0.058	0.087	0.070	0.032	0.056	0.032	0.081	0.076	0.050	0.028
20-Jul	0.035	-	-	0.055	0.085	0.067	0.031	0.055	0.030	0.076	0.072	0.049	0.026
21-Jul	0.033	-	-	0.052	0.083	0.062	0.030	0.053	0.029	0.073	0.067	0.045	0.024
22-Jul	0.035	-	-	0.050	0.082	0.058	0.029	0.050	0.030	0.071	0.063	0.043	0.023
23-Jul	0.033	-	-	0.048	0.082	0.055	0.029	0.047	0.029	0.069	0.060	0.040	0.021
24-Jul	0.033	-	-	0.048	0.082	0.053	0.030	0.044	0.029	0.068	0.057	0.038	0.020
25-Jul	0.032	-	-	0.046	0.081	0.050	0.028	0.042	0.027	0.067	0.057	0.036	0.018
26-Jul	0.031	-	-	0.045	0.079	0.048	0.027	0.041	0.025	0.065	0.054	0.034	0.018
27-Jul	0.030	-	-	0.042	0.077	0.048	0.026	0.041	0.024	0.062	0.050	0.031	0.018
28-Jul	0.030	-	-	0.039	0.076	0.048	0.024	0.038	0.021	0.058	0.047	0.028	0.016
29-Jul	0.034	-	-	0.038	0.075	0.047	0.023	0.036	0.020	0.055	0.044	0.026	0.014
30-Jul	0.046	-	-	0.038	0.074	0.046	0.022	0.035	0.018	0.052	0.042	0.025	0.012
31-Jul	-	-	-	0.034	0.072	0.044	0.021	0.033	0.017	0.050	0.040	0.022	0.011
1-Aug	-	-	-	0.033	0.069	0.044	0.020	0.030	0.017	0.047	0.038	0.023	0.010
2-Aug	-	-	-	0.033	0.065	0.042	0.019	0.029	0.016	0.044	0.036	0.026	0.009
3-Aug	-	-	-	0.034	0.062	0.041	0.019	0.027	0.015	0.042	0.033	0.025	0.008
4-Aug	-	-	-	0.033	0.060	0.038	0.019	0.026	0.015	0.040	0.029	0.023	0.009
5-Aug	-	-	-	0.032	0.058	0.037	0.018	0.024	0.014	0.037	0.026	0.022	0.010
6-Aug	-	-	-	0.031	0.057	0.036	0.019	0.023	0.013	0.036	0.024	0.020	0.010
7-Aug	-	-	-	0.032	0.055	0.035	0.018	0.023	0.012	0.035	0.022	0.019	0.009
8-Aug	-	-	-	0.031	0.053	0.034	0.018	0.021	0.011	0.034	0.020	0.018	0.008
9-Aug	-	-	-	0.029	0.051	0.034	0.017	0.020	0.011	0.031	0.019	0.018	0.008
10-Aug	-	-	-	0.028	0.050	0.034	0.019	0.020	0.010	0.030	0.019	0.018	0.009
11-Aug	-	-	-	0.027	0.048	0.034	0.020	0.020	0.010	0.027	0.019	0.017	0.009
12-Aug	-	-	-	0.026	0.046	0.033	0.018	0.019	0.009	0.026	0.018	0.016	0.008
13-Aug	-	-	-	0.025	0.045	0.033	0.018	0.019	0.007	0.024	0.018	0.014	0.007
14-Aug	-	-	-	0.024	0.043	0.034	0.017	0.019	0.013	0.024	0.016	0.013	0.006
15-Aug	-	-	-	0.023	0.042	0.033	0.017	0.018	0.013	0.022	0.016	0.013	0.005
16-Aug	-	-	-	0.023	0.041	0.033	0.016	0.018	0.013	0.022	0.017	0.017	0.005
17-Aug	-	-	-	0.024	0.040	0.032	0.016	0.017	0.012	0.021	0.018	0.021	0.005
18-Aug	-	-	-	0.024	0.040	0.032	0.015	0.017	0.012	0.022	0.017	0.021	0.005
19-Aug	-	-	-	0.022	0.039	0.031	0.015	0.016	0.013	0.021	0.018	0.021	0.005
20-Aug	-	-	-	0.021	0.037	0.030	0.014	0.015	0.012	0.021	0.018	0.019	0.004
21-Aug	-	-	-	0.020	0.036	0.011	0.014	0.015	0.011	0.020	0.017	0.018	0.003
22-Aug	-	-	-	0.019	0.035	0.000	0.013	0.014	0.011	0.018	0.016	0.025	0.003
23-Aug	-	-	-	0.019	0.034	0.000	0.013	0.014	0.012	0.015	0.016	0.026	0.002
24-Aug	-	-	-	0.024	0.035	0.000	0.014	0.013	0.012	0.014	0.015	0.026	0.002
25-Aug	-	-	-	0.023	0.035	0.001	0.016	0.012	0.020	0.013	0.015	0.026	0.002
26-Aug	-	-	-	0.023	0.035	0.002	0.017	0.011	0.035	0.013	0.015	0.025	0.001
27-Aug	-	-	-	0.022	0.035	0.002	0.016	0.011	0.036	0.016	0.014	0.025	0.002
28-Aug	-	-	-	0.022	0.033	0.002	0.015	0.011	0.035	0.017	0.013	0.024	0.002
29-Aug	-	-	-	0.021	0.032	0.001	0.016	0.011	0.035	0.013	0.013	0.023	0.003
30-Aug	-	-	-	0.020	0.030	0.005	0.016	0.011	0.034	0.013	0.013	0.022	0.002
31-Aug	-	-	-	0.020	0.028	0.007	0.017	0.011	0.036	0.015	0.013	0.020	0.002
1-Sep	-	-	-	0.019	0.028	0.007	0.017	0.011	0.038	0.016	0.012	0.018	0.001
2-Sep	-	-	-	0.019	0.029	0.007	0.017	0.011	0.038	0.014	0.012	0.017	0.001
3-Sep	-	-	-	0.020	0.028	0.007	0.017	0.010	0.038	0.012	0.012	0.017	0.001

Table C3-5 WGS-35 Lake D3 (Counts) Station Mean Daily Discharge (Outlet Stream Station)

Day of Month	Daily Mean Discharge (m^3/s) by Year												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
4-Sep	-	-	-	0.022	0.027	0.007	0.017	0.010	0.037	0.010	0.012	0.018	0.002
5-Sep	-	-	-	0.021	0.027	0.007	0.017	0.009	0.036	0.010	0.012	0.027	0.002
6-Sep	-	-	-	0.021	0.026	0.007	0.016	0.008	0.035	0.009	0.012	0.027	0.002
7-Sep	-	-	-	0.021	0.026	0.007	0.016	0.008	0.034	0.008	0.012	0.027	0.001
8-Sep	-	-	-	0.020	0.027	0.007	0.015	0.008	0.032	0.009	0.012	0.025	0.001
9-Sep	-	-	-	0.020	0.028	0.007	0.015	0.007	0.031	0.009	0.011	0.025	0.001
10-Sep	-	-	-	0.019	0.027	0.007	0.015	0.007	0.030	0.008	0.011	0.029	0.000
11-Sep	-	-	-	0.019	0.027	0.007	0.015	0.006	0.029	0.009	0.011	0.028	0.002
12-Sep	-	-	-	0.018	0.026	0.007	0.015	0.006	0.027	0.011	0.011	0.027	0.001
13-Sep	-	-	-	0.018	0.027	0.008	0.014	0.007	0.027	0.010	0.011	0.026	0.001
14-Sep	-	-	-	0.022	0.027	0.007	0.014	0.006	0.026	0.008	0.012	0.025	0.001
15-Sep	-	-	-	0.021	0.026	0.007	0.013	0.005	0.025	0.008	0.012	0.024	0.001
16-Sep	-	-	-	0.021	0.025	0.007	0.013	0.005	0.023	0.008	0.012	0.024	0.001
17-Sep	-	-	-	0.020	0.026	0.006	0.013	0.005	0.022	0.008	0.011	0.023	0.001
18-Sep	-	-	-	0.020	0.030	0.007	0.012	0.005	0.022	0.011	0.007	0.023	0.001
19-Sep	-	-	-	0.019	0.031	0.007	0.012	0.004	0.021	0.012	0.007	0.022	0.001
20-Sep	-	-	-	0.019	0.044	0.007	0.012	0.004	0.020	0.012	0.006	0.022	0.001
21-Sep	-	-	-	0.020	0.028	0.006	0.011	0.004	0.019	0.010	0.006	0.022	0.001
22-Sep	-	-	-	0.019	0.028	0.006	0.011	0.003	0.019	0.010	0.005	0.022	-
23-Sep	-	-	-	0.019	0.028	0.005	0.010	0.003	0.030	0.010	0.004	0.021	-
24-Sep	-	-	-	0.019	0.028	0.005	0.010	0.003	0.030	0.011	0.004	0.020	-
25-Sep	-	-	-	0.018	0.028	0.004	0.009	0.003	0.026	0.014	0.003	0.019	-
26-Sep	-	-	-	0.018	0.028	0.004	0.009	0.002	0.022	0.009	0.002	0.018	-
27-Sep	-	-	-	0.018	0.028	0.003	0.009	0.002	0.020	0.009	0.002	0.017	-
28-Sep	-	-	-	0.017	0.028	0.003	0.008	0.002	0.018	0.008	0.001	0.016	-
29-Sep	-	-	-	0.016	0.028	0.002	0.008	0.002	0.016	0.008	0.001	0.015	-
30-Sep	-	-	-	0.015	0.028	0.002	0.007	0.001	0.014	0.009	0.000	0.015	-
1-Oct	-	-	-	0.014	0.028	0.001	0.007	0.001	0.012	0.009	-	0.014	-
2-Oct	-	-	-	0.013	0.028	0.001	0.006	0.001	0.010	0.008	-	0.013	-
3-Oct	-	-	-	0.012	-	0.000	0.006	0.001	0.008	0.008	-	0.012	-
4-Oct	-	-	-	0.011	-	-	0.005	0.000	0.008	0.008	-	0.011	-
5-Oct	-	-	-	0.010	-	-	0.005	0.000	0.007	0.008	-	0.010	-
6-Oct	-	-	-	0.009	-	-	0.004	-	0.006	0.007	-	0.009	-
7-Oct	-	-	-	0.008	-	-	0.004	-	0.006	0.007	-	0.008	-
8-Oct	-	-	-	0.007	-	-	0.003	-	0.005	0.006	-	0.007	-
9-Oct	-	-	-	0.006	-	-	0.003	-	0.004	0.006	-	0.006	-
10-Oct	-	-	-	0.005	-	-	0.002	-	0.003	0.005	-	0.005	-
11-Oct	-	-	-	0.004	-	-	0.002	-	0.003	0.005	-	0.004	-
12-Oct	-	-	-	0.003	-	-	0.001	-	0.002	0.004	-	0.003	-
13-Oct	-	-	-	0.002	-	-	0.001	-	0.002	0.004	-	0.002	-
14-Oct	-	-	-	0.001	-	-	0.000	-	0.001	0.003	-	0.001	-
15-Oct	-	-	-	0.000	-	-	0.000	-	0.000	0.003	-	0.000	-
16-Oct	-	-	-	-	-	-	-	-	-	0.002	-	-	-
17-Oct	-	-	-	-	-	-	-	-	-	0.002	-	-	-
18-Oct	-	-	-	-	-	-	-	-	-	0.001	-	-	-
19-Oct	-	-	-	-	-	-	-	-	-	0.001	-	-	-
20-Oct	-	-	-	-	-	-	-	-	-	0.000	-	-	-

m^3/s = cubic metres per second; – = no recorded or derived value.

C3.3 Lake B1 (Christine Lake)

Christine Lake hydrometric data are not included in the Ekati AEMP reports (available on the Wek'èezhìi Land and Water Board public registry), although these data are collected by ERM Rescan (2013b). Records of open-water stage for Christine Lake outlet stream were provided for 2000, 2001, and 2004 (ERM Rescan 2013b). Water levels, recorded at 30-minute intervals, were provided and were analyzed to provide daily mean water levels. No discharges were provided for Christine Lake (Lake B1). The daily mean water levels, assuming a constant datum over the monitoring period, are shown in Table C3-6. Details including rating curves, measured discharges, or other details of the hydrometric surveys were not included in the information request.

Table C3-6 Christine Lake (Christine Lac du Sauvage) Station Mean Daily Water Level (Outlet Stream Station)

Day of Month	Water Surface Elevation (m, non-geodetic) by Year			Day of Month	Water Surface Elevation (m, non-geodetic) by Year			Day of Month	Water Surface Elevation (m, non-geodetic) by Year			Day of Month	Water Surface Elevation (m, non-geodetic) by Year			Day of Month	Water Surface Elevation (m, non-geodetic) by Year		
	2000	2001	2004		2000	2001	2004		2000	2001	2004		2000	2001	2004		2000	2001	2004
1-Jun	-	-	-	1-Jul	0.485	0.178	0.492	1-Aug	0.236	-	0.242	1-Sep	0.290	-	0.133	1-Oct	0.403	-	-
2-Jun	-	-	-	2-Jul	0.473	0.165	0.478	2-Aug	0.231	-	0.231	2-Sep	0.289	-	0.134	2-Oct	0.405	-	-
3-Jun	-	-	-	3-Jul	0.456	0.153	0.466	3-Aug	0.216	-	0.223	3-Sep	0.289	-	0.129	3-Oct	0.401	-	-
4-Jun	-	-	-	4-Jul	0.439	0.144	0.455	4-Aug	0.212	-	0.217	4-Sep	0.288	-	0.135	4-Oct	0.397	-	-
5-Jun	-	-	-	5-Jul	0.426	0.151	0.439	5-Aug	0.211	-	0.218	5-Sep	0.285	-	0.153	5-Oct	-	-	-
6-Jun	-	-	-	6-Jul	0.411	0.175	0.425	6-Aug	0.208	-	0.212	6-Sep	0.286	-	0.167	6-Oct	-	-	-
7-Jun	-	-	-	7-Jul	0.401	0.211	0.413	7-Aug	0.212	-	0.206	7-Sep	0.284	-	0.169	7-Oct	-	-	-
8-Jun	-	-	-	8-Jul	0.395	0.223	0.404	8-Aug	0.190	-	0.200	8-Sep	0.291	-	0.168	8-Oct	-	-	-
9-Jun	-	-	-	9-Jul	0.384	0.222	0.398	9-Aug	0.183	-	0.194	9-Sep	0.330	-	0.168	9-Oct	-	-	-
10-Jun	-	-	-	10-Jul	0.376	0.213	0.402	10-Aug	0.180	-	0.181	10-Sep	0.343	-	0.167	10-Oct	-	-	-
11-Jun	-	-	-	11-Jul	0.364	0.212	0.409	11-Aug	0.177	-	0.185	11-Sep	0.352	-	0.165	11-Oct	-	-	-
12-Jun	-	0.430	-	12-Jul	0.343	0.219	0.405	12-Aug	0.174	-	0.184	12-Sep	0.357	-	0.165	12-Oct	-	-	-
13-Jun	-	0.412	-	13-Jul	0.326	0.216	0.400	13-Aug	0.171	-	0.174	13-Sep	0.361	-	0.179	13-Oct	-	-	-
14-Jun	-	0.383	0.650	14-Jul	0.314	0.205	0.392	14-Aug	0.170	-	0.177	14-Sep	0.360	-	0.186	14-Oct	-	-	-
15-Jun	-	0.362	0.643	15-Jul	0.292	0.194	0.384	15-Aug	0.191	-	0.170	15-Sep	0.389	-	0.190	15-Oct	-	-	-
16-Jun	-	0.342	0.621	16-Jul	0.288	0.181	0.378	16-Aug	0.208	-	0.163	16-Sep	0.392	-	0.231	16-Oct	-	-	-
17-Jun	-	0.321	0.605	17-Jul	0.275	0.175	0.371	17-Aug	0.213	-	0.159	17-Sep	0.395	-	0.259	17-Oct	-	-	-
18-Jun	-	0.300	0.601	18-Jul	0.261	-	0.364	18-Aug	0.216	-	0.151	18-Sep	0.399	-	0.277	18-Oct	-	-	-
19-Jun	-	0.283	0.614	19-Jul	0.251	-	0.358	19-Aug	0.219	-	0.147	19-Sep	0.405	-	0.284	19-Oct	-	-	-
20-Jun	-	0.294	0.621	20-Jul	0.237	-	0.349	20-Aug	0.236	-	0.149	20-Sep	0.402	-	0.306	20-Oct	-	-	-
21-Jun	-	0.291	0.606	21-Jul	0.224	-	0.339	21-Aug	0.257	-	0.144	21-Sep	0.404	-	0.322	21-Oct	-	-	-
22-Jun	-	0.275	0.590	22-Jul	0.230	-	0.333	22-Aug	0.260	-	0.142	22-Sep	0.411	-	0.332	22-Oct	-	-	-
23-Jun	0.609	0.261	0.574	23-Jul	0.234	-	0.327	23-Aug	0.259	-	0.140	23-Sep	0.417	-	0.348	23-Oct	-	-	-
24-Jun	0.593	0.249	0.558	24-Jul	0.224	-	0.320	24-Aug	0.260	-	0.135	24-Sep	0.417	-	-	24-Oct	-	-	-
25-Jun	0.575	0.233	0.549	25-Jul	0.217	-	0.309	25-Aug	0.259	-	0.129	25-Sep	0.395	-	-	25-Oct	-	-	-
26-Jun	0.559	0.224	0.542	26-Jul	0.207	-	0.299	26-Aug	0.244	-	0.135	26-Sep	0.395	-	-	26-Oct	-	-	-
27-Jun	0.546	0.212	0.535	27-Jul	0.198	-	0.290	27-Aug	0.228	-	0.142	27-Sep	0.402	-	-	27-Oct	-	-	-
28-Jun	0.532	0.201	0.529	28-Jul	0.193	-	0.281	28-Aug	0.254	-	0.137	28-Sep	0.403	-	-	28-Oct	-	-	-
29-Jun	0.513	0.193	0.522	29-Jul	0.202	-	0.274	29-Aug	0.278	-	0.135	29-Sep	0.398	-	-	29-Oct	-	-	-
30-Jun	0.497	0.189	0.506	30-Jul	0.231	-	0.263	30-Aug	0.284	-	0.132	30-Sep	0.397	-	-	30-Oct	-	-	-
				31-Jul	0.239	-	0.249	31-Aug	0.286	-	0.134					31-Oct	-	-	-

m = metre; – = no recorded or derived value.

C3.4 Lake E10 (Ursula Lake)

Lake E10 (Ursula) hydrometric data are not included in the Ekati AEMP reports (available on the Wek'èezhìi Land and Water Board public registry), although these data are collected by ERM Rescan (2013b). Records of open-water lake water levels and derived discharge were provided for Ursula Lake for 2001 to 2003 with derived discharges also provided for 2005 (ERM Rescan 2013b). Water levels, recorded at 30-minute intervals, were provided and were analyzed to provide daily mean water levels. In addition, stage data from over the monitoring period had two different datums, with water levels for 2001 reported with both datums (a consistent offset of 0.142 m). The different datum for each open-water season is likely a product of re-installing the staff gauge. Water levels were corrected to share a common datum, and therefore, a common lake water level and discharge rating curve.

Daily water levels and discharges are shown in Tables C3-7 and C3-8. Interpolated discharges on the rising and falling limb of the hydrograph were interpolated where stage values are not reported. Details including rating curves, measured discharges or other details of the hydrometric surveys were not included in the information request.

Table C3-7 Lake E10 (Ursula) Station Mean Daily Lake Water Level

	Water Surface Elevation (m, non-geodetic) by Year					Water Surface Elevation (m, non-geodetic) by Year			
Day of Month	2001	2002	2003	2005	Day of Month	2001	2002	2003	2005
25-May	-	-	-	-	1-Aug	0.793	0.742	0.753	-
26-May	-	-	-	-	2-Aug	0.789	0.743	0.756	-
27-May	-	-	-	-	3-Aug	0.784	0.741	0.761	-
28-May	-	-	-	-	4-Aug	0.779	0.740	0.748	-
29-May	-	-	-	-	5-Aug	0.776	0.737	0.748	-
30-May	-	-	-	-	6-Aug	0.771	0.732	0.749	-
31-May	-	-	-	-	7-Aug	0.760	0.725	0.744	-
1-Jun	-	-	-	-	8-Aug	0.758	0.726	0.739	-
2-Jun	-	-	-	-	9-Aug	0.757	0.722	0.730	-
3-Jun	-	-	-	-	10-Aug	0.751	0.724	0.728	-
4-Jun	-	-	0.808	-	11-Aug	0.746	0.742	0.725	-
5-Jun	-	-	0.811	-	12-Aug	0.744	0.744	0.724	-
6-Jun	-	-	0.813	-	13-Aug	0.747	0.745	0.721	-
7-Jun	-	-	0.816	-	14-Aug	0.744	0.743	0.711	-
8-Jun	-	-	0.819	-	15-Aug	0.741	0.741	0.714	-
9-Jun	-	-	0.822	-	16-Aug	0.738	0.738	0.712	-
10-Jun	-	-	0.821	-	17-Aug	0.734	0.734	0.709	-
11-Jun	0.928	-	0.831	-	18-Aug	0.728	0.736	0.708	-
12-Jun	0.930	-	0.842	-	19-Aug	0.724	0.728	0.702	-
13-Jun	0.931	-	0.842	-	20-Aug	0.711	0.728	0.701	-
14-Jun	0.930	-	0.842	-	21-Aug	0.706	0.731	0.710	-
15-Jun	0.929	-	0.844	-	22-Aug	0.704	0.729	0.706	-
16-Jun	0.927	-	0.846	-	23-Aug	0.704	0.730	0.707	-
17-Jun	0.925	0.757	0.851	-	24-Aug	0.705	0.739	0.723	-
18-Jun	0.921	0.755	0.854	-	25-Aug	0.707	0.747	0.719	-
19-Jun	0.920	0.756	0.852	-	26-Aug	0.708	0.750	0.717	-
20-Jun	0.927	0.765	0.850	-	27-Aug	0.709	0.754	0.716	-
21-Jun	0.926	0.767	0.849	-	28-Aug	0.707	0.762	0.715	-
22-Jun	0.925	0.767	0.848	-	29-Aug	0.706	0.769	0.712	-
23-Jun	0.919	0.770	0.848	-	30-Aug	0.705	0.771	0.711	-

Table C3-7 Lake E10 (Ursula) Station Mean Daily Lake Water Level

Day of Month	Water Surface Elevation (m, non-geodetic) by Year				Day of Month	Water Surface Elevation (m, non-geodetic) by Year			
	2001	2002	2003	2005		2001	2002	2003	2005
24-Jun	0.914	0.769	0.847	-	31-Aug	0.702	0.772	0.710	-
25-Jun	0.908	0.770	0.845	-	1-Sep	0.702	0.774	0.706	-
26-Jun	0.903	0.769	0.843	-	2-Sep	0.702	0.772	0.706	-
27-Jun	0.899	0.771	0.841	-	3-Sep	0.700	0.771	0.705	-
28-Jun	0.895	0.772	0.838	-	4-Sep	0.697	0.769	0.714	-
29-Jun	0.890	0.773	0.836	-	5-Sep	0.696	0.771	0.717	-
30-Jun	0.887	0.776	0.835	-	6-Sep	0.694	0.770	0.717	-
1-Jul	0.883	0.776	0.833	-	7-Sep	0.692	0.767	0.716	-
2-Jul	0.871	0.775	0.829	-	8-Sep	0.690	0.764	0.734	-
3-Jul	0.870	0.775	0.824	-	9-Sep	0.684	0.762	0.761	-
4-Jul	0.866	0.775	0.826	-	10-Sep	0.681	0.763	0.759	-
5-Jul	0.874	0.774	0.823	-	11-Sep	0.678	0.760	0.757	-
6-Jul	0.878	0.775	0.821	-	12-Sep	0.677	0.760	0.755	-
7-Jul	0.883	0.774	0.820	-	13-Sep	0.676	0.763	0.753	-
8-Jul	0.878	0.777	0.818	-	14-Sep	0.669	0.766	0.746	-
9-Jul	0.876	0.779	0.818	-	15-Sep	0.666	0.765	0.749	-
10-Jul	0.873	0.784	0.820	-	16-Sep	0.666	0.763	0.750	-
11-Jul	0.870	0.790	0.820	-	17-Sep	0.660	0.765	0.748	-
12-Jul	0.868	0.800	0.817	-	18-Sep	0.654	0.769	0.749	-
13-Jul	0.870	0.811	0.815	-	19-Sep	0.655	0.769	0.749	-
14-Jul	0.868	0.812	0.815	-	20-Sep	0.653	0.762	0.743	-
15-Jul	0.863	0.806	0.812	-	21-Sep	0.650	0.757	0.742	-
16-Jul	0.858	0.806	0.809	-	22-Sep	0.649	0.755	0.740	-
17-Jul	0.851	0.803	0.810	-	23-Sep	0.648	0.742	0.738	-
18-Jul	0.862	0.802	0.798	-	24-Sep	0.646	0.730	0.738	-
19-Jul	0.869	0.799	0.795	-	25-Sep	0.648	0.735	0.735	-
20-Jul	0.866	0.796	0.792	-	26-Sep	-	0.741	0.735	-
21-Jul	0.861	0.792	0.790	-	27-Sep	-	0.744	0.731	-
22-Jul	0.855	0.790	0.787	-	28-Sep	-	0.743	0.727	-
23-Jul	0.851	0.788	0.784	-	29-Sep	-	-	-	-
24-Jul	0.847	0.785	0.781	-	30-Sep	-	-	-	-
25-Jul	0.842	0.784	0.779	-	1-Oct	-	-	-	-
26-Jul	0.835	0.779	0.778	-	2-Oct	-	-	-	-
27-Jul	0.830	0.782	0.773	-	3-Oct	-	-	-	-
28-Jul	0.825	0.773	0.767	-	4-Oct	-	-	-	-
29-Jul	0.822	0.767	0.764	-	5-Oct	-	-	-	-
30-Jul	0.818	0.760	0.763	-	6-Oct	-	-	-	-
31-Jul	0.805	0.752	0.754	-	7-Oct	-	-	-	-
					8-Oct	-	-	-	-
					9-Oct	-	-	-	-
					10-Oct	-	-	-	-
					11-Oct	-	-	-	-
					12-Oct	-	-	-	-
					13-Oct	-	-	-	-
					14-Oct	-	-	-	-
					15-Oct	-	-	-	-

m = metre; – = no recorded or derived value.

Table C3-8 Lake E10 (Ursula) Station Mean Daily Discharge

Day of Month	Daily Mean Discharge (m^3/s) by Year				Day of Month	Daily Mean Discharge (m^3/s) by Year			
	2001	2002	2003	2005		2001	2002	2003	2005
25-May	-	-	0.000	-	1-Aug	1.185	0.526	0.488	0.649
26-May	-	-	0.099	-	2-Aug	0.931	0.496	0.504	0.606
27-May	-	-	0.197	-	3-Aug	0.882	0.445	0.573	0.618
28-May	-	-	0.296	0.000	4-Aug	0.831	0.427	0.662	0.567
29-May	-	-	0.394	0.059	5-Aug	0.741	0.385	0.522	0.561
30-May	-	-	0.493	0.118	6-Aug	0.722	0.378	0.484	0.562
31-May	-	-	0.591	0.177	7-Aug	0.871	0.383	0.470	0.557
1-Jun	0.000	-	0.670	0.235	8-Aug	0.815	0.348	0.526	0.665
2-Jun	0.374	0.000	0.822	0.294	9-Aug	0.693	0.370	0.504	0.688
3-Jun	0.749	0.030	0.945	0.353	10-Aug	0.621	0.425	0.415	0.732
4-Jun	1.123	0.100	1.034	0.471	11-Aug	0.583	0.518	0.418	0.692
5-Jun	1.498	0.170	1.082	0.538	12-Aug	0.552	0.515	0.398	0.715
6-Jun	1.872	0.240	1.112	0.587	13-Aug	0.572	0.467	0.375	0.873
7-Jun	2.247	0.310	1.140	0.668	14-Aug	0.616	0.467	0.388	0.738
8-Jun	2.621	0.380	1.194	0.841	15-Aug	0.574	0.474	0.346	0.714
9-Jun	2.996	0.450	1.218	0.962	16-Aug	0.751	0.473	0.354	0.720
10-Jun	3.370	0.499	1.206	1.025	17-Aug	0.705	0.460	0.354	0.700
11-Jun	3.415	0.573	1.366	1.062	18-Aug	0.655	0.466	0.322	0.680
12-Jun	3.429	0.623	1.488	1.081	19-Aug	0.603	0.580	0.293	0.662
13-Jun	3.445	0.661	1.460	1.119	20-Aug	0.484	0.528	0.298	0.620
14-Jun	3.430	0.652	1.470	1.144	21-Aug	0.519	0.418	0.289	0.690
15-Jun	3.379	0.643	1.485	1.210	22-Aug	0.512	0.440	0.263	0.774
16-Jun	3.333	0.640	1.502	1.276	23-Aug	0.471	0.429	0.217	0.781
17-Jun	3.277	0.647	1.560	1.261	24-Aug	0.443	0.561	0.283	0.634
18-Jun	3.195	0.637	1.604	1.237	25-Aug	0.525	0.518	0.335	0.635
19-Jun	3.172	0.645	1.549	1.262	26-Aug	0.522	0.526	0.346	0.630
20-Jun	3.354	0.709	1.527	1.253	27-Aug	0.529	0.542	0.329	0.709
21-Jun	3.318	0.718	1.514	1.332	28-Aug	0.510	0.537	0.319	0.646
22-Jun	3.360	0.708	1.495	1.330	29-Aug	0.498	0.612	0.350	0.588
23-Jun	3.222	0.753	1.475	1.316	30-Aug	0.458	0.724	0.323	0.600
24-Jun	3.030	0.710	1.459	1.324	31-Aug	0.446	0.688	0.318	0.590
25-Jun	2.908	0.706	1.409	1.291	1-Sep	0.437	0.681	0.308	0.576
26-Jun	2.871	0.695	1.380	1.263	2-Sep	0.450	0.673	0.317	0.545
27-Jun	2.703	0.718	1.385	1.252	3-Sep	0.459	0.673	0.333	0.565
28-Jun	2.577	0.728	1.326	1.226	4-Sep	0.457	0.681	0.456	0.586
29-Jun	2.466	0.721	1.283	1.209	5-Sep	0.437	0.640	0.366	0.602
30-Jun	2.369	0.735	1.240	1.205	6-Sep	0.427	0.643	0.359	0.577
1-Jul	2.387	0.731	1.202	1.229	7-Sep	0.416	0.645	0.359	0.551
2-Jul	2.551	0.722	1.153	1.162	8-Sep	0.385	0.639	0.311	0.566
3-Jul	2.154	0.703	1.127	1.100	9-Sep	0.373	0.607	0.429	0.584
4-Jul	1.965	0.693	1.063	1.147	10-Sep	0.372	0.599	0.376	0.559
5-Jul	2.058	0.687	1.065	1.232	11-Sep	0.376	0.620	0.366	0.517
6-Jul	2.215	0.690	1.063	1.202	12-Sep	0.357	0.638	0.370	0.532
7-Jul	2.197	0.776	1.044	1.116	13-Sep	0.330	0.576	0.348	0.548
8-Jul	2.172	0.718	1.039	1.234	14-Sep	0.351	0.513	0.394	0.523
9-Jul	2.060	0.677	1.055	1.223	15-Sep	0.329	0.487	0.408	0.504
10-Jul	1.896	0.714	1.175	1.211	16-Sep	0.319	0.448	0.354	0.470
11-Jul	2.061	0.690	1.043	1.196	17-Sep	0.387	0.463	0.323	0.478
12-Jul	2.346	0.833	1.197	1.143	18-Sep	0.318	0.516	0.283	0.465
13-Jul	2.057	0.880	1.076	1.088	19-Sep	0.267	0.548	0.246	0.424

Table C3-8 Lake E10 (Ursula) Station Mean Daily Discharge

Day of Month	Daily Mean Discharge (m^3/s) by Year				Day of Month	Daily Mean Discharge (m^3/s) by Year			
	2001	2002	2003	2005		2001	2002	2003	2005
14-Jul	1.946	0.814	0.990	1.097	20-Sep	0.251	0.630	0.269	0.280
15-Jul	1.803	0.807	0.984	1.050	21-Sep	0.231	0.665	0.298	0.252
16-Jul	1.657	0.829	0.937	1.021	22-Sep	0.208	0.645	0.289	0.201
17-Jul	1.648	0.830	0.887	0.976	23-Sep	0.202	0.898	0.287	0.141
18-Jul	1.736	0.775	0.945	0.994	24-Sep	0.254	1.022	0.287	0.085
19-Jul	1.824	0.757	0.865	1.090	25-Sep	0.220	0.635	0.265	0.042
20-Jul	1.833	0.717	0.837	1.093	26-Sep	0.209	0.478	0.304	0.017
21-Jul	1.805	0.708	0.803	0.878	27-Sep	0.198	0.451	0.247	0.005
22-Jul	1.762	0.682	0.752	0.784	28-Sep	0.187	0.419	0.234	0.001
23-Jul	1.639	0.654	0.742	0.743	29-Sep	0.176	0.393	0.220	0.000
24-Jul	1.527	0.641	0.742	0.682	30-Sep	0.165	0.367	0.206	0.000
25-Jul	1.434	0.624	0.734	0.672	1-Oct	0.154	0.341	0.192	-
26-Jul	1.387	0.591	0.682	0.644	2-Oct	0.143	0.315	0.179	-
27-Jul	1.338	0.575	0.650	0.638	3-Oct	0.132	0.289	0.165	-
28-Jul	1.234	0.488	0.712	0.643	4-Oct	0.121	0.263	0.151	-
29-Jul	1.204	0.559	0.645	0.666	5-Oct	0.110	0.237	0.137	-
30-Jul	1.216	0.591	0.628	0.614	6-Oct	0.099	0.211	0.124	-
31-Jul	1.304	0.555	0.603	0.668	7-Oct	0.088	0.185	0.110	-
					8-Oct	0.077	0.159	0.096	-
					9-Oct	0.066	0.133	0.082	-
					10-Oct	0.055	0.107	0.069	-
					11-Oct	0.044	0.081	0.055	-
					12-Oct	0.033	0.055	0.041	-
					13-Oct	0.022	0.029	0.027	-
					14-Oct	0.011	0.003	0.014	-
					15-Oct	0.000	0.000	0.000	-

m^3/s = cubic metres per second; – = no recorded or derived value.

C4 LAC DE GRAS BASIN HYDROMETRIC DATA SUMMARIES

Hydrometric stations at the Ekati Mine, and located outside of the Lac du Sauvage area, are listed in Table C4-1. Summaries of data for these stations, as reported in the noted references, are provided below. Many of these stations monitor flows from disturbed or diverted basins, and are not necessarily useful for calibration of hydrological models. Data presented in the summary tables were either extracted from AEMP reports, (BHP Billiton 2010, 2011, 2012, 2013) or derived based on data presented in those reports.

Table C4-1 Historical Hydrometric Stations on Lac de Gras Tributaries

Station Number	Station Name	Location		Drainage Area (km^2)	Period of Record	
		Geographic (Degrees North, West)	UTM (NAD 83, Zone 12)		Dates	Years
WGS-14	Vulture-Polar	64°44'24" 110°32'56"	521484 E 7179565 N	7.17	1997-2012	16
WGS-39	Lower Panda Diversion Channel	64°42'27" 110°36'35"	518600 E 7175900 N	21.3	1999-2012	14
WGS-02	Long Lake Outflow	64°40'57" 110°42'05"	514253 E 7173110 N	44.0	1995-1996	2
WGS-24	Slipper-Lac de Gras	64°36'33" 110°50'27"	507616 E 7164913 N	185	1994-2012	19
WGL-56	Hammer-Lac de Gras	64°32'42" 110°14'20"	536500 E 7157966 N	1.84	2002	1

UTM = Universal Transverse Mercator; NAD = North American Datum; km^2 = square kilometres; E = east; N = north.

Other stations were operated at the Ekati Mine between 1995 and 2012, but are not listed here because they were either short-term stations or outside of the Lac de Gras basin (e.g., Upper Exeter Lake, Nanuq, Pigeon-Fay).

C4.1 Vulture-Polar

A summary of hydrometry from Station WGS-14 (Vulture-Polar) is provided in Table C4-2.

Table C4-2 WGS-14 Vulture-Polar Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s) [(a)]	Runoff Depth (mm)	Runoff Coefficient (-)
1997	2 Jul – 18 Sep	1.831 (3 Jul)	255.3	0.008 (20 Aug)	1.1	0.191	182	nr
1998	22 May – 26 Sep	0.151 (22 May)	21.1	0.006 (5 Aug)	0.9	0.040	62	nr
1999	20 May – 28 Sep	1.96 (29 May)	273.2	0.017 (16 Aug)	2.5	0.212	337	nr
2000	21 May – 4 Oct	0.685 (11 Jun)	95.5	0.015 (13 Aug)	2	0.090	170	0.61
2001	7 Jun – 25 Sep	1.330 (7 Jun)	185.5	0.021 (23 Aug)	2.9	0.126	169	nr
2002	3 Jun – 29 Sep	0.500 (5 Jun)	69.7	0.029 (9 Aug)	4	0.082	135	0.42
2003	31 May – 27 Sep	0.260 (2 Jun)	28.8	0.007 (22 Aug)	1	0.037	62	0.21
2004	6 Jun – 23 Sep	0.893 (6 Jun)	124.5	0.027 (3 Sep)	3.7	0.090	170	0.76
2005	5 Jun – 20 Sep	0.460 (6 Jun)	64.1	0.031 (7 Aug)	4.3	0.113	147	0.59
2006	17 May – 20 Sep	0.599 (26 May)	83.6	0.029 (22 Aug)	4.1	0.169	259	0.60
2007	3 Jun – 16 Sep	0.586 (1 Jun)	81.7	0.005 (16 Sep)	0.7	0.095	156	0.61
2008	1 Jun – 17 Sep	0.234 (3 Jun)	32.7	0.018 (13 Aug)	2.5	0.093	122	0.38
2009	12 Jun – 5 Oct	0.736 (10 Jun)[(b)]	102.6	0.010 (16 Sep)	1.4	0.081	133	0.53
2010	4 Jun – 18 Sep	0.388 (4 Jun)	54.1	0.005 (13 Sep)	0.8	0.057	97	0.34
2011	5 Jun – 23 Sep	0.082 (5 Jun)[(b)]	11.4	0.021 (15 Aug)	2.9	0.053	96	0.25
2012	31 May – 20 Sep	0.564 (30 May)[(b)]	48.5	0.025 (26 Aug)	3.4	0.083	147	0.29

a) Over the monitoring period.

b) Peak flow occurred prior to monitoring period and was not measured.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

C4.2 Lower Panda Diversion Channel

A summary of hydrometry from Station WGS-39 (Lower Panda Diversion Channel) is provided in Table C4-3.

Table C4-3 WGS-39 Lower Panda Diversion Channel Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s) [(a)]	Runoff Depth (mm)	Runoff Coefficient (-)
1999	1 Jun – 29 Sep	3.538 (3 Jun)	166.1	0.013 (16 Aug)	0.6	0.438	215	nr
2000	25 May – 3 Oct	1.810 (27 May)	78.5	0.040 (13 Aug)	1.9	0.270	169	0.61
2001	12 Jun – 26 Sep	1.677 (12 Jun)	78.7	0.018 (23 Aug)	0.8	0.172	75	0.61
2002	3 Jun – 29 Sep	0.857 (8 Jun)	40.2	0.014 (9 Aug)	0.6	0.116	59	0.18
2003	31 May – 27 Sep	0.689 (31 May)	32.4	0.005 (22 Aug)	0.2	0.091	55	0.19
2004	6 Jun – 24 Sep	1.02 (8 Jun)	47.9	0.016 (3 Sep)	0.8	0.162	80	0.36
2005	4 Jun – 21 Sep	2.356 (5 Jun)	110.6	0.023 (7 Aug)	1.1	0.383	171	0.69
2006	16 May – 19 Sep	1.361 (16 May)	63.9	0.049 (22 Aug)	2.3	0.493	254	0.59
2007	31 May – 17 Sep	1.583 (2 Jun)	74.3	0.017 (17 Sep)	0.8	0.192	106	0.41
2008	22 May – 18 Sep	1.189 (28 May)	55.8	0.040 (10 Aug)	1.9	0.314	153	0.47
2009	10 Jun – 4 Oct	1.289 (11 Jun)	60.5	0.025 (6 Sep)	1.2	0.210	121	0.48
2010	3 Jun – 18 Sep	1.846 (3 Jun)	86.7	0.027 (13 Sep)	1.3	0.236	137	0.48
2011	1 Jun – 23 Sep	0.414 (5 Jun)[(b)]	19.5	0.026 (14 Aug)	1.2	0.142	93	0.24
2012	30 May – 19 Sep	1.671 (30 May)	76.2	0.030 (26 Aug)	1.4	0.256	137	0.27

a) Over the monitoring period.

b) Peak flow occurred prior to monitoring period and was not measured.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

C4.3 Long Lake Outflow

A summary of hydrometry from Station WGS-02 (Long Lake Outflow) is provided in Table C4-4. Post-1996 data are not presented because the flow was regulated after Long Lake was developed as a containment facility.

Table C4-4 WGS-02 Long Lake Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s)[(a)]	Runoff Depth (mm)	Runoff Coefficient (-)
1995	11 Jun – 13 Sep	4.048 (14 Jun)	92	0.119 (6 Aug)	2.7	0.863	161	nr
1996	16 Jun – 5 Oct	1.408 (16 Jun)	32	0.044 (7 Aug)	1	nr	nr	nr

a) Over the monitoring period.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

C4.4 Slipper-Lac de Gras

A summary of hydrometry from Station WGS-24 (Slipper-Lac de Gras) is provided in Table C4-5.

Table C4-5 WGS-24 Slipper-Lac de Gras Station Hydrometry Summary

Year	Monitoring Period	Maximum Daily Flow (m^3/s)	Maximum Unit Yield ($L/s/km^2$)	Minimum Observed Daily Flow (m^3/s)	Minimum Unit Yield ($L/s/km^2$)	Mean Daily Flow (m^3/s)[a]	Runoff Depth (mm)	Runoff Coefficient (-)
1994	15 Jul – 15 Sep	nr	nr	0.222 (15 Aug)	1.2	nr	nr	nr
1995	10 Jun – 13 Sep	12.987 (10 Jun)	70.2	0.925 (27 Aug)	5	2.743	123	nr
1996	14 Jun – 3 Oct	5.384 (14 Jun)	29.1	0.130 (7 Aug)	0.7	1.472	77	nr
1997	1 Jun – 16 Sep	31.598 (3 Jun)	170.8	0.407 (22 Aug)	2.2	3.866	195	nr
1998	23 May – 26 Sep	5.254 (23 May)	28.4	0.100 (5 Aug)	0.5	1.062	63	nr
1999	6 May – 1 Oct	19.1 (5 Jun)	103.4	1.147 (22 Aug)	6.2	4.282	298	nr
2000	9 Jun – 4 Oct	16.085 (12 Jun)	86.9	0.952 (14 Aug)	5.1	2.880	180	0.65
2001	8 Jun – 25 Sep	68.6 (8 Jun)	371	0.130 (22 Aug)	0.7	3.780	194	nr
2002	8 Jun – 27 Sep	6.89 (11 Jun)	37.2	0.540 (26 Jul)	2.9	1.560	84	0.26
2003	31 May – 27 Sep	8.450 (31 May)	45.7	0.323 (22 Aug)	1.7	1.274	88	0.3
2004	8 Jun – 23 Sep	17.286 (10 Jun)	93.4	0.103 (3 Sep)	0.6	1.326	85	0.38
2005	5 Jun – 21 Sep	19.851 (6 Jun)	107.3	0.296 (7 Aug)	1.6	2.220	113	0.45
2006	20 May – 20 Sep	14.708 (21 May)	79.5	1.462 (22 Aug)	7.9	4.628	268	0.62
2007	4 Jun – 16 Sep	9.926 (4 Jun)	53.7	0.582 (6 Sep)	3.1	1.429	88	0.34
2008	5 Jun – 17 Sep	5.809 (5 Jun)	31.4	0.315 (13 Aug)	1.7	2.651	130	0.40
2009	13 Jun – 5 Oct	10.23 (13 Jun)	55.3	0.248 (17 Sep)	1.3	1.402	96	0.38
2010	5 Jun – 18 Sep	6.268 (5 Jun)	33.9	0.313 (22 Aug)	1.7	1.635	107	0.38
2011	4 Jun – 23 Sep	3.047 (4 Jun)[b]	16.5	0.668 (15 Aug)	3.6	1.308	93	0.24
2012	3 Jun – 25 Sep	11.01 (30 May)[b]	54	0.503 (31 Aug)	2	1.993	138	0.27

a) Over the monitoring period.

b) Peak flow occurred prior to monitoring period and was not measured.

nr = not reported; m^3/s = cubic metres per second; $L/s/km^2$ = litres per second per square kilometre; mm = millimetre.

C4.5 Hammer-Lac de Gras

Baseline studies at Hammer Lake, also known as Fisher Lake, outflow were completed in 2002 (Station WGL-56, Rescan 2003). Only water levels were monitored for the period August 26 to September 28, 2002 showing stable stages varying from 0.551 to 0.586 m (local datum). No discharge measurements were performed.

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