

with float action runners for smooth operation.

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

FILE No.	

GRANT PEARSON'S FILE

30/4/2012



SUBJECT:

Lake Chilton

Transect Surveys

Closed
Vol. 1

Oct 2000 →

Amalgamated Files

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DISPOSAL ACTION

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Destruction

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5163

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Pages numbered in "as found"
order on 30/8/2014
by me (JL)

30/8/14

CONDUCTIVITY
LAKE CLIFTON

TOP

	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	CHEM CNT MS/CM
	24/10/2000	15/12/2000	22/01/2001	20/02/2001	16/03/2001	16/03/2001
A1	41.4	48.9	61.8	67.7 error		70.8
A2	41.4	49.3	62	68.3 error		70.1
A3	41.4	49.4	61.6	68.7 error		69.7
B1	40.8	49.8	66.5	68.3	69.4	71.6
B2	40.8	49.4	62.1	68.4	69.4	70.7
B3	40.8	49.6	66.5	68.2	67.9	68
C1	38	50	71.4	79.5	86.4	87.3
C2	38.5	49.7	71	81.8	87	87.4
C3	37.9	50.5	74.1	86.3	45.9	90.2
D1	33.1	49.7	85.2	N/A	N/A	135
D2	32.5	48.9	81.4	93	N/A	119
D3	31.8	49.8	83.1	N/A	N/A	N/A

BOTTOM

	24/10/2000	15/12/2000	22/01/2001	20/02/2001	16/03/2001
A1	41.3	49.2	61.5	67.5 error	
A2	41.6	49.2	61.9	63.2 error	
A3	41.8	49	61.5	65.5 error	
B1	41.3	50	66.4	68.4	68.3
B2	41.3	49.7	62.1	68.2	69.5
B3	41.3	50	65.9	67.8 error	
C1	38.5	50.1	71.4	79.4	85.6
C2	38.6	50.1	70.9	79.1	83.1
C3	37.9	50.6	75.2	86.5	N/A
D1	33	49.7	84.4	91.8	N/A
D2	32.5	49.8	81.1	94.9	N/A
D3	31.9	50.1	82.6	98.5	N/A

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DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM
18/04/2001	18/04/2001	23/05/2001	23/05/2001	21/06/2001	21/06/2001	19/07/2001	19/07/2001
78.1	82.1	73.3	61.1	66.5	69	61.1	50.1
118.3	82	69.4	60.1	67.4	69.1	61.2	48.7
error	82.1	71.5	59.8	64.3	68.9	61.4	48.3
error	84.8	69.9	57.7	63.6	62.8	60	47
error	83	69.3	58.2	63.7	64.8	60.3	47.1
error	80.7	69.9	57.1	61.7	64.5	58.9	46.2
error	76.5	65.3	54.1	55.2	56.9	53.3	42.2
error	93.7	66.7	55	57.4	59.2	54.6	43.1
error	94.4	67.7	no sample	59.5	60.9	53.9	42.7
error	175	73.8	60	55.3	54.6	N/A	37.8
error	151	75	60.3	55.6	55.6	N/A	38.4
no sample	no sample	75.2	60.9	55.2	54.1	N/A	38.7

18/04/2001	23/05/2001	21/06/2001	19/07/2001
76	73.3	65.9	60.8
120	68.3	61.2	61.2
error	70.9	64	61.4
error		63.4	60
error	69.9	58.7	60.3
error			58.3
error	66.1	55.3	53.4
error	66.7	58.5	54.9
error		55.3	53.9
error	73.8	55.3	N/A
error	75.2	55.6	N/A
no sample	N/A	55.9	N/A

DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM
09/08/2001	09/08/2001	20/09/2001	20/09/2001	12/10/2001	12/10/2001	08/11/2001	08/11/2001
61.4	58.7	50.5	49.6	49	51.4	51.2	51.4
61.5	58.7	50.4	49.9	49.4	51.5	52.1	54.5
61.6	58.7	49.2	48.8	49.2	51	51.5	54.7
58.2	55.4	50.1	48.8	47.7	49.5	51.4	54.8
58.7	55.7	49.9	48.8	48.8	50.7	51.5	52.5
58.2	55.6	48.5	47.5	48.5	50.3	51.3	54.4
52.3	49.6	42.8	41.9	43.2	44.7	51.3	51
53.1	49.8	42.7	42	45.7	47.8	51.4	54.2
52.6	49.3	40.6	39.9	45.3	47.3	50.4	52.7
48.7	44	37.7	36.6	38.4	39.9	48	50.4
47.9	44.3	37.4	36.3	40.1	41.2	48.5	50.5
46.3	43.1	36.8	35.9	39.8	39.8	49.8	50.6

09/08/2001	20/09/2001	12/10/2001	08/11/2001
61.3	50.4	49.7	51.1
60	50.4	49	52.8
61	49.4	49.2	51.4
58.1	50.4	47.7	51.4
58.8	49.8	48.8	51.4
58.8	48.7	48.3	51.4
52	44.2	42.5	50.5
53.1	43.7	45.7	51.3
52.5	40.7	45.3	50.4
48.5	37.7	38.4	47.9
47.9	37.4	40.1	48.3
46.3	36.9	39.8	43.6

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1

DCLM MS/CM	CHEM CNT MS/CM
12/12/2001	12/12/2001
58	51.7 A1
58.2	51.7 A2
58.4	51.8 A3
58.2	51.3 B1
58.6	51.7 B2
59.2	52.2 B3
59.9	52.6 C1
60	52.8 C2
61.8	54.3 C3
61.4	54.3 D1
63.7	55.9 D2
63.4	55.7 D3

58.3	A1
58.2	A2
58.5	A3
58.4	B1
58.7	B2
59.4	B3
60.3	C1
60.2	C2
N/A	C3
61.4	D1
63.7	D2
63.4	D3

1/2

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CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N_NO3	Na
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470

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CCWA ID	Client ID	SO4_S	SiO2_Si	pH	aION_BAL
		mg/L	mg/L		%
00E0553/001	A 1	1910	25	8	-2.3
00E0553/002	A 3	1740	26	8	-0.6
00E0553/003	B 1	1750	26	8	2.9
00E0553/004	B 3	1730	26	8.1	1.8
00E0553/005	C 1	1600	26	8	1.4
00E0553/006	C 3	1580	25	8.1	3.9
00E0553/007	D 1	1350	21	8.4	1.4
00E0553/008	D 3	1320	19	8.8	2.2

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Pearson, Grant

To: Lane, Jim
Subject: Lake Clifton

Jim
Attached is a report on the work at Clifton and excel files with the conductivity measurements and chloride analyses. One analysis was done for major ions and is included in the report. Not sure how far you want me to go with this but it's a start.
Grant



cliftonreport Oct 02.rtf



cliftonall.xls



cliftondataDCLM
CHMCNT.xls

*Grant Pearson
Research Centre Manager
WA Wildlife Research Centre*

Mar 01

(74)

CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
00E1224/001	A 1	16/03/2001	30000	7080
00E1224/002	A 2	16/03/2001	30000	7010
00E1224/003	A 3	16/03/2001	30000	6970
00E1224/004	B 1	16/03/2001	29000	7160
00E1224/005	B 2	16/03/2001	29000	7070
00E1224/006	B 3	16/03/2001	27000	6800
00E1224/007	C 1	16/03/2001	41000	8730
00E1224/008	C 2	16/03/2001	40000	8740
00E1224/009	C 3	16/03/2001	38000	9020
00E1224/010	D 1	16/03/2001	78000	13500
00E1224/011	D 2	16/03/2001	65000	11900

CCWA ID	Client ID	ECond
		iEC1WZSE
		mS/m
00E1346/001	A 1	8210
00E1346/002	A 2	8200
00E1346/003	A 3	8210
00E1346/004	B 1	8480
00E1346/005	B 2	8300
00E1346/006	B 3	8070
00E1346/007	C 1	7650
00E1346/008	C 2	9370
00E1346/009	C 3	9440
00E1346/010	D 1	17500
00E1346/011	D 2	15100

May 01

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CCWA ID	Client ID	Sampled on	Cl	ECond	NS
			iCL1WAAA	iEC1WZSE	iNo Sample
			mg/L	mS/m	
00E1444/001	A 1	23/05/2001	29000	6110	
00E1444/002	A 2	23/05/2001	28000	6010	
00E1444/003	A 3	23/05/2001	28000	5980	
00E1444/004	B 1	23/05/2001	27000	5770	
00E1444/005	B 2	23/05/2001	26000	5820	
00E1444/006	B 3	23/05/2001	26000	5710	
00E1444/007	C 1	23/05/2001	24000	5410	
00E1444/008	C 2	23/05/2001	24000	5500	
00E1444/009	C 3	23/05/2001			1
00E1444/010	D 1	23/05/2001	29000	6000	
00E1444/011	D 2	23/05/2001	28000	6030	
00E1444/012	D 3	23/05/2001	29000	6090	

June 01

Aug 01

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CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
01E0363/001	A 1	21/06/2001	24000	6900
01E0363/002	A 2	21/06/2001	25000	6910
01E0363/003	A 3	21/06/2001	23000	6890
01E0363/004	B 1	21/06/2001	22000	6280
01E0363/005	B 2	21/06/2001	23000	6480
01E0363/006	B 3	21/06/2001	22000	6450
01E0363/007	C 1	21/06/2001	20000	5690
01E0363/008	C 2	21/06/2001	20000	5920
01E0363/009	C 3	21/06/2001	22000	6090
01E0363/010	D 1	21/06/2001	21000	5460
01E0363/011	D 2	21/06/2001	20000	5560
01E0363/012	D 3	21/06/2001	20000	5410
01E0363/013	A 1	09/08/2001		5870
01E0363/014	A 2	09/08/2001		5870
01E0363/015	A 3	09/08/2001		5870
01E0363/016	B 1	09/08/2001		5540
01E0363/017	B 2	09/08/2001		5570
01E0363/018	B 3	09/08/2001		5560
01E0363/019	C 1	09/08/2001		4960
01E0363/020	C 2	09/08/2001		4980
01E0363/021	C 3	09/08/2001		4930
01E0363/022	D 1	09/08/2001		4400
01E0363/023	D 2	09/08/2001		4430
01E0363/024	D 3	09/08/2001		4310

July 01

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CCWA ID	Client ID	CI	ECond
		iCL1WAAA	iEC1WZSE
		mg/L	mS/m
01E0122/001	A1	21000	5010
01E0122/002	A2	22000	4870
01E0122/003	A3	22000	4830
01E0122/004	B1	22000	4700
01E0122/005	B2	22000	4710
01E0122/006	B3	22000	4620
01E0122/007	C1	18000	4220
01E0122/008	C2	20000	4310
01E0122/009	C3	20000	4270
01E0122/010	D1	17000	3780
01E0122/011	D2	18000	3840
01E0122/012	D3	18000	3870

Sep 01

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CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
01E0387/001	A1	20/09/2001	19000	4960
01E0387/002	A2	20/09/2001	18000	4990
01E0387/003	A3	20/09/2001	19000	4880
01E0387/004	B1	20/09/2001	19000	4880
01E0387/005	B2	20/09/2001	19000	4880
01E0387/006	B3	20/09/2001	19000	4750
01E0387/007	C1	20/09/2001	17000	4190
01E0387/008	C2	20/09/2001	16000	4200
01E0387/009	C3	20/09/2001	15000	3990
01E0387/010	D1	20/09/2001	14000	3660
01E0387/011	D2	20/09/2001	14000	3630
01E0387/012	D3	20/09/2001	13000	3590

oct 01

Nov 01

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CCWA ID	Client ID	Sampled on	CI	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
01E0561/001	A 1	12/10/2001	17000	5140
01E0561/002	A 2	12/10/2001	17000	5150
01E0561/003	A 3	12/10/2001	17000	5100
01E0561/004	B 1	12/10/2001	17000	4950
01E0561/005	B 2	12/10/2001	18000	5070
01E0561/006	B 3	12/10/2001	18000	5030
01E0561/007	C 1	12/10/2001	15000	4470
01E0561/008	C 2	12/10/2001	16000	4780
01E0561/009	C 3	12/10/2001	17000	4730
01E0561/010	D 1	12/10/2001	14000	3990
01E0561/011	D 2	12/10/2001	14000	4120
01E0561/012	D 3	12/10/2001	15000	3980
01E0561/013	A 1	08/11/2001		5140
01E0561/014	A 2	08/11/2001		5450
01E0561/015	A 3	08/11/2001		5470
01E0561/016	B 1	08/11/2001		5480
01E0561/017	B 2	08/11/2001		5250
01E0561/018	B 3	08/11/2001		5440
01E0561/019	C 1	08/11/2001		5100
01E0561/020	C 2	08/11/2001		5420
01E0561/021	C 3	08/11/2001		5270
01E0561/022	D 1	08/11/2001		5040
01E0561/023	D 2	08/11/2001		5050
01E0561/024	D 3	08/11/2001		5060

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CCWA ID	Client ID	Sampled on	Cl	ECond
			CL1WAAA	EC1WZSE
			mg/L	mS/m
01E0787/0	A1	12/12/2001	23000	5170
01E0787/0	A2	12/12/2001	21000	5170
01E0787/0	A3	12/12/2001	21000	5180
01E0787/0	B1	12/12/2001	22000	5130
01E0787/0	B2	12/12/2001	22000	5170
01E0787/0	B3	12/12/2001	22000	5220
01E0787/0	C1	12/12/2001	22000	5260
01E0787/0	C2	12/12/2001	22000	5280
01E0787/0	C3	12/12/2001	23000	5430
01E0787/0	D1	12/12/2001	23000	5430
01E0787/0	D2	12/12/2001	22000	5590
01E0787/0	D3	12/12/2001	22000	5570

Site 1.

WPAO 25 0378816
eastern shore 6375960

WPAO 26 0372588.
western shore 6375966.

3226

650.
3876
1300
2576

WPAO 28 0373231
6375966.

dake Ch. 17/10/00

Transcript A
Site # 101

Bottom.

1 0
3 3
2.

Depth: 70 cm.
1.4 m.
2.0 m.

Site	Cond.	Sal.	Temp.	Cond	Sal.	Temp.
1	40.0ms	24.0ppt	20.9	40.5ms	24.4	20.5
3	40.3	24.4	19.3	40.7	24.5	19.1
2	41.0	24.7	19.7	41.0	24.7	19.5

Note: Site 1 is perimeter site 100 m offshore.

530
590
1620

845
450
1095

373773

~~373876~~

6375966

EAST W

mid 60.3

Went 60.3

(0374645)

~~0374645~~
250

6372890

WPT 33

0374645

6372890

WPT 34

(0374645)

6372890

WPT 34

WPT 35 59.44

(58.44)

375959

6368456

20

0375670

6368456

0375302

6368456

Frank 21

377723

6364207

19.8

377278

6364197

19.8

WPT 36

WPT 37

WPT 40 19.0

WPT 38

Western Side

575.00

6368456

WPT 39

Eastern Side D

377680

6364197

40

376873

6364197

405

377578

ms/cor
cont

John

65
cont
ms/cor
1 cm

24/10/00

Site	Top	Top	Temp	D	Bottom	9	T
A1	41.4	24.9	21.3	70	41.3	24.9	21.1
A2	41.4	25.0	20.8	20.8 1.4	41.6	25.0	20.6
A3	41.4	25.0	20.9	9 2.0	41.48	25.2	20.8
B33	40.8	24.6	21.9 2.1	0.55	41.3	24.9	21.7
B2	40.8	24.6	21.4	4.20	41.3	24.9	21.0
B31	40.8	24.6	22.1	8.6	41.3	24.8	21.0
C1	38.0	22.8	21.8	1.15	38.5	23.0	21.5
C2	38.5	23.1	21.7	1.15	38.6	23.1	21.7
C3	37.9	22.6	22.4	0.57	37.9	22.7	22.4
D1	33.1	19.6	22.5	0.83	33.0	19.6	22.6
D2	32.5	19.1	22.5	0.90	32.5	19.1	22.7
D3	31.8	18.8	23.1	0.70	31.9	18.8	23.1
	2.83	1.15	0	27.0			

17/10/00

Chifun

depth	Site A	σ _{ao}	T
shore sampled			
17cm. (12m)	10m 40.8ms	24.6ppt	22.7°C
30cm. (20m)	20m ^{surface} 40.8	24.5	23.1
	30m ^{bottom} 40.6	24.4	23.1
35cm.	30m ^{surface} 40.5	24.4	22.7
	30m ^{bottom} 40.6	24.4	22.7
41cm.	40m ^{surface} 40.6	24.4	22.5
	40m ^{bottom} 40.6	24.4	22.4
44cm.	50m ^{surface} 40.9	24.6	21.9
	50m ^{bottom} 40.89	24.6	21.8
72cm.	60m ^{surface} 40.9	24.6	21.6
	60m ^{bottom} 41.0	24.6	21.6
46cm.	70m ^{surface} 40.8	24.6	21.3
	70m ^{bottom} 40.9	24.6	21.2

Depth Gauge (33) 4.33 m

15/12/00		COND TOP ms/cm	SAL TOP ppt	TEMP TOP C	CON BTM ms/cm	SAL BTM ppt	TEMP BTM C	DEPTH Mtrs	CLM gg
1050hrs	A1	48.9	29.9	26.1	49.2	30.0	26.1	0.6	4.12m at calm gauge
	A2	49.3	30.1	25.1	49.2	30.0	24.9	1.6	
	A3	49.4	30.2	25.9	49.0	29.9	25.0	1.2	
	B1	49.8	30.4	26.3	50.0	30.5	26.3	0.5	
	B2	49.4	30.2	25.5	49.7	30.3	25.5	0.8	
	B3	49.6	30.3	26.7	50	30.5	26.4	0.4	
	C1	50.0	30.5	26.3	50.1	30.6	26.2	0.8	
	C2	49.7	30.3	26.6	50.1	30.6	26.5	0.8	
	C3	50.5	31.0	29.1	50.6	31	29.1	0.25	
	D1	49.7	30.3	28.0	49.7	30.3	27.9	0.4	
	D2	48.9	29.9	27.2	49.8	30.4	26.9	0.3	
1315hrs	D3	49.8	30.4	28.6	50.1	30.6	28.4	0.4	
22/01/2001		ms/cm	ppt	C	ms/cm	ppt	C	Mtrs	
	A1	61.8		24.2	61.5		24.4	1	3.93m at calm gauge
	A2	62.0		23.8	61.9		24.0	1.6	
	A3	61.6		23.9	61.5		24.0	1.1	
	B1	66.5		25.5	66.4		25.5	0.3	
	B2	62.1		24.4	62.1		24.5	0.6	
	B3	66.5		24.9	65.9		25.0	0.3	
	C1	71.4		24.7	71.4		24.9	0.5	
	C2	71.0		24.3	70.9		24.3	0.6	
	C3	74.1		25.5	75.2		25.1	0.2	
	D1	85.2		26.2	84.4		26.3	0.3	
	D2	81.4		25.6	81.1		25.6	0.3	
	D3	83.1		27.1	82.6		27.1	0.2	

16/3/01

62

MARCH	2001	GBP						
SITE	TIME	ANAL.	TOP CON MS/CM	TOP TEMP C	B. CON MS/CM	B. TEMP C	DEPTH (M)	COMMENTS DEPTH GAUGE = 3.67M at calm gauge
A1		CLM	29.2	19.3	29.2	19.6	3.67 GG	
		CC						
A2		CLM	26.5	18.8	33.7	19.7	1.4	
		CC						
A3		CLM	26.3	18.3	22.3	19.0	0.6	
		CC						
B1		CLM	69.4	20.4	68.3	20.4	0.2	
		CC						
B2		CLM	69.4	20.2	69.5	20.4	0.35	
		CC						
B3		CLM	67.9	24.1	-	-	0.05	
		CC						
C1	1350	CLM	86.4	21.9	85.6	22.0	0.2	WPT 069
		CC						
C2		CLM	87.0	21.2	83.1	20.0	0.4	
		CC						
C3		CLM	45.9	25.9	-	-	0.05	WPT 071
		CC						
D1	1530	CLM	-	-	-	-	0.05	
		CC						
D2		CLM	-	-	-	-	0.1	
		CC						

CLM- Analysis from CALM Woodvale

CC- Analysis from Chemistry Centre

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15/12/00

	20/09/2000	24/10/2000	15/12/2000	22/01/2001	20/02/2001
A1	50.5	41.3	48.9	61.8	67.7
A2	50.4	41.6	49.3	62	68.3
A3	49.2	41.8	49.4	61.6	68.7
B1	50.1	41.3	49.8	66.5	68.3
B2	49.9	41.3	49.4	62.1	68.4
B3	48.5	41.3	49.6	66.5	68.2
C1	42.8	38.5	50	71.4	79.5
C2	42.7	38.6	49.7	71	81.8
C3	40.6	37.9	50.5	74.1	86.3
D1	37.7	33	49.7	85.2 na	
D2	37.4	32.5	48.9	81.4	93
D3	36.8	31.9	49.8	83.1 na	

BOTTOM

		24/10/2000	15/12/2000	22/01/2001	20/02/2001
A1	50.4	41.4	49.2	61.5	67.5
A2	50.4	41.4	49.2	61.9	63.2
A3	49.4	41.4	49	61.5	65.5
B1	50.4	40.8	50	66.4	68.4
B2	49.8	40.8	49.7	62.1	68.2
B3	48.7	40.8	50	65.9	67.8
C1	44.2	38	50.1	71.4	79.4
C2	43.7	38.5	50.1	70.9	79.1
C3	40.7	37.9	50.6	75.2	86.5
D1	37.7	33.1	49.7	84.4	91.8
D2	37.4	32.5	49.8	81.1	94.9
D3	36.9	31.8	50.1	82.6	98.5

3-73

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April 3.64

16/03/2001	18/04/2001	23/05/2001	21/06/2001	19/07/2001	09/08/2001	20/09/2001
	78.1	73.3	66.5	61.1	61.4	50.5
	118.3	69.4	67.4	61.2	61.5	50.4
na		71.5	64.3	61.4	61.6	49.2
69.4 na		69.9	63.6	60	58.2	50.1
69.4 na		69.3	63.7	60.3	58.7	49.9
67.9 na		69.9	61.7	58.9	58.2	48.5
86.4 na		65.3	55.2	53.3	52.3	42.8
87 na		66.7	57.4	54.6	53.1	42.7
45.9 na		67.7	59.5	53.9	52.6	40.6
na		73.8	55.3 na		48.7	37.7
na		75	55.6 na		47.9	37.4
na		75.2	55.2 na		46.3	36.8

16/03/2001	18/04/2001	23/05/2001	21/06/2001	19/07/2001	09/08/2001	20/09/2001
	76	73.3	65.9	60.8	61.3	50.4
	120	68.3	61.2	61.2	60	50.4
na		70.9	64	61.4	61	49.4
68.3 na			63.4	60	58.1	50.4
69.5 na		69.9	58.7	60.3	58.8	49.8
na				58.3	58.8	48.7
85.6 na		66.1	55.3	53.4	52	44.2
83.1 na		66.7	58.5	54.9	53.1	43.7
na			55.3	53.9	52.5	40.7
na		73.8	55.3 na		48.5	37.7
na		75.2	55.6 na		47.9	37.4
na		na	55.9 na		46.3	36.9

April 01

Meter failures . Samples collected for Chem
Centre Analysis

18 April 2001
 Meter failed
 Water samples collected
 for Chem Centre

3.64
on 90m depth

	Top				
	Concl	Temp	Concl	Temp	OP
A1	78.1	21	76.0	23.4	
A2	21.5	21.6	1.20	11.7	1.2
A3	-	23.9		24.0	1.8
B1	Water malfunction				0.10
B2					
B3	WST	80	10m from		0.05
C1					0.05
C2					30
C3	WST	81	180m from	side	0.05
D1					0.02
D2	WST	82			0.10
D3			4m deep		

18/4/01

SURVEY CONDUCTED BY 174TH CPT 23/5/01
using the Ocean Reacher.

23/5/01

(58)

DATE	SITE	EAST	NORTH	COND TOP ms/cm	SAL TOP ppt	TEMP TOP C	CON BTM ms/cm	SAL BTM ppt	TEMP BTM C	DEPTH Mtrs
		AUS G 66	AUS G 66							
A1	373909	6375966		73.3		18.6		73.3	18.1	0.7
A2	373229			69.4		17.1		68.3	17.1	1.45
A3	372708			71.5		17.4		70.9	17.1	0.9400
B1	374648	6372890		69.9		19.6		-	-	0.300
B2	374250			69.3		19.8		69.9	19.9	0.500
B3	373752			69.9		19.9		-	-	0.300
C1	375867	6368456		65.3		18.6		66.1	18.1	0.400
C2	375670			66.7		17.5		66.7	17.5	0.300
C3	375302			67.7		19.7		-	-	0.200
D1	377628	6364207		73.8		15.4		73.8	15.4	0.330
D2	377272			75.0		15.7		75.2	15.8	0.220
D3	376971			75.2		16.7		-	-	0.150

28m east of position

30m east of position

Depth gauge (No. 2) at
ST JOHN ROAD read
3.74m at 1645 hrs.

NOTE: Problems with TPS not settling down
water samples need to be re-measured
and checked against field values.

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DATE	23/6/01						
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH
A1		CALM	78.1	21	76.0	21.4	1.0
		CC					
A2		CALM	E	21.6	E	21.7	1.2
		CC					
A3		CALM	E	23.9	E	24.0	0.3
		CC					
B1		CALM	E		E		0.1
		CC					
B2		CALM	E		E		0.5
		CC					
B3		CALM	E		E		0.05
		CC					
C1		CALM	E		E		0.05
		CC					
C2		CALM	E		E		0.3
		CC					
C3		CALM	E		E		0.05
		CC					
D1		CALM	E		E		0.02
		CC					
D2		CALM	E		E		0.01
		CC					
D3		CALM	-				
		CC					-

"E" denotes Error in TPS conductivity meter recording

19/7/01

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60.8

WTW unit 3.97 49.

W

	Alt	Top	Ref	19/7/01	13th	10th	12th
A1	61.1	12.6	60.8	12.6	12.6	1.5	
A2	61.4	12.3	61.2	12.3	12.3	2.0?	
A3	61.4	12.3	61.4	12.3	12.3	1.0	
B1	60	12.6	60.0	12.7	0.6		
B2	60.3	12.3	60.3	12.3	1.0		
B3	58.9	12.1	58.3	13.0	0.2		
C1	53.3	12.2	53.4	53.4	13.5	13.0	
C2	54.0	13.1	54.9	13.4	1.3	10.1	
C3	53.9	14.5	53.9	14.8	0.6	13.0	
D1	?	14.1	?			0.5	
D2	?		?			1.0	
D3	?					0.1	

Some 1st taken - No reading
E3 message

ALAN CLARKE
CLAIR M'GUIRE

4/8/00

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DATE	SITE	EAST	NORTH	COND TOP ms/cm	SAL TOP ppt	TEMP TOP C	CON BTM ms/cm	SAL BTM ppt	TEMP BTM C	DEPTH Mtrs
	AUS G 66	AUS G 66								
A1	373909	6375966		61.4		15.2	61.3		15.1	1.010
A2	373229			61.5		14.9	60.0		14.9	2.000
A3	372708			61.6		14.9	61.0		15.3	1.410
B1	374648	6372890		58.2		15.9	58.1		15.8	0.58
B2	374250			58.7		15.3	58.8		15.4	0.90
B3	373752			58.2		16.7	58.8		16.1	0.43
C1	375867	6368456		52.3		16.0	52.0		16.0	0.88
C2	375670			53.1		15.7	53.1		15.7	0.92
C3	375302			52.6		16.2	52.5		16.3	0.35
D1	377628	6364207		49.7		16.3	48.6		16.3	0.46
D2	377272			47.9		15.9	47.9		16.0	0.73
D3	376971			46.3		16.5	46.3		16.5	0.42

10.40

12.30 pm

4.0m east of point

1.00 pm

Depth = 4.06m

20/9/07

D. M. George 24/16

DATE	20/9/07						
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH
A1	1115	CALM 12.4	50.5	17.1	50.4	17.1	1.1
		CC					
A2		CALM	50.4	17.3	50.4	17.3	7.8
		CC					
A3		CALM	49.2	16.4	49.4	16.4	1.2
		CC					
B1		CALM 12.4	50.1	16.8	50.4	16.9	0.8
		CC					
B2		CALM	49.9	16.3	49.8	16.3	0.8
		CC					
B3		CALM	48.5	16.5	48.7	16.5	0.4
		CC					
C1		CALM 11.4	42.8	16.5	44.2	16.9	0.8
		CC					
C2		CALM	42.7	16.3	43.7	16.5	1.0
		CC					
C3		CALM	40.6	15.8	40.7	15.8	0.4
		CC					
D1		CALM 12.4	37.7	16.6	37.7	16.6	0.5
		CC					
D2		CALM	37.4	16.5	37.4	16.5	0.7
		CC					
D3		CALM	36.8	16.3	36.9	16.3	0.4
		CC					

"E" denotes Error in TPS conductivity meter recording

Calibrated at 2760 MS. 20/9

12/10/01

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DATE	12/10/01	G Pearson	28.4	17.9			
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH f.23
A1	11.13	CALM	49.0	17.9	49.7	17.9	1.2
		CC					
A2	11.9	CALM	49.4	17.8	49.0	17.9	2.0
		CC					
A3	11.00	CALM	49.2	17.9	49.2	17.8	0.60
		CC					
B1	10.25	CALM	47.7	16.9	47.7	16.9	0.60
		CC					
B2	10.30	CALM	48.8	17.6	48.8	17.6	0.90
		CC					
B3	10.35	CALM	48.5	17.8	48.3	17.8	0.50
		CC					
C1	09.30	CALM	43.2	16.6	42.8	16.9	0.70
		CC	43.2	16.9	42.8	16.9	
C2	09.44	CALM	45.7	17.7	45.7	17.1	0.9
		CC					
C3	09.50	CALM	45.3	17.7	45.3	17.8	0.4
		CC					
D1	10.16	CALM	38.4	17.4	38.4	17.4	0.4
		CC					
D2	10.10	CALM	40.1	17.7	40.1	17.7	0.6
		CC					
D3	10.05	CALM	39.8	17.8	39.8	17.8	0.4
		CC					

"E" denotes Error in TPS conductivity meter recording

Wind - 15-20 Km/Hr SW.



8/11/01

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Lake Okech 8/11/01

Dead Males at WPT Dead
07 109.

Regen C. w/ C. 109.

8/11/01

	Temp	Temp	Bottom	Temp	Depth	4.9"
A1	51.2	21.2	50.2	20.9	1.2	
A2	52.1	20.8	52.8	21.2	1.9	100%
A3	51.5	19.1	51.4	19.0	0.8	2.0
B1	51.4	23.3	51.4	23.4	0.6	
B2	51.5	20.3	51.4	20.3	1.0	
B3	51.3	22.7	51.4	22.6	0.5	0.5
1240 C1	51.3	20.9	50.5	22.2	0.6	0.6
C2	51.4	21.4	51.3	21.3	0.9	0.9
1255 C3	50.4	22.6	50.4	22.2	0.3	0.3
D1	48.0	25.1	47.9	25.1	0.3	
D2	48.5	23.6	48.3	23.7	0.6	
1430 D3	48.8	24.1	48.6	24.4	0.4	

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DATE 12/12/01

SAMPLER ALAN CLARKE

depth at gauge 2 was 4.00m

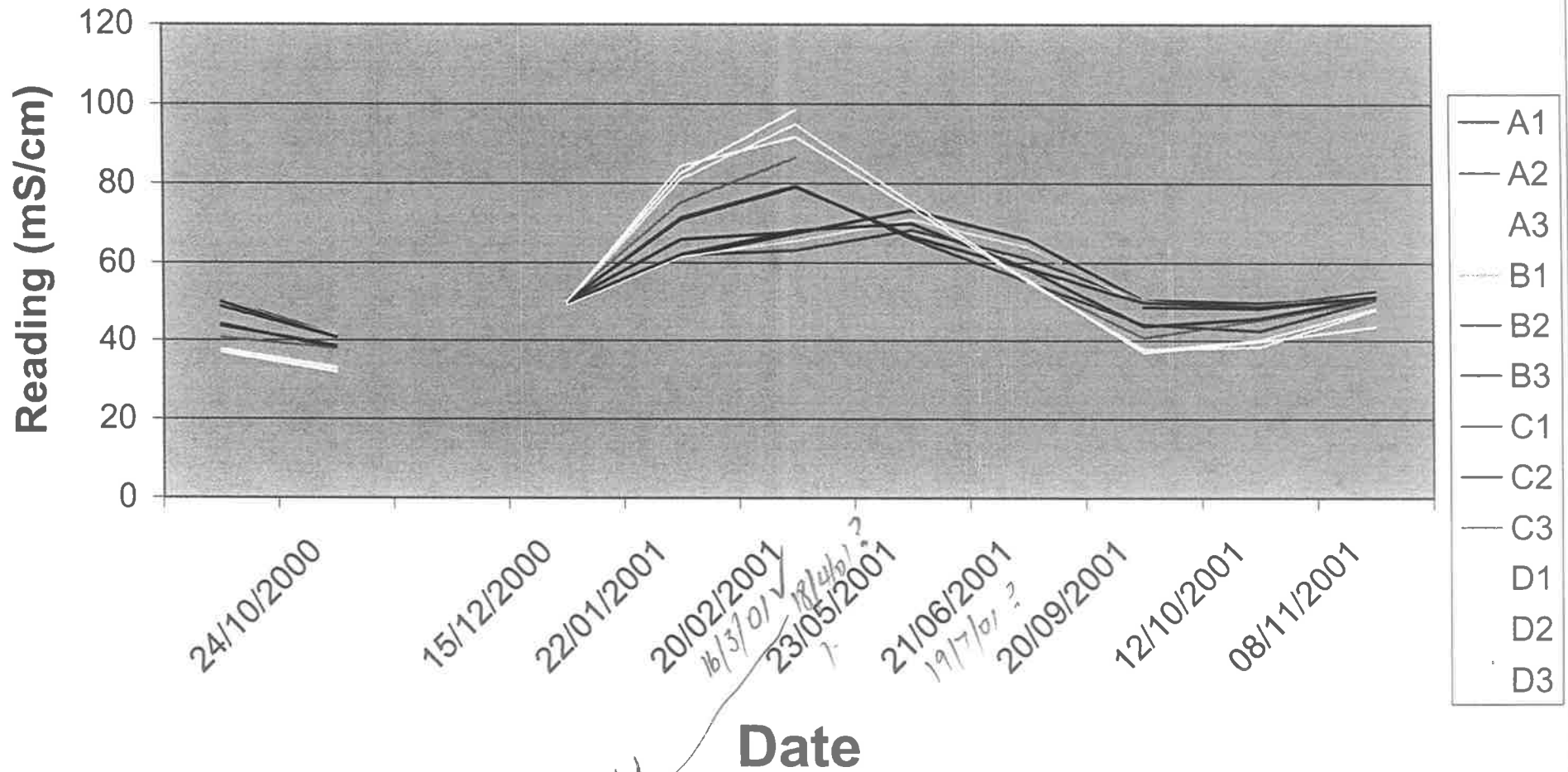
SITE	EAST	NORTH	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH	TIME
	WGS84	WGS84	AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs	
A1	374048	6376114	373909	6375966	58.0		22.4	58.3		22.0	0.84	12.40
A2	373368		373229		58.2		22.0	58.2		21.6	1.52	
A3	372847		372708		58.4		22.4	58.5		22.2	1.18	12.15
B1	374787	637038	374648	6372890	58.2		23.1	58.4		22.4	0.46	12.00
B2	374389		374250		58.6		22.8	58.7		22.5	0.78	
B3	373891		373752		59.2		24.1	59.4		24.0	0.34	11.44
C1	376001	6368604	375867	6368456	59.9		21.8	60.3		21.6	0.67	
C2	375809		375670		60.0		21.6	60.2		21.3	0.78	
C3	375441		375302		61.8		23.7				0.22	one reading only
D1	377767	6364355	377628	6364207	61.4		21.8	61.4		21.8	0.38	10.45
D2	377411		377272		63.3		20.6	63.7		20.5	0.48	
D3	377110		376971		63.2		21.1	63.4		21.1	0.28	10.25

Calibration of TPS 90-FLMV

2.76ms/cm (field quantity) read 2.75ms @ 22.4°C

Calibration O.K. span 103.2%

Lake Clifton Conductivity Readings



Main Failed

DATE	SIT COND	SAL	TEMP	CON	SAL	TEMP	DEPTH
22/01/01	TOP	TOP	TOP	BTM	BTM	BTM	3.93
	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
A1	61.8		24.2	61.5		24.4	1
A2	62		23.8	61.9		24	1.6
A3	61.6		23.9	61.5		24	1.1
B1	66.5		25.5	66.4		25.5	0.3
B2	62.1		24.4	62.1		24.5	0.6
B3	66.5		24.9	65.9		25	0.3
C1	71.4		24.7	71.4		24.9	0.5
C2	71		24.3	70.9		24.3	0.6
C3	74.1		25.5	75.2		25.1	0.2
D1	85.2		26.2	84.4		26.3	0.3
D2	81.4		25.6	81.1		25.6	0.3
D3	83.1		27.1	82.6		27.1	0.2

DATE	12/10/01	G. Pearson	20.6	Chiffon			
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH 4.23
A1	11.13	CALM	49.0	17.9	49.7	17.9	1.2
		CC					
A2	11.4	CALM	49.4	17.8	49.0	17.9	2.0
		CC					
A3	11.00	CALM	49.2	17.9	49.2	17.8	0.60
		CC					
B1	10.25	CALM	47.7	16.9	47.7	16.9	0.60
		CC					
B2	10.30	CALM	48.8	17.5	48.8	17.6	0.90
		CC					
B3	10.35	CALM	48.5	17.8	48.3	17.8	0.50
		CC					
C1	09.30	CALM	43.2	16.6	42.8	16.9	0.70
		CC	43.2	16.9	42.8	16.9	
C2	09.44	CALM	45.7	17.7	45.7	17.7	0.9
		CC					
C3	09.50	CALM	45.3	17.7	45.3	17.8	0.4
		CC					
D1	10.16	CALM	38.4	17.4	38.4	17.4	0.4
		CC					
D2	10.10	CALM	40.1	17.7	40.1	17.7	0.6
		CC					
D3	10.05	CALM	39.8	17.8	39.8	17.8	0.4
		CC					

"E" denotes Error in TPS conductivity meter recording

Wind - 15-20 Km/Hr Sw.

01E0363/002	A 2	21/06/2001	25000	6910
01E0363/003	A 3	21/06/2001	23000	6890
01E0363/004	B 1	21/06/2001	22000	6280
01E0363/005	B 2	21/06/2001	23000	6480
01E0363/006	B 3	21/06/2001	22000	6450
01E0363/007	C 1	21/06/2001	20000	5690
01E0363/008	C 2	21/06/2001	20000	5920
01E0363/009	C 3	21/06/2001	22000	6090
01E0363/010	D 1	21/06/2001	21000	5460
01E0363/011	D 2	21/06/2001	20000	5560
01E0363/012	D 3	21/06/2001	20000	5410
01E0122/001	A1	31/07/2001	21000	5010
01E0122/002	A2	31/07/2001	22000	4870
01E0122/003	A3	31/07/2001	22000	4830
01E0122/004	B1	31/07/2001	22000	4700
01E0122/005	B2	31/07/2001	22000	4710
01E0122/006	B3	31/07/2001	22000	4620
01E0122/007	C1	31/07/2001	18000	4220
01E0122/008	C2	31/07/2001	20000	4310
01E0122/009	C3	31/07/2001	20000	4270
01E0122/010	D1	31/07/2001	17000	3780
01E0122/011	D2	31/07/2001	18000	3840
01E0122/012	D3	31/07/2001	18000	3870
01E0363/013	A 1	09/08/2001		5870

G. Pearson
Conductivity / salinity of sites A, B, C, D.
24/10/00

Lake Clifton
 G Pearson

24/10/2000

Northing	SITE (B. Knott)	Con top ms/cm	Sal top ppt	Temp top C	Con bottom ms/cm	Sal bottom ppt	Temp bottom C	depth m
6375966	A1	41.4 ✓	24.9 ✓	21.3 ✓	41.3 ✓	24.9 ✓	21.1 ✓	0.7 ✓
	A2	41.4 ✓	25 ✓	20.8 ✓	41.6 ✓	25 ✓	20.6 ✓	1.4 ✓
	A3	41.4 ✓	25 ✓	20.9 ✓	41.8 ✓	25.2 ✓	20.3 ✓	2 ✓
6372890	B1	40.8 ✓	24.6 ✓	22.1 ✓	41.3 ✓	24.8 ✓	21.6 ✓	0.86 ✓
	B2	40.8 ✓	24.6 ✓	21.4 ✓	41.3 ✓	24.9 ✓	21 ✓	1.2 ✓
	B3	40.8 ✓	24.6 ✓	21.9 ✓	41.3 ✓	24.9 ✓	21.7 ✓	0.55 ✓
6368456	C1	38 ✓	22.8 ✓	21.6 ✓	38.5 ✓	23 ✓	21.5 ✓	1.15 ✓
	C2	38.5 ✓	23.1 ✓	21.7 ✓	38.6 ✓	23.1 ✓	21.7 ✓	1.15 ✓
	C3	37.9 ✓	22.6 ✓	22.4 ✓	37.9 ✓	22.7 ✓	22.4 ✓	0.57 ✓
6364207	D1	33.1 ✓	19.6 ✓	22.5 ✓	33 ✓	19.6 ✓	22.6 ✓	0.83 ✓
	D2	32.5 ✓	19.1 ✓	22.5 ✓	32.5 ✓	19.1 ✓	22.7 ✓	0.9 ✓
	D3	31.8 ✓	18.8 ✓	23.1 ✓	31.9 ✓	18.8 ✓	23.1 ✓	0.7 ✓

CHEM CENTRE RESULTS of Major Ions

CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N NO3	Na	SO4 S	SiO2 Si	pH	alON BAL
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		%
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510	1910	25	8	-2.3
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430	1740	26	8	-0.6
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550	1750	26	8	2.9
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460	1730	26	8.1	1.8
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830	1600	26	8	1.4
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850	1580	25	8.1	3.9
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700	1350	21	8.4	1.4
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470	1320	19	8.8	2.2

Juni

This arrived today less the conductivity results.
Jenny McGuire will forward them later today.

(F)

44

CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N_NO3	Na
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470

CHEM CENTRE RESULTS of Major Ions

CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N_NO3	Na	SO4_S	SiO2_Si	pH	alON_BAL
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		%
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510	1910	25	8	-2.3
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430	1740	26	8	-0.6
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550	1750	26	8	2.9
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460	1730	26	8.1	1.8
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830	1600	26	8	1.4
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850	1580	25	8.1	3.9
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700	1350	21	8.4	1.4
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470	1320	19	8.8	2.2

Jim
 This arrived today less the conductivity results.
 Jenny McGuire will forward them later today.

G. Pearson
Conductivity / salinity of sites A, B, C, D.
24/10/00

Lake Clifton
 G Pearson

24/10/2000	Northings	SITE (B. Knott)	Con top ms/cm	Sal top ppt	Temp top C	Con bottom ms/cm	Sal bottom ppt	Temp bottom C	depth m
6375966		A1	41.4	24.9	21.3	41.3	24.9	21.1	0.7
		A2	41.4	25	20.8	41.6	25	20.6	1.4
		A3	41.4	25	20.9	41.8	25.2	20.3	2
6372890		B1	40.8	24.6	22.1	41.3	24.8	21.6	0.86
		B2	40.8	24.6	21.4	41.3	24.9	21	1.2
		B3	40.8	24.6	21.9	41.3	24.9	21.7	0.55
6368456		C1	38	22.8	21.6	38.5	23	21.5	1.15
		C2	38.5	23.1	21.7	38.6	23.1	21.7	1.15
		C3	37.9	22.6	22.4	37.9	22.7	22.4	0.57
6364207		D1	33.1	19.6	22.5	33	19.6	22.6	0.83
		D2	32.5	19.1	22.5	32.5	19.1	22.7	0.9
		D3	31.8	18.8	23.1	31.9	18.8	23.1	0.7

20/9/07

Depth Gauge 24.16

DATE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH
A1	1115	CALM	50.5	17.1	50.4	17.1	1.1
		CC					
A2		CALM	50.4	17.3	50.4	17.3	1.8
		CC					
A3		CALM	49.2	16.4	49.4	16.4	1.2
		CC					
B1		CALM	50.1	16.8	50.4	16.9	0.8
		CC					
B2		CALM	49.9	16.3	49.8	16.3	0.8
		CC					
B3		CALM	48.5	16.5	48.7	16.5	0.4
		CC					
C1		CALM	42.8	16.5	44.2	16.9	0.8
		CC					
C2		CALM	42.7	16.3	43.7	16.5	1.0
		CC					
C3		CALM	40.6	15.8	40.7	15.8	0.4
		CC					
D1		CALM	37.7	16.6	37.7	16.6	0.5
		CC					
D2		CALM	37.4	16.5	37.4	16.5	0.7
		CC					
D3		CALM	36.8	16.3	36.9	16.3	0.4
		CC					

"E" denotes Error in TPS conductivity meter recording

Calibrated at 2760 MS. 20/9,

45

Department of Conservation and Land Management
Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51

Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mob. 0418945268

To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Woodvale
Date: 17/10/2000
Subject: Lake Clifton samples

I would be grateful if you would please analyse the accompanying ~~eight~~ 8 surface water samples from Lake Clifton for conductivity and ~~ionic composition (major ions)~~.

22 Samples (Frozen) from S/West Wetland

Monitoring program to add to samples ~~for~~
delivered in September. Total PN.

1 Sample from Lake Newman Total PN Conductivity

2 Samples Lake Clifton from Transect A Sites
A1 + A3

Conductivity Major ions



CHEMISTRY CENTRE

Your Ref :
Our Ref :
Enquiries to **01E0561; 3.1.1**
Telephone **Jenny McGuire**

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

24 samples of water received on 13 November 2001

Analyte Unit	CI mg/L	ECond mS/m
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CCWA ID	Client ID	Sampled	CI mg/L	ECond mS/m
01E0561/001	A 1	12/10/01	17000	5140
01E0561/002	A 2	12/10/01	17000	5150
01E0561/003	A 3	12/10/01	17000	5100
01E0561/004	B 1	12/10/01	17000	4950
01E0561/005	B 2	12/10/01	18000	5070
01E0561/006	B 3	12/10/01	18000	5030
01E0561/007	C 1	12/10/01	15000	4470
01E0561/008	C 2	12/10/01	16000	4780
01E0561/009	C 3	12/10/01	17000	4730
01E0561/010	D 1	12/10/01	14000	3990
01E0561/011	D 2	12/10/01	14000	4120
01E0561/012	D 3	12/10/01	15000	3980
01E0561/013	A 1	08/11/01	-	5140
01E0561/014	A 2	08/11/01	-	5450
01E0561/015	A 3	08/11/01	-	5470
01E0561/016	B 1	08/11/01	-	5480
01E0561/017	B 2	08/11/01	-	5250
01E0561/018	B 3	08/11/01	-	5440
01E0561/019	C 1	08/11/01	-	5100
01E0561/020	C 2	08/11/01	-	5420
01E0561/021	C 3	08/11/01	-	5270
01E0561/022	D 1	08/11/01	-	5040
01E0561/023	D 2	08/11/01	-	5050
01E0561/024	D 3	08/11/01	-	5060

Analyte	Method	Description
CI	iCL1WAAA	Chloride
ECond	IEC1WZSE	Electrical Conductivity, 25 degrees celcius.

01E0561
20 November 2001

1/2

Chemistry Centre (WA)

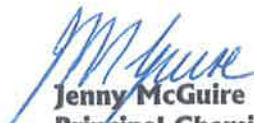
125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

REPORT OF EXAMINATION

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.


Jenny McGuire
Principal Chemist
Environmental Chemistry Section

20 November 2001

Your Ref :
Our Ref :
Enquiries to 01E0787; 3.1.1
Telephone Jenny McGuire

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

12 samples of water received on 8 January 2002

01E0787/001 Clifton
01E0787/002 Clifton
01E0787/003 Clifton
01E0787/004 Clifton
01E0787/005 Clifton
01E0787/006 Clifton
01E0787/007 Clifton
01E0787/008 Clifton
01E0787/009 Clifton
01E0787/010 Clifton
01E0787/011 Clifton
01E0787/012 Clifton

Analyte	CI	ECond
Unit	mg/L	mS/m

CCWA ID	Client ID	Sampled	CI	ECond
01E0787/001	A1	12/12/01	23000	5170
01E0787/002	A2	12/12/01	21000	5170
01E0787/003	A3	12/12/01	21000	5180
01E0787/004	B1	12/12/01	22000	5130
01E0787/005	B2	12/12/01	22000	5170
01E0787/006	B3	12/12/01	22000	5220
01E0787/007	C1	12/12/01	22000	5260
01E0787/008	C2	12/12/01	22000	5280
01E0787/009	C3	12/12/01	23000	5430
01E0787/010	D1	12/12/01	23000	5430
01E0787/011	D2	12/12/01	22000	5590
01E0787/012	D3	12/12/01	22000	5570

Analyte	Method	Description
CI	iCL1WAAA	Chloride
ECond	IEC1WZSE	Electrical Conductivity, 25 degrees celcius.

01E0787
16 January 2002

1/2

Chemistry Centre (WA)

REPORT OF EXAMINATION

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.


Jenny McGuire
Principal Chemist
Environmental Chemistry Section

16 January 2002

Department of Conservation and Land Management

WA Wildlife Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

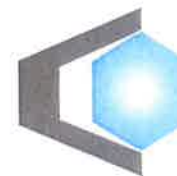
To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Research Centre Manager
Date: 23/10/01
Subject: Lake Clifton -24 samples from October and November 2001

I would be grateful if you would analyse the accompanying 12 samples of water from Lake Clifton taken on October 12 2001 for conductivity and chloride and the twelve samples taken on November 8 for conductivity.

Many thanks

Grant Pearson

Your Ref :
Our Ref :
Enquiries to : **00E1444; 3.1.1**
Telephone : **Jenny McGuire**



**CHEMISTRY
CENTRE**

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

12 samples of water received on 29 May 2001

Analyte	Unit	CI mg/L	ECond mS/m	NS
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CCWA ID	Client ID	Sampled
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00E1444/001	A 1	23/05/01	29000	6110	-
00E1444/002	A 2	23/05/01	28000	6010	-
00E1444/003	A 3	23/05/01	28000	5980	-
00E1444/004	B 1	23/05/01	27000	5770	-
00E1444/005	B 2	23/05/01	26000	5820	-
00E1444/006	B 3	23/05/01	26000	5710	-
00E1444/007	C 1	23/05/01	24000	5410	-
00E1444/008	C 2	23/05/01	24000	5500	-
00E1444/009	C 3	23/05/01	-	-	1
00E1444/010	D 1	23/05/01	29000	6000	-
00E1444/011	D 2	23/05/01	28000	6030	-
00E1444/012	D 3	23/05/01	29000	6090	-

Analyte	Method	Description
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CI	iCL1WAAA	Chloride
ECond	iEC1WZSE	Electrical Conductivity, 25 degrees celcius.
NS	iNo Sample	Sample not received

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

00E1444
13 June 2001

1/2

Chemistry Centre (WA)

125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

Chemistry Centre of Western Australia
Environmental Chemistry Section

REPORT OF EXAMINATION



Jenny McGuire
Principal Chemist
Environmental Chemistry Section

13 June 2001

DATE _____

SAMPLER

SITE	EAST	NORTH	EAST	NORTH	COND	SAL	TEMP	CON	SAL	TEMP	DEPTH
	TOP	TOP	TOP	TOP	TOP	TOP	TOP	BTM	BTM	BTM	Mtrs
A1	WGS84	WGS84	AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	
A2	374048	6376114	373909	6375966							
A3	373368		373229								
B1	372847		372708								
B2											
B3											
C1	374787	637038	374648	6372890							
C2	374389		374250								
C3	373891		373752								
D1											
D2											
D3											
E1	376001	6368604	375867	6368456							
E2	375809		375670								
E3	375441		375302								
F1											
F2											
F3											
G1	377767	6364355	377628	6364207							
G2	377411		377272								
G3	377110		376971								

Your Ref :
Our Ref :
Enquiries to :
Telephone :

00E1347; 3.1.1
Jenny McGuire

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Preview Report on:

2 samples of water received on 4 May 2001

Analyte	ECond	K	N _{total}
Unit	mS/m	mg/L	mg/L

CCWA ID	Client ID	Sampled
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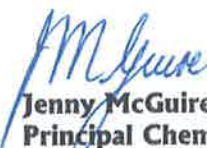
00E1347/001	WRC 2	10/04/01	150	118	100
00E1347/002	WRC 2	10/04/01	159	125	110

Analyte	Method	Description
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ECond	iEC1WZSE	Electrical Conductivity, 25 degrees celcius.
K	iMET1WCIP	Potassium.
N _{total}	iNP1WTFIA	Nitrogen, persulphate total by FIA

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.



Jenny McGuire
Principal Chemist
Environmental Chemistry Section

11 May 2001

00E1347
11 May 2001

1/1

Chemistry Centre (WA)



30

CHEMISTRY CENTRE

Your Ref :
Our Ref :
Enquiries to :
Telephone :

00E1346; 3.1.1
Jenny McGuire

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

11 samples of water received on 4 May 2001

3/4/01

Analyte
Unit

ECond
mS/m

CCWA ID

Client ID

00E1346/001	A 1	8210
00E1346/002	A 2	8200
00E1346/003	A 3	8210
00E1346/004	B 1	8480
00E1346/005	B 2	8300
00E1346/006	B 3	8070
00E1346/007	C 1	7650
00E1346/008	C 2	9370
00E1346/009	C 3	9440
00E1346/010	D 1	17500
00E1346/011	D 2	15100

Analyte Method Description

ECond iEC1WZSE Electrical Conductivity, 25 degrees celcius.

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

Jenny McGuire
Principal Chemist
Environmental Chemistry Section

11 May 2001

00E1346
11 May 2001

1/1

Chemistry Centre (WA)

125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

**Department of Conservation and Land Management
Woodvale Research Centre**

Wildlife Place (Ocean Reef Road Woodvale)
PO Box 51, Wanneroo, 6065
Telephone: (08) 9405 5163
Fax: (08) 9306 1641
Mobile: 0418945268

To: Jim Lane
From: Grant Pearson
Date: 23/1/01
Subject: Lake Clifton Survey

A survey to obtain conductivity and samples of lake waters along transects A, B, C, and D at Lake Clifton was carried out on Monday January 22 2001. Water level on the CALM depth gauge was 3.93. Wind strength was 20-30 K/h causing considerable wave action that may affect the accuracy of the depth reading. A volunteer Mr Jeff Hansen assisted me.

Surface water had receded about 50 metres beyond the reed line. No conductivities were recorded in this shallow zone.

Site A! was dry so a reading was taken about 10 metres due west of the normal site. A 3.6 metre dinghy with 15 HP 4 stroke outboard was launched from the western most part of the jetty. Future surveys during periods of water level below 3.9 metres should be carried out using canoe or ski.

Sites at transect D were accessed by rowing from about 1 km north of the transect.

Water samples were collected from the top 15 cm and conductivity and temperature were recorded at each at each sample site. Dr Jeff Turner will be consulted for advice on his return from leave on the nature of analyses that should take place. In the meantime the samples have been frozen and will remain at Woodvale.

Algal (Chara?) growth on the lakebed at transect 1 was less common than previous visits.

Waterbirds were not actively counted during the survey but it appeared that numbers continued to be quite high. Approximate counts for the main species are:

Pacific Black Duck	500
Grey Teal	1000
Australian Shelduck	1500
Musk Duck	300
Maned Duck	2
Black Swan	1500
Red Necked Stint	50
Medium waders	100
Small waders	100
Greenshank	5

An account of the conductivities recorded is appended.



Grant Pearson

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH 3.93
22/01/01		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966	61.8		24.2	61.5		24.4	1
	A2	373229		62		23.8	61.9		24	1.6
	A3	372708		61.6		23.9	61.5		24	1.1
	B1	374648	6372890	66.5		25.5	66.4		25.5	0.3
	B2	374250		62.1		24.4	62.1		24.5	0.6
	B3	373752		66.5		24.9	65.9		25	0.3
	C1	375867	6368456	71.4		24.7	71.4		24.9	0.5
	C2	375670		71		24.3	70.9		24.3	0.6
	C3	375302		74.1		25.5	75.2		25.1	0.2
	D1	377628	6364207	85.2		26.2	84.4		26.3	0.3
	D2	377272		81.4		25.6	81.1		25.6	0.3
	D3	376971		83.1		27.1	82.6		27.1	0.2

CCWA ID	Client ID	ECond	CO3	Ca	Cl	Fe
		iEC1WZSE	iALK1WATI	iMET1WCIP	iCL1WAAA	iMET1WCIP
		mS/m	mg/L	mg/L	mg/L	mg/L
00E0523/001	Lake Clifton Shore	3990				
00E0523/002	Lake Clifton 12m	4020				
00E0523/003	Lake Clifton 20m	3930				
00E0523/004	Lake Clifton 30m	4050				
00E0523/005	Lake Clifton 40m	4050				
00E0523/006	Lake Clifton 50m	4080				
00E0523/007	Lake Clifton 60m	3990				
00E0523/008	Lake Clifton 70m	4100				
00E0523/009	Lake Clifton A1	4050	<2	442	15000	<0.25
00E0523/010	Lake Clifton A3	4090	<2	450	15000	<0.25
00E0523/011	Lake Ninin	13100				

Ward ?

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966							
	A2	373229								
	A3	372708								
	B1	374648	6372890							
	B2	374250								
	B3	373752								
	C1	375867	6368456							
	C2	375670								
	C3	375302								
	D1	377628	6364207							
	D2	377272								
	D3	376971								

GDAIT. program used to
derive coords
(DOLA APPROVED)

STEVE JONES
GDA.IT
grid file
adjustment

run esa file

WGS84 EQUIVALENT COORDS

A1 374048
6376114

A2 373368
6376114

A3 372847
6376114

B1 374787
6373038

B2 374389
6373038

B3 373891
6373038

C1 376006
6368604

C2 375809
6368604

C3 375441
6368604

D1 377767
6364355

D2 377411
6364355

D3 377110
6364355

SURVEY CONDUCTED BY ALAN CLARKIE 23/5/01
using the Ocean Kyack.

25

DATE	SITE	EAST	NORTH	COND TOP ms/cm	SAL TOP ppt	TEMP TOP C	CON BTM ms/cm	SAL BTM ppt	TEMP BTM C	DEPTH Mtrs
	AUS G 66	AUS G 66								
A1	373909	6375966		73.3		18.6		73.3	18.1	0.7
A2	373229			69.4		17.1		68.3	17.1	1.45
A3	372708			71.5		17.4		70.9	17.1	0.9400
B1	374648	6372890		69.9		19.6		-	-	0.300
B2	374250			69.3		19.8		69.9	19.9	0.500
B3	373752			69.9		19.9		-	-	0.300
C1	375867	6368456		65.3		18.6		66.1	18.1	0.400
C2	375670			66.7		17.5		66.7	17.5	0.300
C3	375302			67.7		19.7		-	-	0.200
D1	377628	6364207		73.8		15.4		73.8	15.4	0.330
D2	377272			75.0		15.7		75.2	15.8	0.220
D3	376971			75.2		16.7		-	-	0.150

28m east of position

30m east of position

Depth gauge (No. 2) at
ST JOHN ROAD read
3.74m at 1645 hrs.

NOTE: Problems with TPS not settling down
water samples need to be measured
and checked against field values.

Department of Conservation and Land Management
Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

To: Chemistry Centre
From: Grant Pearson
Date: 28 Feb 2001
Subject: Lake Clifton analyses

I would be grateful if you would analyse the accompanying 34 samples from Lake Clifton for conductivity and chloride.

The samples are marked according to date and sample site location.

15/12/00 12 samples

22/01/01 12 samples

19/01/01 10 samples

Grant Pearson

CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	IEC1WZSE
			mg/L	mS/m
00E1224/001	A 1	16/03/2001	30000	7080
00E1224/002	A 2	16/03/2001	30000	7010
00E1224/003	A 3	16/03/2001	30000	6970
00E1224/004	B 1	16/03/2001	29000	7160
00E1224/005	B 2	16/03/2001	29000	7070
00E1224/006	B 3	16/03/2001	27000	6800
00E1224/007	C 1	16/03/2001	41000	8730
00E1224/008	C 2	16/03/2001	40000	8740
00E1224/009	C 3	16/03/2001	38000	9020
00E1224/010	D 1	16/03/2001	78000	13500
00E1224/011	D 2	16/03/2001	65000	11900

Your Ref :
Our Ref :
Enquiries to :
Telephone :

Lake Clifton
00E1224; 3.1.1
Jenny McGuire

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

11 samples of water received on 30 March 2001

Analyte	Unit	CI	ECond
		mg/L	mS/m

CCWA ID	Client ID	Sampled		
00E1224/001	A 1	16/03/01	30000	7080
00E1224/002	A 2	16/03/01	30000	7010
00E1224/003	A 3	16/03/01	30000	6970
00E1224/004	B 1	16/03/01	29000	7160
00E1224/005	B 2	16/03/01	29000	7070
00E1224/006	B 3	16/03/01	27000	6800
00E1224/007	C 1	16/03/01	41000	8730
00E1224/008	C 2	16/03/01	40000	8740
00E1224/009	C 3	16/03/01	38000	9020
00E1224/010	D 1	16/03/01	78000	13500
00E1224/011	D 2	16/03/01	65000	11900

Analyte	Method	Description
CI	iCL1WAAA	Chloride
ECond	iEC1WZSE	Electrical Conductivity, 25 degrees celcius.

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.

00E1224
3 April 2001

1/2

Chemistry Centre (WA)

**Chemistry Centre of Western Australia
Environmental Chemistry Section**

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REPORT OF EXAMINATION


**Jenny McGuire
Principal Chemist
Environmental Chemistry Section**

3 April 2001

CCWA ID	Client ID	ECond
		iEC1WZSE
		mS/m
00E1346/001	A 1	8210
00E1346/002	A 2	8200
00E1346/003	A 3	8210
00E1346/004	B 1	8480
00E1346/005	B 2	8300
00E1346/006	B 3	8070
00E1346/007	C 1	7650
00E1346/008	C 2	9370
00E1346/009	C 3	9440
00E1346/010	D 1	17500
00E1346/011	D 2	15100

22/1/01
3.9

		EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH 4.12M
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
15/12/00										
1050hrs	A1	373909	6375966	48.9	29.9	26.1	49.2	30	26.1	0.6
	A2	373229		49.3	30.1	25.1	49.2	30	24.9	1.6
	A3	372708		49.4	30.2	25.9	49	29.9	25	1.2
	B1	374648	6372890	49.8	30.4	26.3	50	30.5	26.3	0.5
	B2	374250		49.4	30.2	25.5	49.7	30.3	25.5	0.8
	B3	373752		49.6	30.3	26.7	50	30.5	26.4	0.4
	C1	375867	6368456	50	30.5	26.3	50.1	30.6	26.2	0.8
	C2	375670		49.7	30.3	26.6	50.1	30.6	26.5	0.8
	C3	375302		50.5	31	29.1	50.6	31	29.1	0.25
	D1	377628	6364207	49.7	30.3	28	49.7	30.3	27.9	0.4
	D2	377272		48.9	29.9	27.2	49.8	30.4	26.9	0.3
1315hrs	D3	376971		49.8	30.4	28.6	50.1	30.6	28.4	0.4

Chlorides every second month
Cond every month
Depth at

To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Cc:
Subject: re: fwd: Lake Clifton transects
Attachment: BEYOND.RTF
Date: 01/19/2001 4:32 PM

17

Grant

We won't start on sampling for nutrients until I have a specific allocation of funds for the
Measure conductivity, temperature and depth as before. Calibrate instrument against conduct
salinity standard. No point in recording salinity.

DON'T have samples analysed for ALL major ions, but DO have samples analysed for CHLORIDE.

Give Jeff Turner a call and ask if you need to take a chloride sample from every sampling point
(hopefully not, as this would require 24 analyses). If not, how many samples should be taken

Jim

From: Grant Pearson@WOOD.SID@CALM, on 19/Jan/2001 2:03 PM:

Jim

I plan to visit Clifton again on Monday and would like to know what parameters
you would like me to measure/collect/ analyse please.

Thanks

GP

From: Jim Lane@BUSS.SID@CALM, on 11/08/2000 1:35 PM:
To: Grant Pearson@WOOD.SID@CALM
Cc: John Blyth@WOOD.SID@CALM

Grant

Would you please mark 13-15 December in your diary for a repeat of the Lake
Clifton transects. Assuming you can do all four transects in the one day, any
one of those days will do.

You will also need to collect samples for nutrient analysis. I will let you
know which parameters closer to the day, when I have found out more about the
nutrient monitoring that has been done in the past.

Thanks

JL

Department of Conservation and Land Management

Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

To: Jenny McGuire
From: Chemistry Centre
Date: Grant Pearson
Date: 30/3/01
Subject: Water analysis 20 February 2001

Dear Jenny,

I would be grateful if you would analyse the accompanying 11 samples from Lake Clifton for:

Chloride

Conductivity.



Grant Pearson



13

CHEMISTRY CENTRE

Your Ref :
Our Ref :
Enquiries to : **00E1084; 3.1.2**
Telephone : **Jenny McGuire**

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

34 samples of water received on 28 February 2001

Analyte	CI	ECond
Unit	mg/L	mS/m

CCWA ID	Client ID	Sampled		
00E1084/001	A1	15/12/00	15000	4060
00E1084/002	A2	15/12/00	8600	2400
00E1084/003	A3	15/12/00	12000	3500
00E1084/004	B1	15/12/00	9000	2700
00E1084/005	B2	15/12/00	12000	3690
00E1084/006	B3	15/12/00	11000	3260
00E1084/007	C1	15/12/00	11000	3420
00E1084/008	C2	15/12/00	10000	3520
00E1084/009	C3	15/12/00	8100	2900
00E1084/010	D1	15/12/00	8300	2820
00E1084/011	D2	15/12/00	12000	3580
00E1084/012	D3	15/12/00	12000	3150
00E1084/013	A1	22/01/01	16000	4460
00E1084/014	A2	22/01/01	11000	5970
00E1084/015	A3	22/01/01	10000	2600
00E1084/016	B1	22/01/01	17000	4690
00E1084/017	B2	22/01/01	9830	2710
00E1084/018	B3	22/01/01	15000	3100
00E1084/019	C1	22/01/01	14000	4000
00E1084/020	C2	22/01/01	19000	7380
00E1084/021	C3	22/01/01	9300	2950
00E1084/022	D1	22/01/01	22000	7180
00E1084/023	D2	22/01/01	26000	6820
00E1084/024	D3	22/01/01	28000	6880
00E1084/025	A1	19/02/01	24000	5960
00E1084/026	A2	19/02/01	24000	7080
00E1084/027	A3	19/02/01	24000	7100
00E1084/028	B1	19/02/01	26000	7260
00E1084/029	B2	19/02/01	27000	6550
00E1084/030	B3	19/02/01	28000	7260

00E1084
7 March 2001

1/2

Chemistry Centre (WA)

125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

REPORT OF EXAMINATION

**Analyte
Unit**

Cl ECond
mg/L mS/m

CCWA ID	Client ID	Sampled		
00E1084/031	C1	19/02/01	33000	8460
00E1084/032	C2	19/02/01	33000	8730
00E1084/033	C3	19/02/01	37000	8840
00E1084/034	D2	19/02/01	40000	9850

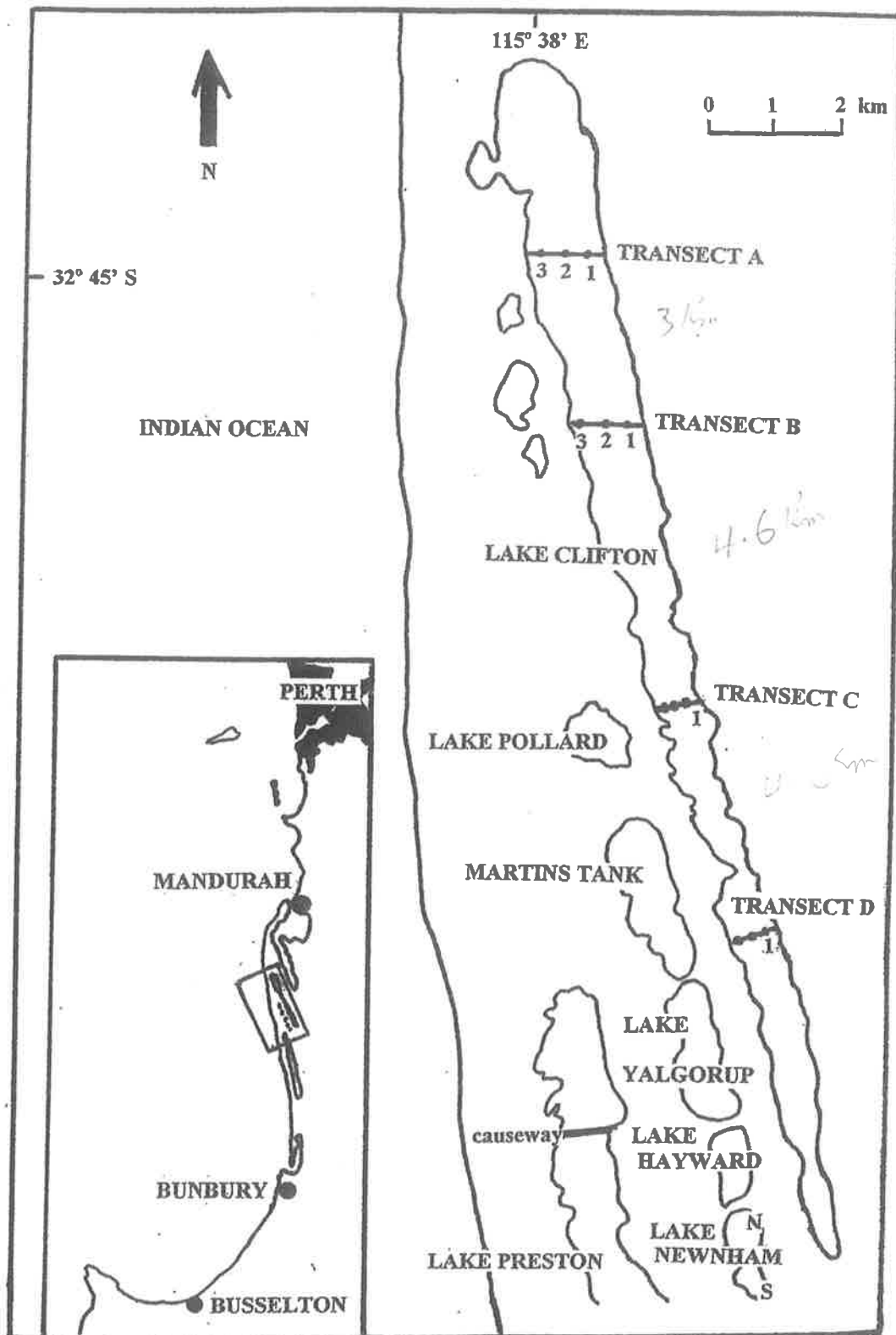
Analyte	Method	Description
Cl	iCL1WAAA	Chloride
ECond	iEC1WZSE	Electrical Conductivity, 25 degrees celcius.

These results apply only to the sample(s) as received.
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report.

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excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.


Jenny McGuire
Principal Chemist
Environmental Chemistry Section

7 March 2001



Seab Clifton salinity profiling 19/02/01

by Allen Clarke.

Calibration notes

The Metre used was the TPS WP-84

1) washed the electrode in distilled water and placed it into a washed beaker of 2.97 mS/cm . The metre did not calibrate, it showed an error "Calibration Unsuccessful."

2) washed the probe and the beaker with distilled water and placed the probe in the 2.76 mS/cm standard. The metre read 2.63 mS/cm , calibration was successful.

"K = 1.02" 

@ 20.6°C

"Calibration O.K."

According to the TPS WP-84 manual allowable standards are $150 \mu\text{S/cm}$, $1413 \mu\text{S/cm}$, 2.76 mS/cm , 12.88 mS/cm , and 58.0 mS/cm .

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966							
	A2	373229								
	A3	372708								
	B1	374648	6372890							
	B2	374250								
	B3	373752								
	C1	375867	6368456							
	C2	375670								
	C3	375302								
	D1	377628	6364207							
	D2	377272								
	D3	376971								

15/12/00		EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH 4.12M
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
1050hrs	A1	373909	6375966	48.9	29.9	26.1	49.2	30	26.1	0.6
	A2	373229		49.3	30.1	25.1	49.2	30	24.9	1.6
	A3	372708		49.4	30.2	25.9	49	29.9	25	1.2
	B1	374648	6372890	49.8	30.4	26.3	50	30.5	26.3	0.5
	B2	374250		49.4	30.2	25.5	49.7	30.3	25.5	0.8
	B3	373752		49.6	30.3	26.7	50	30.5	26.4	0.4
	C1	375867	6368456	50	30.5	26.3	50.1	30.6	26.2	0.8
	C2	375670		49.7	30.3	26.6	50.1	30.6	26.5	0.8
	C3	375302		50.5	31	29.1	50.6	31	29.1	0.25
1315hrs	D1	377628	6364207	49.7	30.3	28	49.7	30.3	27.9	0.4
	D2	377272		48.9	29.9	27.2	49.8	30.4	26.9	0.3
	D3	376971		49.8	30.4	28.6	50.1	30.6	28.4	0.4

DATE	SIT EAST	NORTH	COND	SAL	TEMP	CON	SAL	TEMP	DEPTH
22/01/01			TOP	TOP	TOP	BTM	BTM	BTM	3.93
NAV SYS	AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966	61.8		24.2	61.5	24.4	1
	A2	373229		62		23.8	61.9	24	1.6
	A3	372708		61.6		23.9	61.5	24	1.1
	B1	374648	6372890	66.5		25.5	66.4	25.5	0.3
	B2	374250		62.1		24.4	62.1	24.5	0.6
	B3	373752		66.5		24.9	65.9	25	0.3
	C1	375867	6368456	71.4		24.7	71.4	24.9	0.5
	C2	375670		71		24.3	70.9	24.3	0.6
	C3	375302		74.1		25.5	75.2	25.1	0.2
	D1	377628	6364207	85.2		26.2	84.4	26.3	0.3
	D2	377272		81.4		25.6	81.1	25.6	0.3
	D3	376971		83.1		27.1	82.6	27.1	0.2

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM
22/01/01		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt
NAV SYS								
	A1	373909	6375966	61.8		24.2	61.5	
	A2	373229		62		23.8	61.9	
	A3	372708		61.6		23.9	61.5	
	B1	374648	6372890	66.5		25.5	66.4	
	B2	374250		62.1		24.4	62.1	
	B3	373752		66.5		24.9	65.9	
	C1	375867	6368456	71.4		24.7	71.4	
	C2	375670		71		24.3	70.9	
	C3	375302		74.1		25.5	75.2	
	D1	377628	6364207	85.2		26.2	84.4	
	D2	377272		81.4		25.6	81.1	
	D3	376971		83.1		27.1	82.6	

TEMP	DEPTH
BTM	3.93
C	Mtrs
24.4	1
24	1.6
24	1.1
25.5	0.3
24.5	0.6
25	0.3
24.9	0.5
24.3	0.6
25.1	0.2
26.3	0.3
25.6	0.3
27.1	0.2

Lake Clifton

24/10/2000

Northing	SITE (B. Knott)	Con top ms/cm	Sal top ppt	Temp top C	Con bottom ms/cm	Sal bottom ppt	Temp bottom C
6375966	A1	41.4	24.9	21.3	41.3	24.9	21.1
	A2	41.4	25	20.8	41.6	25	20.6
	A3	41.4	25	20.9	41.8	25.2	20.3
6372890	B1	40.8	24.6	22.1	41.3	24.8	21.6
	B2	40.8	24.6	21.4	41.3	24.9	21
	B3	40.8	24.6	21.9	41.3	24.9	21.7
6368456	C1	38	22.8	21.6	38.5	23	21.5
	C2	38.5	23.1	21.7	38.6	23.1	21.7
	C3	37.9	22.6	22.4	37.9	22.7	22.4
6364207	D1	33.1	19.6	22.5	33	19.6	22.6
	D2	32.5	19.1	22.5	32.5	19.1	22.7
	D3	31.8	18.8	23.1	31.9	18.8	23.1

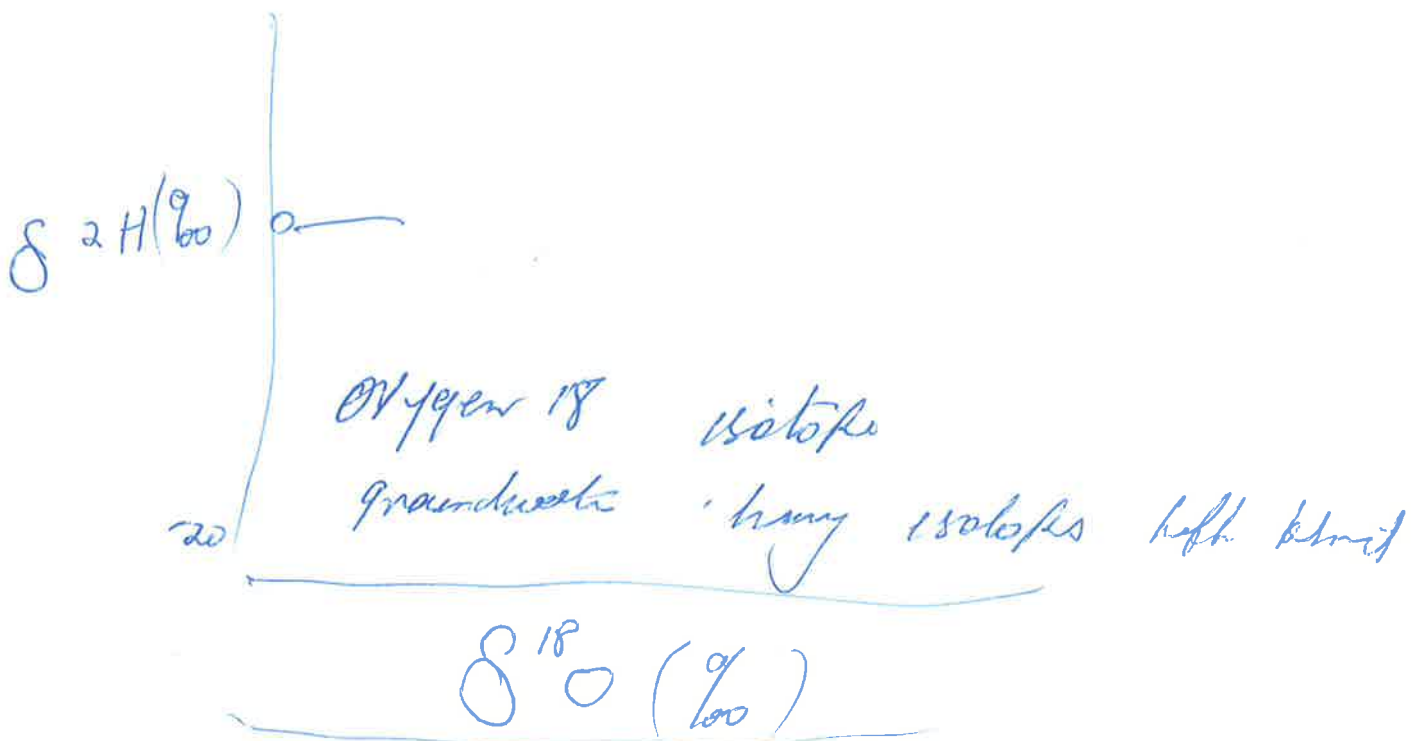
1995

J. J. Turner

6A

The Common
Reynolds shms
house ?

40



Brenton — life forms ^{dependant on} affected by
fresh water seeps

depth
m

0.7

1.4

2

0.86

1.2

0.55

1.15

1.15

0.57

0.83

0.9

0.7

Measure nutrients monthly from Jan
in lake samples

Thrombolites

* look at bathymetry of Clifton by boat
when lake is full.

Bathymetric data available for Clifton - Navy, may have
digitized it.

Jeff thinks the workable

All three sites A1 2 3 etc

* Chloride important every 2nd mth
* Conduct. monthly

21/12/00

Ground water is the real driver of lake water levels
Maybe a PhD project

Sediment don't build up because the salt
is transported out to sea by upground flow
See 19000
PEH 15-25000

6000

2000

36-38000

12 m

-18

*

Landsat of veg of Reel/Harry.

Pumping east of Clifton - allows salt water

(1) ingress to Clifton

(2/3) evap + rain fall may influence

Run a water & solute ^{mass} balance.

C. Pearson

Lake Chilton

Salinity Profile.

17/10/2000

(4)

	Cond. (MS)		Salinity (‰)		Temp (°C)		Depth (cm)
	Top	Bottom	Top	Bottom	Top	Bottom	
Transect A							
Site 1	40.0 MS	40.5 MS	24.0 ‰	24.4	20.9 °C	20.5	70 cm
Site 3	40.3	40.7	24.4	24.5	19.3	19.1	1.4 m
Site 2	41.0	41.0	24.7	24.7	19.7	19.5	2.0 m

Site A

1500 hrs.

1 m from shore - Sampled from 10 cm depth

10 cm

10 m from shore 40.8 24.6 22.7

17 cm

20 m 40.8 24.5 23.1 40.6 24.4 23.1 30 cm

~~40.6 24.4 23.1~~

30 m 40.5 24.4 22.7 40.6 24.4 22.7 35 cm

40 m 40.6 24.4 22.5 40.6 24.4 22.4 41 cm

50 m 40.9 24.6 21.9 40.9 24.6 21.8 44 cm

60 m 40.9 24.6 21.6 41.0 24.6 21.6 42 cm

70 m 40.8 24.6 21.3 40.9 24.6 21.2 46 cm

Depth gauge Read + 33 cm (40.33?)

Department of Conservation and Land Management

Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51

Wanneroo, 6065

Telephone: (08) 9405 5163

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Mob. 0418945268

To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Woodvale
Date: 17/10/2000
Subject: Lake Clifton samples

I would be grateful if you would please analyse the accompanying eight surface water samples from Lake Clifton for conductivity and ionic composition (major ions).

C. Pearson

Lake Chaplin

Salinity Profile. ②
17/10/2000

Cond. (ms/cm)

Salinity (‰)

Temp (°C)

Depth (cm)

Transsect A

(B knot)

1300 hrs.

Site 1

40.0 ms

40.5 ms

24.0‰

24.4

20.9 °C

20.5

70 cm

Site 3

40.3

40.7

24.4

24.5

19.3

19.1

1.4 m

Site 2

41.0

41.0

24.7

24.7

19.7

19.5

2.0 m

Site A

TOP
Cond. ms/cm Salinity ‰ Temp °C

Temp °C

Bottom
Cond. ms/cm Salinity ‰ Temp °C

Temp °C

Depth
1300 hrs.

1 m from shore

10 cm

10 m from shore

40.8

24.6

22.7

17 cm

20 m

40.8

24.5

23.1

40.6

24.4

23.1

30 cm

30 m

40.5

24.4

22.7

40.6

24.4

22.7

35 cm

40 m

40.6

24.4

22.5

40.6

24.4

22.4

41 cm

50 m

40.9

24.6

21.9

40.9

24.6

21.8

44 cm

60 m

40.9

24.6

21.6

41.0

24.6

21.6

42 cm

70 m

40.8

24.6

21.3

40.9

24.6

21.2

46 cm

Depth gauge Read + 33 cm (40.33?)

Wind conditions

5-10 km/hr easing to end of survey.

Strengthened to 20 km/h after completion

ms/cm

P. Pearson

FC

Lake Chapala

Salinity Profiles.

17/10/2000

(1)

	Cond. (MS/cm)		Salinity (‰)		Temp (°C)		Depth (m)
	Top	Bottom	Top	Bottom	Top	Bottom	
Transsect A (B. Knott)							1200 hrs
Site 1	40.0 ms	40.5 ms	24.0 ‰	24.4	20.9 °C	20.5	70 cm
Site 3	40.3	40.7	24.4	24.5	19.3	19.1	1.4 m
Site 2	41.0	41.0	24.7	24.7	19.7	19.5	2.0 m

	Top			Bottom			Depth
	Cond. ^{ms/cm}	Salinity [‰]	Temp ^{°C}	Cond. ^{ms/cm}	Salinity [‰]	Temp ^{°C}	
Site A							1500 hrs
1 m from shore							10 cm
10 m from shore	40.8	24.6	22.7				17 cm
20 m	40.8	24.5	23.1	40.6	24.4	23.1	30 cm
30 m	40.5	24.4	22.7	40.6	24.4	22.7	35 cm
40 m	40.6	24.4	22.5	40.6	24.4	22.4	41 cm
50 m	40.9	24.6	21.9	40.9	24.6	21.8	44 cm
60 m	40.9	24.6	21.6	41.0	24.6	21.6	42 cm
70 m	40.8	24.6	21.3	40.9	24.6	21.2	46 cm

Depth gauge fixed + 33 cm (40.33?)

Wind conditions - 5-10 km/hr evening to end of survey.

Stronger force to 20 km/h after completion.

MS/cm

Willford Papers

Chilton 2001

GRANT PEARSON

FOLDER OF

LOOSE PAPERS

RE SALINITY TRANSECTS

OF LAKE CLIFTON

IN 2000 + 2001

Complete copy
94244 44444

Organised today into
approximate chronological order

30/8/2014

30/8/2014

Department of Conservation and Land Management
WA Wildlife Research Centre
Wildlife Place (Ocean Reef Road Woodvale)
PO Box 51, Wanneroo, 6065
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Mobile: 0418945268

To: Jim Lane
From: Grant Pearson

Date: 28 October 2002
Subject: Lake Clifton Analyses

Jim

Accompanying this is a disk containing an Excel file with all conductivity data collected for Lake Clifton between October 2000 and December 2001. Analyses by the WA Chemistry Centre and DCLM are included and reported in Ms/cm.

Sampling of the four transects A,B,C,D visited by B Knott began on October 24 2000.

METHOD

Conductivity measurements were made using the TPS 90 FLMV meter until February when the low water levels in the lake required the use of a surf ski. In this case the more water proof TPS WP-84 meter was used. Both units were calibrated prior to each visit to the 2,764 US/cm at 25C conductivity standard. Problems were encountered on a number of occasions when salt spray flooded the TPS WP-84 meter causing erroneous readings. The manufacturers claim for water resistance of this meter is evidently optimistic. This lack of water resistance was most evident in March 2001 and April 2001 when the surf ski was used. On these occasions the meter became unusable. Conductivity measurements for these dates for each site were obtained from surface water samples analysed by the WA Chemistry Centre.

Surveys were conducted by boat when water levels permitted, by surf ski as levels dropped and by foot at the southern sites during periods of very low water level.

Surface samples were obtained for analysis by the WA Chemistry Centre by filling a 120 ml bottle with lake water from about 15 cm below the surface at each site. The bottles were marked according the site number and dated. They were delivered to the Chemistry Centre that day or the following day.

The samples were also periodically analysed for chloride and major ions. Results of these are also attached to this report.

At the beginning of each survey the water depth on the DCLM depth gauge was recorded.

The depth at each site was also recorded during each measurement.

CDWA ID	Client ID	CI	CO3	Fe	HCO3	Hardness	Ca	K	Mg	Mn	NH3	NH4	SO4	Si	pH	CON BA
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		%
00E065001 A 1	24/10/2000	16000	<2	0.05	201	5400	437	270	1000	<0.02	0.02	8510	1910	25	8	-2.3
00E065002 A 2	24/10/2000	16000	<2	0.05	220	5300	432	267	1030	<0.02	0.01	8420	1740	26	8	-0.6
00E065003 B 1	24/10/2000	15000	<2	0.05	220	5400	434	268	1040	<0.02	0.01	8550	1730	26	8	2.0
00E065004 B 2	24/10/2000	16000	<2	0.05	214	5400	451	265	1030	<0.02	0.01	8480	1730	26	8.1	1.6
00E065005 C 1	24/10/2000	14000	<2	0.05	201	4900	394	245	868	<0.02	0.01	7830	1600	26	8	1.4
00E065006 C 2	24/10/2000	13000	<2	0.05	195	4800	368	244	838	<0.02	0.01	7850	1580	25	8.1	3.9
00E065007 D 1	24/10/2000	12000	36	<0.05	73	4100	329	207	797	<0.02	0.01	6700	1350	21	8.4	1.4
00E065008 D 2	24/10/2000	11000	48	<0.05	24	4000	317	200	776	<0.02	0.01	6470	1320	19	8.8	2.2
CDWA ID	Client ID	Sampled on	CI	ECont	HS											
			ICLWAAPEC1WZSE	No Sample												
00E1245001 A 1	16/03/2001	20000	7080													
00E1245001 A 2	16/03/2001	20000	7010													
00E1245001 A 3	16/03/2001	20000	6970													
00E1245001 B 1	16/03/2001	28000	7180													
00E1245001 B 2	16/03/2001	28000	7070													
00E1245001 B 3	16/03/2001	27000	6800													
00E1245001 C 1	16/03/2001	41000	8720													
00E1245001 C 2	16/03/2001	40000	8740													
00E1245001 C 3	16/03/2001	38000	9020													
00E1245010 D 1	16/03/2001	78000	13500													
00E1245010 D 2	16/03/2001	65000	11800													
00E1346001 A 1	18/04/2001		8210													
00E1346001 A 2	18/04/2001		8200													
00E1346001 A 3	18/04/2001		8210													
00E1346001 B 1	18/04/2001		8450													
00E1346001 B 2	18/04/2001		8300													
00E1346001 B 3	18/04/2001		8070													
00E1346001 C 1	18/04/2001		7650													
00E1346001 C 2	18/04/2001		9370													
00E1346001 C 3	18/04/2001		9440													
00E1346010 D 1	18/04/2001		17500													
00E1346010 D 2	18/04/2001		15100													
00E1444001 A 1	23/05/2001	28000	6110													
00E1444001 A 2	23/05/2001	28000	6010													
00E1444001 A 3	23/05/2001	28000	5960													
00E1444001 B 1	23/05/2001	27000	5710													
00E1444001 B 2	23/05/2001	26000	5650													
00E1444001 B 3	23/05/2001	26000	5710													
00E1444001 C 1	23/05/2001	24000	5410													
00E1444001 C 2	23/05/2001	21000	5500													
00E1444001 C 3	23/05/2001		56													
00E1444010 D 1	23/05/2001	28000	6000													
00E1444010 D 2	23/05/2001	28000	6030													
00E1444010 D 3	23/05/2001	28000	5900													
01E0863001 A 1	21/06/2001	24000	6900													
01E0863001 A 2	21/06/2001	23000	6910													
01E0863001 A 3	21/06/2001	23000	6890													
01E0863001 B 1	21/06/2001	22000	6280													
01E0863001 B 2	21/06/2001	23000	6480													
01E0863001 B 3	21/06/2001	22000	6450													
01E0863001 C 1	21/06/2001	20000	5690													
01E0863001 C 2	21/06/2001	20000	5620													
01E0863001 C 3	21/06/2001	22000	5090													
01E0863010 D 1	21/06/2001	21000	5460													
01E0863010 D 2	21/06/2001	20000	5580													
01E0863010 D 3	21/06/2001	20000	5410													
01E0122901 A 1	31/07/2001	21000	5010													
01E0122901 A 2	31/07/2001	22000	4870													
01E0122901 A 3	31/07/2001	22000	4830													
01E0122901 B 1	31/07/2001	22000	4700													
01E0122901 B 2	31/07/2001	22000	4710													
01E0122901 B 3	31/07/2001	22000	4620													
01E0122901 C 1	31/07/2001	18000	4220													
01E0122901 C 2	31/07/2001	20000	4310													
01E0122901 C 3	31/07/2001	20000	4270													
01E0122910 D 1	31/07/2001	17000	3780													
01E0122910 D 2	31/07/2001	18000	3640													
01E0122910 D 3	31/07/2001	18000	3570													
01E0863012 A 1	09/08/2001		5870													
01E0863012 A 2	09/08/2001		5870													
01E0863012 A 3	09/08/2001		5870													
01E0863012 B 1	09/08/2001		5540													
01E0863012 B 2	09/08/2001		5570													
01E0863012 B 3	09/08/2001		5580													
01E0863012 C 1	09/08/2001		4980													
01E0863012 C 2	09/08/2001		4980													
01E0863012 C 3	09/08/2001		4600													
01E0863012 D 1	09/08/2001		4400													
01E0863012 D 2	09/08/2001		4430													
01E0867000 B 1	20/09/2001	19000	4880													
01E0867000 B 2	20/09/2001	19000	4880													
01E0867000 B 3	20/09/2001	18000	4750													
01E0867000 C 1	20/09/2001	17000	4180													
01E0867000 C 2	20/09/2001	16000	4200													
01E0867000 C 3	20/09/2001	18000	3990													
01E0867010 D 1	20/09/2001	14000	2690													
01E0867010 D 2	20/09/2001	14000	2630													
01E0867010 D 3	20/09/2001	13000	2580													
01E08615001 A 1	12/10/2001	17000	5140													
01E08615001 A 2	12/10/2001	17000	5150													
01E08615001 A 3	12/10/2001	17000	5100													
01E08615001 B 1	12/10/2001	17000	4950													
01E08615001 B 2	12/10/2001	18000	5070													
01E08615001 B 3	12/10/2001	18000	5030													
01E08615001 C 1	12/10/2001	18000	4470													
01E08615001 C 2	12/10/2001	19000	4780													
01E08615001 C 3	12/10/2001	17000	4730													
01E08615010 D 1	12/10/2001	14000	3990													
01E08615010 D 2	12/10/2001	14000	4120													
01E08615010 D 3	12/10/2001	15000	3980													
01E08615011 A 1	08/11/2001		5160													
01E08615011 A 2	08/11/2001		5450													
01E08615011 A 3	08/11/2001		5470													
01E08615011 B 1	08/11/2001		5480													
01E08615011 B 2	08/11/2001		5250													
01E08615011 B 3	08/11/2001		5460													
01E08615011 C 1	08/11/2001		5100													
01E08615011 C 2	08/11/2001		5420													

CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N_NO3	Na
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470

CCWA ID	Client ID	SO4_S	SiO2_Si	pH	alON_BAL
		mg/L	mg/L		%
00E0553/001	A 1	1910	25	8	-2.3
00E0553/002	A 3	1740	26	8	-0.6
00E0553/003	B 1	1750	26	8	2.9
00E0553/004	B 3	1730	26	8.1	1.8
00E0553/005	C 1	1600	26	8	1.4
00E0553/006	C 3	1580	25	8.1	3.9
00E0553/007	D 1	1350	21	8.4	1.4
00E0553/008	D 3	1320	19	8.8	2.2

CONDUCTIVITY
LAKE CLIFTON

TOP

	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	DCLM MS/CM	CHEM CNT MS/CM
	24/10/2000	15/12/2000	22/01/2001	20/02/2001	16/03/2001	16/03/2001
A1	41.4	48.9	61.8	67.7 error		70.8
A2	41.4	49.3	62	68.3 error		70.1
A3	41.4	49.4	61.6	68.7 error		69.7
B1	40.8	49.8	66.5	68.3	69.4	71.6
B2	40.8	49.4	62.1	68.4	69.4	70.7
B3	40.8	49.6	66.5	68.2	67.9	68
C1	38	50	71.4	79.5	86.4	87.3
C2	38.5	49.7	71	81.8	87	87.4
C3	37.9	50.5	74.1	86.3	45.9	90.2
D1	33.1	49.7	85.2	N/A	N/A	135
D2	32.5	48.9	81.4	93	N/A	119
D3	31.8	49.8	83.1	N/A	N/A	N/A

BOTTOM

	24/10/2000	15/12/2000	22/01/2001	20/02/2001	16/03/2001
A1	41.3	49.2	61.5	67.5 error	
A2	41.6	49.2	61.9	63.2 error	
A3	41.8	49	61.5	65.5 error	
B1	41.3	50	66.4	68.4	68.3
B2	41.3	49.7	62.1	68.2	69.5
B3	41.3	50	65.9	67.8 error	
C1	38.5	50.1	71.4	79.4	85.6
C2	38.6	50.1	70.9	79.1	83.1
C3	37.9	50.6	75.2	86.5	N/A
D1	33	49.7	84.4	91.8	N/A
D2	32.5	49.8	81.1	94.9	N/A
D3	31.9	50.1	82.6	98.5	N/A

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DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM
18/04/2001	18/04/2001	23/05/2001	23/05/2001	21/06/2001	21/06/2001	19/07/2001	19/07/2001
78.1	82.1	73.3	61.1	66.5	69	61.1	50.1
118.3	82	69.4	60.1	67.4	69.1	61.2	48.7
error	82.1	71.5	59.8	64.3	68.9	61.4	48.3
error	84.8	69.9	57.7	63.6	62.8	60	47
error	83	69.3	58.2	63.7	64.8	60.3	47.1
error	80.7	69.9	57.1	61.7	64.5	58.9	46.2
error	76.5	65.3	54.1	55.2	56.9	53.3	42.2
error	93.7	66.7	55	57.4	59.2	54.6	43.1
error	94.4	67.7	no sample	59.5	60.9	53.9	42.7
error	175	73.8	60	55.3	54.6	N/A	37.8
error	151	75	60.3	55.6	55.6	N/A	38.4
no sample	no sample	75.2	60.9	55.2	54.1	N/A	38.7

18/04/2001	23/05/2001	21/06/2001	19/07/2001
76	73.3	65.9	60.8
120	68.3	61.2	61.2
error	70.9	64	61.4
error		63.4	60
error	69.9	58.7	60.3
error			58.3
error	66.1	55.3	53.4
error	66.7	58.5	54.9
error		55.3	53.9
error	73.8	55.3	N/A
error	75.2	55.6	N/A
no sample	N/A	55.9	N/A

DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM	DCLM MS/CM	CHEM CNT MS/CM
09/08/2001	09/08/2001	20/09/2001	20/09/2001	12/10/2001	12/10/2001	08/11/2001	08/11/2001
61.4	58.7	50.5	49.6	49	51.4	51.2	51.4
61.5	58.7	50.4	49.9	49.4	51.5	52.1	54.5
61.6	58.7	49.2	48.8	49.2	51	51.5	54.7
58.2	55.4	50.1	48.8	47.7	49.5	51.4	54.8
58.7	55.7	49.9	48.8	48.8	50.7	51.5	52.5
58.2	55.6	48.5	47.5	48.5	50.3	51.3	54.4
52.3	49.6	42.8	41.9	43.2	44.7	51.3	51
53.1	49.8	42.7	42	45.7	47.8	51.4	54.2
52.6	49.3	40.6	39.9	45.3	47.3	50.4	52.7
48.7	44	37.7	36.6	38.4	39.9	48	50.4
47.9	44.3	37.4	36.3	40.1	41.2	48.5	50.5
46.3	43.1	36.8	35.9	39.8	39.8	49.8	50.6

09/08/2001	20/09/2001	12/10/2001	08/11/2001
61.3	50.4	49.7	51.1
60	50.4	49	52.8
61	49.4	49.2	51.4
58.1	50.4	47.7	51.4
58.8	49.8	48.8	51.4
58.8	48.7	48.3	51.4
52	44.2	42.5	50.5
53.1	43.7	45.7	51.3
52.5	40.7	45.3	50.4
48.5	37.7	38.4	47.9
47.9	37.4	40.1	48.3
46.3	36.9	39.8	43.6

4
/

DCLM MS/CM	CHEM CNT MS/CM
12/12/2001	12/12/2001
58	51.7 A1
58.2	51.7 A2
58.4	51.8 A3
58.2	51.3 B1
58.6	51.7 B2
59.2	52.2 B3
59.9	52.6 C1
60	52.8 C2
61.8	54.3 C3
61.4	54.3 D1
63.7	55.9 D2
63.4	55.7 D3

58.3	A1
58.2	A2
58.5	A3
58.4	B1
58.7	B2
59.4	B3
60.3	C1
60.2	C2
N/A	C3
61.4	D1
63.7	D2
63.4	D3

Department of Conservation and Land Management
WA Wildlife Research Centre
Wildlife Place (Ocean Reef Road Woodvale)
PO Box 51, Wanneroo, 6065
Telephone: (08) 9405 5163
Fax: (08) 9306 1641
Mobile: 0418945268

To: Jim Lane
From: Grant Pearson

Date: March 1 2002
Subject: Lake Clifton Salinity

Attached are data on the monthly recordings at Lake Clifton. Insitu measurements of conductivity were taken using a TPS 90 FLMV conductivity meter or a TPS handheld WP 84 unit. Both were calibrated prior to the surveys using a standard "AR" grade ionic solution at 2.76 mS/cm @25° C purchased from Rowe Scientific.

The surveys were carried out, whenever possible, on scheduled days established at the beginning of the year. In most cases the surveys could be performed using a punt launched from the Site A jetty or from a shore location at Site C. When lake depths became too shallow for the punt and motor a surf ski was used. This was carried by vehicle to each transect and launched from the eastern side of the lake. On several occasions the wind conditions made this operation an extremely wet experience and the conductivity meter failed due to the extreme conditions. There are gaps in this data set as a result of this.

Water samples were collected at all sites along the four transects. These were analysed at the WA Chemistry Centre for conductivity. Chloride levels were measured from the same sample from March 2001 and on a further 6 of the subsequent survey dates.

The depth at the CALM depth gauge was recorded on each occasion.
The field surveys relate to the following dates:

DATE	FIELD COND.	CHEM CNTR COND	CHLORIDE	CALM GAUGE	SAMPLER
17/10/00	Y	N	N	4.33	GP
24/10/00	Y	N	N	4.36	GP
15/12/00	Y	N	N	4.12	GP
22/01/01	Y	N	N	3.93	GP
20/02/01	Y	N	N		GP
16/03/01	Y	Y	Y	3.67	GP
18/04/01	Y	Y	N	3.64	GP
23/05/01	Y	Y	Y	3.74	AC
23/06/01	Y	Y	Y	3.82	GP
19/07/01	Y	Y	Y	3.97	GP
09/08/01	Y	Y	N		AC
20/09/01	Y	Y	Y	4.16	GP
12/10/01	Y	Y	Y	4.23	GP
08/11/01	Y	Y	N	4.11	GP
12/12/01	Y	Y	Y	4.00	AC

Further more detailed treatment of the data is necessary. This data is provided as preliminary results.

Grant Pearson
March 1 2001

2002  30/8/2014

15/12/00

	20/09/2000	24/10/2000	15/12/2000	22/01/2001	20/02/2001
A1	50.5	41.3	48.9	61.8	67.7
A2	50.4	41.6	49.3	62	68.3
A3	49.2	41.8	49.4	61.6	68.7
B1	50.1	41.3	49.8	66.5	68.3
B2	49.9	41.3	49.4	62.1	68.4
B3	48.5	41.3	49.6	66.5	68.2
C1	42.8	38.5	50	71.4	79.5
C2	42.7	38.6	49.7	71	81.8
C3	40.6	37.9	50.5	74.1	86.3
D1	37.7	33	49.7	85.2 na	
D2	37.4	32.5	48.9	81.4	93
D3	36.8	31.9	49.8	83.1 na	

BOTTOM

	24/10/2000	15/12/2000	22/01/2001	20/02/2001
A1	50.4	41.4	49.2	61.5
A2	50.4	41.4	49.2	61.9
A3	49.4	41.4	49	61.5
B1	50.4	40.8	50	66.4
B2	49.8	40.8	49.7	62.1
B3	48.7	40.8	50	65.9
C1	44.2	38	50.1	71.4
C2	43.7	38.5	50.1	70.9
C3	40.7	37.9	50.6	75.2
D1	37.7	33.1	49.7	84.4
D2	37.4	32.5	49.8	81.1
D3	36.9	31.8	50.1	82.6

	16/03/2001	18/04/2001	23/05/2001	21/06/2001	19/07/2001	09/08/2001	20/09/2001
		78.1	73.3	66.5	61.1	61.4	61.4
		118.3	69.4	67.4	61.2	61.5	50.5
			71.5	64.3	61.4	61.6	49.2
	na		69.9	63.6	60	58.2	50.1
	69.4 na		69.3	63.7	60.3	58.7	49.9
	69.4 na		69.9	61.7	58.9	58.2	48.5
	67.9 na		65.3	55.2	53.3	52.3	42.8
	86.4 na		66.7	57.4	54.6	53.1	42.7
	87 na		67.7	59.5	53.9	52.6	40.6
	45.9 na		73.8	55.3 na		48.7	37.7
	na		75	55.6 na		47.9	37.4
	na		75.2	55.2 na		46.3	36.8

	16/03/2001	18/04/2001	23/05/2001	21/06/2001	19/07/2001	09/08/2001	20/09/2001
		76	73.3	65.9	60.8	61.3	61.3
		120	68.3	61.2	61.2	60	50.4
	na		70.9	64	61.4	61	49.4
	68.3 na			63.4	60	58.1	50.4
	69.5 na		69.9	58.7	60.3	58.8	49.8
	na				58.3	58.8	48.7
				55.3	53.4	52	44.2
	85.6 na		66.1	58.5	54.9	53.1	43.7
	83.1 na		66.7	55.3	53.9	52.5	40.7
	na			55.3 na		48.5	37.7
	na		73.8	55.6 na		47.9	37.4
	na		75.2	55.9 na		46.3	36.8
	na	na					

15/12/00

20/09/2001

A1
A2
A3
B1
B2
B3
C1
C2
C3
D1
D2
D3

50.5
50.4
49.2
50.1
49.9
48.5
42.8
42.7
40.5
37.7
37.4
36.8

12/10/2001

49
49.4
49.2
47.7
48.8
48.5
43.2
45.7
45.3
38.4
40.1
39.8

08/11/2001

51.2
52.1
51.5
51.4
51.5
51.3
51.3
51.4
50.4
48
48.5
49.8

12-Dec 2001

58 A1
58.2 A2
58.4 A3
58.2 B1
58.6 B2
59.2 B3
59.9 C1
60 C2
61.8 C3
61.4 D1
63.7 D2
63.4 D3

BOTTOM

20/09/2001

A1
A2
A3
B1
B2
B3
C1
C2
C3
D1
D2
D3

50.4
50.4
49.4
50.4
49.9
48.7
48.2
48.7
48.7
57.7
57.4
56.9

12/10/2001

49.7
49
49.2
47.7
48.8
48.3
42.5
45.7
45.3
38.4
40.1
39.8

08/11/2001

51.1
52.8
51.4
51.4
51.4
51.4
50.5
51.3
50.4 NA
47.9
48.3
43.6

58.3 A1
58.2 A2
58.5 A3
58.4 B1
58.7 B2
59.4 B3
60.3 C1
60.2 C2
C3
61.4 D1
63.7 D2
63.4 D3

Dec 01

CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
01E0787/0	A1	12/12/2001	23000	5170
01E0787/0	A2	12/12/2001	21000	5170
01E0787/0	A3	12/12/2001	21000	5180
01E0787/0	B1	12/12/2001	22000	5130
01E0787/0	B2	12/12/2001	22000	5170
01E0787/0	B3	12/12/2001	22000	5220
01E0787/0	C1	12/12/2001	22000	5260
01E0787/0	C2	12/12/2001	22000	5280
01E0787/0	C3	12/12/2001	23000	5430
01E0787/0	D1	12/12/2001	23000	5430
01E0787/0	D2	12/12/2001	22000	5590
01E0787/0	D3	12/12/2001	22000	5570

DATE 12/12/01

SAMPLER ALAN CLARKE

depth on gauge 2 was 4.00m

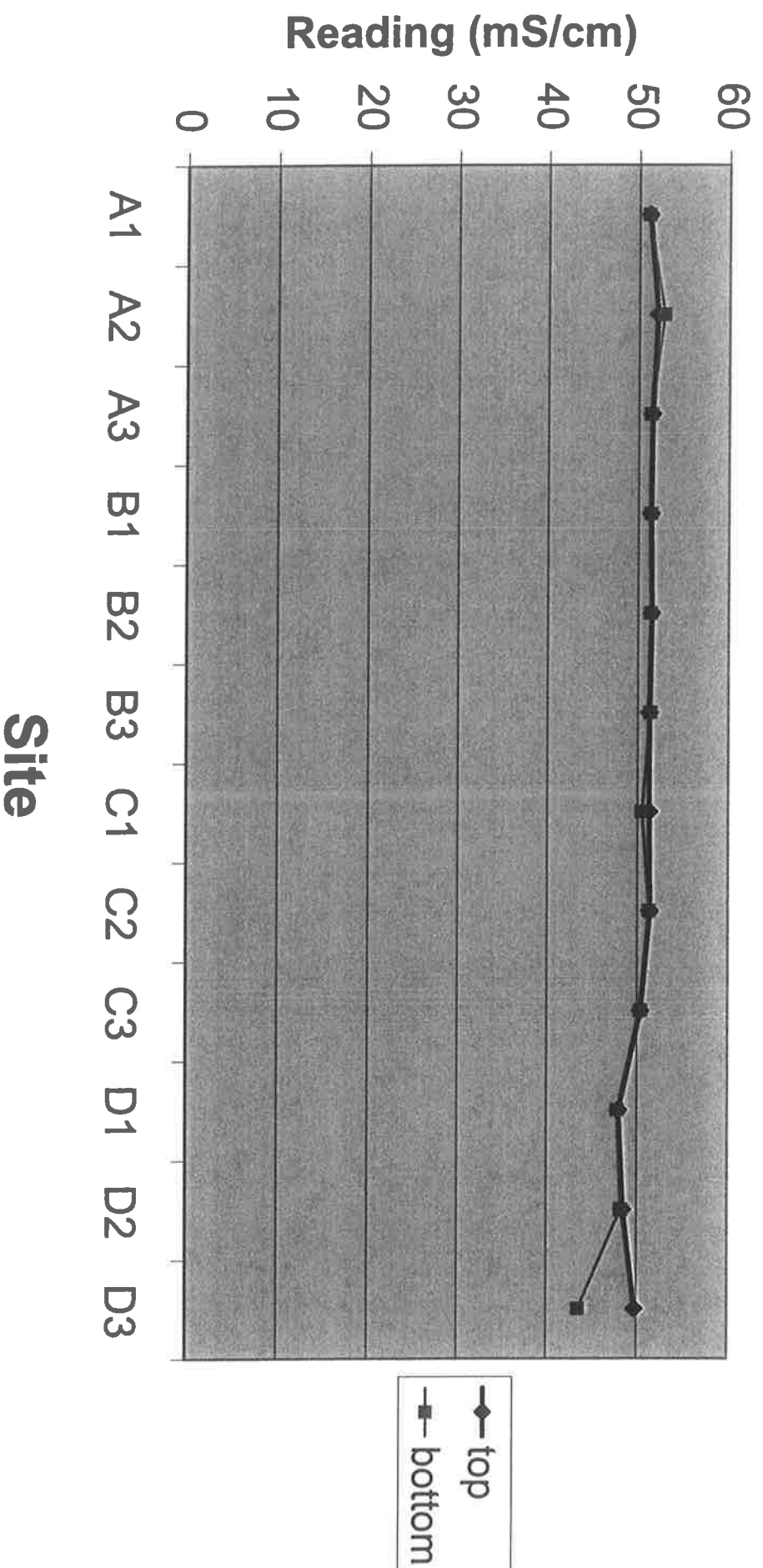
SITE	EAST	NORTH	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH	TIME
	WGS84	WGS84	AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs	
A1	374048	6376114	373909	6375966	58.0		22.4	58.3		22.0	0.84	12.40
A2	373368		373229		58.2		22.0	58.2		21.6	1.52	
A3	372847		372708		58.4		22.4	58.5		22.2	1.18	12.15
B1	374787	637038	374648	6372890	58.2		23.1	58.4		22.4	0.46	12.00
B2	374389		374250		58.6		22.8	58.7		22.5	0.78	
B3	373891		373752		59.2		24.1	59.4		24.0	0.34	11.44
C1	376001	6368604	375867	6368456	59.9		21.8	60.3		21.6	0.67	
C2	375809		375670		60.0		21.6	60.2		21.3	0.78	
C3	375441		375302		61.8		23.7				0.22	one reading only
D1	377767	6364355	377628	6364207	61.4		21.8	61.4		21.8	0.38	10.45
D2	377411		377272		63.3		20.6	63.7		20.5	0.48	
D3	377110		376971		63.2		21.1	63.4		21.1	0.28	10.25

Calibration of TPS 90-FLMV

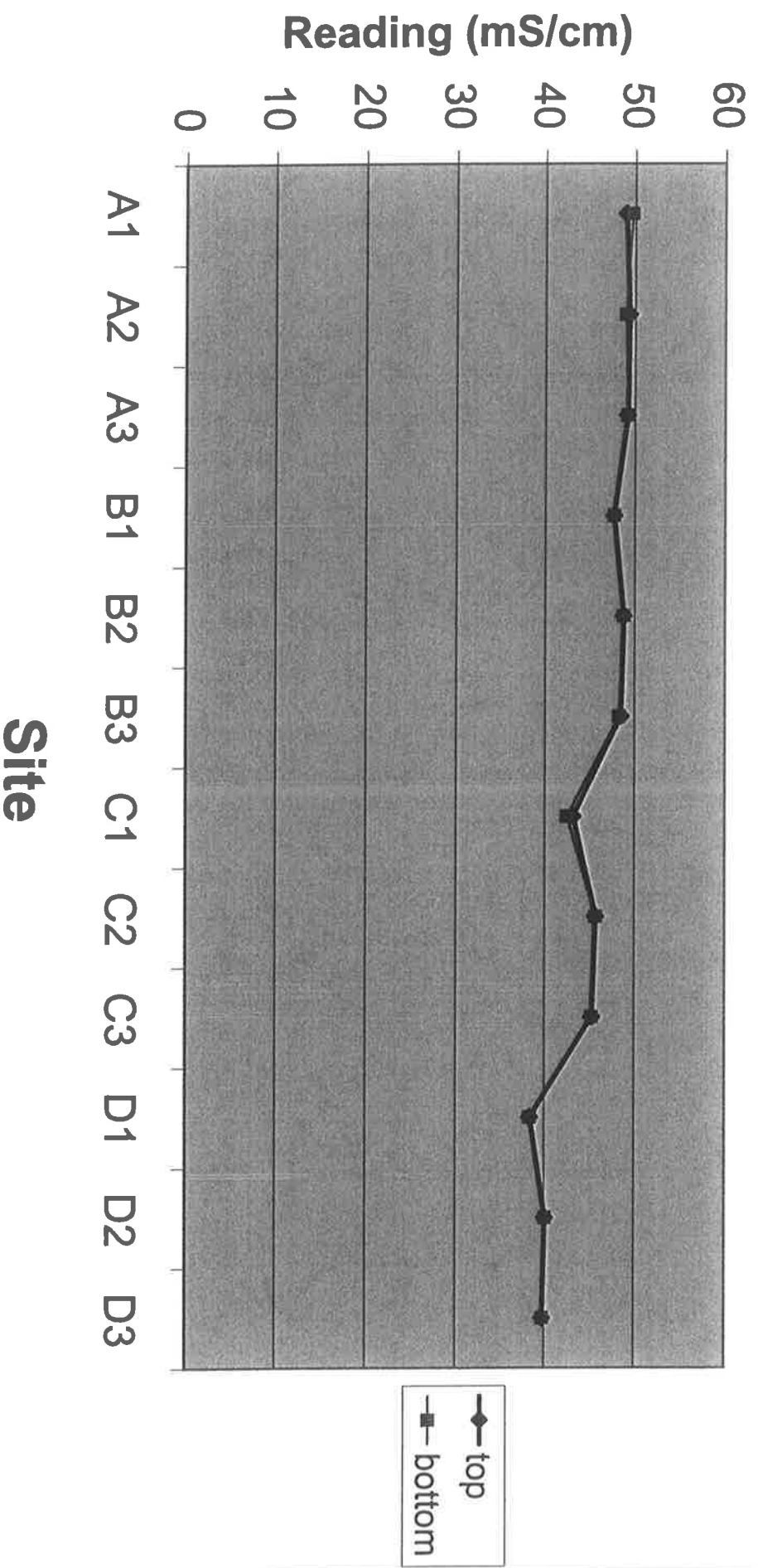
2.76ms/cm (field quantity) read 2.75ms @ 22.4°C

Calibration O.K. span 103.2%

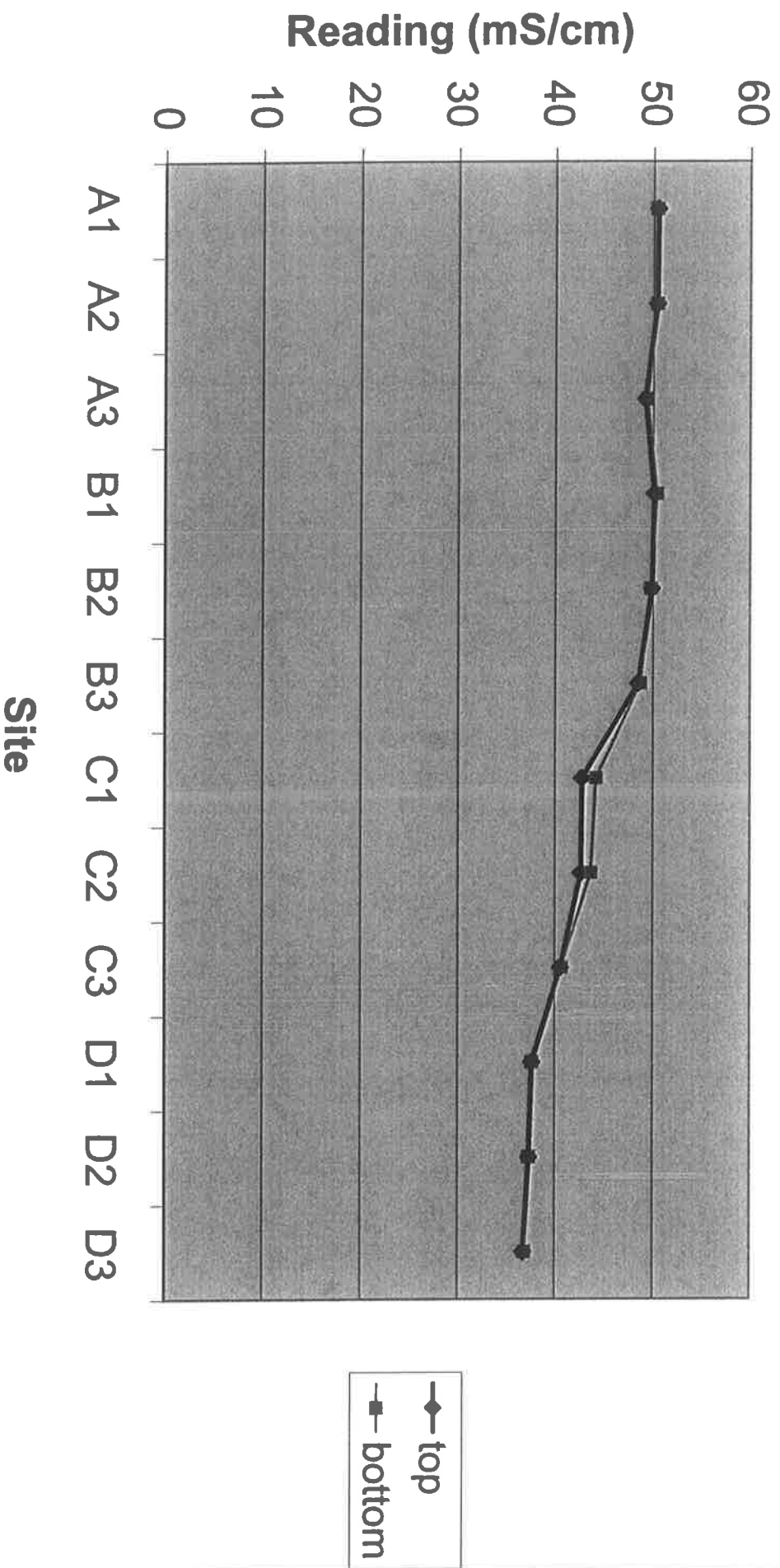
Lake Clifton Conductivity Readings (8/11/2001)



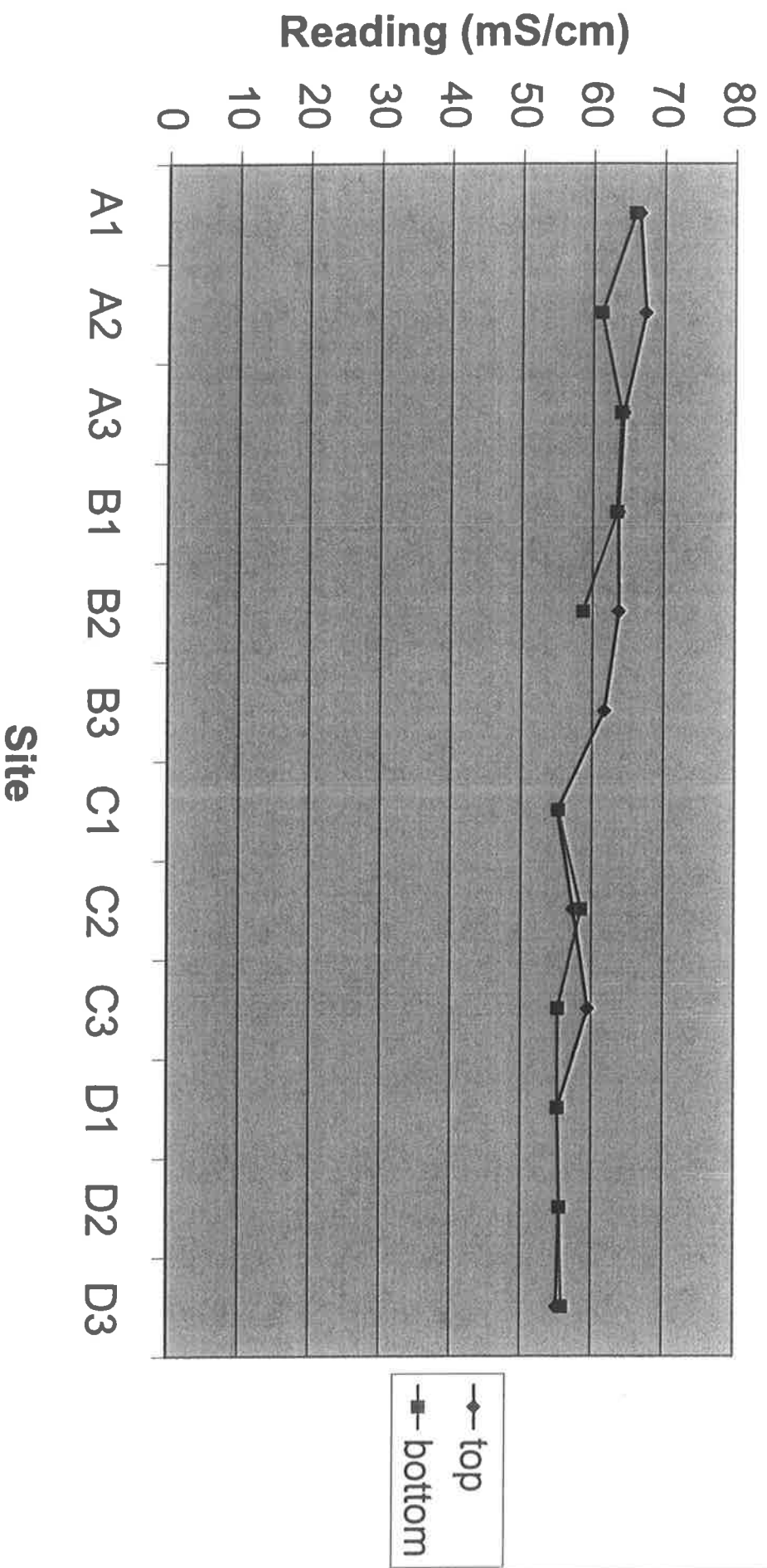
Lake Clifton Conductivity Readings (12/10/2001)



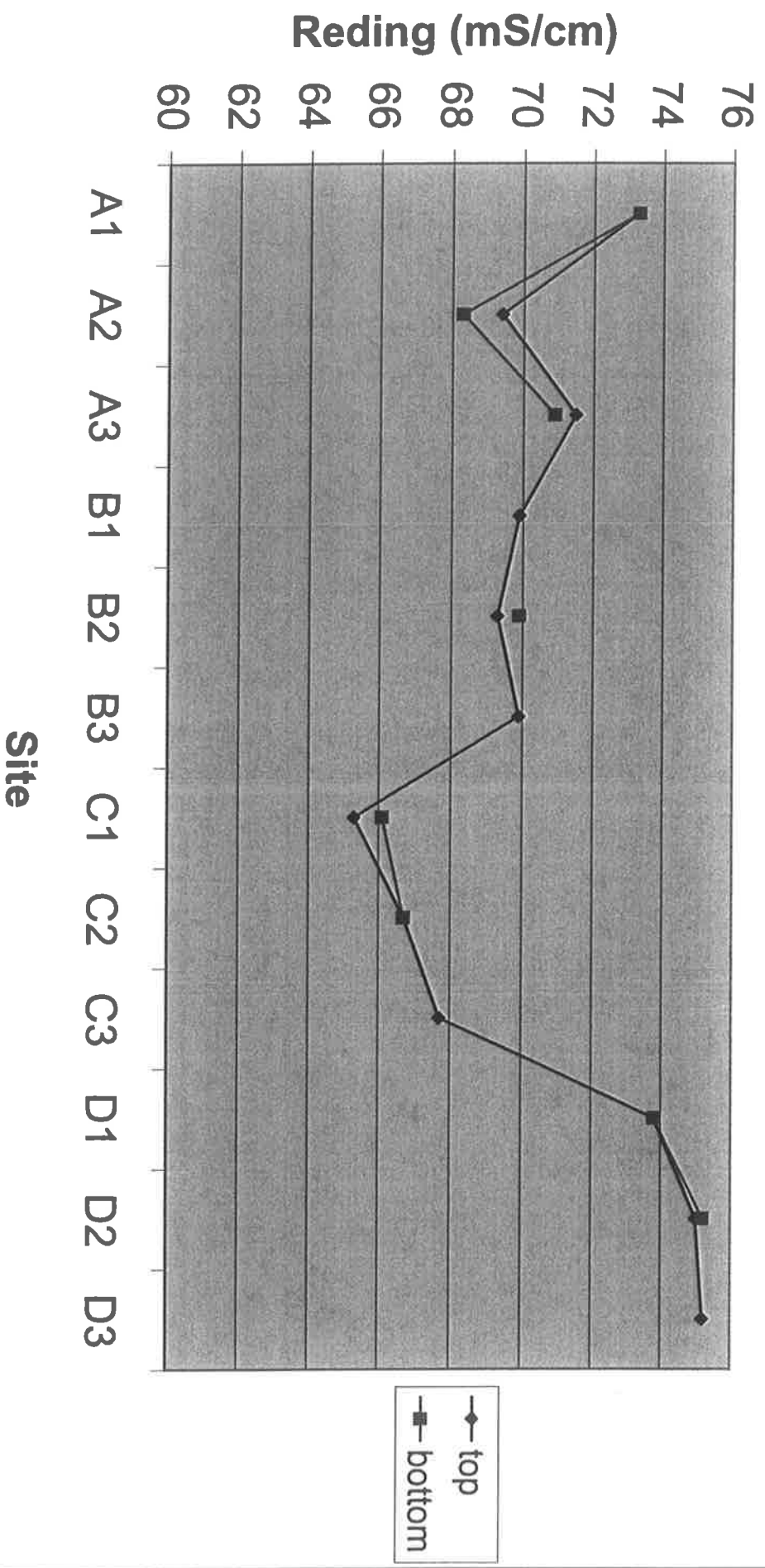
Lake Clifton Conductivity Readings (20/09/2001)



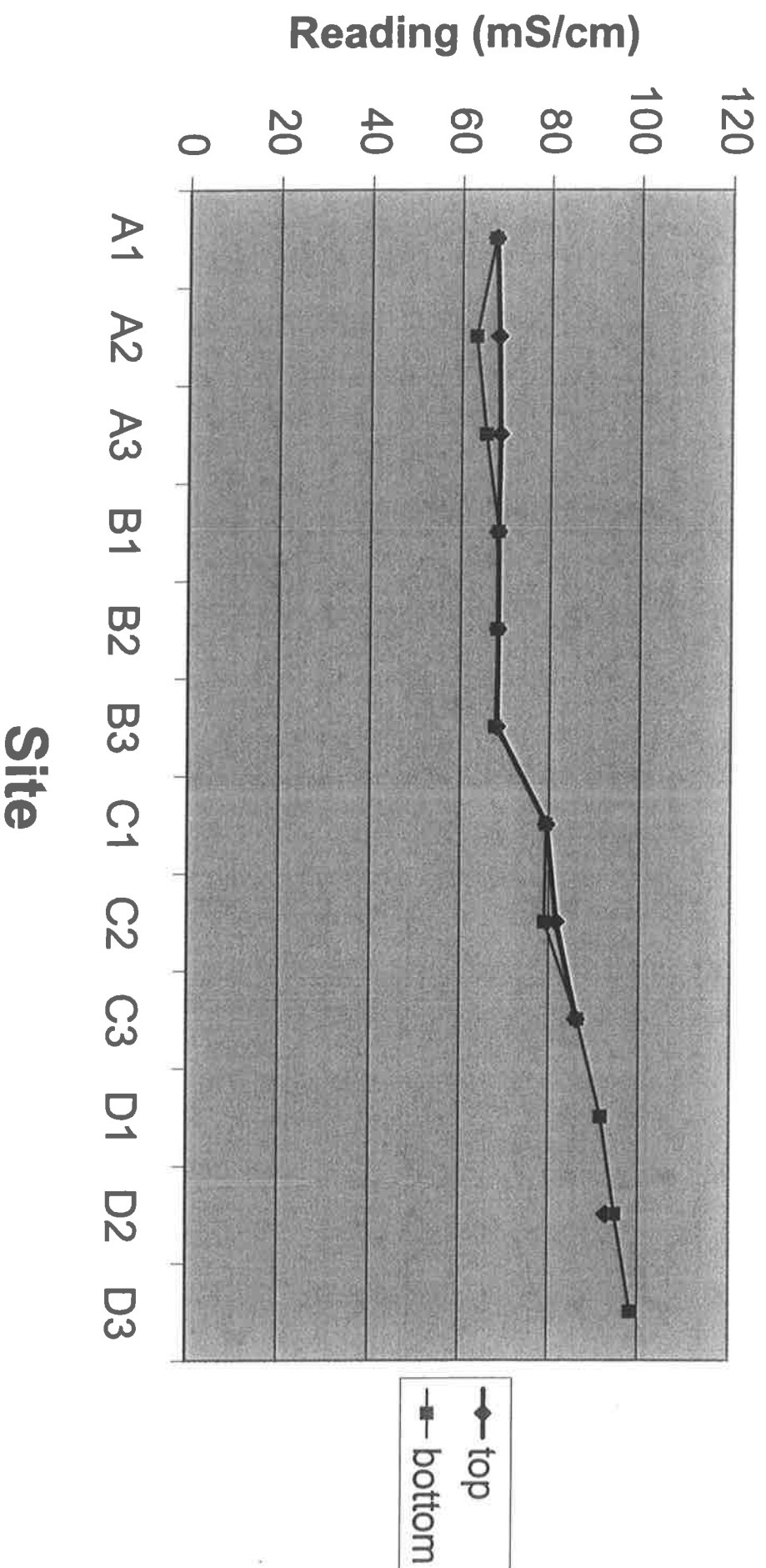
Lake Clifton Conductivity Readings (21/06/2001)



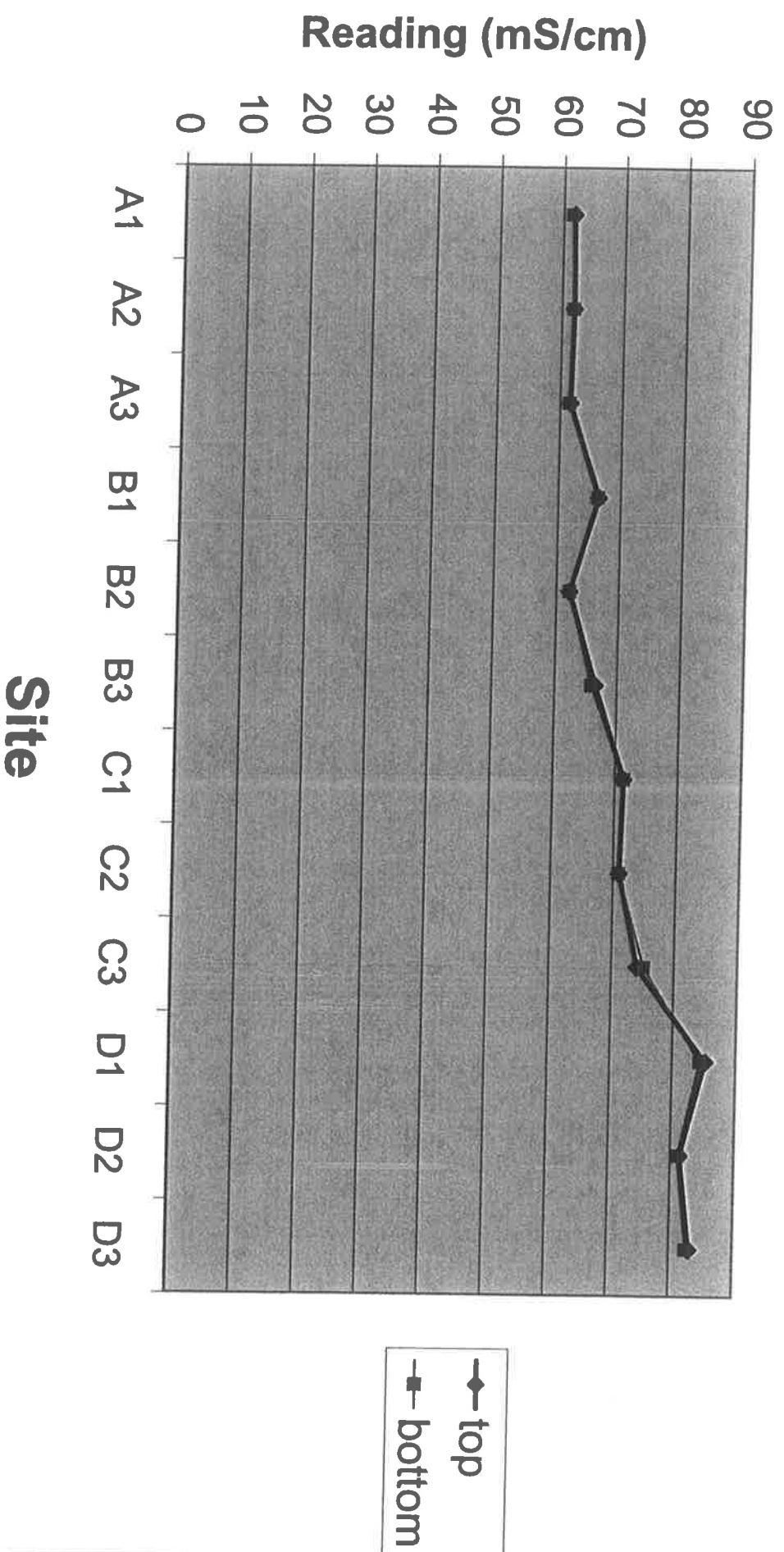
Lake Clifton Conductivity Readings 23/05/2001



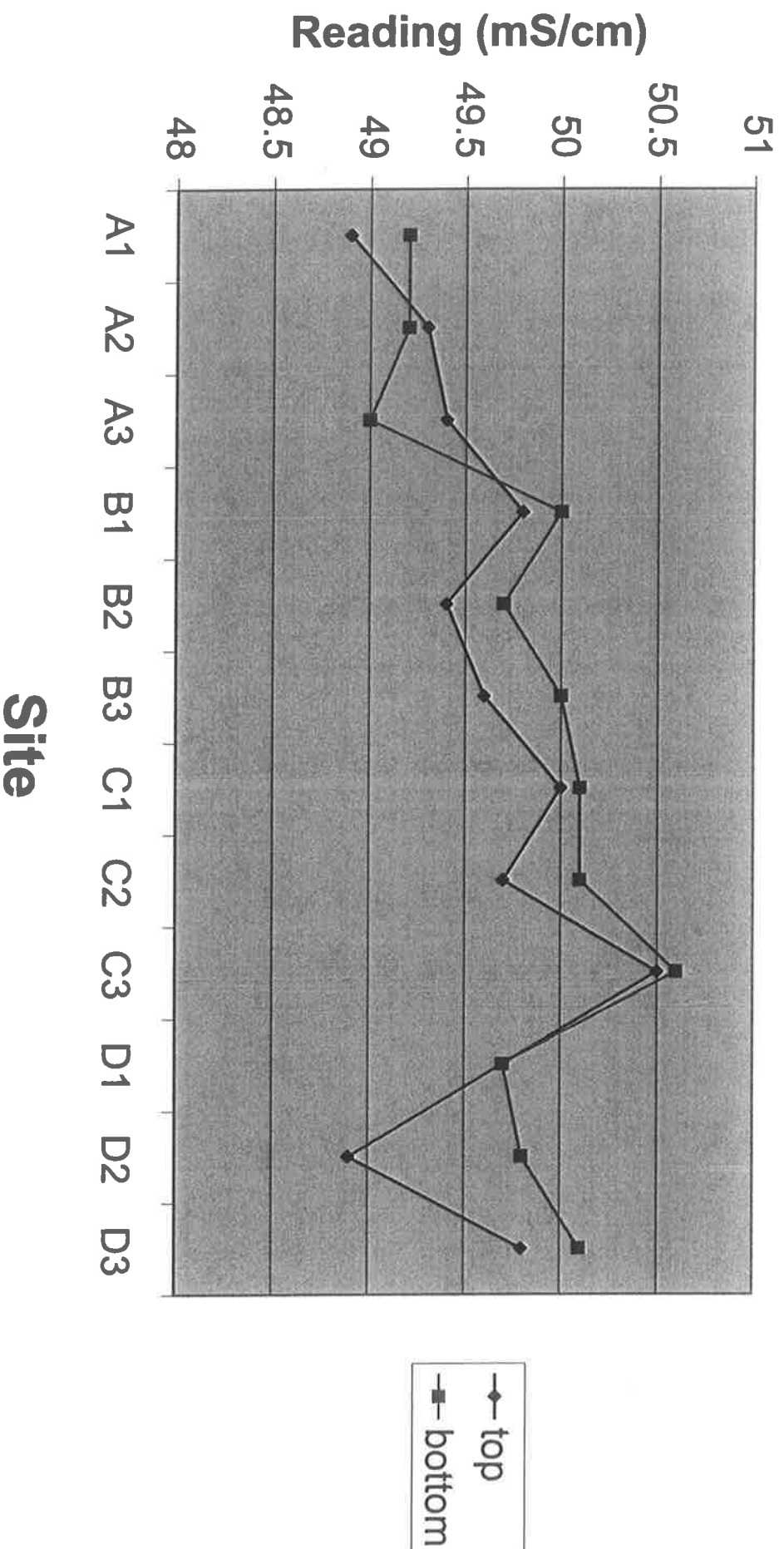
Lake Clifton Conductivity Readings (20/02/2001)



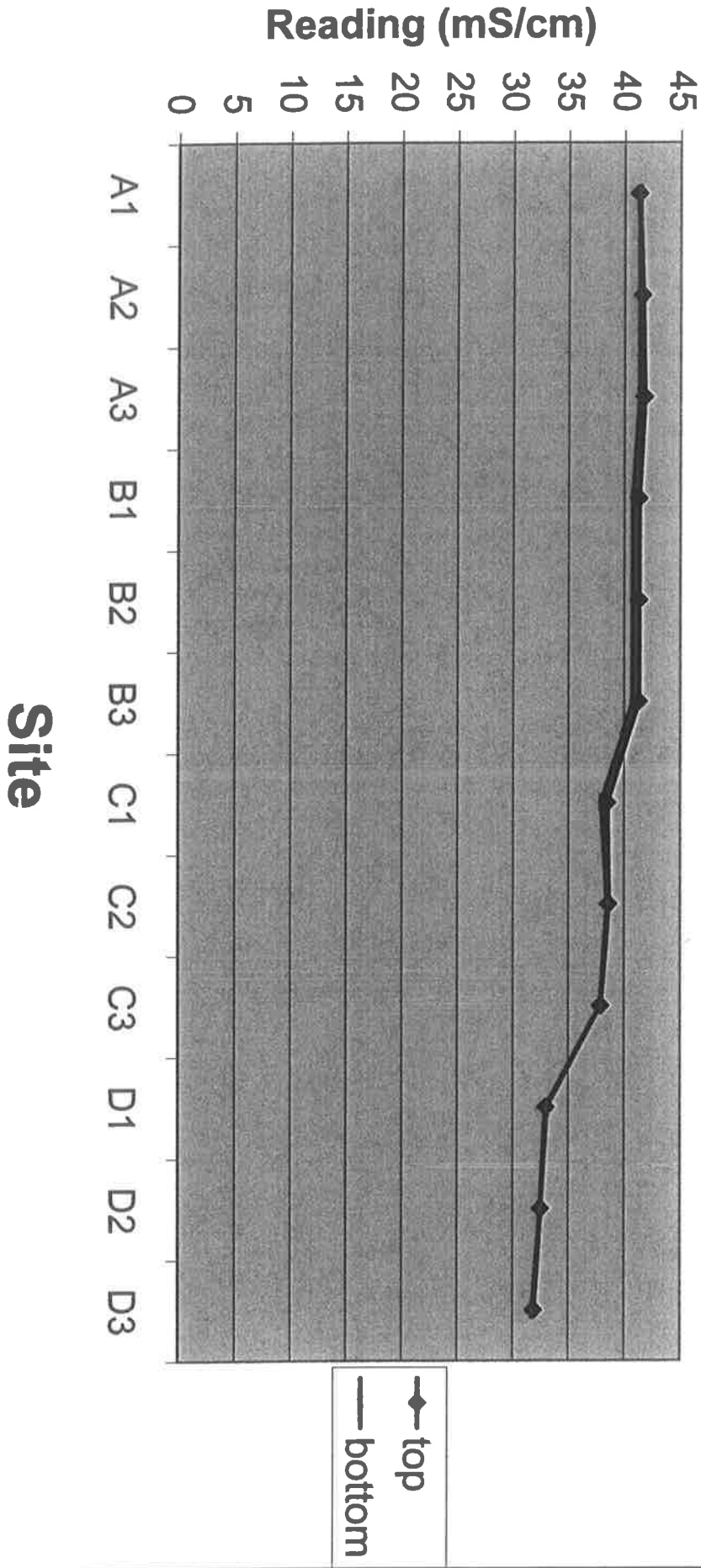
Lake Clifton Conductivity Readings (22/01/2001)



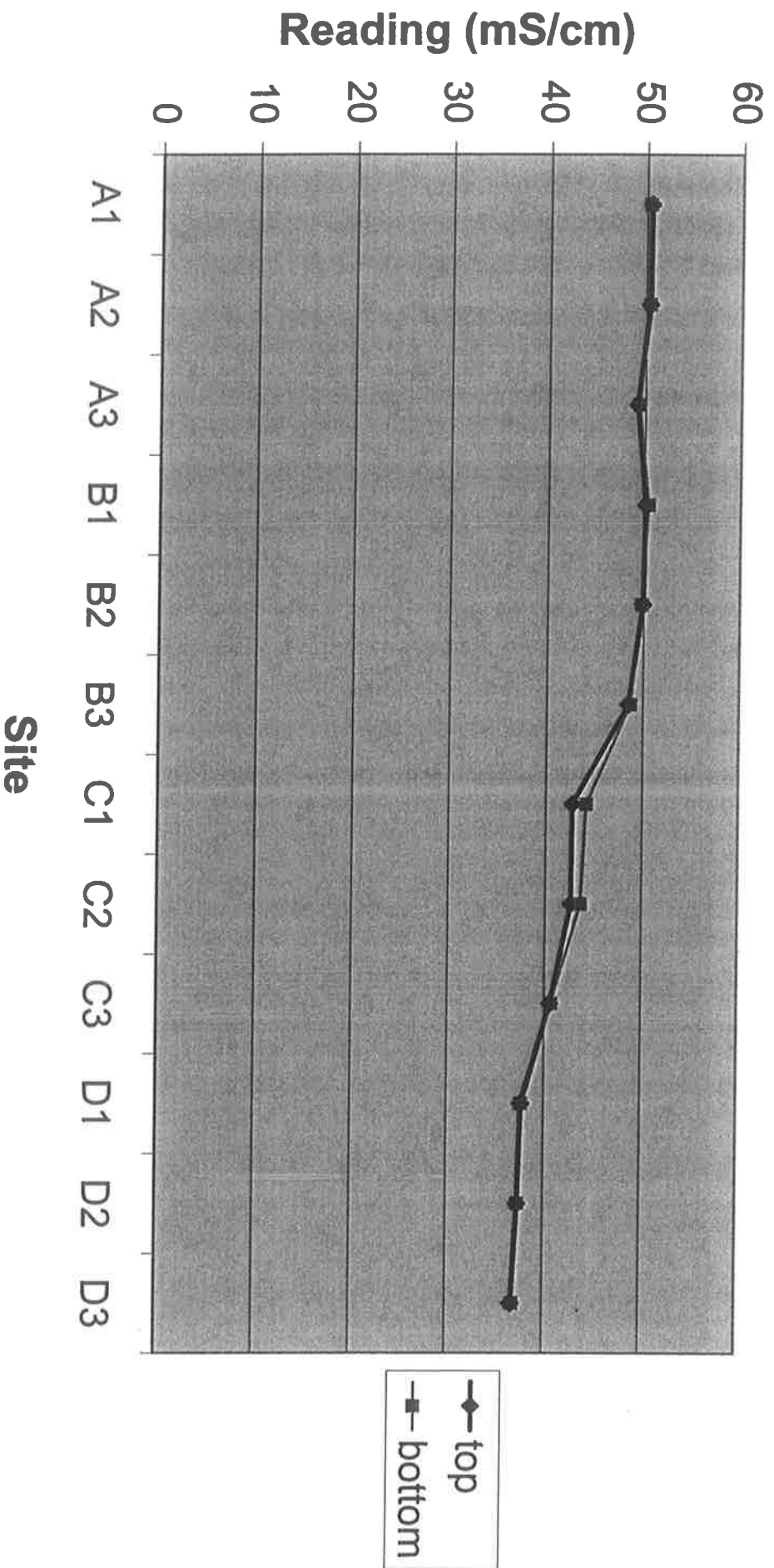
Lake Clifton Conductivity Readings (15/12/2000)



Lake Clifton Conductivity Readings (24/10/2000)



Lake Clifton Conductivity Readings (20/9/2000)



CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
01E0561/001	A 1	12/10/2001	17000	5140
01E0561/002	A 2	12/10/2001	17000	5150
01E0561/003	A 3	12/10/2001	17000	5100
01E0561/004	B 1	12/10/2001	17000	4950
01E0561/005	B 2	12/10/2001	18000	5070
01E0561/006	B 3	12/10/2001	18000	5030
01E0561/007	C 1	12/10/2001	15000	4470
01E0561/008	C 2	12/10/2001	16000	4780
01E0561/009	C 3	12/10/2001	17000	4730
01E0561/010	D 1	12/10/2001	14000	3990
01E0561/011	D 2	12/10/2001	14000	4120
01E0561/012	D 3	12/10/2001	15000	3980
01E0561/013	A 1	08/11/2001		5140
01E0561/014	A 2	08/11/2001		5450
01E0561/015	A 3	08/11/2001		5470
01E0561/016	B 1	08/11/2001		5480
01E0561/017	B 2	08/11/2001		5250
01E0561/018	B 3	08/11/2001		5440
01E0561/019	C 1	08/11/2001		5100
01E0561/020	C 2	08/11/2001		5420
01E0561/021	C 3	08/11/2001		5270
01E0561/022	D 1	08/11/2001		5040
01E0561/023	D 2	08/11/2001		5050
01E0561/024	D 3	08/11/2001		5060

8/11/01

8/11/01

Water 2/1/0

Good water in well 2000

05/100

Good in C. 10/1/00

1430

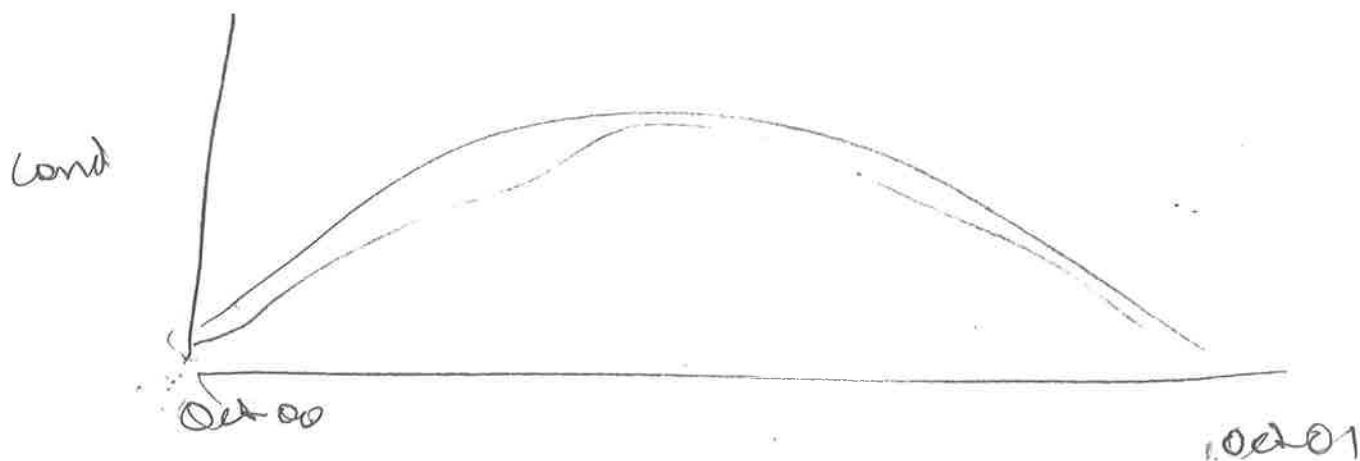
	Off Temp	Boiling Temp	Off Temp	Boiling Temp
A1	51.2	21.2	50.2	20.9
A2	52.1	20.8	52.1	21.2
A3	51.5	19.1	51.4	19.0
B1	51.4	20.3	51.4	20.4
B2	51.5	20.3	51.5	20.3
B3	51.3	20.7	51.3	20.6
C1	51.3	20.9	50.5	20.2
C2	51.4	21.4	51.3	21.3
C3	50.4	20.6	50.4	20.2
D1	48.0	25.1	47.9	25.1
D2	48.5	25.6	48.3	25.9
D3	48.8	24.4	48.6	24.4

12/10/01

DATE	12/10/01	4:00pm	10:10	10:10			
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH 4.23
A1	11:13	CALM	49.0	17.9	49.7	17.9	1.2
		CC					
A2	11:19	CALM	49.4	17.8	49.9	17.9	2.0
		CC					
A3	11:20	CALM	49.2	17.9	49.2	17.8	0.60
		CC					
B1	10:25	CALM	47.7	16.9	47.7	16.9	0.60
		CC					
B2	10:30	CALM	48.8	17.5	48.8	17.6	0.90
		CC					
B3	10:35	CALM	48.5	17.8	48.3	17.8	0.50
		CC					
C1	09:30	CALM	42.2	16.6	42.2	16.9	0.70
		CC	43.2	16.9	42.5	16.9	
C2	09:44	CALM	45.7	17.7	45.7	17.7	0.9
		CC					
C3	09:50	CALM	45.3	17.7	45.3	17.8	0.4
		CC					
D1	10:16	CALM	38.4	17.4	38.4	17.4	0.4
		CC					
D2	10:10	CALM	40.1	17.7	40.1	17.7	0.6
		CC					
D3	10:05	CALM	39.8	17.8	39.8	17.8	0.4
		CC					-

"E" denotes Error in TPS conductivity meter recording

Wind - 15-20 Km/Hr SW.





**CHEMISTRY
CENTRE**

Your Ref: Lake Clifton
Our Ref: 01E0387; 3.1.1
Enquiries to: Jenny McGuire
Telephone:

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

12 samples of water received on 2 October 2001

Analyte Unit	Cl mg/L	ECond mS/m
-----------------	------------	---------------

CCWA ID	Client ID	Sampled		
01E0387/001	A1	20/09/01	19000	4960
01E0387/002	A2	20/09/01	18000	4990
01E0387/003	A3	20/09/01	19000	4880
01E0387/004	B1	20/09/01	19000	4880
01E0387/005	B2	20/09/01	19000	4880
01E0387/006	B3	20/09/01	19000	4750
01E0387/007	C1	20/09/01	17000	4190
01E0387/008	C2	20/09/01	16000	4200
01E0387/009	C3	20/09/01	15000	3990
01E0387/010	D1	20/09/01	14000	3660
01E0387/011	D2	20/09/01	14000	3630
01E0387/012	D3	20/09/01	13000	3590

Analyte	Method	Description
Cl	iCL1WAAA	Chloride
ECond	iEC1WZSE	Electrical Conductivity, 25 degrees celcius.

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.

01E0387
8 October 2001

1/2

Chemistry Centre (WA)

125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

**Chemistry Centre of Western Australia
Environmental Chemistry Section**

REPORT OF EXAMINATION


**Jenny McGuire
Principal Chemist
Environmental Chemistry Section**

8 October 2001

DEPARTMENT OF

Conservation
AND LAND MANAGEMENT

Conserving the nature of WA



CALMScience Division

Wildlife Research Centre

Wildlife Place

Woodvale WA 6026

(P O Box 51 Wanneroo WA 6946)

Telephone (08) 9405 5100

Facsimile (08) 9306 1641

FACSIMILE TRANSMISSION

To:	<i>Jonny McGuire</i>
Location:	<i>Chemistry Centre</i>
Subject:	
From:	
Date:	
Pages including this one:	

Comments:

Please analyse the accompanying samples from Lake Clifton for the following:

20/9/01 Conductivity and chloride

9/8/01 Conductivity and chloride

2/6/01 Conductivity and chloride

*Screenwest Black Grant
film making in WA*

9224 7340

memory for culture & arts

www.screenwest.com.au

Gay dome Marketing

Museum

Doc Unit at WAMU

Producer - over ideas
Put app to screenwriter for script

9224 7350.
his Casey
Funding Prog Coordinator

109

National Broadcaster

0900

May 5/6

Low Chambers

573/604

Level 7

20/9/07

Depth Gauge = 4.16

DATE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH
A1	1115	CALM 18 ⁺	50.5	17.1	50.4	17.1	1.1
		CC					
A2		CALM	50.4	17.3	50.4	17.3	7.8
		CC					
A3		CALM	49.2	16.4	49.4	16.4	1.2
		CC					
B1		CALM 19 ⁺	50.1	16.8	50.4	16.9	0.8
		CC					
B2		CALM	49.9	16.3	49.8	16.3	0.8
		CC					
B3		CALM	48.5	16.5	48.7	16.5	0.4
		CC					
C1		CALM 11 ⁺	42.8	16.5	44.2	16.9	0.8
		CC					
C2		CALM	42.7	16.3	43.7	16.5	1.0
		CC					
C3		CALM	40.6	15.8	40.7	15.8	0.4
		CC					
D1		CALM 12 ⁺	37.7	16.6	37.7	16.6	0.5
		CC					
D2		CALM	37.4	16.5	37.4	16.5	0.7
		CC					
D3		CALM	36.8	16.3	36.9	16.3	0.4
		CC					

"E" denotes Error in TPS conductivity meter recording

Calibrated at 2760 μ S. 20/9,



CHEMISTRY CENTRE

Your Ref :
Our Ref : **01E0363; 3.1.1**
Enquiries to: **Jenny McGuire**
Telephone:

Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson

Report on:

24 samples of water received on 25 September 2001

Analyte	Unit	Cl	ECond
		mg/L	mS/m

CCWA ID	Client ID	Sampled	Cl	ECond
01E0363/001	A 1	21/06/01	24000	6900
01E0363/002	A 2	21/06/01	25000	6910
01E0363/003	A 3	21/06/01	23000	6890
01E0363/004	B 1	21/06/01	22000	6280
01E0363/005	B 2	21/06/01	23000	6480
01E0363/006	B 3	21/06/01	22000	6450
01E0363/007	C 1	21/06/01	20000	5690
01E0363/008	C 2	21/06/01	20000	5920
01E0363/009	C 3	21/06/01	22000	6090
01E0363/010	D 1	21/06/01	21000	5460
01E0363/011	D 2	21/06/01	20000	5560
01E0363/012	D 3	21/06/01	20000	5410
01E0363/013	A 1	09/08/01	-	5870
01E0363/014	A 2	09/08/01	-	5870
01E0363/015	A 3	09/08/01	-	5870
01E0363/016	B 1	09/08/01	-	5540
01E0363/017	B 2	09/08/01	-	5570
01E0363/018	B 3	09/08/01	-	5560
01E0363/019	C 1	09/08/01	-	4960
01E0363/020	C 2	09/08/01	-	4980
01E0363/021	C 3	09/08/01	-	4930
01E0363/022	D 1	09/08/01	-	4400
01E0363/023	D 2	09/08/01	-	4430
01E0363/024	D 3	09/08/01	-	4310

Analyte	Method	Description
Cl	iCL1WAAA	Chloride
ECond	IEC1WZSE	Electrical Conductivity, 25 degrees celcius.

01E0363
3 October 2001

1/2

Chemistry Centre (WA)

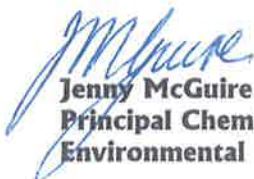
125 Hay Street, East Perth, Western Australia 6004
ABN 40-991-885-705

Telephone (08) 9222 3177 Facsimile (08) 9325 7767
Email: chemistry@ccwa.wa.gov.au Website: www.ccwa.wa.gov.au

**Chemistry Centre of Western Australia
Environmental Chemistry Section**

REPORT OF EXAMINATION

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.


Jenny McGuire
Principal Chemist
Environmental Chemistry Section

3 October 2001

Your Ref :
Our Ref :
Enquiries to :
Telephone :

**01E0122; 3.1.1
Jenny McGuire**

**Research Centre Manager
Department of Conservation and Land Management
PO Box 51
WANNEROO
WA 6065
Attention : G Pearson**

Report on:

12 samples of water received on 31 July 2001

Analyte Unit	Cl mg/L	ECond mS/m
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CCWA ID	Client ID
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01E0122/001	A1	21000	5010
01E0122/002	A2	22000	4870
01E0122/003	A3	22000	4830
01E0122/004	B1	22000	4700
01E0122/005	B2	22000	4710
01E0122/006	B3	22000	4620
01E0122/007	C1	18000	4220
01E0122/008	C2	20000	4310
01E0122/009	C3	20000	4270
01E0122/010	D1	17000	3780
01E0122/011	D2	18000	3840
01E0122/012	D3	18000	3870

Analyte	Method	Description
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Cl	iCL1WAAA	Chloride
ECond	IEC1WZSE	Electrical Conductivity, 25 degrees celcius.

These results apply only to the sample(s) as received.
Unless arrangements are made to the contrary, these samples
will be disposed of after 60 days of the issue of this
report.

The results presented in this report have been emailed in an
excel spreadsheet format. If you did not receive this please
contact Jenny McGuire on 08 92223019.

01E0122
16 August 2001

1/2

Chemistry Centre (WA)

**Chemistry Centre of Western Australia
Environmental Chemistry Section**

REPORT OF EXAMINATION



**Jenny McGuire
Principal Chemist
Environmental Chemistry Section**

16 August 2001

Department of Conservation and Land Management

Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Research Centre Manager
Date: 31/7/01
Subject: Water analyses –lake Clifton

I would be grateful if you would analyse the accompanying 12 samples from Lake Clifton for conductivity and chloride.

Thanks

July Survey

↑ = July (2001) Survey

J 30/8/2014

DATE	23/6/01						
SITE	TIME	ANALYSIS	TOP CON MS/CM	TOP TEMP C	BOTTOM CON C	BOTTOM TEMP C	DEPTH
A1		CALM	78.1	21	76.0	21.4	1.0
		CC					
A2		CALM	E	21.6	E	21.7	1.2
		CC					
A3		CALM	E	23.9	E	24.0	0.3
		CC					
B1		CALM	E		E		0.1
		CC					
B2		CALM	E		E		0.5
		CC					
B3		CALM	E		E		0.05
		CC					
C1		CALM	E		E		0.05
		CC					
C2		CALM	E		E		0.3
		CC					
C3		CALM	E		E		0.05
		CC					
D1		CALM	E		E		0.02
		CC					
D2		CALM	E		E		0.01
		CC					
D3		CALM	-				
		CC					-

“E” denotes Error in TPS conductivity meter recording

21/6/01

5.82.47 21/6/01

Act	Top		Bottom		Dist
	Con	Temp	Con	Temp	
R1	66.5	16.3	65.9	16.4	1.2
R2	67.4	16.1	67.2	16.1	1.5
R3	67.5	16.0	67.0	16.3	0.5
R1	63.6	15.3	63.4	15.3	0.3
R2	63.7	15.3	63.7	15.6	0.7
R3	61.7	16.1	-	-	0.1
R1	55.2	16.7	55.3	16.7	0.5
R2	57.4	16.5	57.0	16.8	1.5
R3	59.5	17.1	58.8	17.1	0.1
(Clat 100	55.3		55.3		
D1	54.8	16.7	55.3	16.7	0.3
D2	55.6	16.3	55.6	16.4	0.5
D3	55.2	17.2	55.9		0.2

SURVEY CONDUCTED BY ALVIN CLARK 25/5/01
using the Ocean Kayak.

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
A1	373909	6375966		73.3		18.6		73.3	18.1	0.7
A2	373229			69.4		17.1		68.3	17.1	1.45
A3	372708			71.5		17.4		70.9	17.1	0.9400
B1	374648	6372890		69.9		19.6		-	-	0.300
B2	374250			69.3		19.8		69.9	19.9	0.500
B3	373752			69.9		19.9		-	-	0.300
C1	375867	6368456		65.3		18.6		66.1	18.1	0.400
C2	375670			66.7		17.5		66.7	17.5	0.300
C3	375302			67.7		19.7		-	-	0.200
										28m east of position
D1	377628	6364207		73.8		15.4		73.8	15.4	0.330
D2	377272			75.0		15.7		75.2	15.8	0.220
D3	376971			75.2		16.7		-	-	0.150
										30m east of position

Depth gauge (No. 2) at
ST. JOHN ROAD read
3.74m at 1645 hrs.

NOTE: Problems with TPS not sitting down
water samples need to be measured
and checked against field values.

Department of Conservation and Land Management

Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Research Centre Manager
Date: 4/5/01
Subject: Water Analyses

I would be grateful if you would analyse the accompanying 12 samples for conductivity.

Grant Pearson

Department of Conservation and Land Management

Woodvale Research Centre

Wildlife Place (Ocean Reef Road Woodvale)

PO Box 51, Wanneroo, 6065

Telephone: (08) 9405 5163

Fax: (08) 9306 1641

Mobile: 0418945268

To: Jenny McGuire
Chemistry Centre
From: Grant Pearson
Research Centre Manager
Date: 3/5/01
Subject: Water Analyses – file: WRCwater01

I would be grateful if you would analyse the accompanying 2 samples for nitrogen and potassium.

Grant Pearson

CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
00E1224/001	A 1	16/03/2001	30000	7080
00E1224/002	A 2	16/03/2001	30000	7010
00E1224/003	A 3	16/03/2001	30000	6970
00E1224/004	B 1	16/03/2001	29000	7160
00E1224/005	B 2	16/03/2001	29000	7070
00E1224/006	B 3	16/03/2001	27000	6800
00E1224/007	C 1	16/03/2001	41000	8730
00E1224/008	C 2	16/03/2001	40000	8740
00E1224/009	C 3	16/03/2001	38000	9020
00E1224/010	D 1	16/03/2001	78000	13500
00E1224/011	D 2	16/03/2001	65000	11900

CCWA ID	Client ID	Sampled on	Cl	ECond
			iCL1WAAA	iEC1WZSE
			mg/L	mS/m
00E1224/001	A 1	16/03/2001	30000	7080
00E1224/002	A 2	16/03/2001	30000	7010
00E1224/003	A 3	16/03/2001	30000	6970
00E1224/004	B 1	16/03/2001	29000	7160
00E1224/005	B 2	16/03/2001	29000	7070
00E1224/006	B 3	16/03/2001	27000	6800
00E1224/007	C 1	16/03/2001	41000	8730
00E1224/008	C 2	16/03/2001	40000	8740
00E1224/009	C 3	16/03/2001	38000	9020
00E1224/010	D 1	16/03/2001	78000	13500
00E1224/011	D 2	16/03/2001	65000	11900

16/3/01

MARCH	2001	GBP						
SITE	TIME	ANAL.	TOP CON MS/CM	TOP TEMP C	B. CON MS/CM	B. TEMP C	DEPTH (M)	COMMENTS DEPTH GAUGE = 3.67M
A1		CLM	29.2	19.3	29.2	19.6	3.67 GG	
		CC						
A2		CLM	26.5	18.8	33.7	19.7	1.4	
		CC						
A3		CLM	26.3	18.3	22.3	19.0	0.6	
		CC						
B1		CLM	69.4	20.4	68.3	20.4	0.2	
		CC						
B2		CLM	69.4	20.2	69.5	20.4	0.35	
		CC						
B3		CLM	67.9	24.1	-	-	0.05	
		CC						
C1	1350	CLM	86.4	21.9	85.6	22.0	0.2	WPT 069
		CC						
C2		CLM	87.0	21.2	83.1	20.0	0.4	
		CC						
C3		CLM	45.9	25.9	-	-	0.05	WPT 071
		CC						
D1	1530	CLM	-	-	-	-	0.05	
		CC						
D2		CLM	-	-	-	-	0.1	
		CC						

CLM- Analysis from CALM Woodvale

CC- Analysis from Chemistry Centre

16/3/01 Clifton 367
 0720 T
 A1 54.2 59.2
 19.3 19.6
 114M
 A2 56.5 53.7
 18.8 19.7
 A3 046m
 56.3 ms 52.3 ms
 18.3 19.0

12/5/2001
 or 16/3/2001?
 30/8/2004
 12/5/2001
 30/8/2004

1215
 B1 69.4 69.3
 0-20 20.4 20.4
 B2 69.4 MB 69.5
 20.2 20.4
 B3 67.9 Depth 20.1
 24.1
 Sampled from Site in
 0.05 depth
 C.

1356

16/3/01

B.

C1

0.2
86.4
21.9

W469

85.6
22.0

C2

0.4
87.0
21.2

B.1

20.0

0.05

C3

45.9
25.9

W470

John 6/3/01

D1 Depth 3.5cm

Took sample only

VEY CONDUCTED BY ALAN CLARKE 20/2/01
using the ocean Ryebeck.

				SAL		CON	SAL		TEMP	DEPTH	NOTES/ SAMPLE SITE
DATE	SITE	EAST	NORTH	COND TOP	TOP ppt	BTM ms/cm	BTM	BTM	BTM	Mtrs	
		AUS G 66	AUS G 66	ms/cm							
A1		373909	6375966	67.7	22.4	67.5	22.3	0.8	→	373750 6375975	
A2		373229		68.3	21.7	63.2	22.0	1.3			
A3		372708		68.7	21.6	65.5	21.9	0.8			
B1		374648	6372890	68.3	26.7	68.4	26.8	0.2			
B2		374250		68.4	25.5	68.2	25.5	0.4			
B3		373752		68.2	27.2	67.8	27.2	0.2	→	373862 6372883	
C1		375867	6368456	79.5	24.3	79.4	24.4	0.3			
C2		375670		81.8	23.5	79.1	25.2	0.4			
C3		375302		86.3	26.9	86.5	25.5	0.15	→	375433 6368448	
D1		377628	6364207	-		91.8	28.0	0.13			
D2		377272		93.0	26.9	94.9	24.4	0.23			
D3		376971		-		98.5	28.4	0.13	→	377127 6364200	

Depth gauge at ST 50MN
Road read 3.73 on
22/02/01

NOTE: gauge not read on
day of profiling survey.

Grant I have entered the profile
positions from the reference sheet
into the GPS 12 Garmin AS.

CLIFA1
CLIFA2
CLIFA3
CLIFB1 etc.

Where I could not
reach the site because of
the low water level
I have recorded the
sample site coordinates.

AC

DATE	SITE	EAST	NORTH	COND TOP	SAL TOP	TEMP TOP	CON BTM	SAL BTM	TEMP BTM	DEPTH
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966							
	A2	373229								
	A3	372708								
	B1	374648	6372890							
	B2	374250								
	B3	373752								
	C1	375867	6368456							
	C2	375670								
	C3	375302								
	D1	377628	6364207							
	D2	377272								
	D3	376971								

Train
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 Ruff Goldfunds Express
 1800 620 440

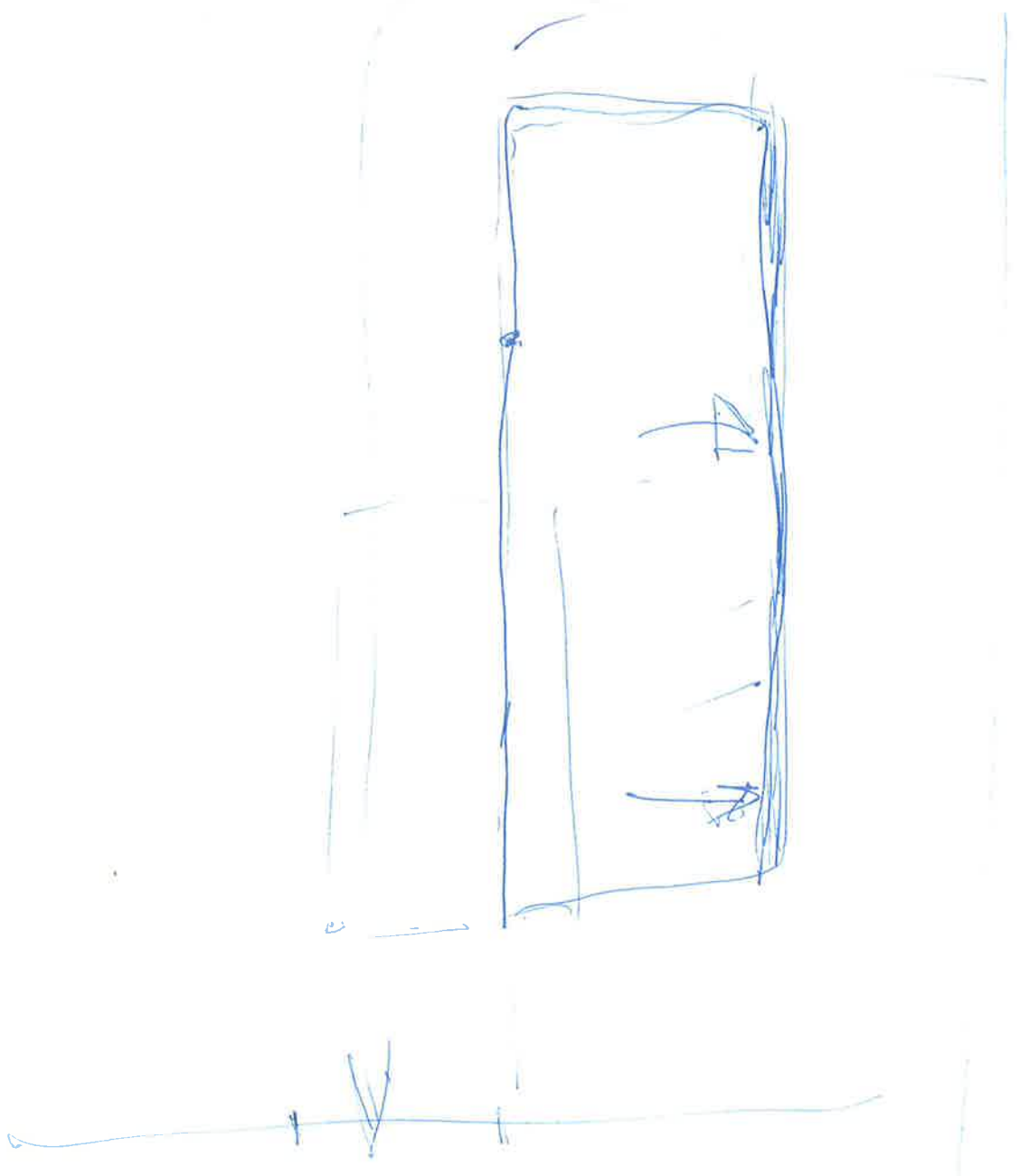
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[Signature]

3644 on gauge 184

	Cond	Temp	Cond	Temp	OM
A1	73.1	21.1	76.0	21.4	
A2	21.5	21.6	1.80	41.7	1.2
A3	-	21.9	24.0	41.0	1.0
B1	Water	Water			0.10
B2	Water	Water			0.05
B3	Water	Water			0.05
C1	Water	Water			0.05
C2	Water	Water			0.05
C3	Water	Water			0.05
D1	Water	Water			0.05
D2	Water	Water			0.05
D3	Water	Water			0.05

DATE	SITE	EAST	NORTH	COND	SAL	TEMP	CON	SAL	TEMP	DEPTH
22/01/01				TOP	TOP	TOP	BTM	BTM	BTM	3.93
		AUS G 66	AUS G 66	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
	A1	373909	6375966			24.2			24.4	1
	A2	373229				23.8			24	1.6
	A3	372708				23.9			24	1.1
	B1	374648	6372890			25.5			25.5	0.3
	B2	374250				24.4			24.5	0.6
	B3	373752				24.9			25	0.3
	C1	375867	6368456			24.7			24.9	0.5
	C2	375670				24.3			24.3	0.6
	C3	375302				25.5			25.1	0.2
	D1	377628	6364207			26.2			26.3	0.3
	D2	377272				25.6			25.6	0.3
	D3	376971				27.1			27.1	0.2



DATE	SIT COND	SAL	TEMP	CON	SAL	TEMP	DEPTH
22/01/01	TOP	TOP	TOP	BTM	BTM	BTM	3.93
	ms/cm	ppt	C	ms/cm	ppt	C	Mtrs
A1	61.8		24.2	61.5		24.4	1
A2	62		23.8	61.9		24	1.6
A3	61.6		23.9	61.5		24	1.1
B1	66.5		25.5	66.4		25.5	0.3
B2	62.1		24.4	62.1		24.5	0.6
B3	66.5		24.9	65.9		25	0.3
C1	71.4		24.7	71.4		24.9	0.5
C2	71		24.3	70.9		24.3	0.6
C3	74.1		25.5	75.2		25.1	0.2
D1	85.2		26.2	84.4		26.3	0.3
D2	81.4		25.6	81.1		25.6	0.3
D3	83.1		27.1	82.6		27.1	0.2

15/12/00		COND TOP ms/cm	SAL TOP ppt	TEMP TOP C	CON BTM ms/cm	SAL BTM ppt	TEMP BTM C	DEPTH Mtrs	CLM gg
1050hrs	A1	48.9	29.9	26.1	49.2	30	26.1	0.6	4.12
	A2	49.3	30.1	25.1	49.2	30	24.9	1.6	
	A3	49.4	30.2	25.9	49	29.9	25	1.2	
	B1	49.8	30.4	26.3	50	30.5	26.3	0.5	
	B2	49.4	30.2	25.5	49.7	30.3	25.5	0.8	
	B3	49.6	30.3	26.7	50	30.5	26.4	0.4	
	C1	50	30.5	26.3	50.1	30.6	26.2	0.8	
	C2	49.7	30.3	26.6	50.1	30.6	26.5	0.8	
	C3	50.5	31	29.1	50.6	31	29.1	0.25	
	D1	49.7	30.3	28	49.7	30.3	27.9	0.4	
	D2	48.9	29.9	27.2	49.8	30.4	26.9	0.3	
1315hrs	D3	49.8	30.4	28.6	50.1	30.6	28.4	0.4	
22/01/2001		ms/cm	ppt	C	ms/cm	ppt	C	Mtrs	
	A1	61.8		24.2	61.5		24.4	1	3.93
	A2	62		23.8	61.9		24	1.6	
	A3	61.6		23.9	61.5		24	1.1	
	B1	66.5		25.5	66.4		25.5	0.3	
	B2	62.1		24.4	62.1		24.5	0.6	
	B3	66.5		24.9	65.9		25	0.3	
	C1	71.4		24.7	71.4		24.9	0.5	
	C2	71		24.3	70.9		24.3	0.6	
	C3	74.1		25.5	75.2		25.1	0.2	
	D1	85.2		26.2	84.4		26.3	0.3	
	D2	81.4		25.6	81.1		25.6	0.3	
	D3	83.1		27.1	82.6		27.1	0.2	

To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Cc:
Subject: re: fwd: Lake Clifton transects
Attachment: BEYOND.RTF
Date: 01/19/2001 4:32 PM

Grant

We won't start on sampling for nutrients until I have a specific allocation of funds for the

Measure conductivity, temperature and depth as before. Calibrate instrument against conduct salinity standard. No point in recording salinity.

DON'T have samples analysed for ALL major ions, but DO have samples analysed for CHLORIDE.

Give Jeff Turner a call and ask if you need to take a chloride sample from every sampling point (hopefully not, as this would require 24 analyses). If not, how many samples should be taken

Jim

From: Grant Pearson@WOOD.SID@CALM, on 19/Jan/2001 2:03 PM:

Jim

I plan to visit Clifton again on Monday and would like to know what parameters you would like me to measure/collect/ analyse please.

Thanks

gp

From: Jim Lane@BUSS.SID@CALM, on 11/08/2000 1:35 PM:
To: Grant Pearson@WOOD.SID@CALM
Cc: John Blyth@WOOD.SID@CALM

Grant

Would you please mark 13-15 December in your diary for a repeat of the Lake Clifton transects. Assuming you can do all four transects in the one day, any one of those days will do.

You will also need to collect samples for nutrient analysis. I will let you know which parameters closer to the day, when I have found out more about the nutrient monitoring that has been done in the past.

Thanks

JL

Lake Davis 91.
Starfish
Gauge Plate

John Lambert

Wade Catching

Pauline Southgate
Brad.

0418940570

Pearson, Grant

From: jim1@calm.wa.gov.au
Sent: Friday, 19 January 2001 8:33 AM
To: grantp
Subject: re: fwd: Lake Clifton transects



BEYOND.RTF

Grant

We won't start on sampling for nutrients until I have a specific allocation of funds for this work.

Measure conductivity, temperature and depth as before. Calibrate instrument against conductivity standard, not salinity standard. No point in recording salinity.

DON'T have samples analysed for ALL major ions, but DO have samples analysed for CHLORIDE.

Give Jeff Turner a call and ask if you need to take a chloride sample from every sampling point, top and bottom (hopefully not, as this would require 24 analyses). If not, how many samples should be taken and where from?

Jim

----- Original Text -----

From: Grant Pearson@WOOD.SID@CALM, on 19/Jan/2001 2:03 PM:

Jim

I plan to visit Clifton again on Monday and would like to know what parameters you would like me to measure/collect/ analyse please.

Thanks

gp

From: Jim Lane@BUSS.SID@CALM, on 11/08/2000 1:35 PM:
To: Grant Pearson@WOOD.SID@CALM
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Grant

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You will also need to collect samples for nutrient analysis. I will let you know which parameters closer to the day, when I have found out more about the nutrient monitoring that has been done in the past.

Thanks

JL

To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Cc:
Subject: re: various
Attachment: BEYOND.RTF
Date: 12/18/2000 6:17 PM

Grant

Lake Clifton: Please send me the results as soon as you can (after careful checking). Yes, gauge on each occasion, and record the depth at each sampling site. Sue Elscot will be coming to investigate the nutrient monitoring issue for me. Will provide advice on what to analyse for.

Work program: we can talk about intertidal work this Wed or Thurs at Woodvale. Please have relevant SPP handy for us to refer to.

Bathymetry: I will make first contact Bob McCarthy about the bathymetric work. I'll try to

Broome airport relocation: Please seek and incorporate comment from the District before ser

I'll have a look at the Hickey Humour at Woodavle, assuming you have saved it.

In future, please send separate e-mails about separate subjects. This will facilitate my fi

See you Wed PM

JL

From: Grant Pearson@WOOD.SID@CALM, on 18/Dec/2000 9:57 AM:

Jim,

Had a look at Clifton on Friday with Alan (my vol dropped out unexpectedly). Lake depth ha and salinities were up by 15 %+. I'll type them up and send them to you. I have collected ions and nutrients from the surface of each site.

The work program looks fine although I would like to talk to you about future intertidal wo

The trip to 80 Mile Beach and Broome was extremely successfull if the Broome Council attitu gauge it by. I'll do up a separate report for this.

Have you contacted Bob McCarthy for the the bathymetry or should I?

I have lost many emails that I kept as records of communications between us and I'm now sta new computer. So if I appear to repeat queries you'll know why.

I met Marie Ward last Friday and she has asked us to respond to the consultants report on t we discussed in Busselton. I expect to spend today and Tuesday on this and will forward it They want it by the end of the week.

Attached is a bit of humour from Bob Hickey.

Cheers

Grant

From: "Bob Hickey" <Bob.Hickey@cwu.EDU>, on 12/12/2000 9:39 AM:
To: isMTP@CALM.COMO.1@Servers [<Graeme.Aggett@cwu.EDU>]

it's absolutely hilarious. Trust me.

Robert Hickey
Department of Geography and Land Studies
Central Washington University
Ellensburg, WA 98926
(509) 963-2178
(509) 963-1047 (fax)
rhickey@cwu.edu
<http://www.cwu.edu/~rhickey/>

"I'm trying to get a life, but today's not a good day to start."

To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Cc: John Blyth@WOOD.SID@CALM
Subject: Lake Clifton transects
Attachment: BEYOND.RTF
Date: 08/11/2000 1:35 PM

Grant

Would you please mark 13-15 December in your diary for a repeat of the Lake Clifton transects. Assuming you can do all four transects in the one day, any one of those days will do.

You will also need to collect samples for nutrient analysis. I will let you know which parameters closer to the day, when I have found out more about the nutrient monitoring that has been done in the past.

Thanks

JL

9334 0128

041

043 807 6074
041 894 326 8

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
CALMSCIENCE DIVISION
WILDLIFE RESEARCH CENTRE, WOODVALE
FAX NO (08) 9306 1641 TELEPHONE NO (08) 9405 5100

Date:

7/11/00

TO:

JIM LANE (CALM)

FROM:

G. PEARSON

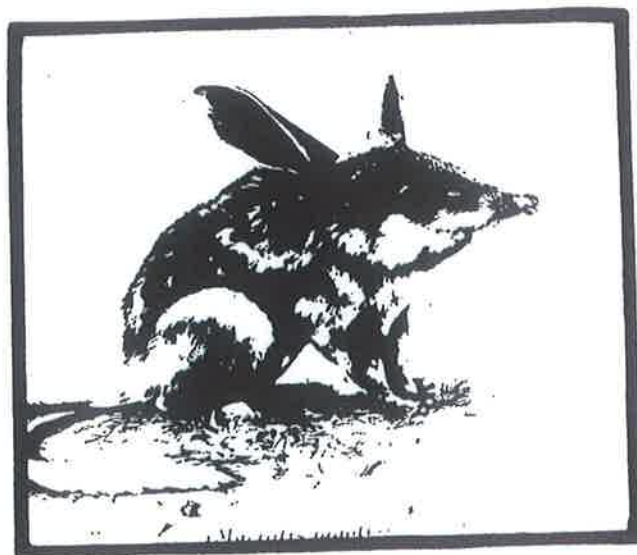
NO OF PAGES:

3.

(INCLUDING FACE SHEET)

MESSAGE:

Conductivity figures for Lake Clifton
taken on 20/10/00



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MESSAGE:

7/11/00
Joan Lane
C. Ranson

Not off the press.



CHEM CENTRALS
Kestrel 15

John Chaffin
24/10/20

Version 2

CCWA ID	Client ID	CO3	Ca	Cl	ECond	Fe	HCO3	Hardness	K	Mg	Mn	N_NO3	Na	SO4_S	SiO2_Si	pH	alON_BAL
		mg/L	mg/L	mg/L	mS/m	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		%
00E0553/001	A 1	<2	437	16000	4160	0.06	201	5400	270	1050	<0.02	0.02	8510	1910	25	8	-2.3
00E0553/002	A 3	<2	432	16000	4180	0.06	220	5300	267	1030	<0.02	0.01	8430	1740	26	8	-0.6
00E0553/003	B 1	<2	434	15000	4150	0.06	220	5400	268	1040	<0.02	0.01	8550	1750	26	8	2.9
00E0553/004	B 3	<2	461	15000	4140	0.05	214	5400	266	1030	<0.02	0.01	8460	1730	26	8.1	1.8
00E0553/005	C 1	<2	394	14000	3830	0.05	201	4900	245	948	<0.02	0.01	7830	1600	26	8	1.4
00E0553/006	C 3	<2	388	13000	3770	0.05	195	4800	244	939	<0.02	0.01	7850	1580	25	8.1	3.9
00E0553/007	D 1	36	329	12000	3270	<0.05	73	4100	207	797	<0.02	0.01	6700	1350	21	8.4	1.4
00E0553/008	D 3	48	317	11000	3150	<0.05	24	4000	200	776	<0.02	0.01	6470	1320	19	8.8	2.2

4

CHEM CENTRALS

Conductivity

CCWA ID	Client ID	CO3	Ca	Cl	Fe	HCO3	Hardness	K	Mg	Mn	N NO3	Na
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
00E0553/001	A 1	<2	437	16000	0.06	201	5400	270	1050	<0.02	0.02	8510
00E0553/002	A 3	<2	432	16000	0.06	220	5300	267	1030	<0.02	0.01	8430
00E0553/003	B 1	<2	434	15000	0.06	220	5400	268	1040	<0.02	0.01	8550
00E0553/004	B 3	<2	461	15000	0.05	214	5400	266	1030	<0.02	0.01	8460
00E0553/005	C 1	<2	394	14000	0.05	201	4900	245	948	<0.02	0.01	7830
00E0553/006	C 3	<2	388	13000	0.05	195	4800	244	939	<0.02	0.01	7850
00E0553/007	D 1	36	329	12000	<0.05	73	4100	207	797	<0.02	0.01	6700
00E0553/008	D 3	48	317	11000	<0.05	24	4000	200	776	<0.02	0.01	6470

CCWA ID	Client ID	SO4_S	SiO2_Si	pH	alON_BAL
		mg/L	mg/L		%
00E0553/001	A 1	1910	25	8	-2.3
00E0553/002	A 3	1740	26	8	-0.6
00E0553/003	B 1	1750	26	8	2.9
00E0553/004	B 3	1730	26	8.1	1.8
00E0553/005	C 1	1600	26	8	1.4
00E0553/006	C 3	1580	25	8.1	3.9
00E0553/007	D 1	1350	21	8.4	1.4
00E0553/008	D 3	1320	19	8.8	2.2

CCWA ID	Client ID	SO4_S	SiO2_Si	pH	alON_BAL
		mg/L	mg/L		%
00E0553/001	A 1	1910	25	8	-2.3
00E0553/002	A 3	1740	26	8	-0.6
00E0553/003	B 1	1750	26	8	2.9
00E0553/004	B 3	1730	26	8.1	1.8
00E0553/005	C 1	1600	26	8	1.4
00E0553/006	C 3	1580	25	8.1	3.9
00E0553/007	D 1	1350	21	8.4	1.4
00E0553/008	D 3	1320	19	8.8	2.2

To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Originated by: Jim Lane@BUSS.SID@CALM
Cc:
Subject: fwd: RE: Lake Clifton water levels to AHD
Attachment: BEYOND.RTF
Date: 08/11/2000 2:07 PM

Grant: for info only. Maybe it's not the Dawesville Channel. Jim

From: Jim Lane@BUSS.SID@CALM, on 08/Nov/2000 2:07 PM:
To: iSMTP@CALM.COMO.1@Servers[<philip.commander@wrc.wa.gov.au>]
Cc: John Blyth@WOOD.SID@CALM

Thanks for the interesting reply Philip.

I don't recall whether or not I have a copy of Rezina Sham's report. I will have someone attempt to dig it out next week.

Regards

Jim

From: "COMMANDER Philip" <philip.commander@wrc.wa.gov.au>, on 08/Nov/2000 1:53 PM:

Thanks, Jim.

I have been looking at Rezina Shams' information a bit more closely.

Her water level graph for Lake Clifton (from CSIRO data) in 1992/93 shows the lake level ranging from about - 0.15 to +0.6 m AHD (coinciding with high levels on your graph).

If you can't get yours to AHD, we can try matching the data points from your measurements to this graph (did you have a copy of the report?).

I have compared the water table levels for bore B4 (about 600m east of the lake and about 2km south of the tavern). The levels taken in 1979/80 and in 1995/6 are not appreciably different - so no change in water table near the lake over the period (or between these years).

Similarly, comparison of water levels in A5 (adjacent to Harvey Estuary, continuation of White Hill Rd), shows the levels in 1979/80 and 1995/96 are within 3cm of each other - so no change in Harvey Estuary, even after the cut.

Your data does show a correlation between high salinity and low water levels - but I can't see the rationale for the apparent change in baseline salinity and water level around 1993/4, in view of the water table data quoted above.

I'll await the answer on your AHDs

Phil

-----Original Message-----

From: jim1@calm.wa.gov.au [mailto:jim1@calm.wa.gov.au]
Sent: Wednesday, 8 November 2000 13:28
To: philip.commander@wrc.wa.gov.au
Cc: johnbl@calm.wa.gov.au
Subject: Lake Clifton water levels to AHD

Philip

The person who handles the survey aspect of our monitoring work is in the bush this week so the earliest I will be able to send you the levels to AHD will probably be next Tuesday.

There is a small chance that the DOLA benchmark and gauges at Lake Clifton (Mt John Rd) have not yet been tied to AHD. If that proves to be the case, we will arrange for the necessary surveying to be done ASAP.

Regards

Jim



04/01/00

RUN 4C
(5175 - 5195)

SCALE 1:20,000

990000

LA COPYRIGHT



5184
WA 4399 C METRO REGIONAL AREA



NAL AREA

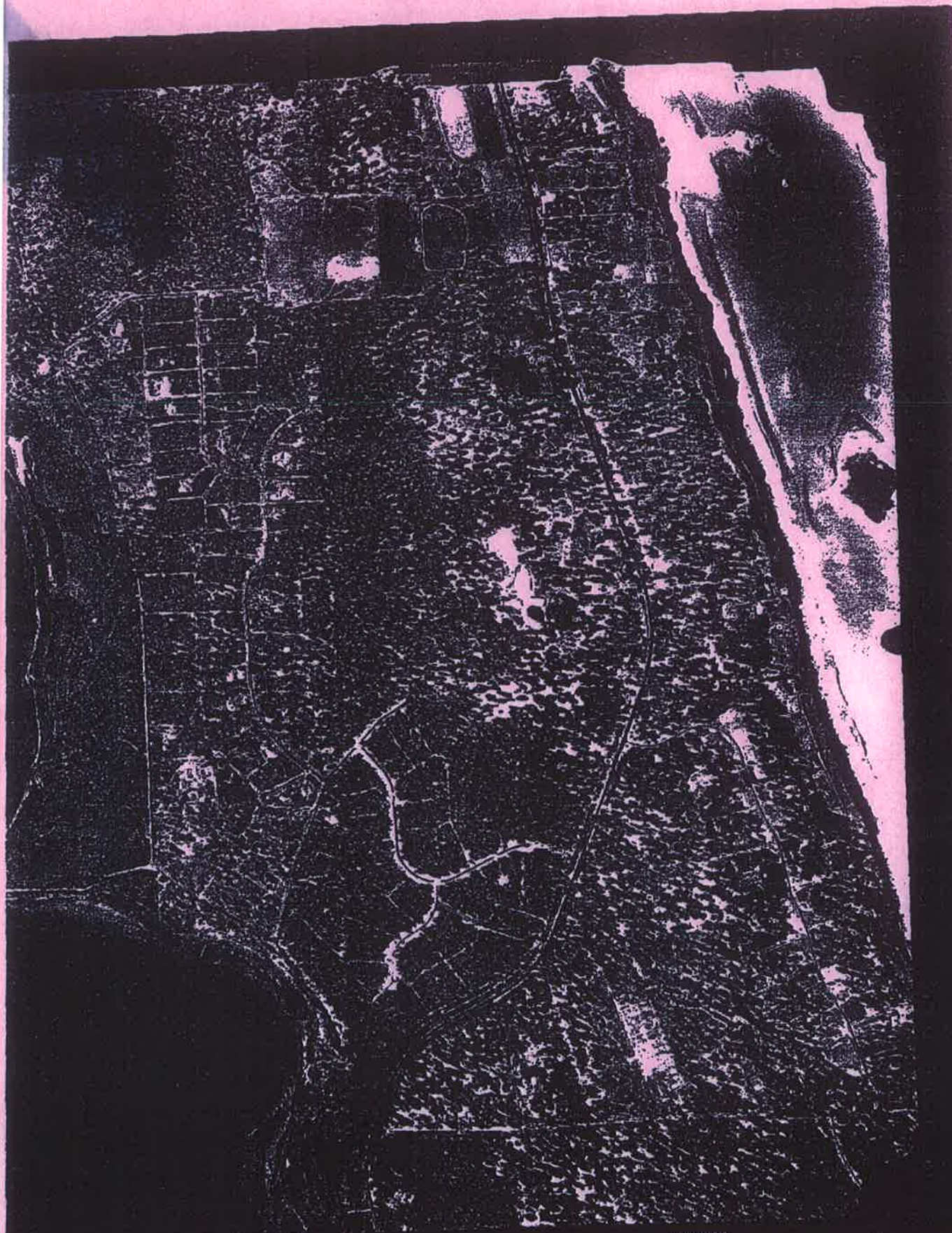
04/01/00

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SCALE 1:20,000

990000
DOLA COPYRIGHT

5186 WA 4399C METRO REGIONAL AREA



12/02/00

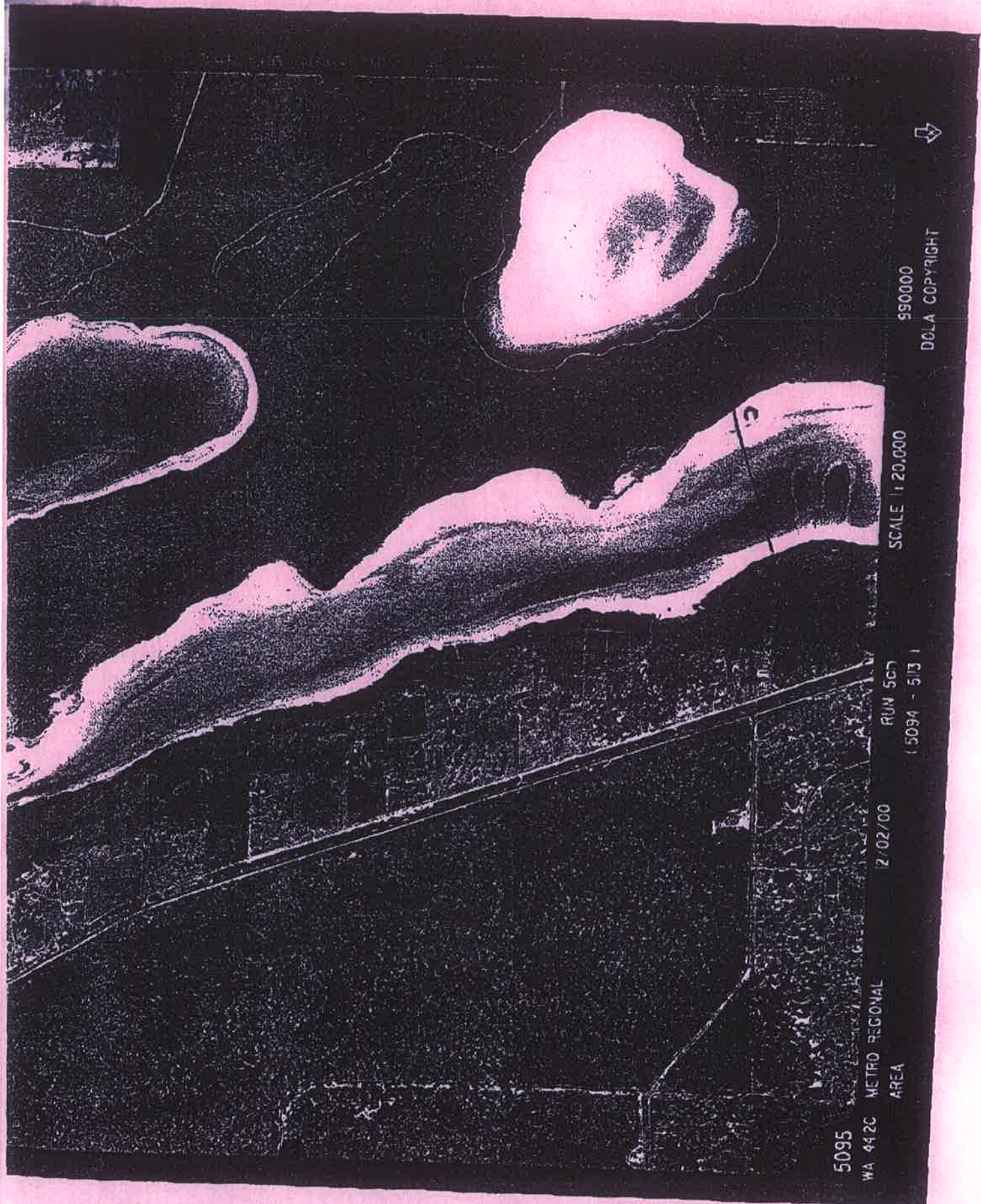
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990000
DOLA COPYRIGHT



5099
WA 4412C METRO REGIONAL AREA.



5095

WA 442C METRO REGIONAL
AREA

12-02/00

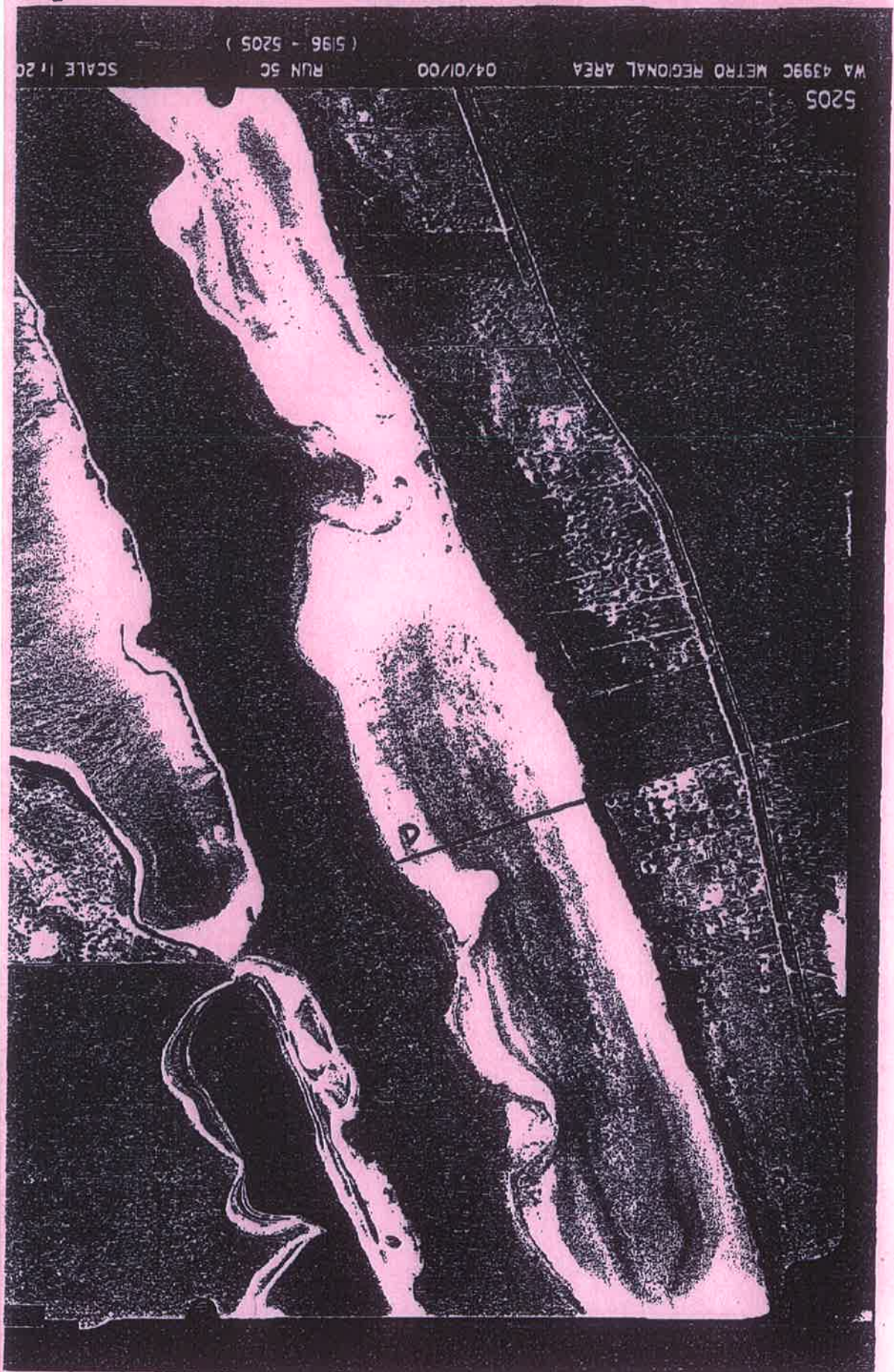
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SCALE 1:20,000

990000

DCLA COPYRIGHT





5205

WA 4399C METRO REGIONAL AREA

04/01/00

RUN 5C

(5196 - 5205)

SCALE 1:20,000

990000
POLA.



To: Grant Pearson@WOOD.SID@CALM
From: Jim Lane@BUSS.SID@CALM
Cc:
Subject: Lake Clifton transects
Attachment:
Date: 16/10/2000 1:59 PM

Grant

I have couriered to you some recent (Jan 2000) colour air photos and a couple of maps on which Sue has marked the locations of the four transects (A, B, C, D). I have also faxed you an A4 map from Brenton Knott giving an overview.

SAMPLING

Along each transect you should sample from 3 locations, labelled A1, A2, A3, B1, B2 etc.

Sampling locations A1, B1, etc. are to be approx 100 metres out from the eastern shoreline.

Sampling locations A2, B2, etc. are to be midway between the eastern and western shorelines.

Sampling locations A3, B3, etc. are to be approx 100 metres from the western shoreline.

At each sampling location, measure the conductivity near the surface and near the bottom, measure the water depth, and record the position by GPS.

Also take surface water samples at A1, A3, B1, B3, etc. Send these eight samples to WA Chemistry Centre to measure conductivity and analyse for ionic composition (major ions).

ACCESS

On this occasion you will need to launch your boat (punt) at the eastern end of each transect in order to be sure that the transect is correctly located.

Brenton had the following recollections (from 15 years ago!) concerning access.

Transect A: where our depth gauges were originally placed, just south of the boardwalk.

Transect B: access (with permission) was through "Moyle's Farm", just north of the Lake Clifton Tavern. NOTE THAT this description seems to place Transect B further south than the A4 map indicates - perhaps the farm was further north than Brenton recalls, or perhaps the A4 map shows the transect as being further north than it really was.

Transect C: access was via the first track north of the Neville Stanley Field Station, which is approx 100m south of the Old Bunbury Rd.

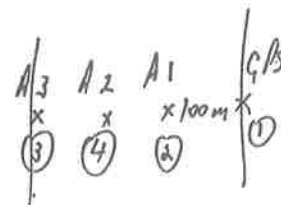
Transect D: access was via a track 100-200m south of the Lake Clifton Roadhouse, just north of some farmland. NOTE that Brenton might be under-estimating this distance.

Brenton said that placed marker buoys at each sampling location - presumably they are not still there!

GOOD LUCK

JL

- ① Establish each grid loc'n
- ② Record pos'n with GPS
- ③ Measure with GPS 100m from shore.
- ④ Establish western location of shore. Measure water depth.
- ⑤ Measure mid point & measure.



**DEPARTMENT OF CONSERVATION AND LAND
MANAGEMENT**

14 QUEEN STREET, BUSSELTON WA 6280
PHONE - (08) 9752 1677 FAX - (08) 9752 1432

**FACSIMILE TRANSMITTAL SHEET**

TO:

GRANT PEARSON

FROM:

JIM LANE

COMPANY:

DATE:

16/10/00

FAX NUMBER:

TOTAL NO. OF PAGES INCLUDING COVER:

(2)

PHONE NUMBER:

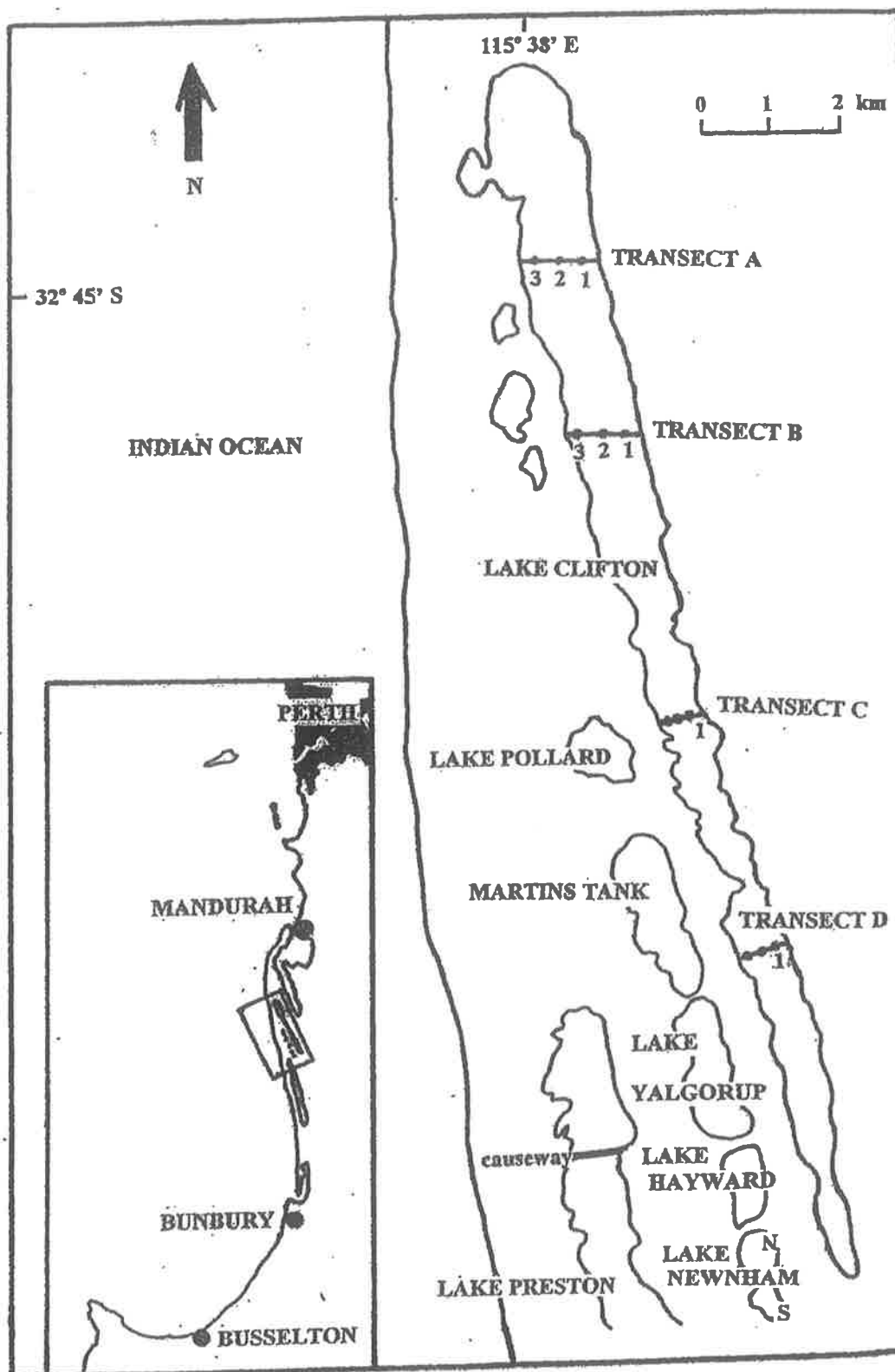
SENDER'S REFERENCE NUMBER:

RE:

YOUR REFERENCE NUMBER:

NOTES/COMMENTS:

Attached is a map showing the locations
of the four transects to be done tomorrow at
Lebe Clifton. Will e-mail more info
later today.



LAKE CLIFTON

BENCH MARK AND GAUGE DETAILS

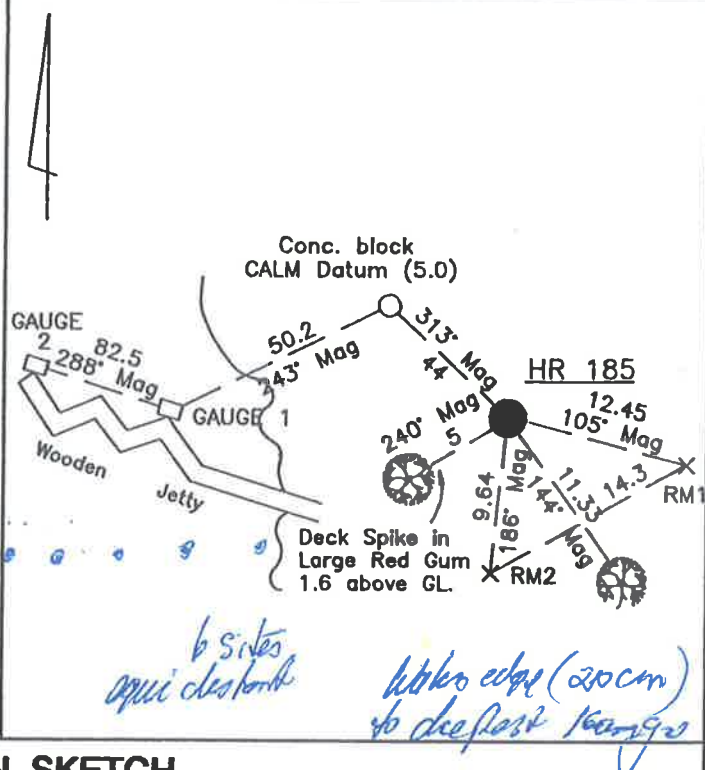
BM NAME: HR 185
 DATE VERIFIED: 6 MAY 1999
 INSTALLED BY: DOLA
 BM LOCATION: SEE SKETCH

BM HEIGHT: (HR 185) 5.413
 HEIGHT OF GAUGE 1: 5.000
 HEIGHT OF GAUGE 2: 4.003

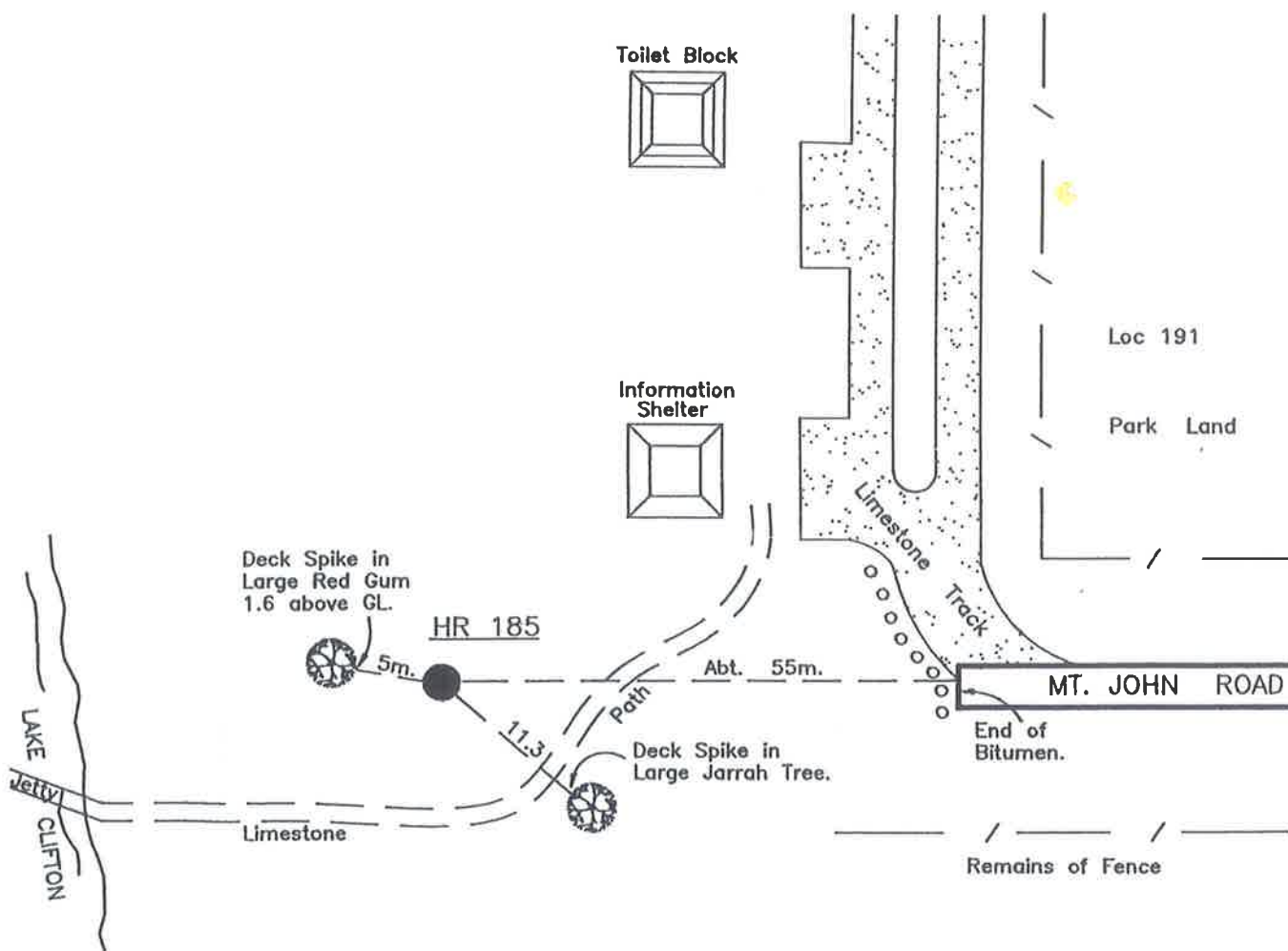
OTHER INFORMATION

HEIGHT OF GAUGE 3: NIL
 HEIGHT OF GAUGE 4: NIL
 AMG 84 COORDS: E 373900
 (+/- 100m) N 6375950
 AHD OF BM: 1.378
 NEAREST AHD BM: HR 185
 GAUGE MAINTENANCE: DATE: 6 MAY 1999
 WHO: CALM
 DATE DRAWN: 9 JUNE 1999
 DRAWN BY SCANLAN SURVEYS FOR THE
 DEPT OF CONSERVATION & LAND
 MANAGEMENT.

BENCH MARK AND GAUGE LOCATION



LOCATION SKETCH



LK CLIFTON GAGE.

MANDURAN

HARRY EST

GAUGES.

ROAD

TURNAROUND
BAY AND
BOAT ACCESS

ROAD

HOBBS FARM
ESTATE

OLD COAST RD.

CLIFTON PUB.

N

LK CLIFTON.

