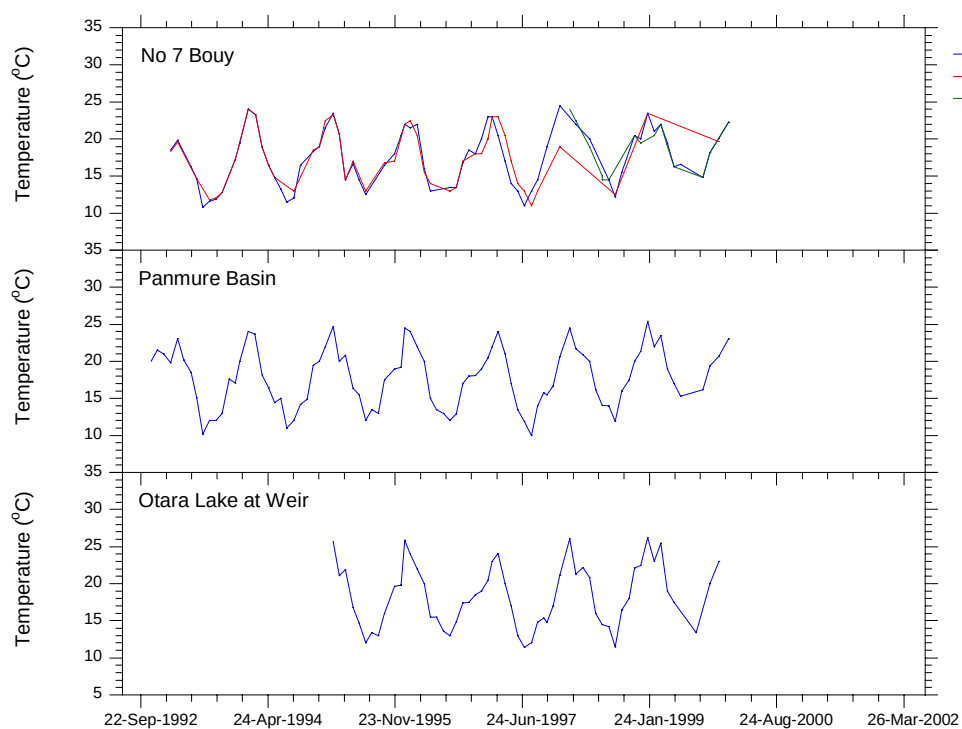




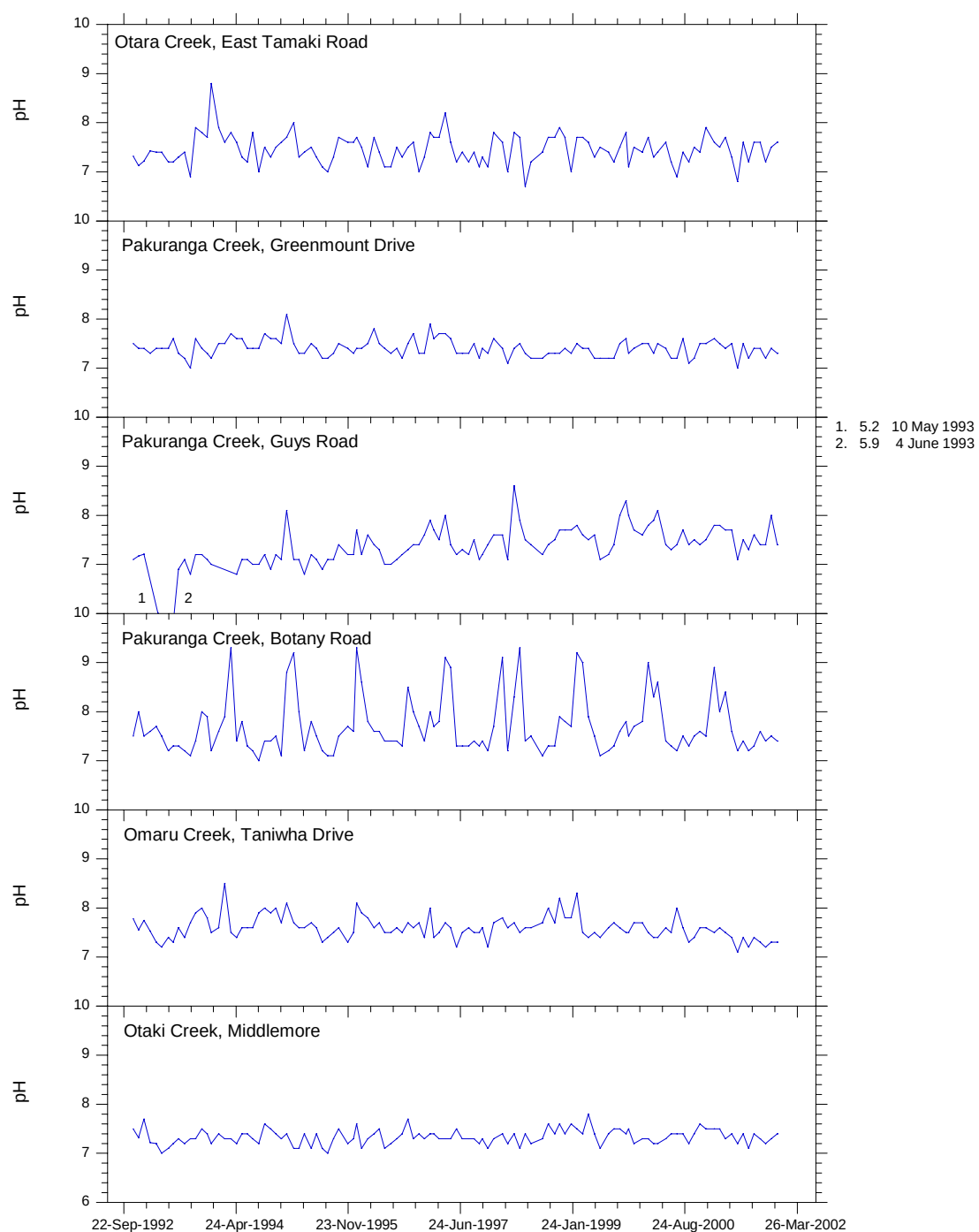
APPENDIX 21: TAMAKI ESTUARY – pH**a) pH (units) during January 2001 - December 2001**

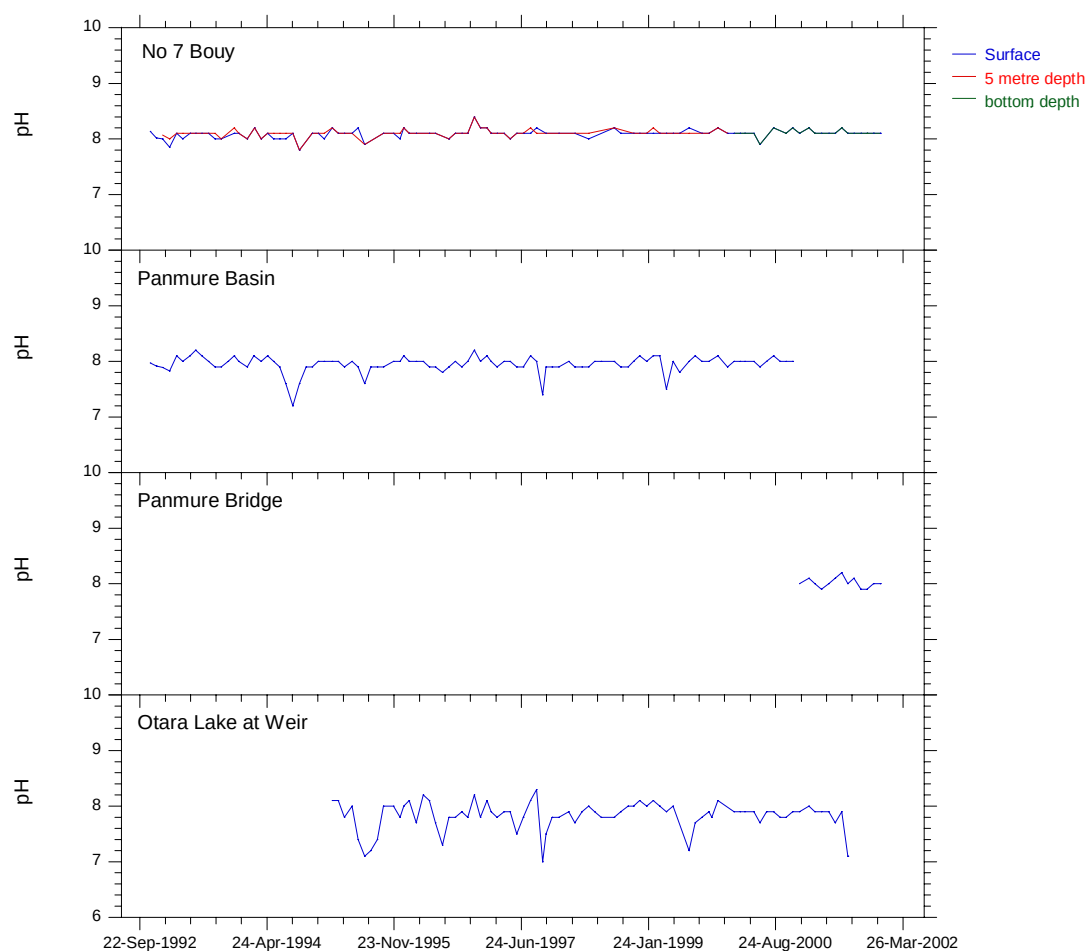
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	7.6	7.6	7.8	8.9	7.5	7.5	8.2	8.2	8.1	8.0
20-Feb-01	7.5	7.5	7.8	8.0	7.6	7.5	8.1	8.1	8.0	7.9
23-Mar-01	7.7	7.4	7.7	8.4	7.5	7.3	8.1	8.1	7.9	7.9
23-Apr-01	7.3	7.5	7.7	7.6	7.4	7.4	8.1	8.1	8.0	7.9
22-May-01	6.8	7.0	7.1	7.2	7.1	7.2	8.1	8.1	8.1	7.7
22-Jun-01	7.6	7.5	7.5	7.4	7.4	7.4	8.2	8.2	8.2	7.9
20-Jul-01	7.2	7.2	7.3	7.2	7.2	7.1	8.1	8.1	8.0	7.1
17-Aug-01	7.6	7.4	7.6	7.3	7.4	7.4	8.1	8.1	8.1	
17-Sep-01	7.6	7.4	7.4	7.6	7.3	7.3	8.1	8.1	7.9	
15-Oct-01	7.2	7.2	7.4	7.4	7.2	7.2	8.1	8.1	7.9	
13-Nov-01	7.5	7.4	8.0	7.5	7.3	7.3	8.1	8.1	8.0	
13-Dec-01	7.6	7.3	7.4	7.4	7.3	7.4	8.1	8.1	8.0	
Median	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6
IQR/Median %	4	4	4	4	4	4	4	4	4	4

b) Statistical summary for 1992-2001: pH (units)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	112	112	112	95	81	31	77
Median	7.5	7.4	7.4	7.5	7.6	7.3	8.1	8.0	8.0	7.9
Normality	T	F	F	F	F	F	F	F	F	F
Seasonality	Y	Y	Y	Y	N	Y	N	N	N	Y
Trend	NS	91%	100%	NS	100%	93%	99%	NS	NS.	NS
Slope	NS	0	0.077	NS	-0.02	0	0	NS	NS	NS

c) The graphs on the following pages show pH measurements from January 1992 to December 2001 (where data available).





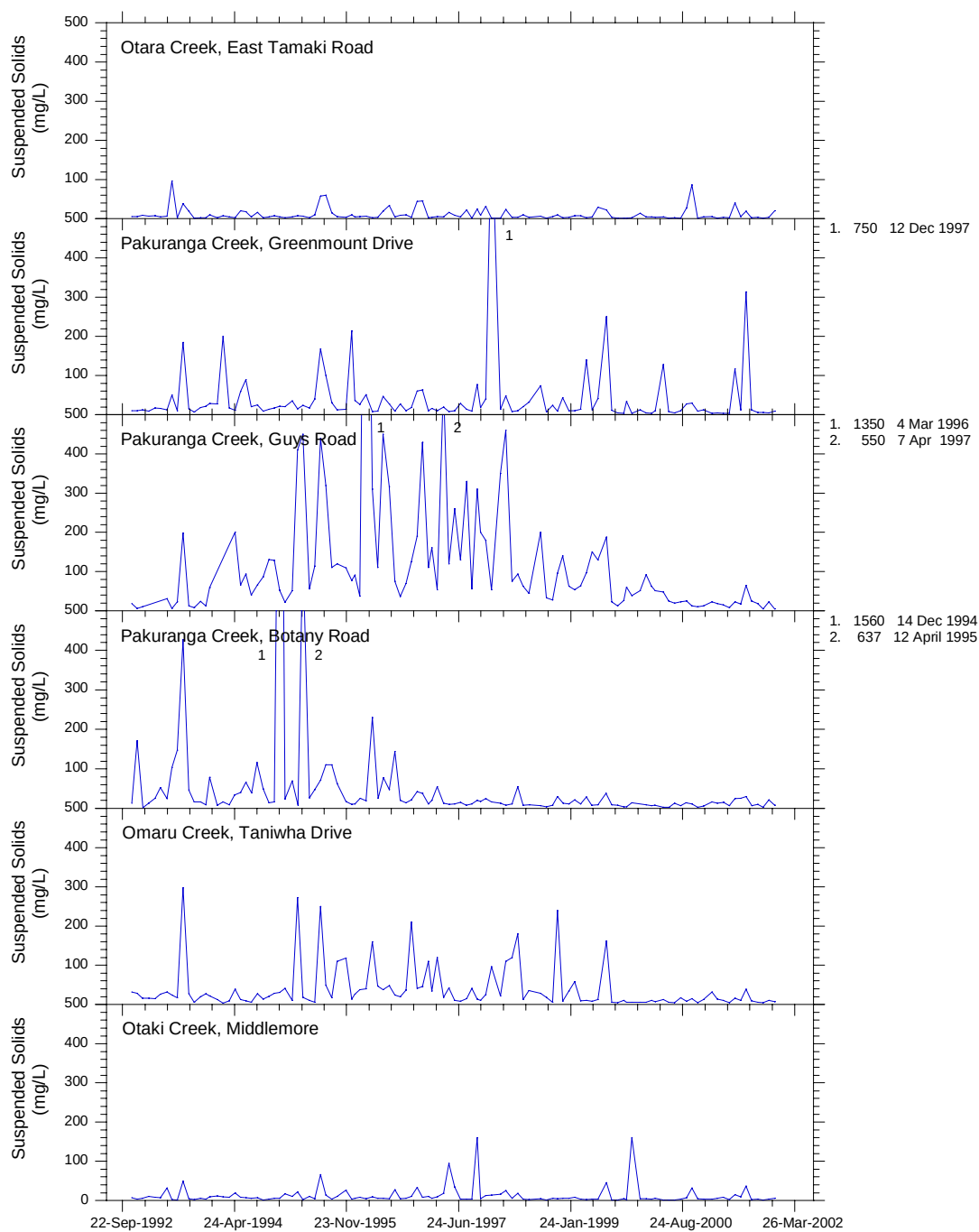
APPENDIX 22: TAMAKI ESTUARY – SUSPENDED SOLIDS**a) Suspended solids (mg/L) during January 2001 - December 2001**

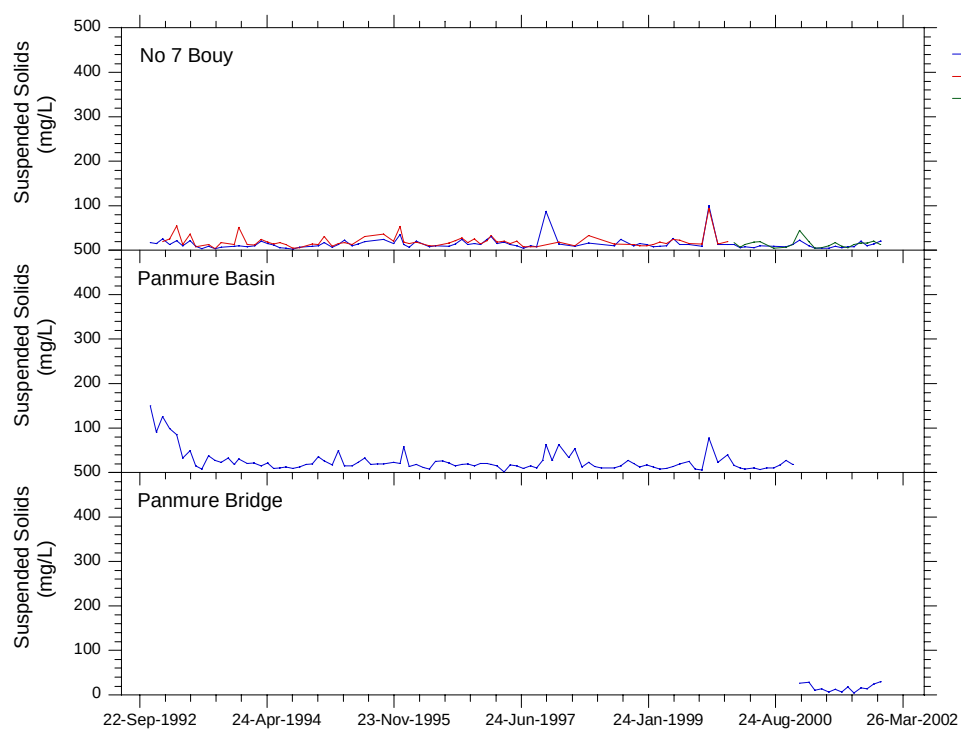
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	5.5	3.2	23.0	17.0	32.0	4.1	10.0	20.0	29.0	22.0
20-Feb-01	1.3	4.4	19.0	14.0	14.0	5.4	4.4	4.5	11.0	15.0
23-Mar-01	3.3	3.1	15.7	16.5	10.6	8.2	4.8	6.2	14.0	17.8
23-Apr-01	2.3	3.2	8.4	6.6	4.2	2.4	5.2	10.1	7.0	9.8
22-May-01	40.0	117.0	23.0	2.5	16.0	15.0	9.6	17.0	12.0	14.0
22-Jun-01	6.0	12.0	17.0	26.0	11.0	9.0	6.0	9.1	7.4	41.0
20-Jul-01	20.0	314.0	65.0	31.0	39.0	37.0	8.5	5.6	19.0	51.0
17-Aug-01	2.6	12.3	25.0	6.6	8.7	2.4	8.0	12.5	4.9	
17-Sep-01	4.0	6.1	19.0	10.0	5.4	3.7	21.0	16.0	16.0	
15-Oct-01	1.8	6.4	4.8	3.5	4.6	1.7	11.0	16.0	14.0	
13-Nov-01	3.5	4.6	23.0	22.0	10.0	3.7	14.0	21.0	24.0	
13-Dec-01	21.0	9.2	4.5	8.1	7.2	6.2	21.0	12.0	30.0	
Median	3.8	6.3	19.0	12.0	10.3	4.8	9.1	12.3	14.0	17.8
IQR/Median %	186	128	48	97	75	106	66	64	73	96

b) Statistical summary for 1992-2001: Suspended solids (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	111	112	112	95	81	31	19
Median	5.1	15.9	62.5	17.0	17.5	6.0	11.0	19.2	14.0	14.0
Normality	F	F	F	F	F	F	F	F	T	F
Seasonality	N	N	N	N	N	N	Y	Y	Y	N
Trend	97%	100%	99%	100%	100%	98%	NS	100%	NS	INS.
Slope	-0.30	-1.3	-7.1	-3.0	-1.6	-0.31	NS	-2.0	NS	INS.

c) The graphs on the following pages show suspended solids measurements from January 1992 to December 2001 (where data available).





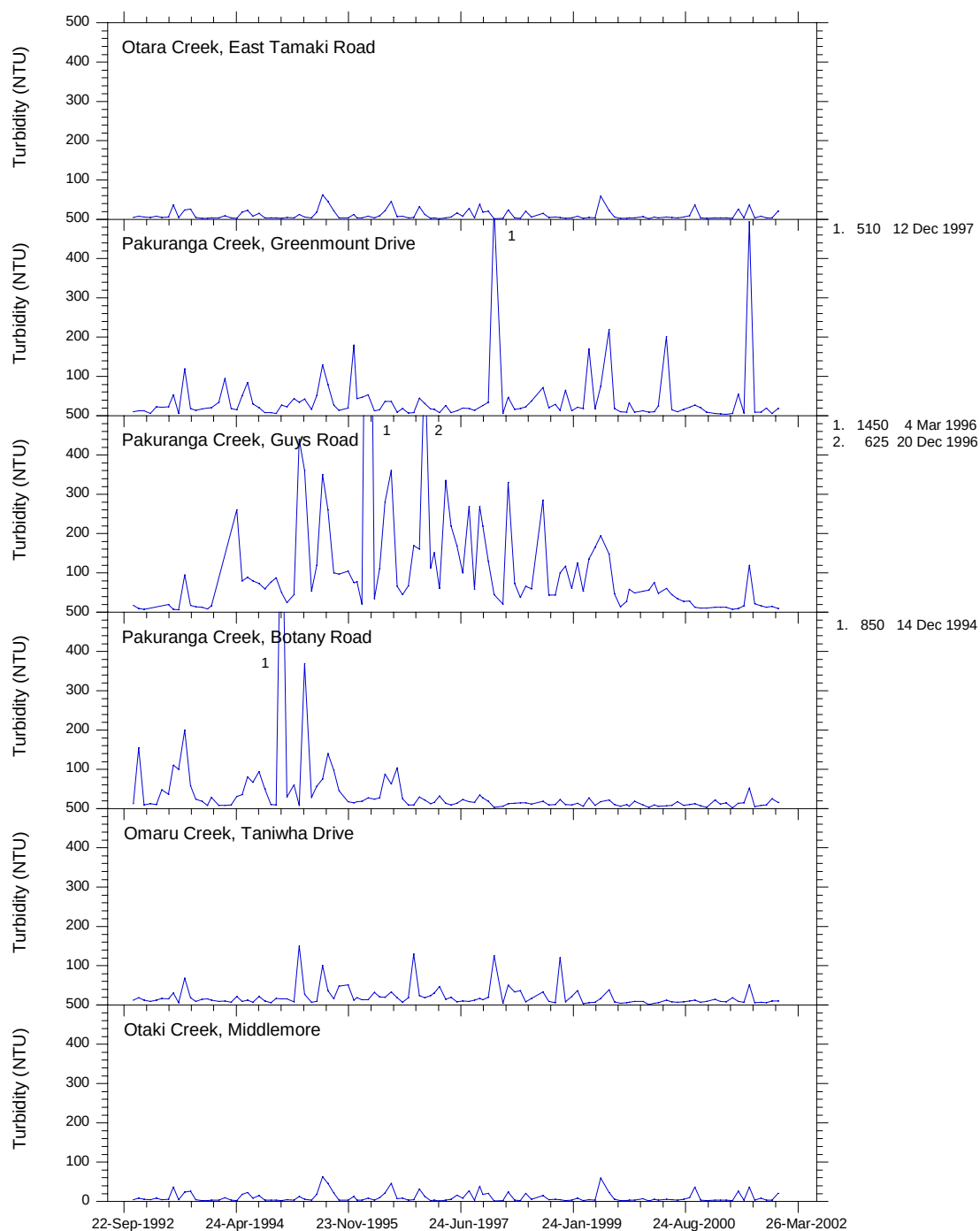
APPENDIX 23: TAMAKI ESTUARY – TURBIDITY**a) Turbidity (NTU) during January 2001 - December 2001**

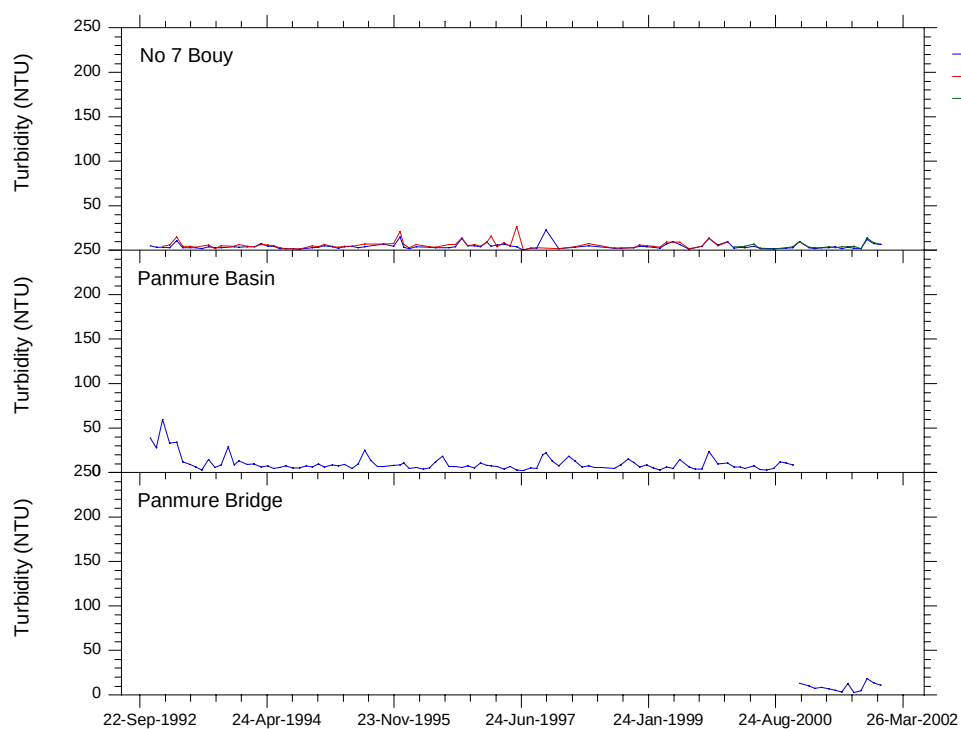
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	5.5	3.2	23.0	17.0	32.0	4.1	10.0	20.0	29.0	22.0
20-Feb-01	1.3	4.4	19.0	14.0	14.0	5.4	4.4	4.5	11.0	15.0
23-Mar-01	3.3	3.1	15.7	16.5	10.6	8.2	4.8	6.2	14.0	17.8
23-Apr-01	2.3	3.2	8.4	6.6	4.2	2.4	5.2	10.1	7.0	9.8
22-May-01	40.0	117.0	23.0	2.5	16.0	15.0	9.6	17.0	12.0	14.0
22-Jun-01	6.0	12.0	17.0	26.0	11.0	9.0	6.0	9.1	7.4	41.0
20-Jul-01	20.0	314.0	65.0	31.0	39.0	37.0	8.5	5.6	19.0	51.0
17-Aug-01	2.6	12.3	25.0	6.6	8.7	2.4	8.0	12.5	4.9	
17-Sep-01	4.0	6.1	19.0	10.0	5.4	3.7	21.0	16.0	16.0	
15-Oct-01	1.8	6.4	4.8	3.5	4.6	1.7	11.0	16.0	14.0	
13-Nov-01	3.5	4.6	23.0	22.0	10.0	3.7	14.0	21.0	24.0	
13-Dec-01	21.0	9.2	4.5	8.1	7.2	6.2	21.0	12.0	30.0	
Median	3.8	6.3	19.0	12.0	10.3	4.8	9.1	12.3	14.0	17.8
IQR/Median %	186	128	48	97	75	106	66	64	73	96

b) Statistical summary for 1992-2001: Turbidity (NTU)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	111	106	111	112	112	95	81	31	19
Median	4.6	20.0	60.1	16.0	13.0	7.7	3.7	7.4	7.5	7.6
Normality	F	F	F	F	F	F	F	F	T	F
Seasonality	Y	N	N	Y	N	N	N	Y	N	N
Trend	NS	NS	99%	100%	99%	NS	NS	95%	NS	INS.
Slope	NS	NS	-5.94	-2.78	-0.68	NS	NS	-0.64	NS.	INS.

c) The graphs on the following pages show turbidity measurements from January 1992 to December 2001 (where data available).





APPENDIX 24: TAMAKI ESTUARY – SECCHI DEPTH**a) Secchi depth (n) during January 2001 - December 2001**

Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01										
20-Feb-01										
23-Mar-01										
23-Apr-01										
22-May-01										
22-Jun-01										
20-Jul-01										
17-Aug-01										
17-Sep-01										
15-Oct-01										
13-Nov-01										
13-Dec-01										
Median										
IQR/Median %										

Secchi depth data currently unavailable for 2001

b) Statistical summary for 1992-2001: Secchi depth (m)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	0	0	0	0	0	0	62	0	1	0
Median	n/a	n/a	n/a	n/a	n/a	n/a	1.00	n/a	0.6	n/a
Normality	INS.	INS.	INS.	INS.	INS.	INS.	F	INS.	INS.	INS.
Seasonality	INS.	INS.	INS.	INS.	INS.	INS.	Y	INS.	INS.	INS.
Trend	INS.	INS.	INS.	INS.	INS.	INS.	NS	INS.	INS.	INS.
Slope	INS.	INS.	INS.	INS.	INS.	INS.	NS	INS.	INS.	INS.

c) The graphs on the following pages show Secchi depth measurements from January 1992 to December 2001 (where data available).

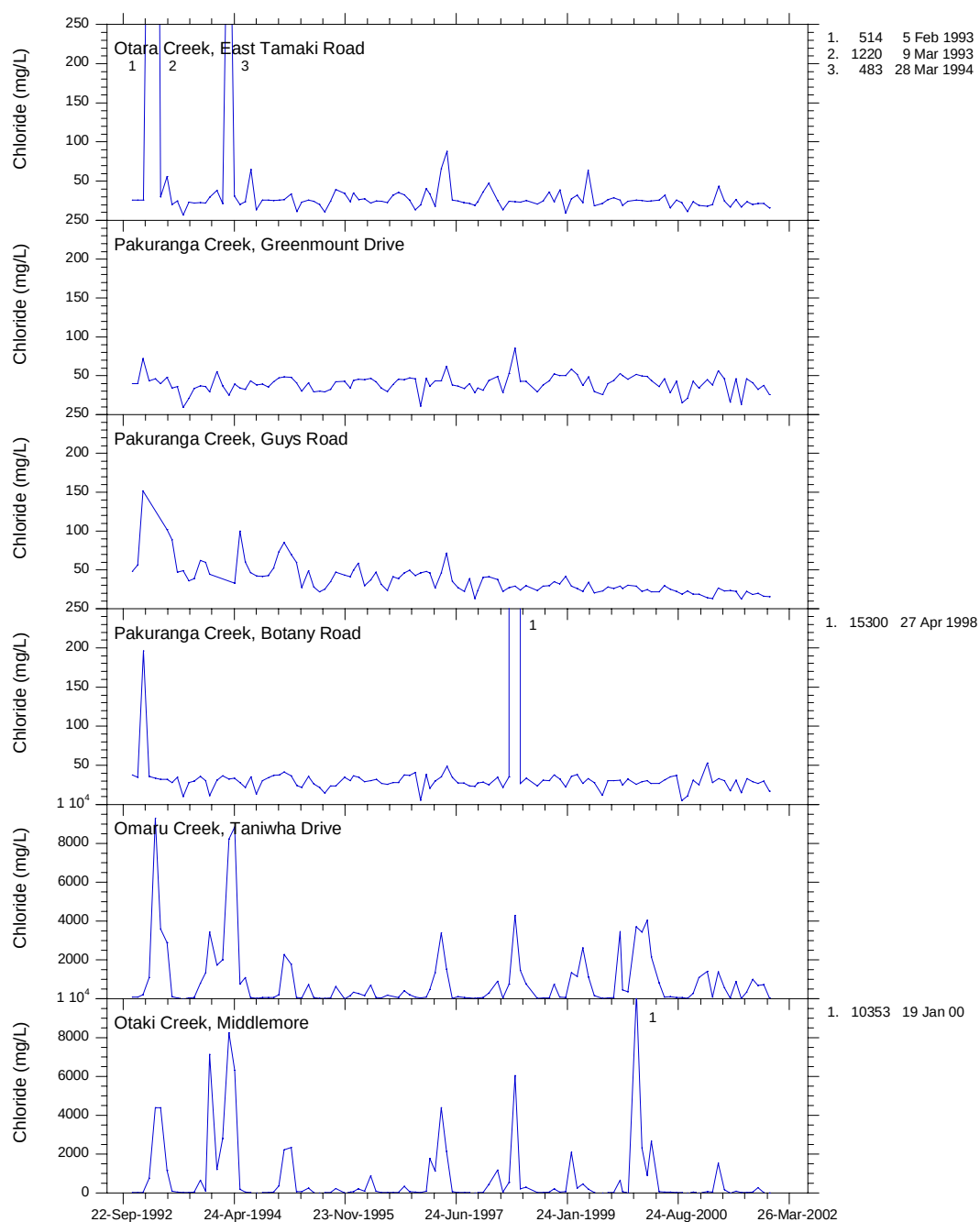
APPENDIX 25: TAMAKI ESTUARY – CHLORIDE**a) Chloride (mg/L) during January 2001 - December 2001**

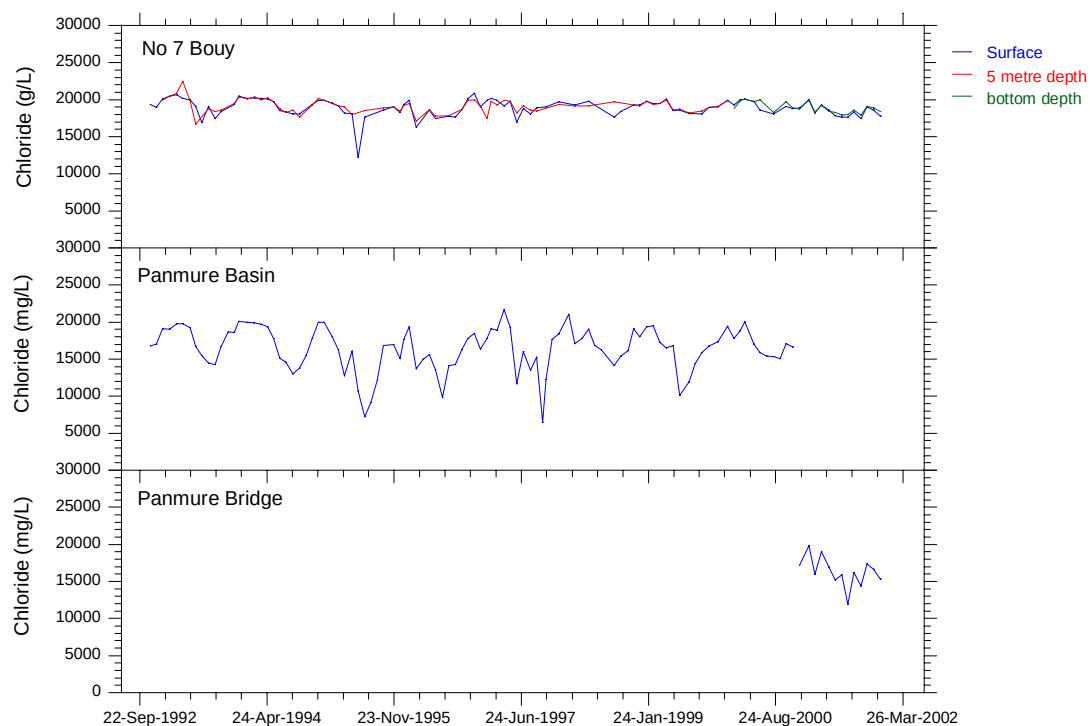
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	18.3	44.7	14.1	52.8	1418.0	77	19956	20063	19824	
20-Feb-01	20.1	38.2	13.3	28.1	100.0	54.6	18207	18336	15958	
23-Mar-01	43.6	56.4	26.6	33.2	1388.0	1524.0	19312	19221	18995	
23-Apr-01	25.1	45.9	23	30.6	567.0	149	18648	18501	17022	
22-May-01	17.2	15.9	23.5	17.5	55.3	9.2	17885	18267	15247	
22-Jun-01	26.4	46.3	22.1	30.9	896	84	17689	17917	15879	
20-Jul-01	16.8	13	12.4	15.4	22	21.7	17632	18009	11912	
17-Aug-01	23.6	46.4	22	33.4	353	35.4	18388	18661	16226	
17-Sep-01	20.7	41.3	18.1	29.7	1008.9	43.8	17476	17945	14405	
15-Oct-01	21.2	32.8	20.2	27.4	678	279	19003	19076	17420	
13-Nov-01	21.3	37.5	16.2	29.8	742	38.8	18664	18869	16613	
13-Dec-01	16.2	25.5	15.3	16.7	51.6	10.2	17816	18406	15387	
Median	21.0	39.8	19.2	29.8	623	49.2	18300	18500	16100	
IQR/Median %	28	38	38	22	134	139	5	4	11	

b) Statistical summary for 1992-2001: Chloride (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	112	111	112	95	81	31	13
Median	24.9	41.1	30.7	30.4	212	60.3	19000	16850	16264	16200
Normality	F	T	F	F	F	F	F	T	F	T
Seasonality	N	Y	N	Y	Y	Y	Y	N	N	N
Trend	94%	NS	100%	NS	NS	NS	99%	NS	NS	INS.
Slope	-0.43	0.57	-4.26	-0.33	1.84	-2.31	-69	NS	NS	INS.

c) The graphs on the following pages show chloride measurements from January 1992 to December 2001 (where data available).





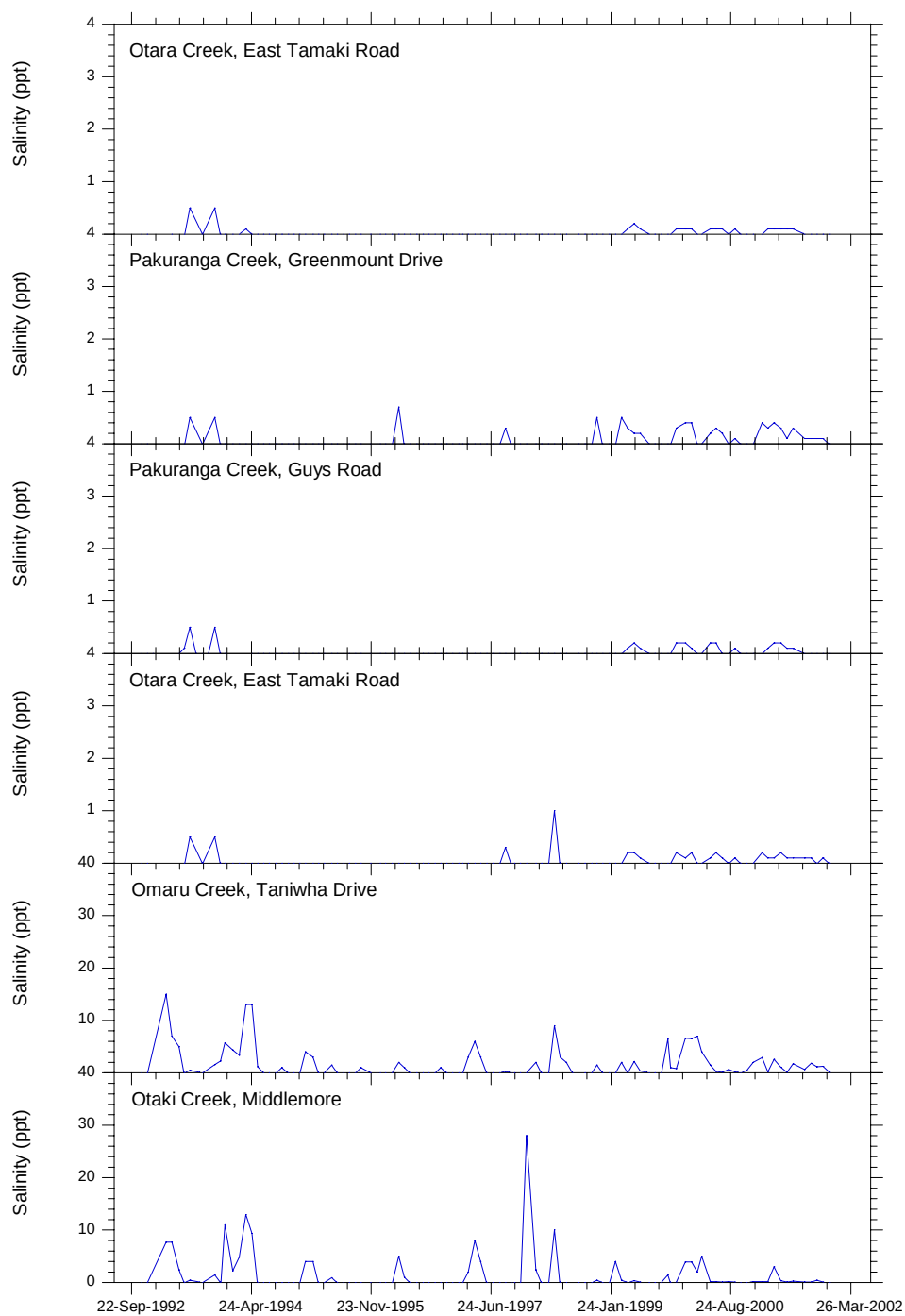
APPENDIX 26: TAMAKI ESTUARY – SALINITY**a) Salinity (ppt) during January 2001 - December 2001**

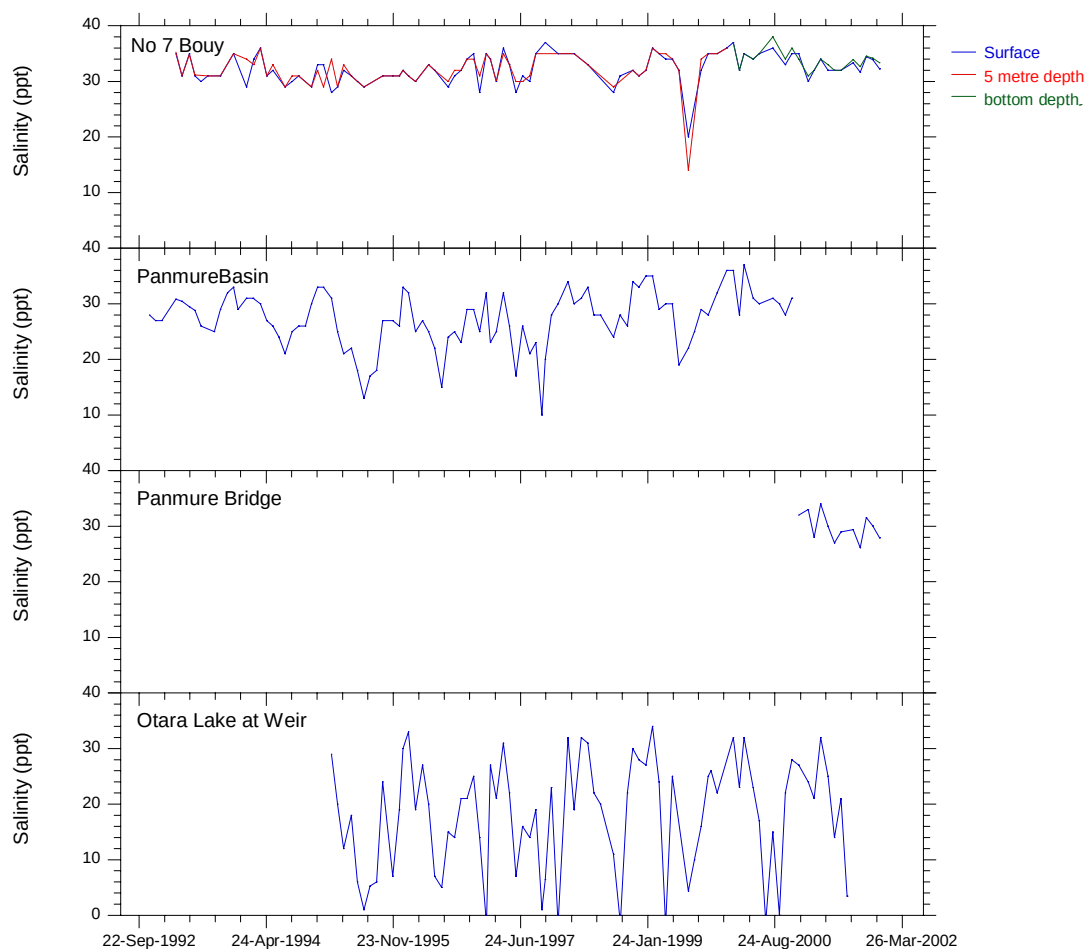
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.0	0.4	0	0.2	2.9	0.2	30.0	31.0	33.0	24.0
20-Feb-01	0.1	0.3	0.1	0.1	0.2	0.2	32.0	32.0	28.0	21.0
23-Mar-01	0.1	0.4	0.2	0.1	2.6	3.0	34.0	34.0	34.0	32.0
23-Apr-01	0.1	0.3	0.2	0.2	1.1	0.4	32.0	33.0	30.0	25.0
22-May-01	0.1	0.1	0.1	0.1	0.1	0.1	32.0	32.0	27.0	14.0
22-Jun-01	0.1	0.3	0.1	0.1	1.7	0.3	32.0	32.0	29.0	21.0
20-Jul-01										3.5
17-Aug-01	0.0	0.1	0.0	0.1	0.6	0.1	33.4	33.9	29.4	
17-Sep-01	0.0	0.1	0.0	0.1	1.8	0.1	31.7	32.6	26.1	
15-Oct-01	0.0	0.1	0.0	0.0	1.2	0.5	34.5	34.6	31.6	
13-Nov-01	0.0	0.1	0.0	0.1	1.3	0.1	33.9	34.2	30.1	
13-Dec-01	0.0	0.0	0.0	0.0	0.1	0.0	32.3	33.4	27.9	
Median	0.0	0.1	0.0	0.1	1	0.2	32.0	33.0	29	21.0
IQR/Median %	–	200	–	0	113	125	5	6	10	33

b) Statistical summary for 1992-2001: Salinity (ppt)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	105	104	105	104	107	107	87	78	29	77
Median	0.0	0.0	0.0	0.0	0.2	0.0	32	27	30	21
Normality	F	F	F	F	F	F	F	T	T	T
Seasonality	Y	N	N	N	Y	Y	N	N	N	Y
Trend	100%	100%	100%	100%	NS	NS	99%	NS	NS	NS
Slope	0	0	0	0	NS	NS	0.27	NS	NS	NS

c) The graphs on the following pages show salinity measurements from January 1992 to December 2001 (where data available).





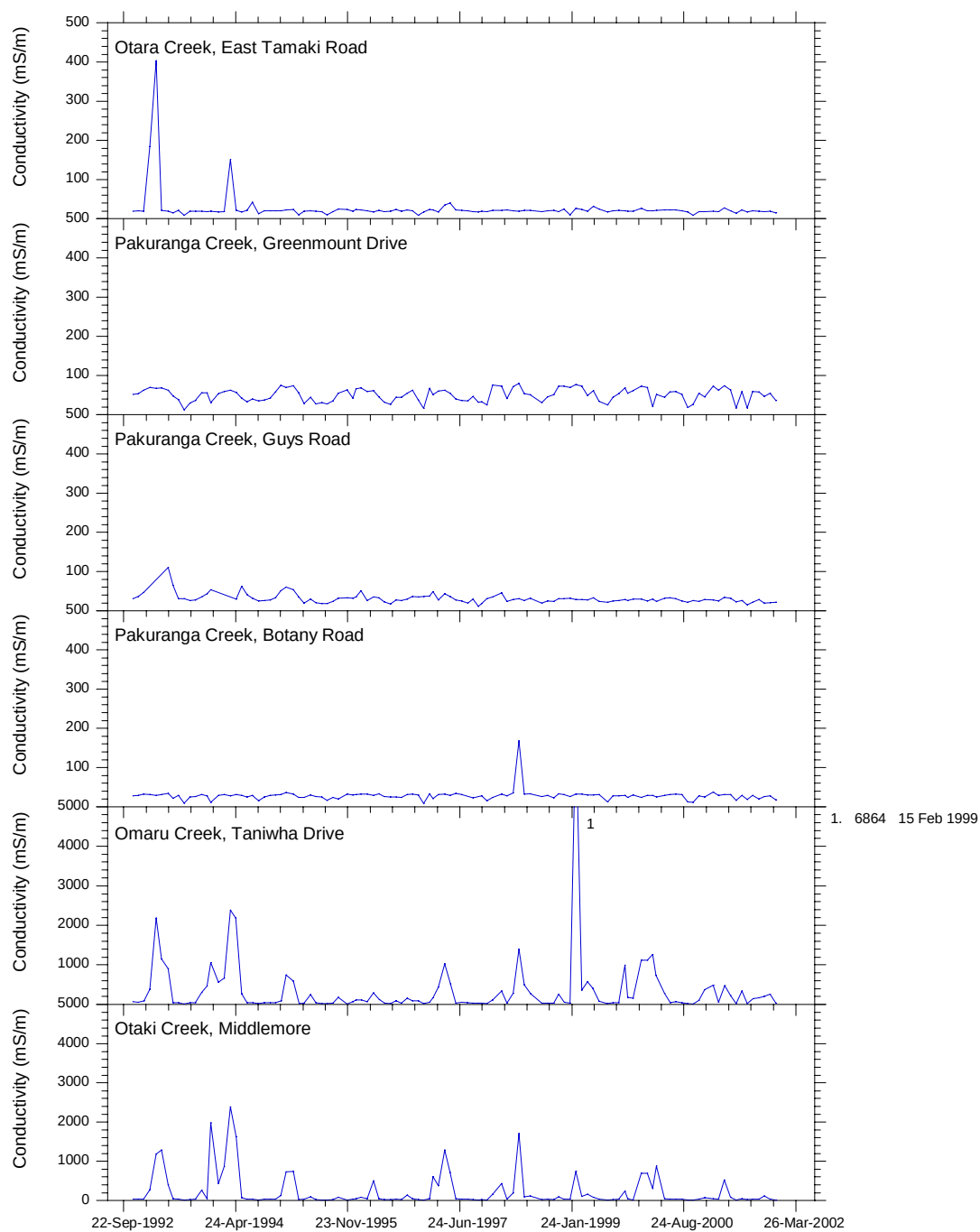
APPENDIX 27: TAMAKI ESTUARY – CONDUCTIVITY**a) Conductivity (mS/m) during January 2001 - December 2001**

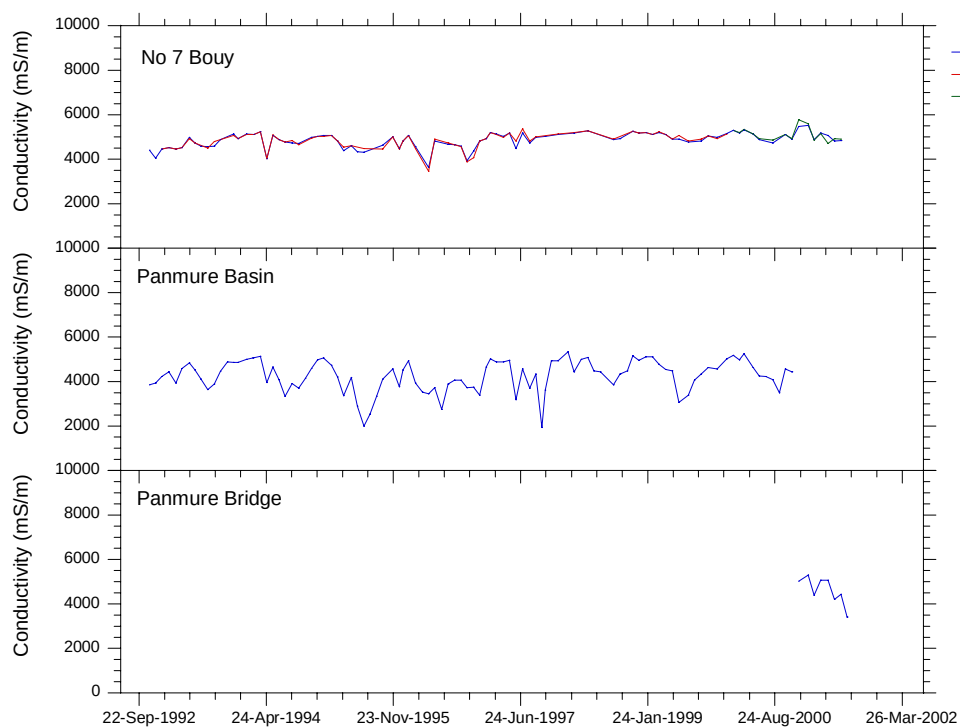
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	20.1	72.4	27.3	38.1	485	51.7	5537	4864	5295	
20-Feb-01	18.4	62.3	25.0	29.0	55.8	37.2	4885	5603	4389	
23-Mar-01	27.2	74.2	33.9	30.5	476	528	5174	5164	5071	
23-Apr-01	21.0	63.8	32.4	31.0	230	75.6	5080	4697	5080	
22-May-01	13.9	16.8	23.0	16.4	27.2	10.5	4834	4926	4205	
22-Jun-01	22.7	59.7	26.2	28.5	340	51.8	4854	4915	4429	
20-Jul-01	17.1	17.5	14.8	18.3	19.7	23.3			3415	
17-Aug-01	20.6	59.1	21.1	29.3	146	33.3				
17-Sep-01	20.2	58.1	29.1	19.4	173	38.1				
15-Oct-01	18.5	47.1	19.1	26.7	210	114				
13-Nov-01	19.2	54.2	21.0	27.9	265	35.0				
13-Dec-01	15.2	36.1	21.3	17.3	33.6	10.0				
Median	19.7	58.6	24.0	28.2	192	37.7	4980	4920	4429	
IQR/Median %	13	31	28	37	122	72	6	5	18	

b) Statistical summary for 1992-2001: Conductivity (mS/m)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	110	112	112	89	81	26	1
Median	20.4	53.3	29.4	29.0	95.7	39.8	4920	4340	4462	3399
Normality	F	T	F	F	F	F	T	F	F	INS.
Seasonality	Y	Y	Y	Y	Y	Y	Y	Y	N	INS.
Trend	NS	NS	100%	NS	NS	NS	100%	90%	NS	INS.
Slope	NS	NS	-1.31	NS	NS	NS	51	69	NS	INS.

c) The graphs on the following pages show conductivity measurements from January 1992 to December 2001 (where data available).





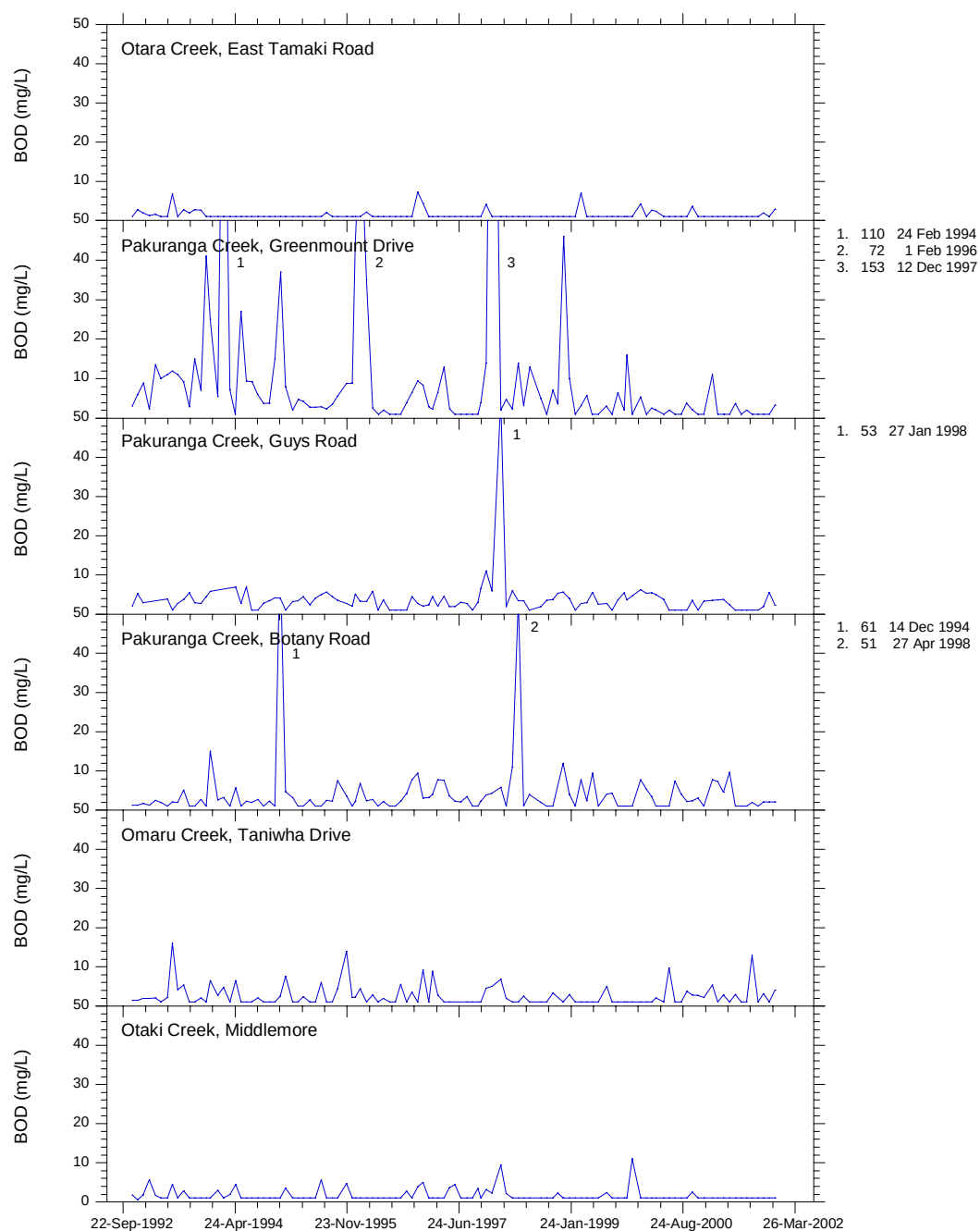
APPENDIX 28: TAMAKI ESTUARY – BIOCHEMICAL OXYGEN DEMAND**a) Biochemical oxygen demand (mg/L) during January 2001 - December 2001**

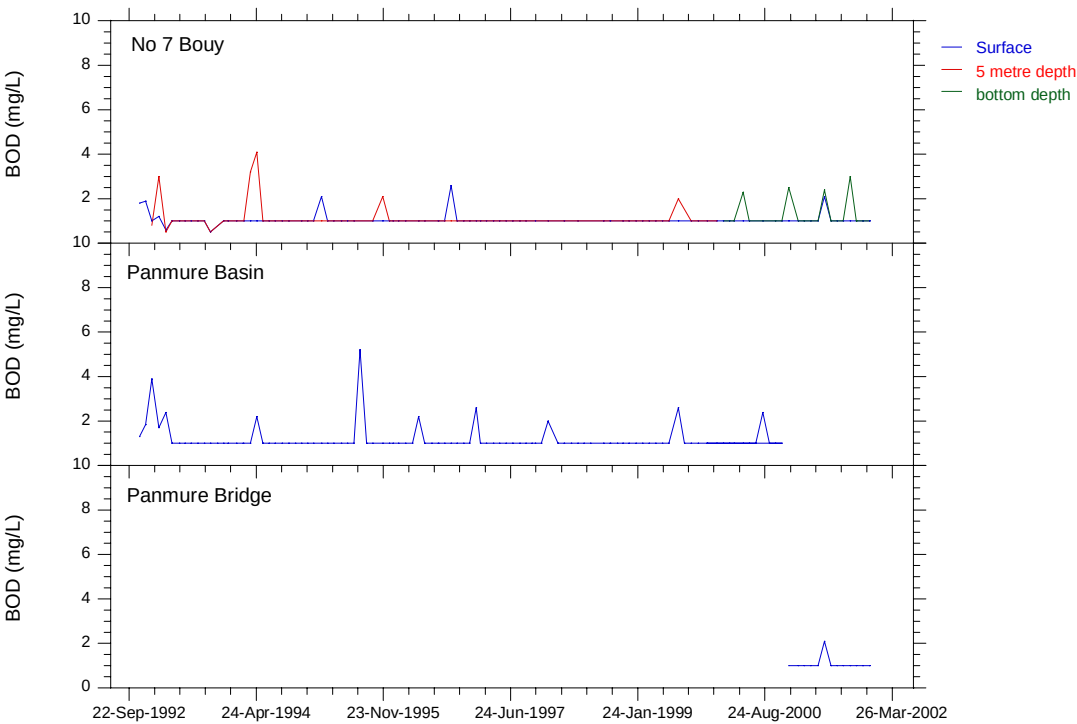
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	<2.0	11	3.5	7.8	5.4	<2.0	<2.0	<2.0	<2.0	
20-Feb-01	<2.0	<2.0	3.6	7.3	<2.0	<2.0	<2.0	<2.0	<2.0	
23-Mar-01	<2.0	<2.0	3.8	4.6	2.9	<2.0	<2.0	<2.0	<2.0	
23-Apr-01	<2.0	<2.0	2.4	>9.7	<2.0	<2.0	<2.0	<2.0	<2.0	
22-May-01	<2.0	3.7	<2.0	<2.0	3	<2.0	2.1	2.4	2.1	
22-Jun-01	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
20-Jul-01	<2.0	2	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	
17-Aug-01	<2.0	<2.0	<2.0	2	>13.0	<2.0	<2.0	<2.0	<2.0	
17-Sep-01	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	3	<2.0	
15-Oct-01	2	<2.0	2	2.1	3.2	<2.0	<2.0	<2.0	<2.0	
13-Nov-01	<2.0	<2.0	5.6	2.1	<2.0	<2.0	<2.0	<2.0	<2.0	
13-Dec-01	2.9	3.3	2.3	2.1	>4.1	<2.0	<2.0	<2.0	<2.0	
Median	1.0	1.0	2.2	2.1	2.0	1.0	1.0	1.0	1.0	
IQR/Median %	0	133	117	204	124	0	0	0	0	

b) Statistical summary for 1992-2001: Biochemical oxygen demand (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	111	109	112	95	81	31	1
Median	1.0	3.6	3.3	2.3	1.0	1.0	1.0	1.0	1.0	2.3
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	N	Y	Y	Y	N	N	N	N	N	INS.
Trend	NS	100%	90%	NS	NS	92%	NS	95%	NS	INS.
Slope	NS	-0.68	-0.09	NS	NS	0.00	NS	0.00	NS	INS.

c) The graphs on the following pages show BOD measurements from January 1992 to December 2001 (where data available).





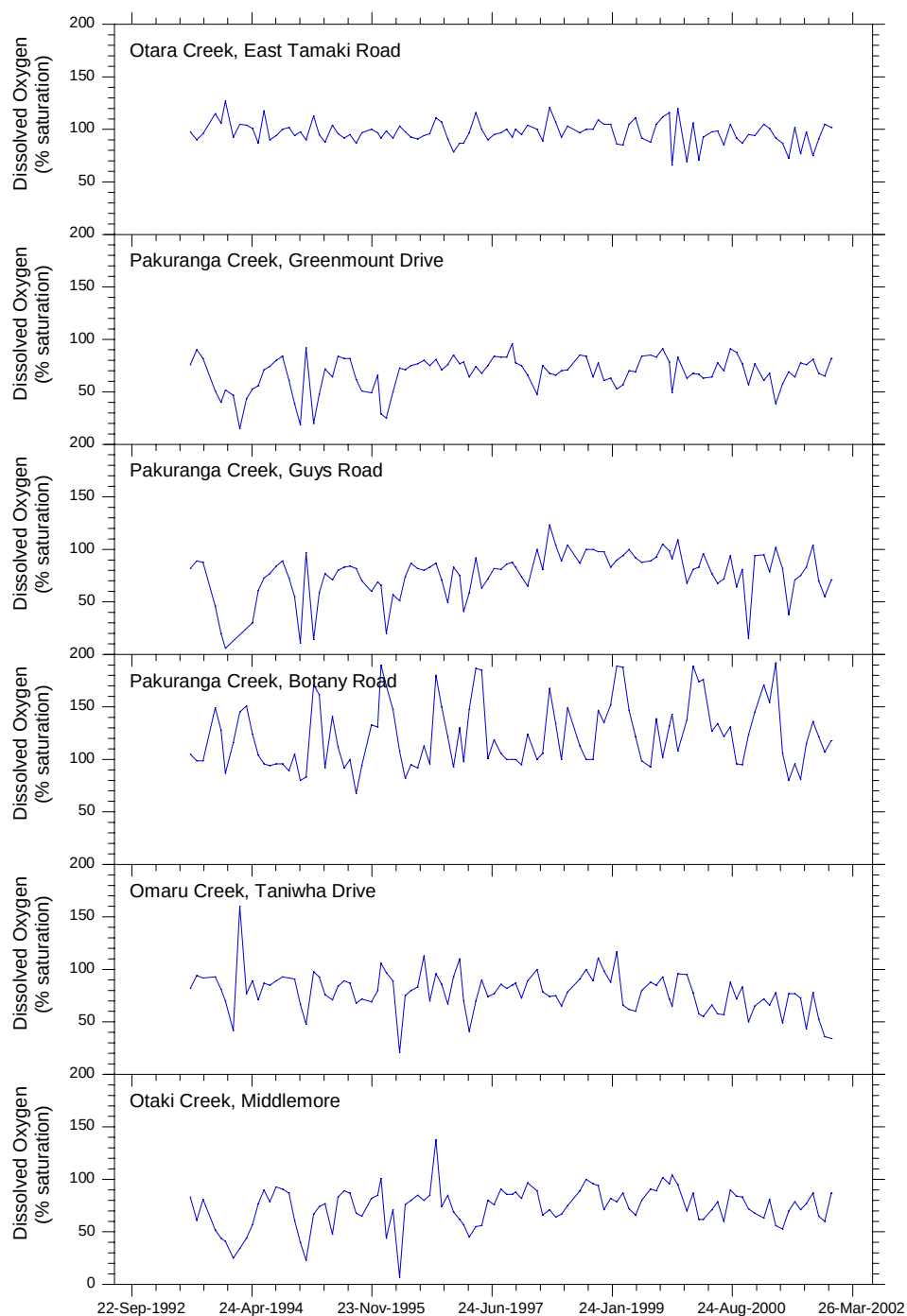
APPENDIX 29: TAMAKI ESTUARY – DISSOLVED OXYGEN**a) Dissolved oxygen (% saturation) during January 2001 - December 2001**

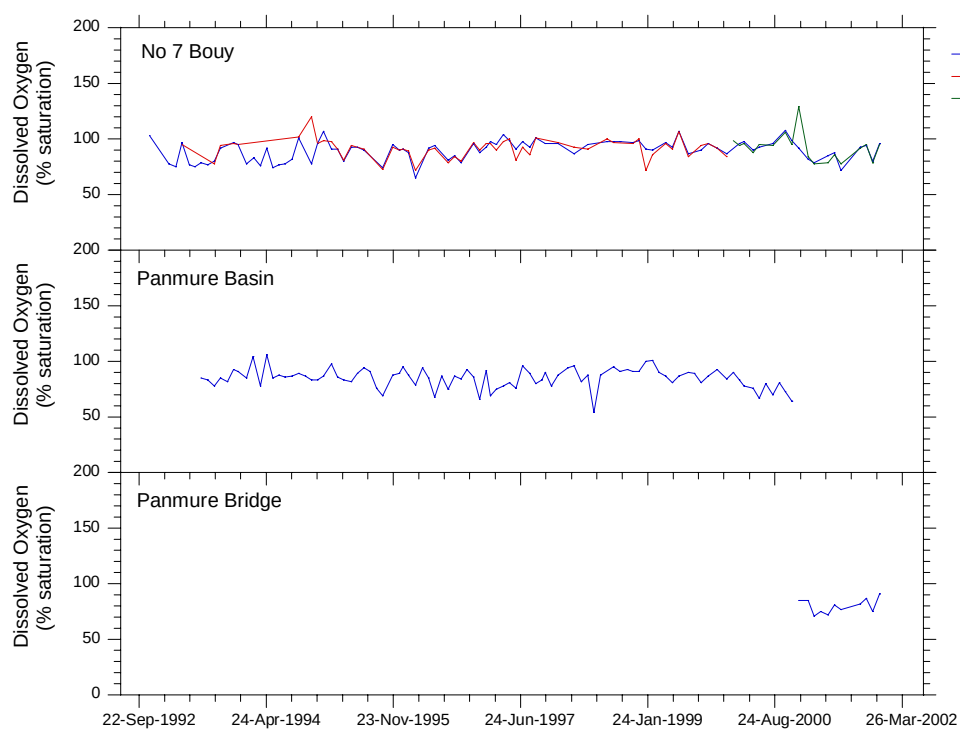
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	105	61	95	171	72	63	82	84	85	
20-Feb-01	101	68	79	154	66	81	79	78	71	
23-Mar-01	92	39	102	192	78	56			75	
23-Apr-01	87	58	82	106	49	53	85	79	72	
22-May-01	73	69	38	80	77	70	88	86	81	
22-Jun-01	102	64	71	96	77	79	72	78	77	
20-Jul-01	77	78	75	81	73	71				
17-Aug-01	98	76	83	115	43	77				
17-Sep-01	75	81	104	136	78	87	93	92	82	
15-Oct-01	91	68	70	122	53	65	94	95	87	
13-Nov-01	105	65	55	107	36	60	80	79	75	
13-Dec-01	102	82	71	118	34	87	96	95	91	
Median	95	68	77	117	69	71	85	84	79	
IQR/Median %	18	19	20	32	43	24	15	15	12	

b) Statistical summary for 1992-2001: Dissolved oxygen (% saturation)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	103	103	100	103	103	103	88	73	29	4
Median	97	71	82	116	79	77	92	87	81	100
Normality	T	F	F	F	T	F	F	F	F	T
Seasonality	N	Y	N	Y	N	Y	N	N	Y	INS.
Trend	NS	92%	100%	100%	100%	NS	95%	NS	90%	INS.
Slope	NS	1.0	2.3	2.5	-2.0	NS	0.8	NS	-4.9	INS.

c) The graphs on the following pages show dissolved oxygen (% saturation) measurements from January 1992 to December 2001 (where data available).





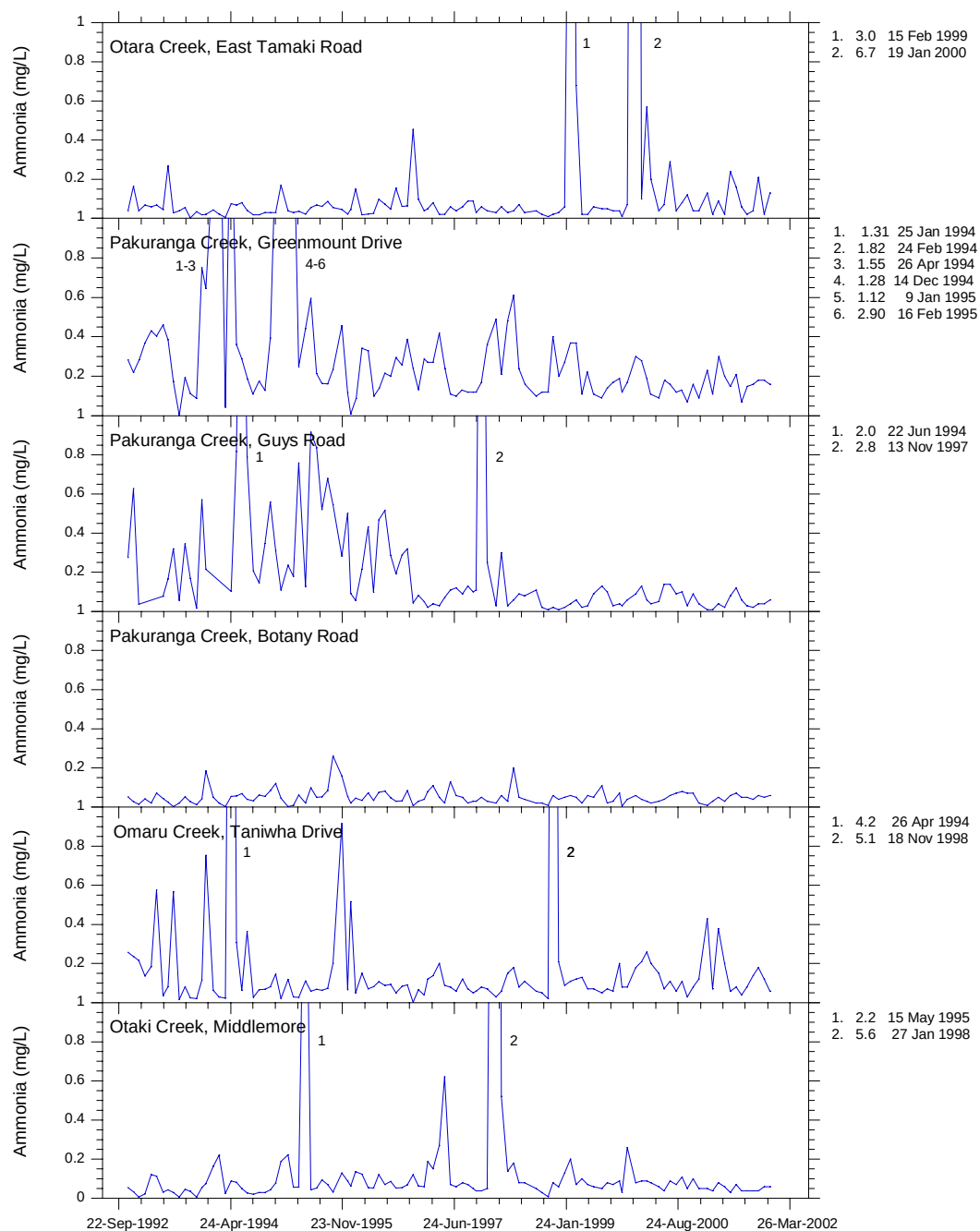
APPENDIX 30: TAMAKI ESTUARY – AMMONIA NITROGEN**a) Ammonia nitrogen (mg/L) during January 2001 - December 2001**

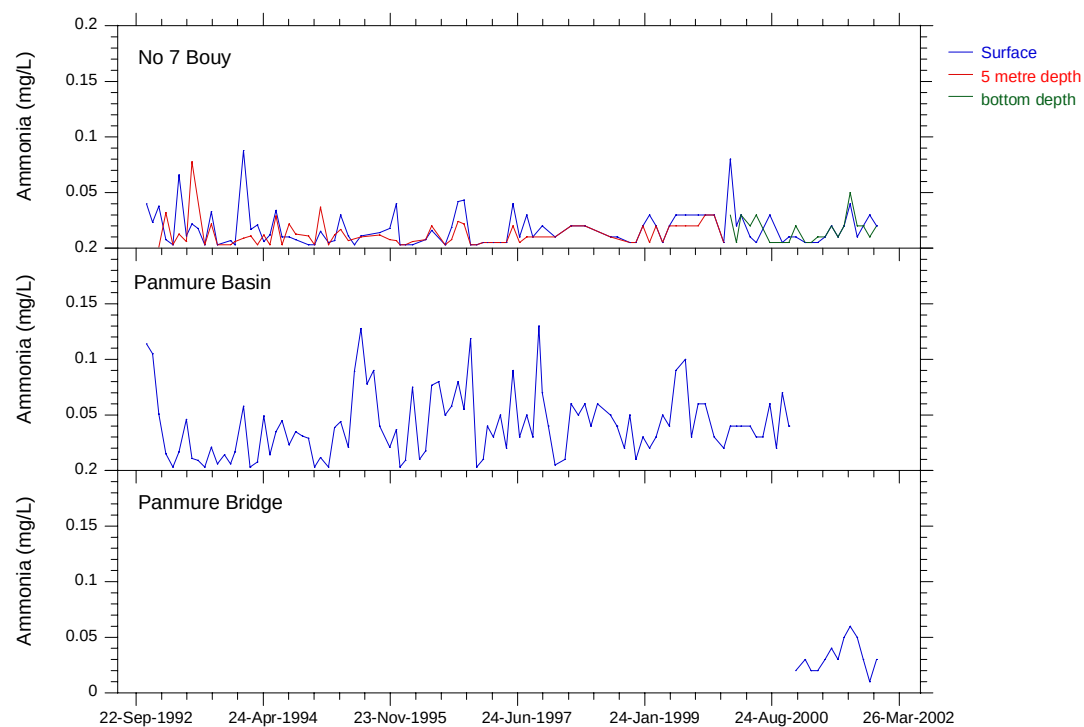
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.13	0.23	0.01	0.01	0.43	0.05	<0.01	<0.01	0.03	0.09
20-Feb-01	0.02	0.11	0.01	0.03	0.07	0.04	<0.01	<0.01	0.02	0.02
23-Mar-01	0.09	0.30	0.04	0.05	0.38	0.08	<0.01	0.01	0.02	
23-Apr-01	0.02	0.20	0.02	0.03	0.20	0.06	0.01	0.01	0.03	0.07
22-May-01	0.24	0.15	0.08	0.06	0.06	0.03	0.02	0.02	0.04	
22-Jun-01	0.16	0.21	0.12	0.07	0.08	0.07	0.01	0.01	0.03	
20-Jul-01	0.06	0.07	0.06	0.05	0.04	0.04	0.02	0.02	0.05	
17-Aug-01	0.02	0.15	0.03	0.05	0.08	0.04	0.04	0.05	0.06	
17-Sep-01	0.04	0.16	0.02	0.04	0.14	0.04	0.01	0.02	0.05	
15-Oct-01	0.21	0.18	0.04	0.06	0.18	0.04	0.02	0.02	0.03	
13-Nov-01	0.02	0.18	0.04	0.05	0.12	0.06	0.03	0.01	0.01	
13-Dec-01	0.13	0.16	0.06	0.06	0.06	0.06	0.02	0.02	0.03	
Median	0.08	0.17	0.04	0.05	0.10	0.05	0.02	0.02	0.03	0.07
IQR/Median %	157	31	100	45	118	44	75	67	50	50

b) Statistical summary for 1992-2001: Ammonia nitrogen (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	112	112	112	95	81	31	5
Median	0.045	0.20	0.10	0.05	0.08	0.07	0.01	0.04	0.04	0.04
Normality	F	F	F	F	F	F	F	F	F	T
Seasonality	N	Y	Y	N	Y	Y	N	N	N	INS.
Trend	92%	100%	100%	NS	NS	NS	NS	98%	90%	INS.
Slope	0.0023	-0.0153	-0.0262	NS	NS	NS	NS	0.0029	-0.0088	INS.

c) The graphs on the following pages show ammonia nitrogen measurements from January 1992 to December 2001 (where data available).





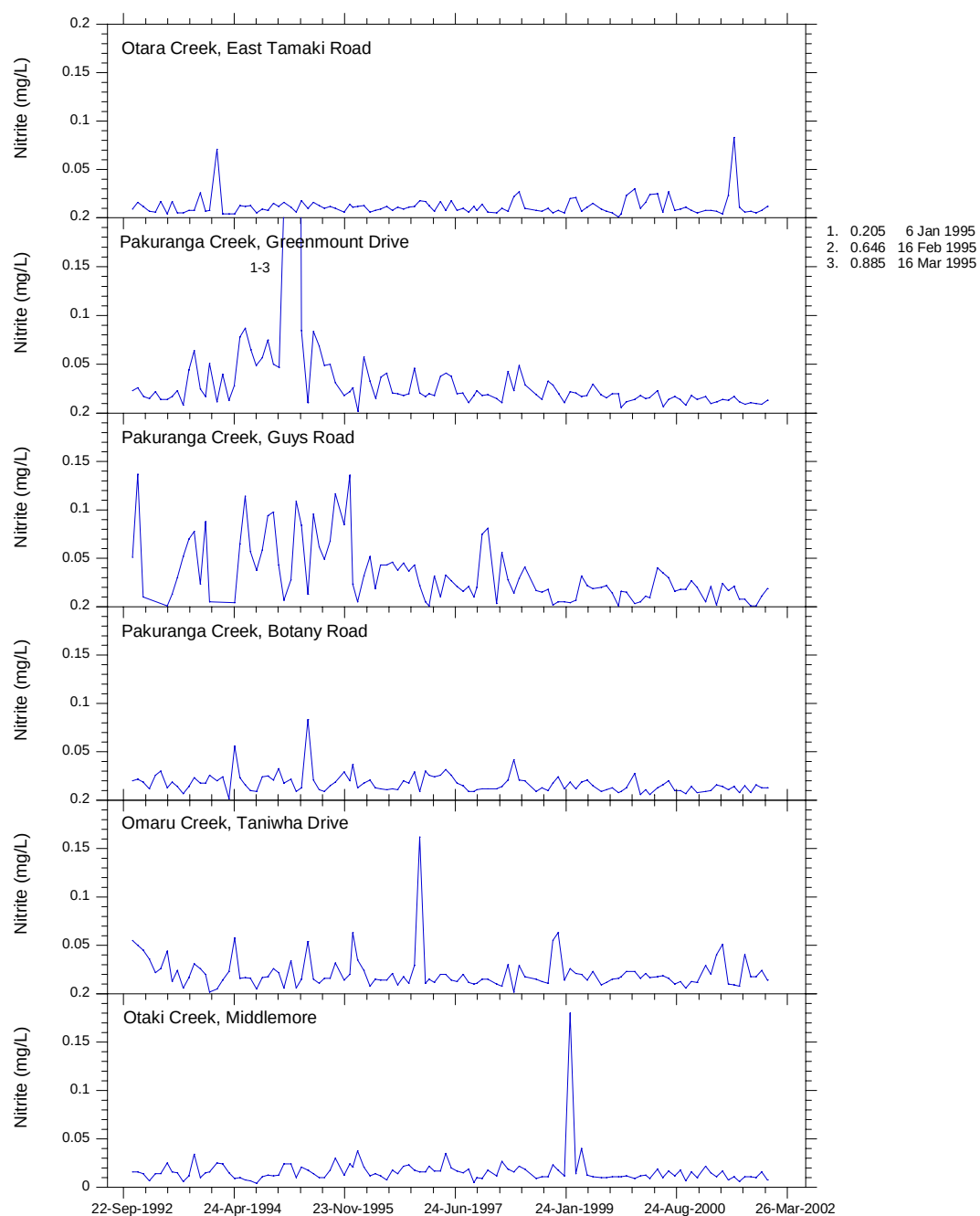
APPENDIX 31: TAMAKI ESTUARY – NITRITE NITROGEN**a) Nitrite nitrogen (mg/L) during January 2001 - December 2001**

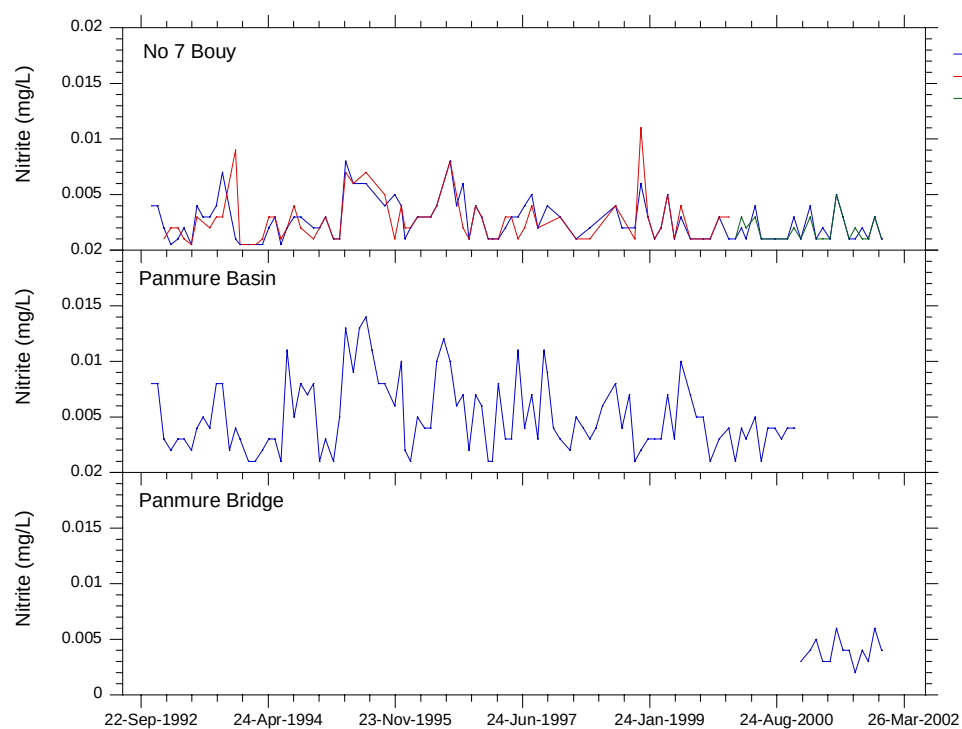
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.008	0.017	0.005	0.009	0.029	0.022	0.004	0.003	0.004	
20-Feb-01	0.008	0.010	0.021	0.010	0.020	0.015	0.001	0.001	0.005	
23-Mar-01	0.007	0.012	0.002	0.016	0.040	0.011	0.002	0.001	0.003	
23-Apr-01	0.004	0.014	0.024	0.014	0.051	0.017	0.001	0.001	0.003	
22-May-01	0.023	0.013	0.017	0.011	0.010	0.008	0.005	0.005	0.006	
22-Jun-01	0.083	0.017	0.021	0.014	0.009	0.011	0.003	0.003	0.004	
20-Jul-01	0.011	0.012	0.008	0.008	0.008	0.006	0.001	0.001	0.004	
17-Aug-01	0.006	0.009	0.008	0.015	0.041	0.011	0.001	0.002	0.002	
17-Sep-01	0.007	0.011	0.001	0.008	0.018	0.011	0.002	0.001	0.004	
15-Oct-01	0.005	0.010	0.001	0.016	0.018	0.010	0.001	0.001	0.003	
13-Nov-01	0.008	0.009	0.011	0.013	0.024	0.016	0.003	0.003	0.006	
13-Dec-01	0.012	0.013	0.019	0.013	0.014	0.008	0.001	0.001	0.004	
Median	0.008	0.012	0.010	0.013	0.019	0.011	0.002	0.001	0.004	
IQR/Median %	56	27	161	35	99	52	133	200	31	

b) Statistical summary for 1992-2001: Nitrite nitrogen (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	112	112	112	95	81	31	1
Median	0.010	0.020	0.020	0.020	0.020	0.014	0.002	0.004	0.004	0.006
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	Y	N	N	Y	Y	Y	Y	N	N	INS.
Trend	NS	100%	100%	100%	NS	NS	NS	NS	NS	INS.
Slope	NS	-0.0028	-0.0055	-0.00095	NS	NS	NS	NS	NS	INS.

c) The graphs on the following pages show nitrite nitrogen measurements from January 1992 to December 2001 (where data available).





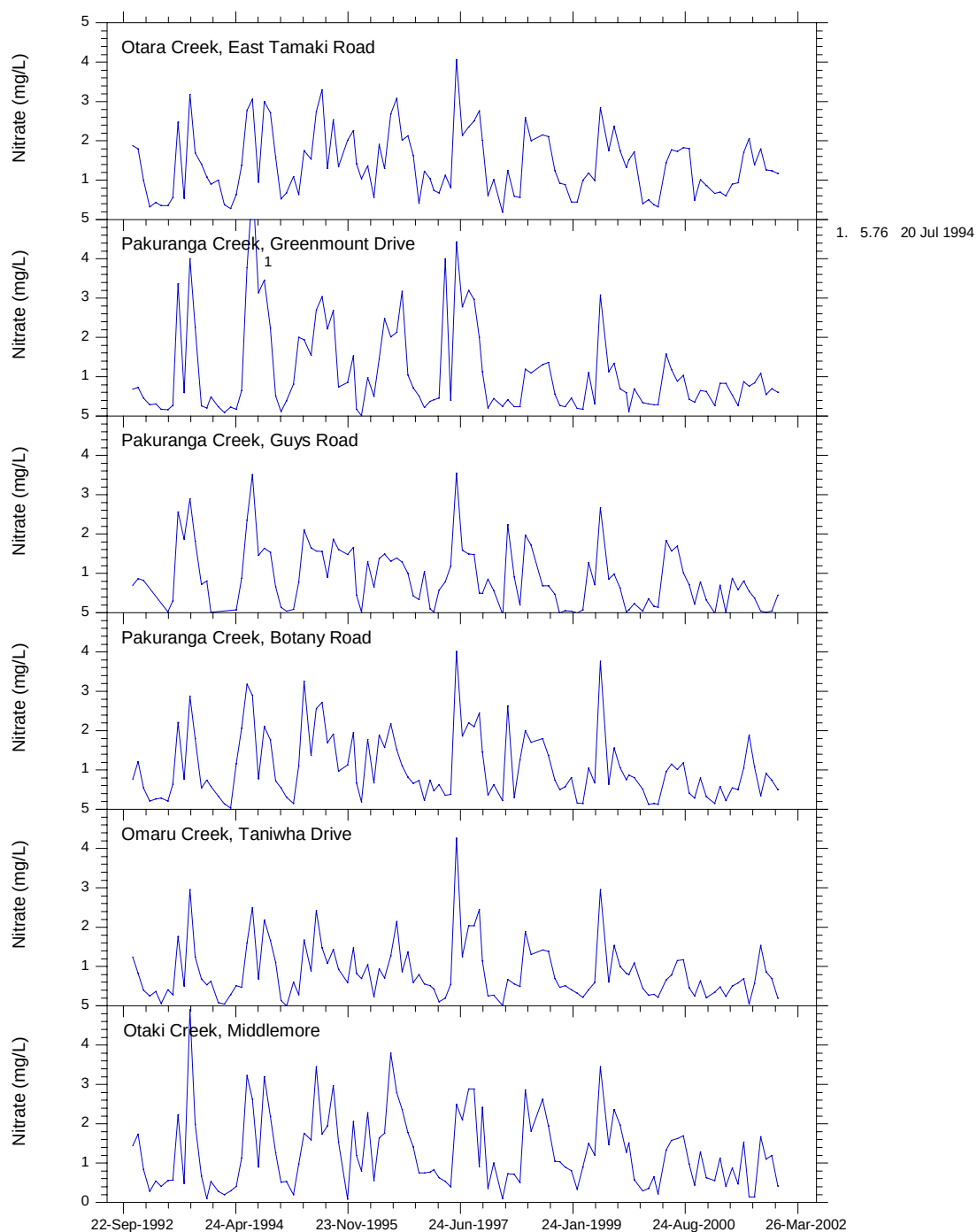
APPENDIX 32: TAMAKI ESTUARY – NITRATE NITROGEN**a) Nitrate nitrogen (mg/L) during January 2001 - December 2001**

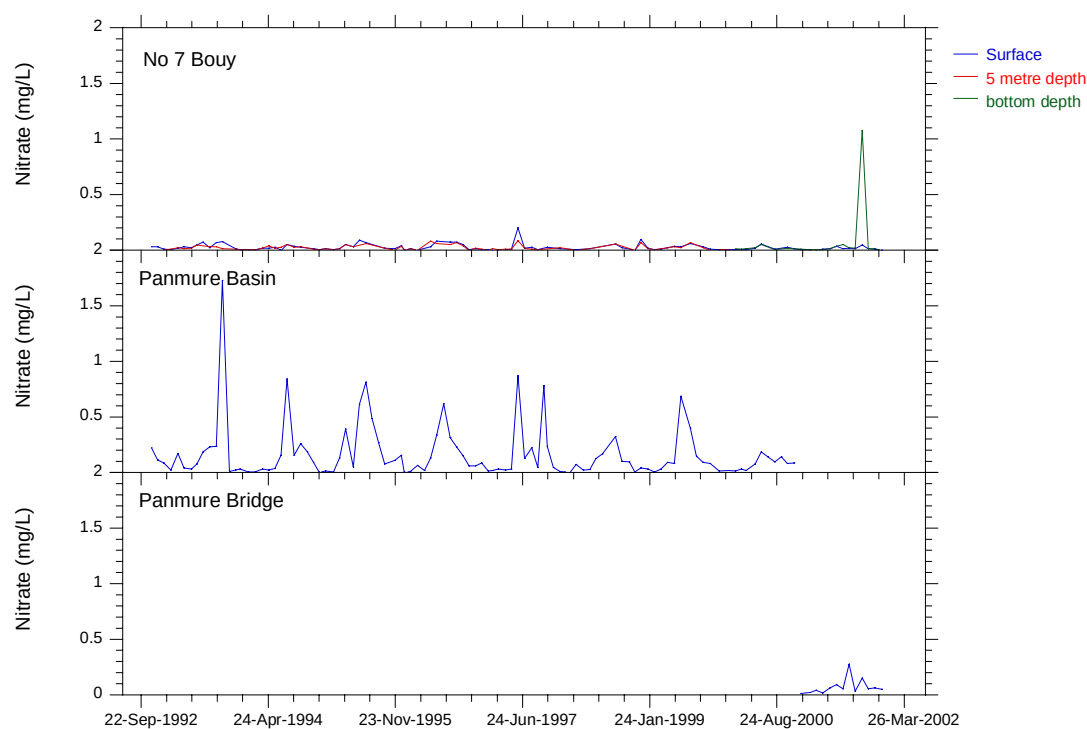
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.650	0.253	0.000	0.141	0.313	0.539	0.002	0.001	0.021	
20-Feb-01	0.692	0.818	0.679	0.572	0.457	1.115	0.001	0.002	0.036	
23-Mar-01	0.596	0.822	0.017	0.203	0.204	0.401	0.008	0.004	0.017	
23-Apr-01	0.892	0.519	0.849	0.532	0.445	0.866	0.012	0.012	0.063	
22-May-01	0.908	0.265	0.558	0.485	0.565	0.46	0.033	0.030	0.084	
22-Jun-01	1.627	0.866	0.785	1.036	0.691	1.519	0.010	0.046	0.053	
20-Jul-01	2.049	0.745	0.537	1.882	0.044	0.132	0.016	0.021	0.273	
17-Aug-01	1.384	0.830	0.366	1.065	0.528	0.123	0.010	0.018	0.032	
17-Sep-01	1.793	1.069	0.031	0.331	1.512	1.659	0.043	1.078	0.149	
15-Oct-01	1.255	0.532	0.010	0.891	0.848	1.09	0.010	0.012	0.052	
13-Nov-01	1.232	0.685	0.030	0.73	0.669	1.184	0.008	0.012	0.059	
13-Dec-01	1.158	0.589	0.429	0.483	0.183	0.417	0.000	0.000	0.045	
Median	1.20	0.715	0.398	0.552	0.493	0.703	0.010	0.012	0.053	
IQR/Median %	50	41	141	87	79	102	65	165	63	

b) Statistical summary for 1992-2001: Nitrate nitrogen (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	110	110	104	109	110	110	93	81	31	1
Median	1.25	0.625	0.694	0.751	0.626	0.999	0.013	0.080	0.078	0.146
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	Y	Y	Y	Y	Y	Y	Y	Y	Y	INS.
Trend	NS	NS	100%	97%	NS	NS	100%	NS	NS	INS.
Slope	NS	NS	-0.105	-0.0351	NS	NS	-0.001	NS	NS	INS.

c) The graphs on the following pages show nitrate nitrogen measurements from January 1992 to December 2001 (where data available).





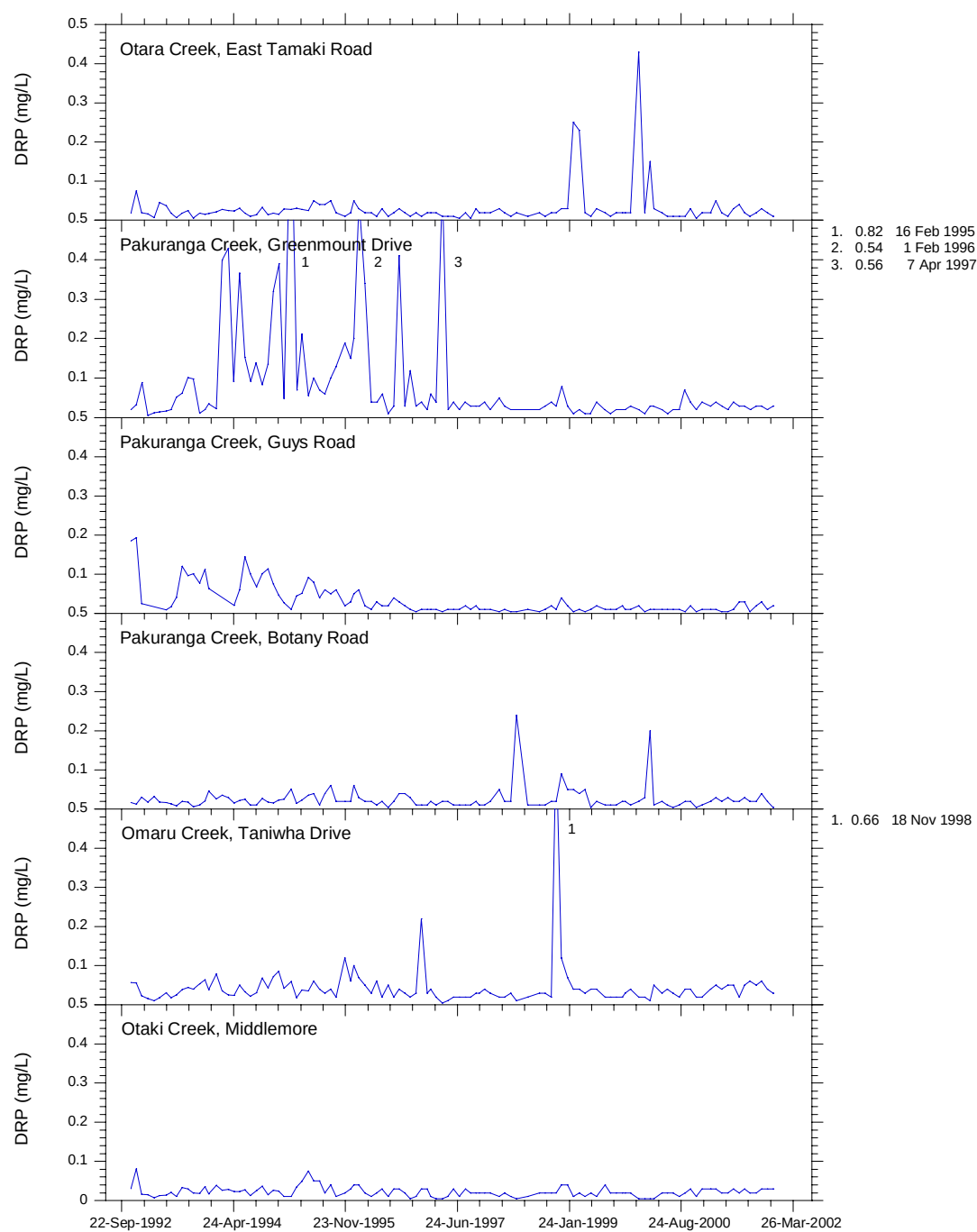
APPENDIX 33: TAMAKI ESTUARY – DISSOLVED REACTIVE PHOSPHORUS**a) Dissolved reactive phosphorus (mg/L) during January 2001 - December 2001**

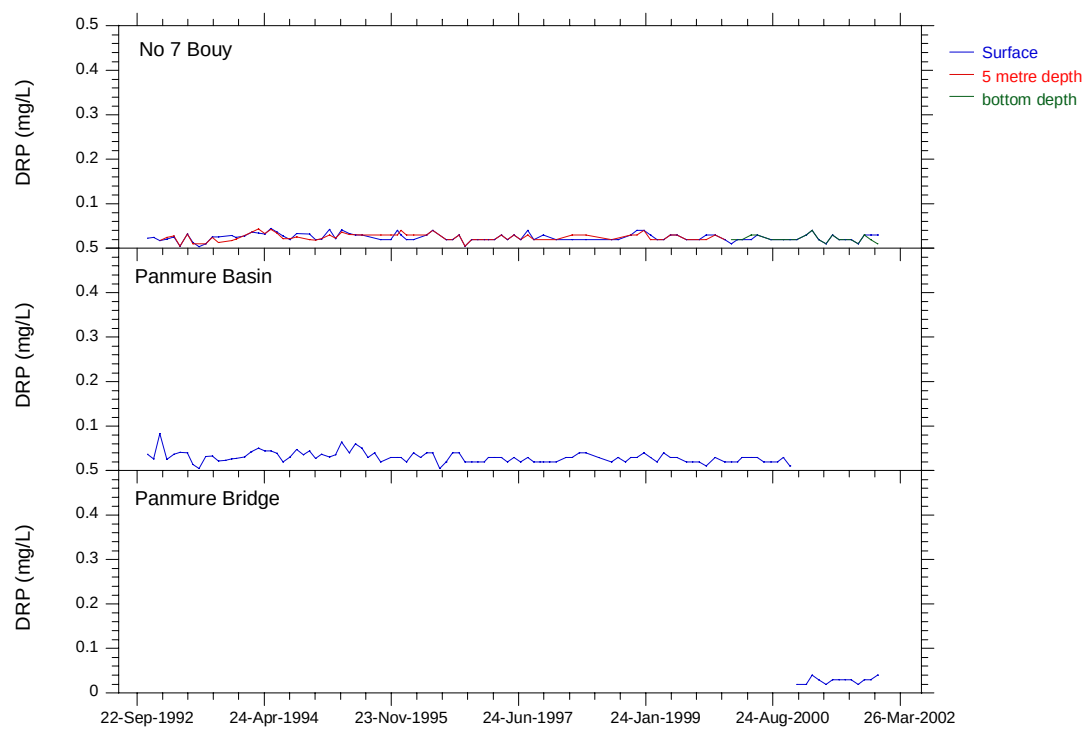
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.02	0.03	0.01	0.02	0.04	0.03	0.03	0.03	0.02	
20-Feb-01	0.05	0.04	0.01	0.03	0.05	0.03	0.04	0.04	0.04	
23-Mar-01	0.02	0.03	<0.01	0.02	0.04	0.02	0.02	0.02	0.03	
23-Apr-01	0.01	0.02	<0.01	0.03	0.05	0.02	0.01	0.01	0.02	
22-May-01	0.03	0.04	0.01	0.02	0.05	0.03	0.03	0.03	0.03	
22-Jun-01	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	
20-Jul-01	0.02	0.03	0.03	0.03	0.05	0.03	0.02	0.02	0.03	
17-Aug-01	0.01	0.02	<0.01	0.02	0.06	0.02	0.02	0.02	0.03	
17-Sep-01	0.02	0.03	0.02	0.02	0.05	0.02	0.01	0.01	0.02	
15-Oct-01	0.03	0.03	0.03	0.04	0.06	0.03	0.03	0.03	0.03	
13-Nov-01	0.02	0.02	0.01	0.02	0.04	0.03	0.03	0.02	0.03	
13-Dec-01	0.01	0.03	0.02	<0.01	0.03	0.03	0.03	0.01	0.04	
Median	0.02	0.03	0.02	0.02	0.05	0.03	0.025	0.02	0.03	
IQR/Median %	63	8	100	50	20	33	40	63	8	

b) Statistical summary for 1992-2001: Dissolved reactive phosphorus (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	111	111	105	111	111	111	95	80	31	1
Median	0.02	0.03	0.02	0.02	0.03	0.02	0.02	0.03	0.03	0.02
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	N	N	Y	Y	Y	Y	N	N	N	INS.
Trend	NS	100%	100%	NS	NS	NS	NS	95%	95	INS.
Slope	NS	-0.005	-0.005	NS	NS	NS	N	-0.001	0.00	INS.

c) The graphs on the following pages show dissolved reactive phosphorus measurements from January 1992 to December 2001 (where data available).





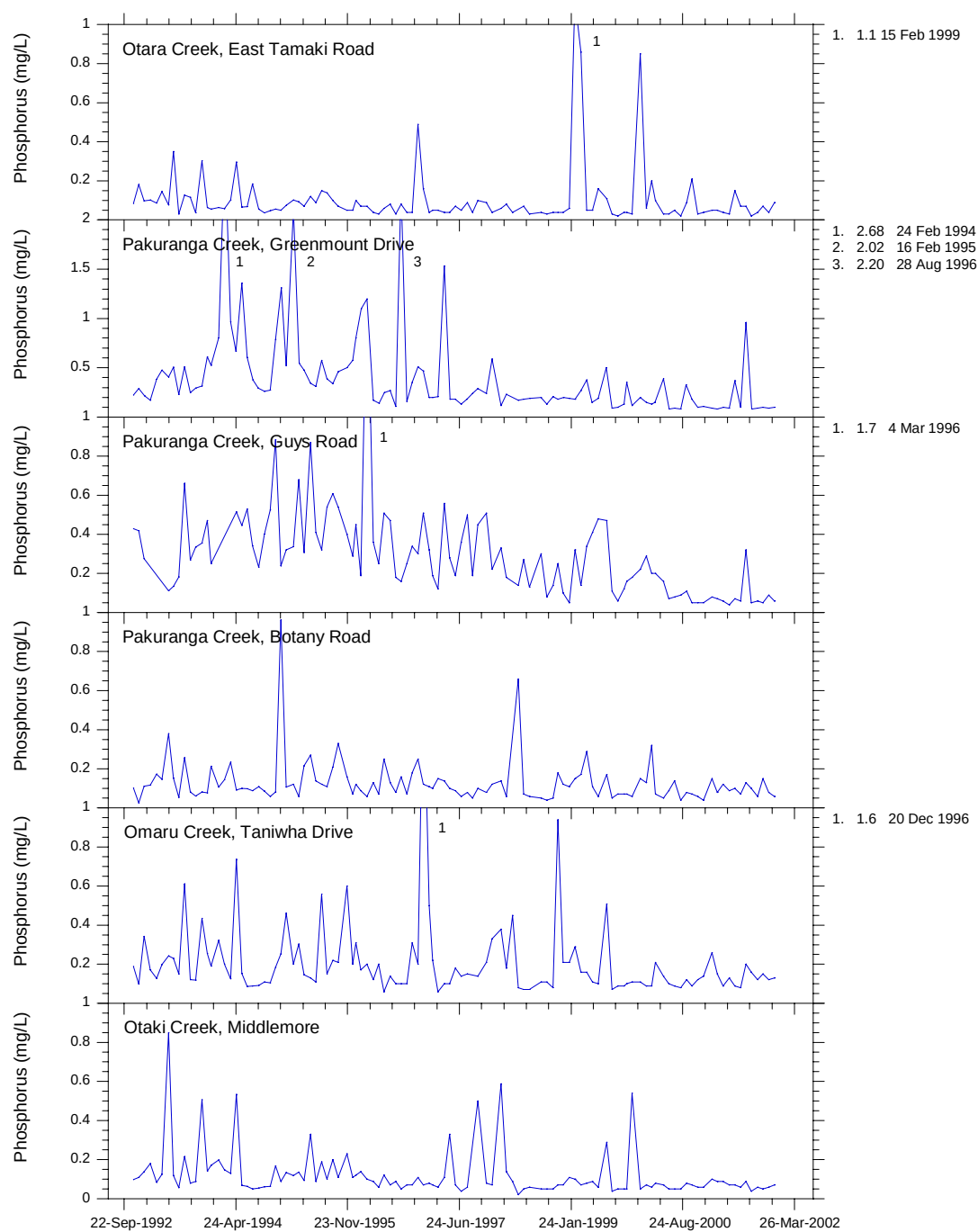
APPENDIX 34: TAMAKI ESTUARY – TOTAL PHOSPHORUS**a) Total phosphorus (mg/L) during January 2001 - December 2001**

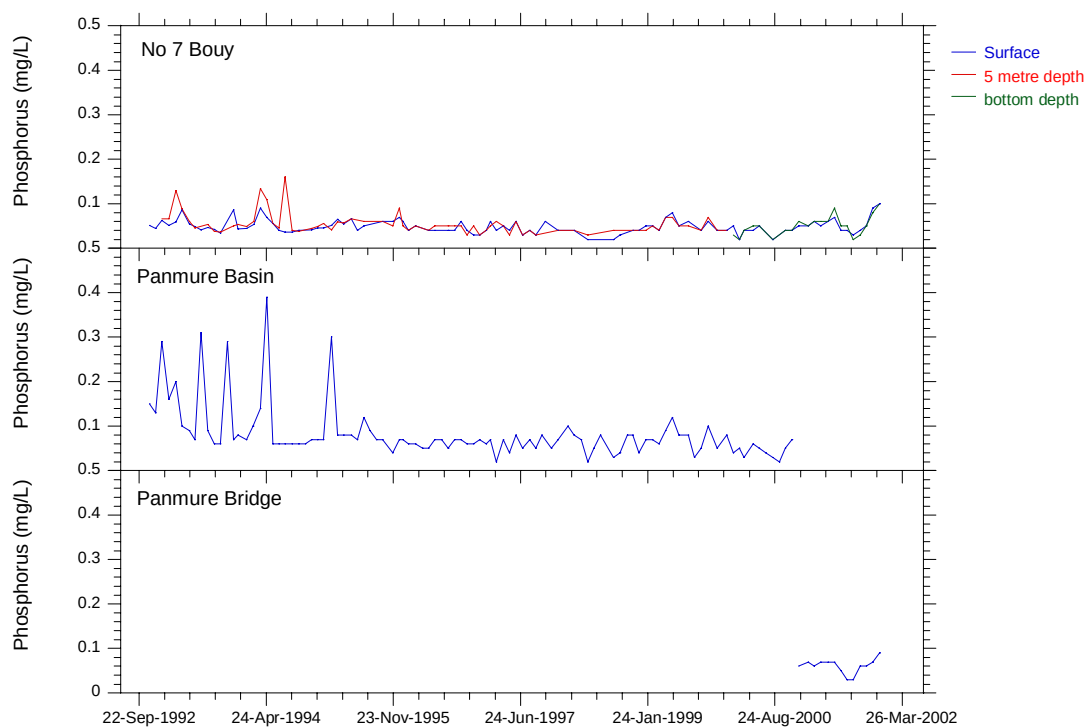
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	0.05	0.09	0.08	0.15	0.26	0.10	0.05	0.05	0.07	
20-Feb-01	0.05	0.08	0.07	0.08	0.15	0.09	0.06	0.06	0.06	
23-Mar-01	0.04	0.10	0.06	0.12	0.09	0.09	0.05	0.06	0.07	
23-Apr-01	0.03	0.09	0.04	0.09	0.13	0.07	0.06	0.06	0.07	
22-May-01	0.15	0.37	0.07	0.10	0.09	0.07	0.07	0.09	0.07	
22-Jun-01	0.07	0.10	0.06	0.07	0.08	0.06	0.04	0.05	0.05	
20-Jul-01	0.07	0.96	0.32	0.13	0.20	0.09	0.04	0.05	0.03	
17-Aug-01	0.02	0.08	0.05	0.10	0.16	0.04	0.03	0.02	0.03	
17-Sep-01	0.04	0.09	0.06	0.06	0.12	0.06	0.04	0.03	0.06	
15-Oct-01	0.07	0.10	0.05	0.15	0.15	0.05	0.05	0.05	0.06	
13-Nov-01	0.04	0.09	0.09	0.08	0.12	0.06	0.09	0.08	0.07	
13-Dec-01	0.09	0.10	0.06	0.06	0.13	0.07	0.10	0.10	0.09	
Median	0.05	0.095	0.060	0.095	0.130	0.070	0.050	0.055	0.065	
IQR/Median %	60	11	25	47	31	43	45	27	19	

b) Statistical summary for 1992-2001: Total phosphorus (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	110	110	104	110	110	110	95	80	31	1
Median	0.06	0.24	0.26	0.10	0.15	0.08	0.05	0.07	0.06	0.06
Normality	F	F	F	F	F	F	F	F	T	INS.
Seasonality	N	N	N	Y	Y	Y	Y	N	N	INS.
Trend	100%	100%	100%	96%	99%	100%	NS	95%	NS	INS.
Slope	-0.004	-0.041	-0.040	-0.003	-0.007	-0.006	NS	-0.006	NS	INS.

c) The graphs on the following pages show total phosphorus measurements from January 1992 to December 2001 (where data available).





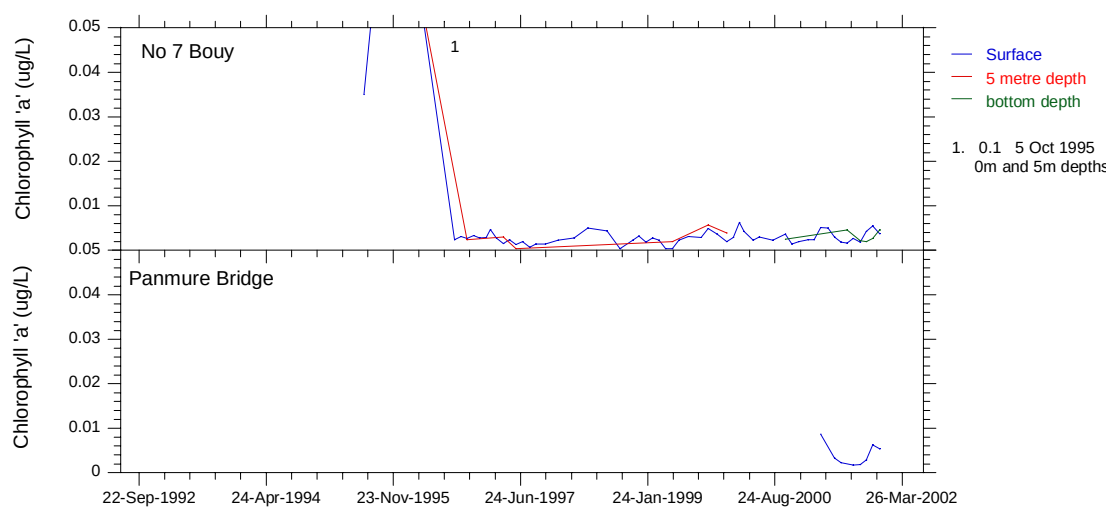
APPENDIX 35: TAMAKI ESTUARY – CHLOROPHYLL *a***a) Chlorophyll *a* (mg/L) during January 2001 - December 2001**

Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01							0.0024			
20-Feb-01							0.0052		0.0086	
23-Mar-01							0.005			
23-Apr-01							0.003		0.0033	
22-May-01							0.0018		0.0023	
22-Jun-01							0.0016			
20-Jul-01							0.0026	0.0046	0.0017	
17-Aug-01							0.0019		0.0018	
17-Sep-01							0.0042	0.0022	0.0029	
15-Oct-01							0.0055	0.002	0.0062	
13-Nov-01							0.0038	0.0026	0.0054	
13-Dec-01							0.007	0.0046	0.0067	
Median							0.003	0.003	0.003	
IQR/Median %							82	92	118	

b) Statistical summary for 1992-2001: Chlorophyll *a* (mg/L)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	1	0	0	0	0	0	57	0	10	0
Median	0.0032	n/a	n/a	n/a	n/a	n/a	0.0027	n/a	0.0435	n/a
Normality	INS.	INS.	INS.	INS.	INS.	INS.	F	INS.	INS.	INS.
Seasonality	INS.	INS.	INS.	INS.	INS.	INS.	N	INS.	INS.	INS.
Trend	INS.	INS.	INS.	INS.	INS.	INS.	NS	INS.	INS.	INS.
Slope	INS.	INS.	INS.	INS.	INS.	INS.	NS	INS.	INS.	INS.

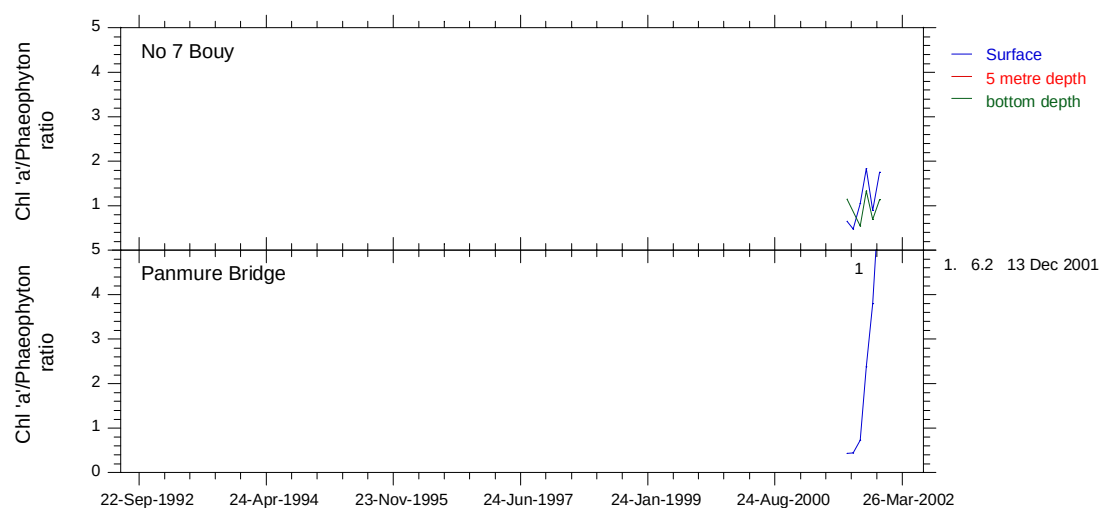
c) The graphs on the following pages show chlorophyll *a* measurements from January 1992 to December 2001 (where data available).



APPENDIX 36: TAMAKI ESTUARY – CHLOROPHYLL/PHAEOPHYTON RATIO**a) Chlorophyll/phaeophyton ratio during January 2001 - December 2001**

Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01										
20-Feb-01										
23-Mar-01										
23-Apr-01										
22-May-01										
22-Jun-01										
20-Jul-01							>0.65	>1.15	>0.43	
17-Aug-01							>0.48		>0.45	
17-Sep-01							>1.05	>0.55	>0.73	
15-Oct-01							1.83	1.33	2.38	
13-Nov-01							>0.90	>0.70	>3.80	
13-Dec-01							>1.75	>1.14	6.2	
Median							0.98	1.14	1.56	
IQR/Median %							88	39	188	

No values were recorded prior to 2001



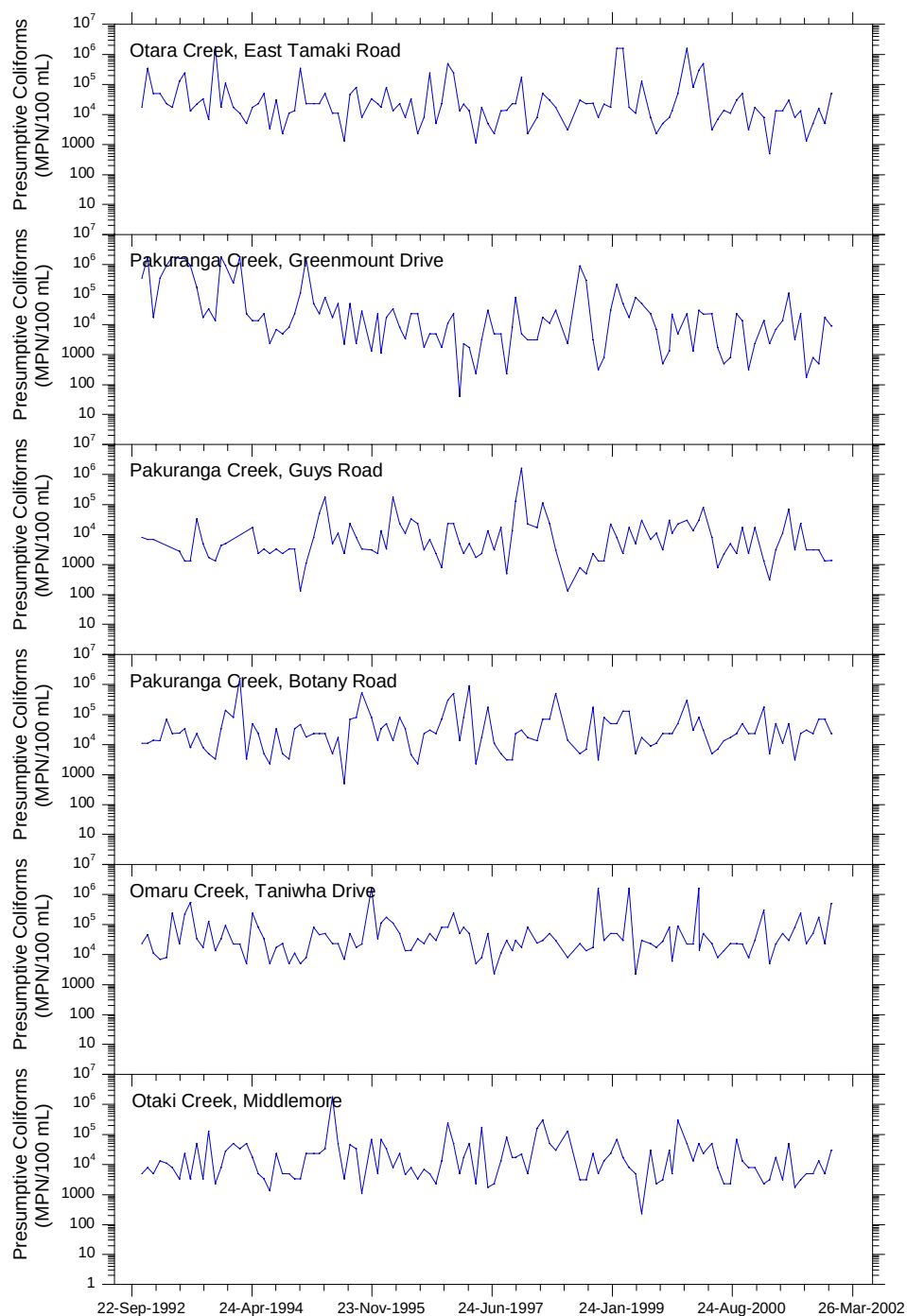
APPENDIX 37: TAMAKI ESTUARY – PRESUMPTIVE COLIFORM**a) Presumptive coliform (MPN/100 mL) during January 2001 - December 2001**

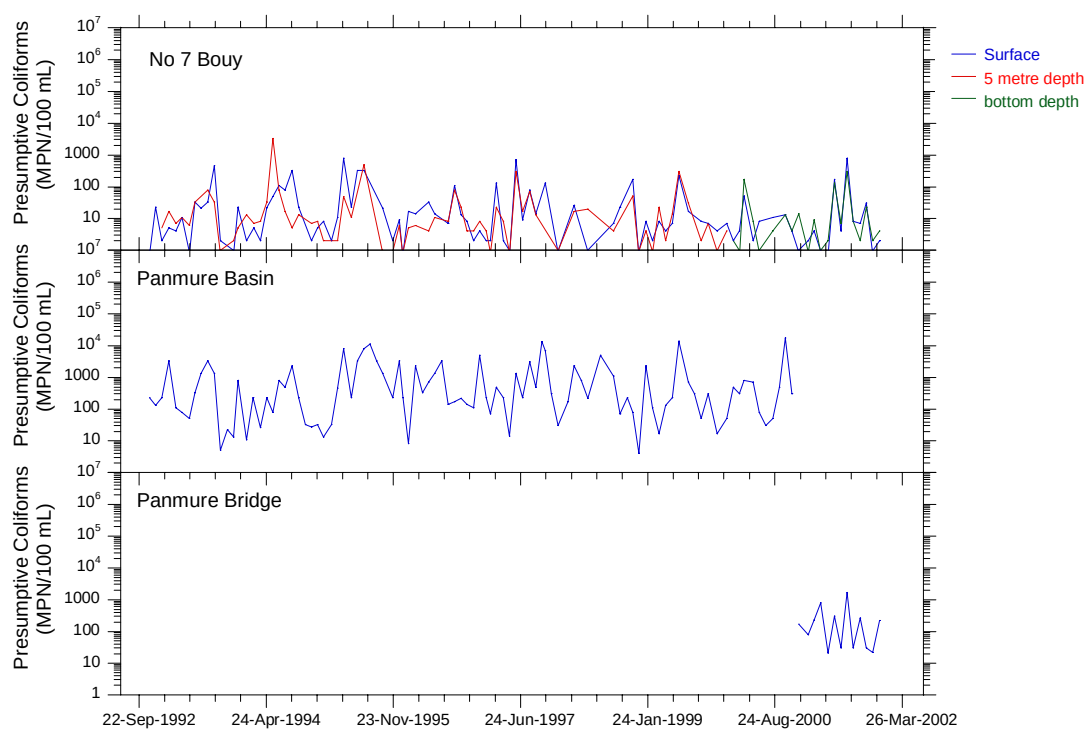
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	8000	13000	1300	170000	300000	2300	300	2	80	
20-Feb-01	500	2300	300	5000	5000	3000	800	1	230	
23-Mar-01	13000	7000	3000	50000	22000	17000	8	9	800	
23-Apr-01	13000	13000	11000	11000	50000	3000	8	4	21	
22-May-01	30000	110000	70000	50000	30000	50000	2	1	300	
22-Jun-01	8000	3000	3000	3000	80000	1700	7	1	30	
20-Jul-01	13000	23000	23000	23000	240000	3000	23	2	1700	
17-Aug-01	1300	170	3000	30000	23000	5000	30	1	30	
17-Sep-01	5000	800	3000	23000	50000	5000	2	130	260	
15-Oct-01	16000	500	3000	70000	170000	13000	1	170	30	
13-Nov-01	5000	17000	1300	70000	23000	5000	4	7	22	
13-Dec-01	50000	9000	1400	23000	500000	30000	2	4	220	
Median	10500	8000	3000	26500	50000	5000	8	3	150	
IQR/Median %	83	151	121	132	329	220	303	217	160	

b) Statistical summary for 1992-2001: Presumptive coliform (MPN/100 mL)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	111	111	105	111	112	111	95	78	31	1
Median	17000	17000	4900	23000	30000	13000	8	230	230	9000
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	Y	N	N	Y	N	Y	Y	N	N	INS.
Trend	92%	100%	NS	NS	NS	NS	97%	NS	NS	INS.
Slope	-984	-2708	NS	NS	NS	NS	-0.3	NS	NS	INS.

c) The graphs on the following pages show presumptive coliform measurements from January 1992 to December 2001 (where data available).





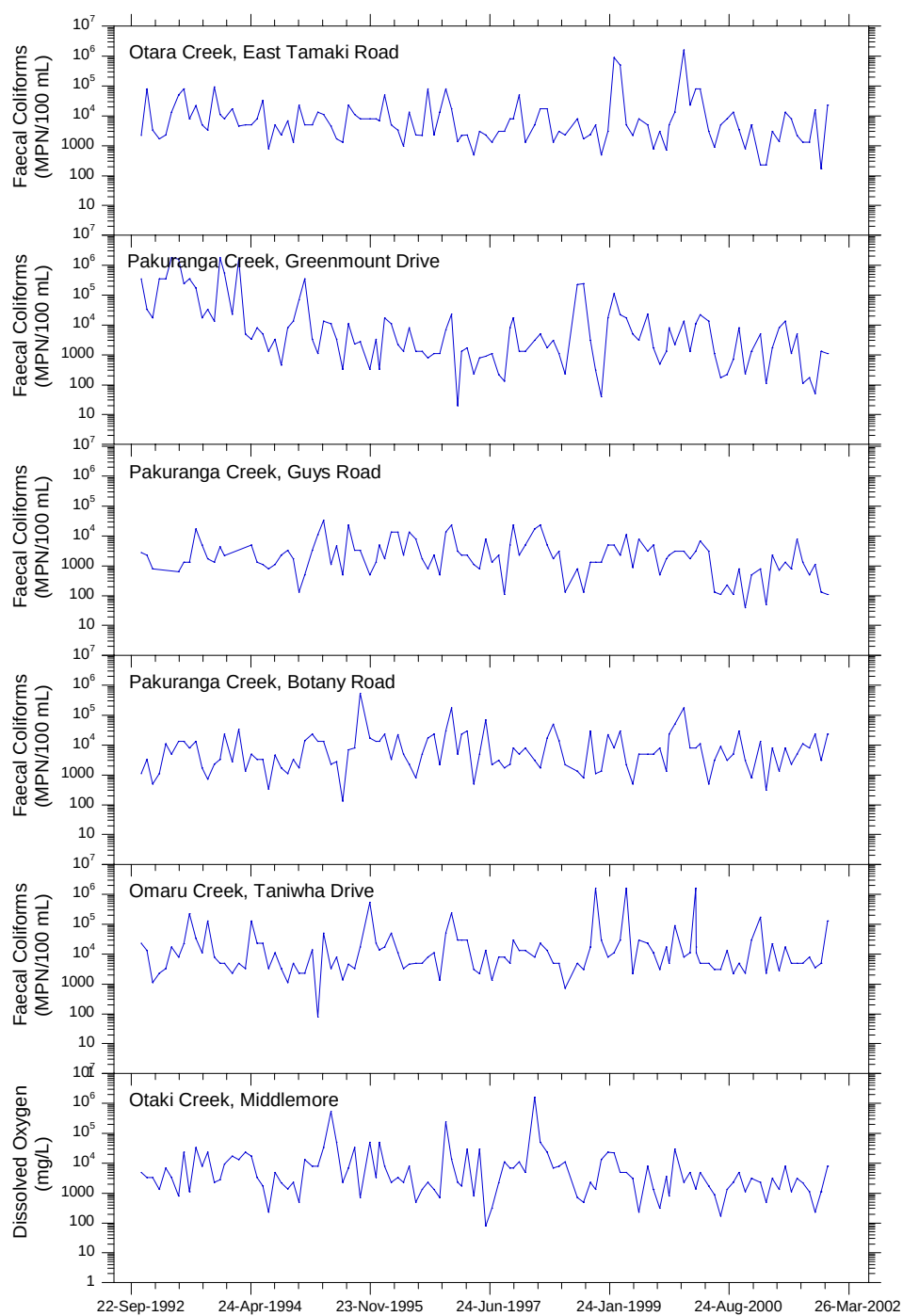
APPENDIX 38: TAMAKI ESTUARY – FAECAL COLIFORM**a) Faecal coliform (MPN/100 mL) during January 2001 - December 2001**

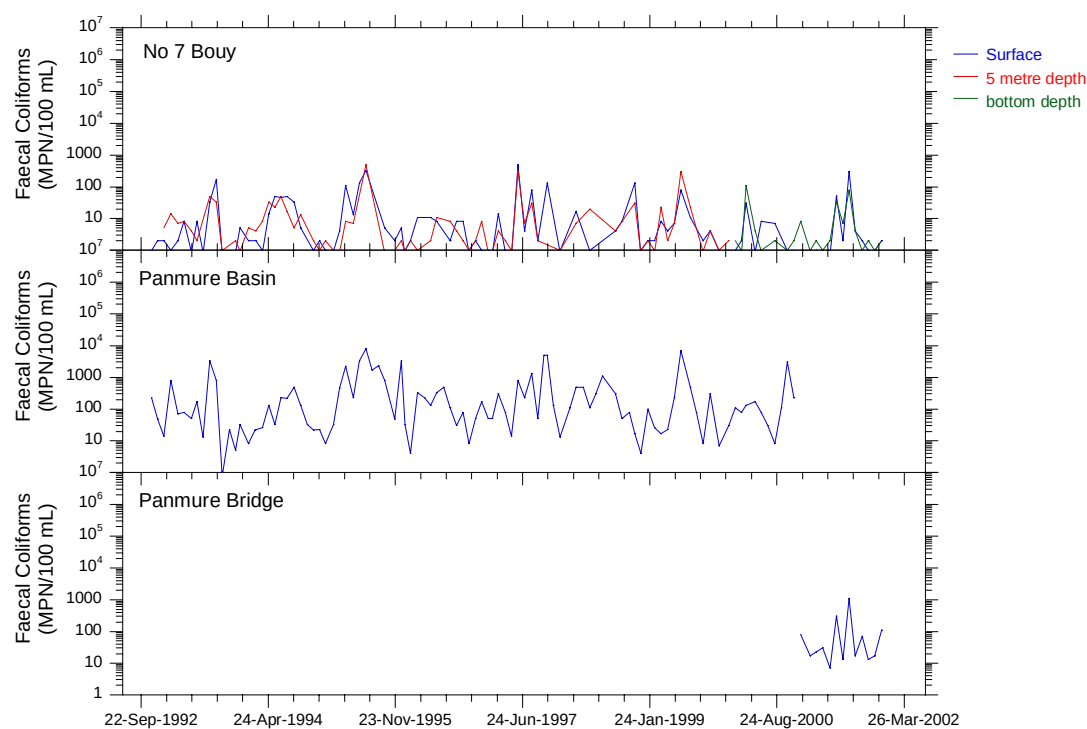
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	230	5000	800	13000	170000	2300	80	1	17	
20-Feb-01	230	110	50	300	2300	500	300	1	23	
23-Mar-01	3000	1700	2300	8000	22000	3000	4	2	30	
23-Apr-01	1400	8000	700	1300	2800	1300	4	1	7	
22-May-01	13000	13000	1300	8000	17000	8000	1	1	300	
22-Jun-01	8000	1100	800	2300	5000	1100	2	1	13	
20-Jul-01	2200	5000	8000	5000	5000	3000	2	2	1100	
17-Aug-01	1300	110	1300	11000	5000	2200	1	1	17	
17-Sep-01	1300	170	500	8000	8000	1100	1	34	70	
15-Oct-01	>16000	50	1100	23000	3500	230	1	50	13	
13-Nov-01	170	1300	130	3000	5000	1100	2	7	17	
13-Dec-01	23000	1100	110	23000	130000	8000	2	2	110	
Median	1400	1200	800	8000	5000	1750	2	2	20	
IQR/Median %	338	404	112	108	273	109	150	150	320	

b) Statistical summary for 1992-2001: Faecal coliform (MPN/100 mL)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	112	112	106	112	113	112	95	81	31	1
Median	4900	3300	1950	5000	8000	3300	2	100	80	1100
Normality	F	F	F	F	F	F	F	F	F	INS.
Seasonality	N	N	N	N	N	Y	Y	N	N	INS.
Trend	NS	100%	99%	NS	NS	99%	95%	NS	NS	INS.
Slope	NS	-1090	-167	NS	NS	-278	0	NS	NS	INS.

c) The graphs on the following pages show faecal coliform measurements from January 1992 to December 2001 (where data available).





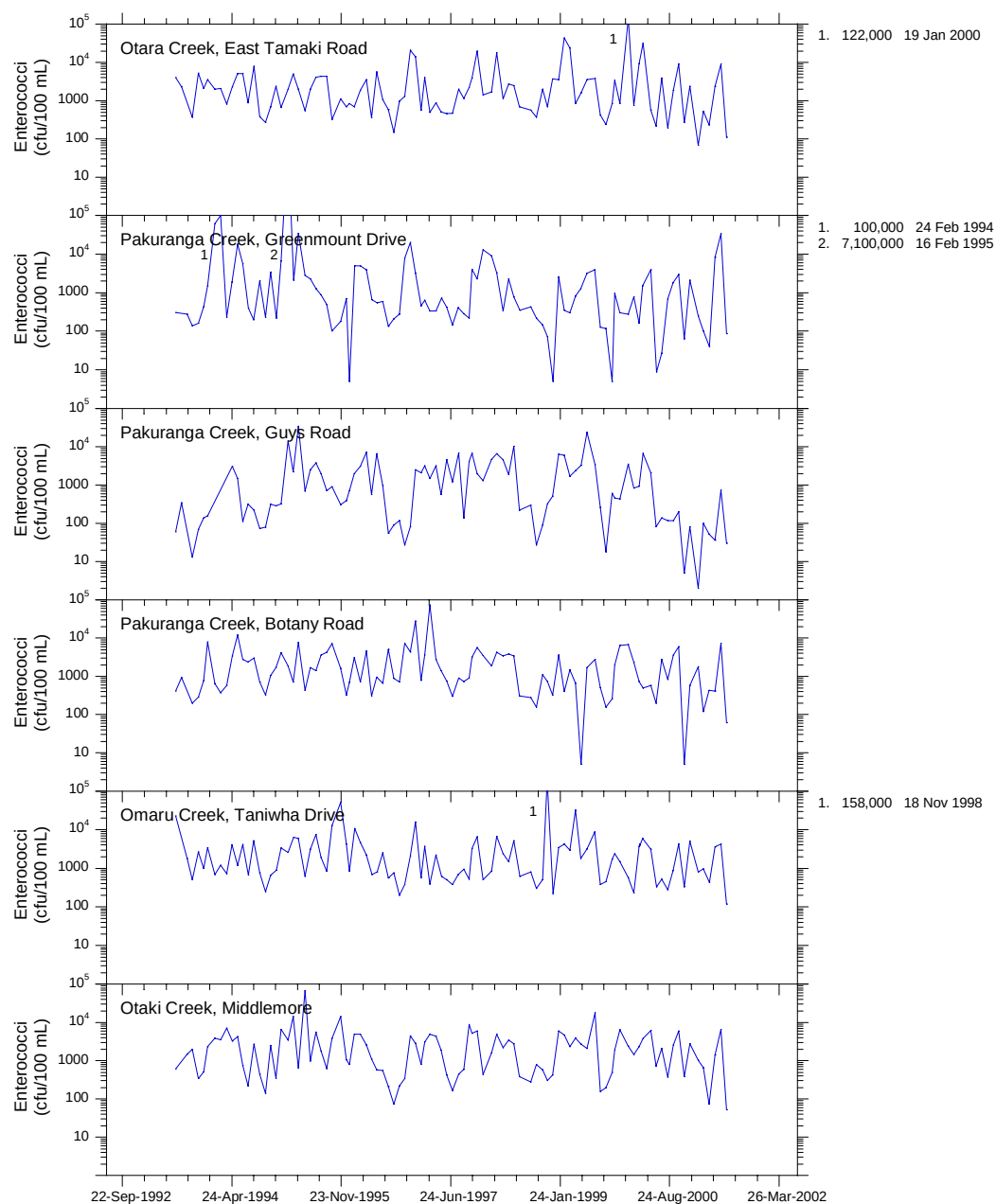
APPENDIX 39: TAMAKI ESTUARY – ENTEROCOCCI**a) Enterococci (cfu/100 mL) during January 2001 - December 2001**

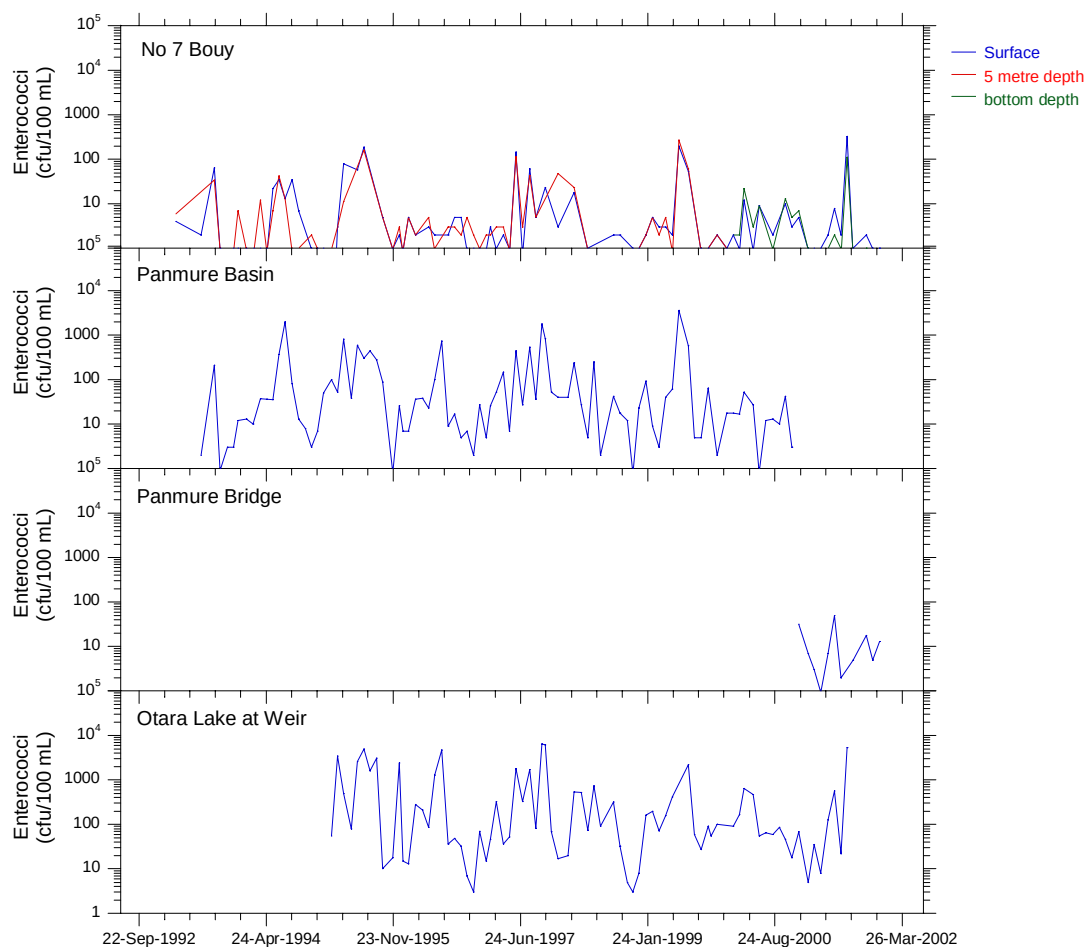
Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	68	250	2	1800	810	1020	1	1	7	5
20-Feb-01	530	102	100	120	970	670	1	1	3	35
23-Mar-01	230	40	52	430	430	74	1	1	1	8
23-Apr-01	2400	8300	36	410	3600	1400	2	1	7	127
22-May-01	9100	34000	730	7400	4200	6700	8	2	50	560
22-Jun-01	112	88	30	62	120	52	2	1	2	22
20-Jul-01	Enterococci measurements are only being made at saline sites from July 2001 onwards						330	110		5400
17-Aug-01							1	1	5	
17-Sep-01										
15-Oct-01							2	1	18	
13-Nov-01							1	1	5	
13-Dec-01							1	1	13	
Median	380	176	44	420	890	845	1	1	6	35
IQR/Median %	471	3520	128	301	272	128	100	0	133	939

b) Statistical summary for 1992-2001: Enterococci (cfu/100 mL)

	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	Panmure Basin	Panmure Bridge	Otara Lake weir
N	97	97	94	97	98	97	85	71	29	77
Median	1900	590	655	1060	1500	1900	2	35	13	82.00
Normality	F	F	F	F	F	F	F	F	F	F
Seasonality	N	N	Y	N	Y	Y	Y	N	N	Y
Trend	NS	94%	NS	NS	92%	NS	NS	NS	NS	NS
Slope	NS	-53.1	NS	NS	-68.3	NS	NS	NS	NS	NS

c) The graphs on the following pages show enterococci measurements from January 1992 to December 2001 (where data available).



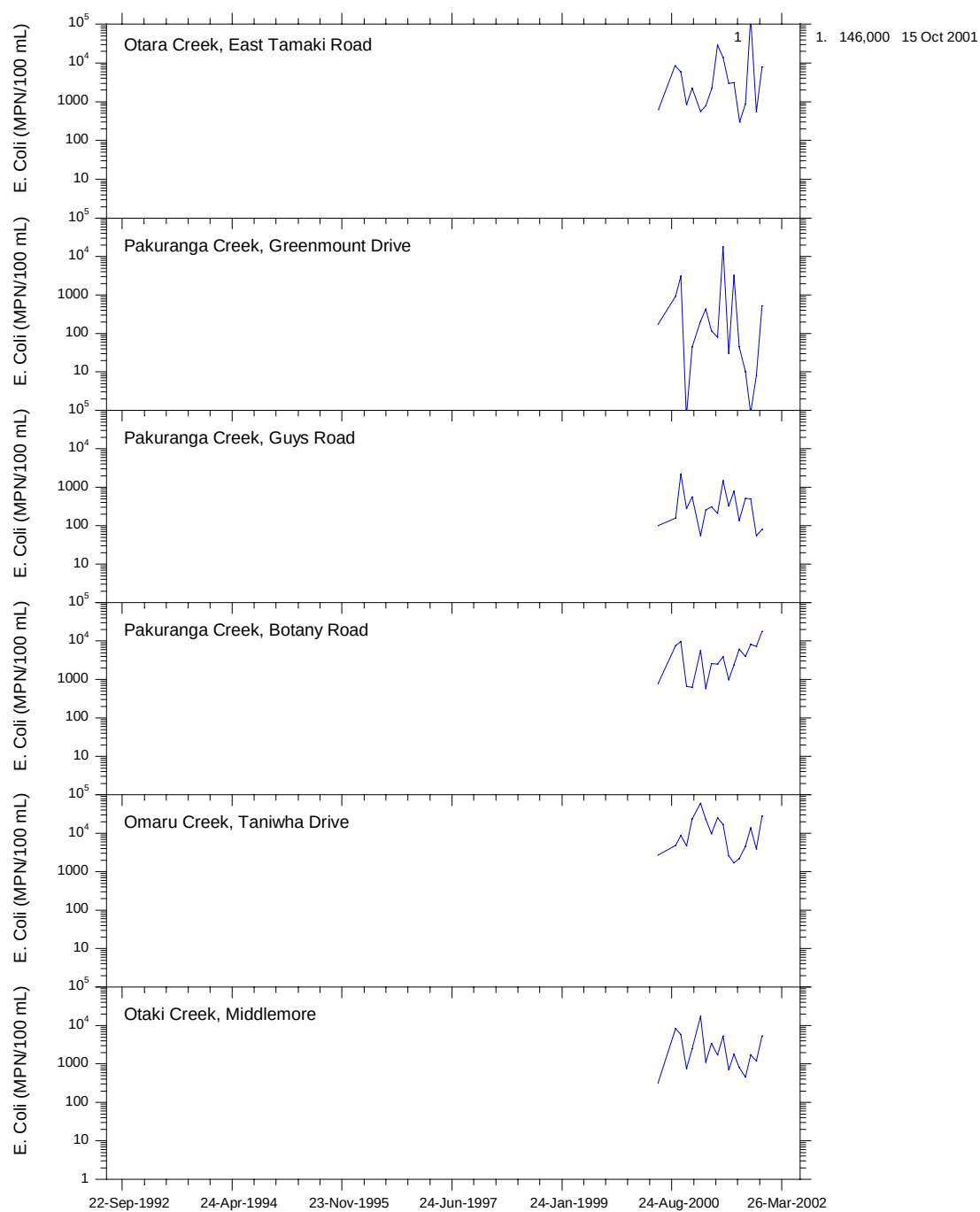


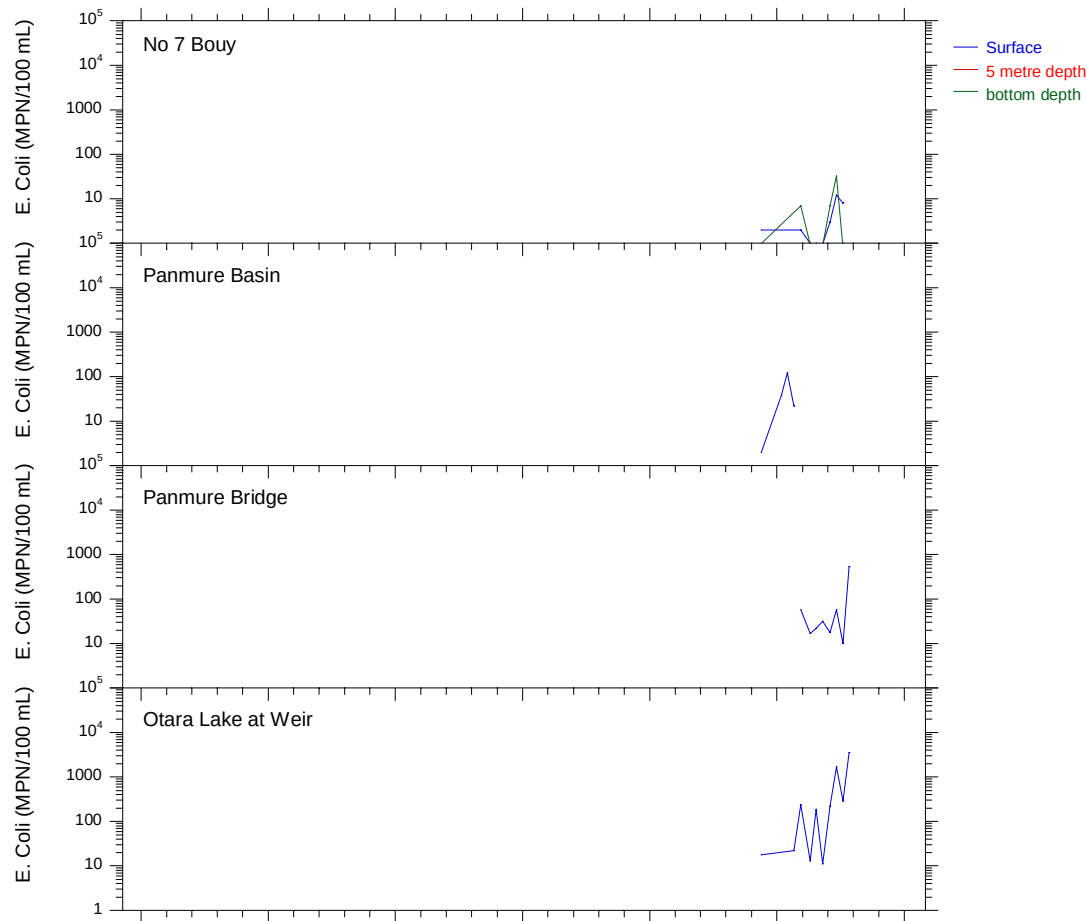
APPENDIX 40: TAMAKI ESTUARY – E. COLI**a) E. coli (MPN/100 mL) during January 2001 - December 2001**

Date	Otara Creek East Tamaki	Pakuranga Ck Greenmount	Pakuranga Ck Guys	Pakuranga Ck Botany	Omaru Creek Taniwha	Otaki Creek Middlemore	No. 7 Buoy surface	No. 7 Buoy bottom	Panmure Bridge	Otara Lake weir
22-Jan-01	560	210	55	5600	60400	17400	1	1	17	13
20-Feb-01	790	440	260	580	23000	1120	1	1	22	190
23-Mar-01	2200	118	310	2600	9800	3400	1	1	32	11
23-Apr-01	29000	80	210	2500	25000	1700	3	7	18	220
22-May-01	14000	18000	1500	3900	17000	5400	12	33	58	1700
22-Jun-01	3000	30	330	980	2600	700	8	1	10	290
20-Jul-01	3100	3300	800	2400	1700	1800			530	3500
17-Aug-01	300	45	136	6200	2200	820	E. coli data is only being recorded for freshwater sites From July 2001 onwards			
17-Sep-01	880	10	510	4000	4600	460				
15-Oct-01	146000	1	490	8100	13700	1700				
13-Nov-01	550	8	55	7300	3900	1200				
13-Dec-01	7900	520	80	18000	28000	5300				
Median	2600	99	285	3950	11750	1700	2	1	22	220
IQR/Median %	334	439	131	101	170	166	288	450	125	406

No values were recorded prior to 2000.

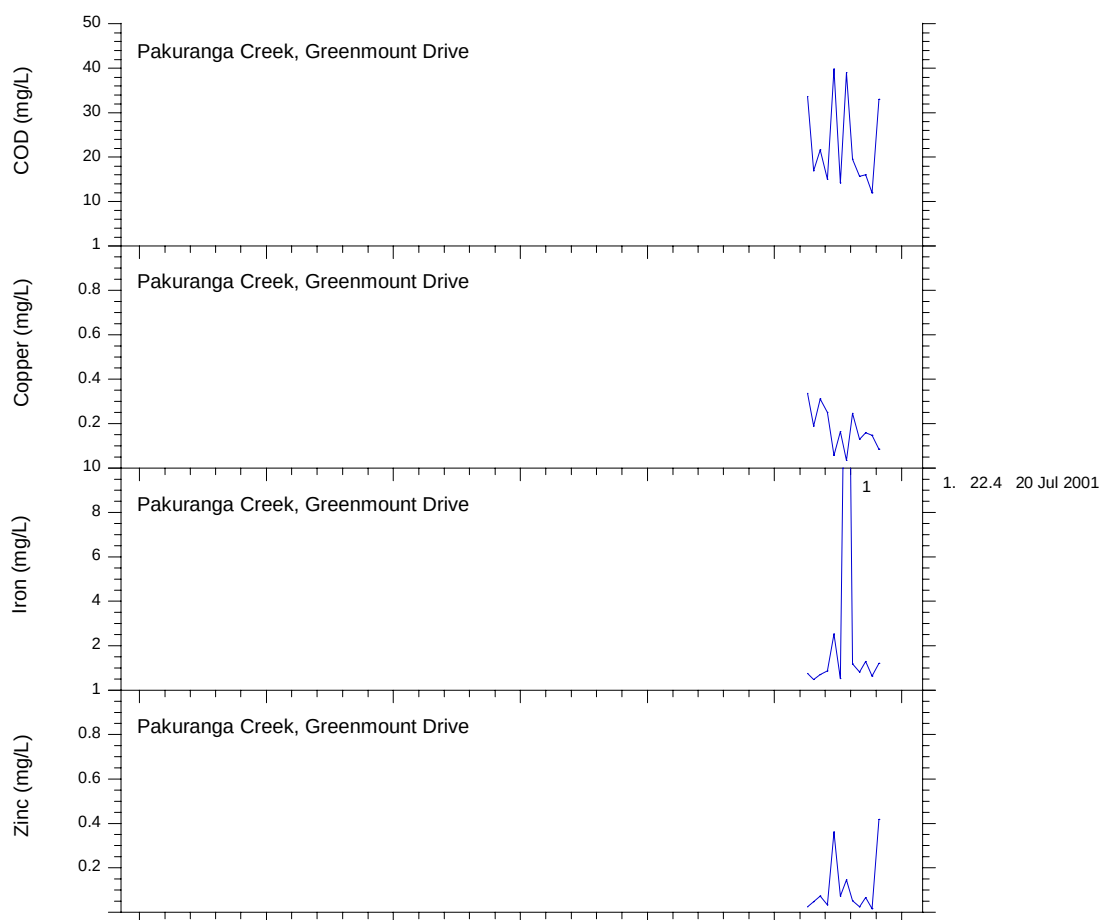
c) The graphs on the following pages show *E. coli* measurements from January 1992 to December 2001 (where data available).





APPENDIX 41: TAMAKI ESTUARY – Pakuranga Creek at Greenmount Drive**COD and Total Copper, Iron and Zinc results commencing from January 2001 (Note that $\text{g/m}^3 = \text{g m}^{-3} = \text{mg/L}$)****a) Results (mg/L) during January 2001 - December 2001**

Date	COD	Total Copper	Total Iron	Total Zinc
22-Jan-01	33.7	0.336	0.767	0.025
20-Feb-01		0.190	0.486	0.049
23-Mar-01	21.6	0.311	0.719	0.074
23-Apr-01	15.0	0.250	0.860	0.035
22-May-01	39.8	0.058	2.530	0.362
22-Jun-01	14.2	0.164	0.525	0.073
20-Jul-01	39.0	0.035	22.400	0.146
17-Aug-01	19.6	0.247	1.180	0.053
17-Sep-01	15.7	0.130	0.826	0.025
15-Oct-01	16.0	0.160	1.300	0.066
13-Nov-01	12.0	0.148	0.652	0.017
13-Dec-01	33.0	0.085	1.220	0.418
Median	19.6	0.162	0.843	0.060
IQR/Median %	92	80	64	100



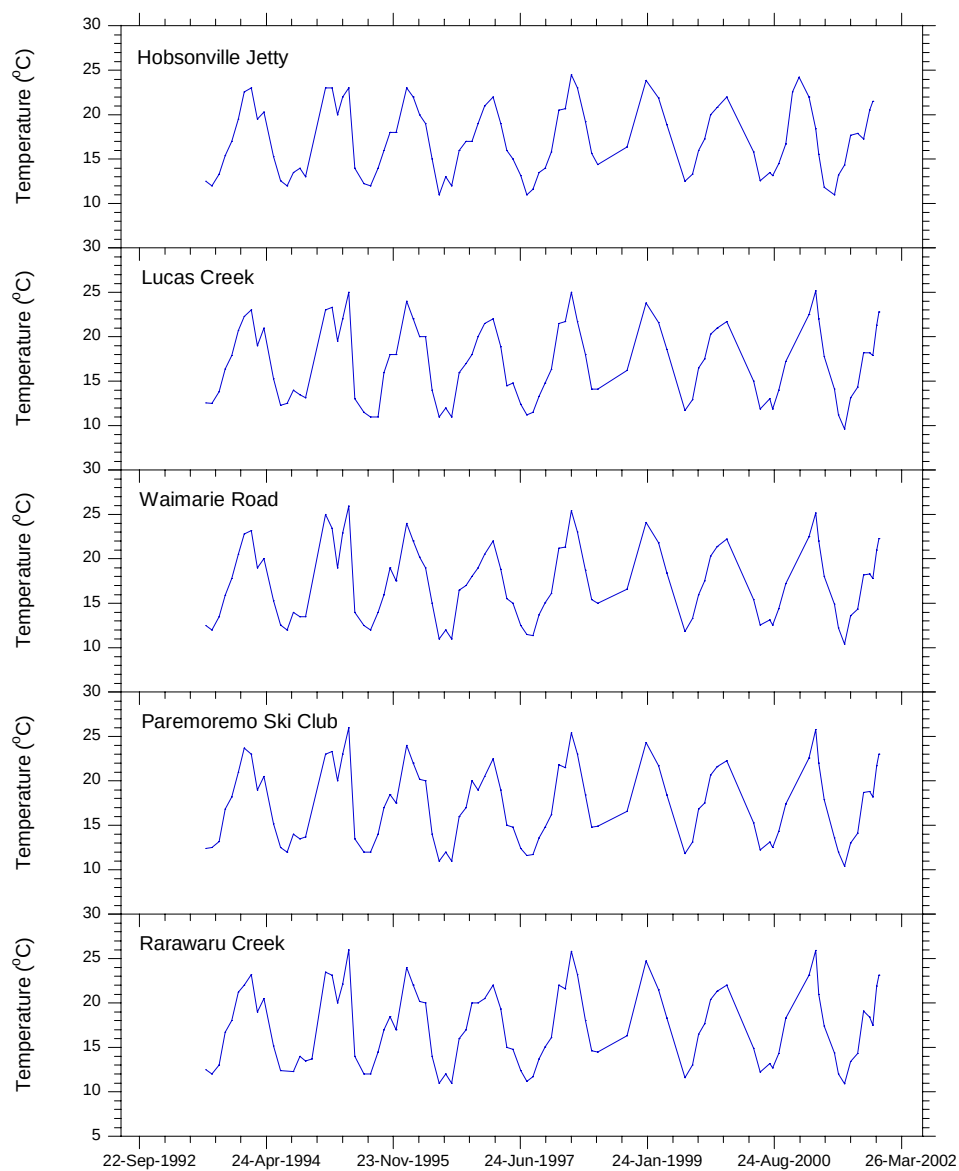
APPENDIX 42: UPPER WAITEMATA HARBOUR – TEMPERATURE**a) Temperature (°C) during January 2001 - December 2001**

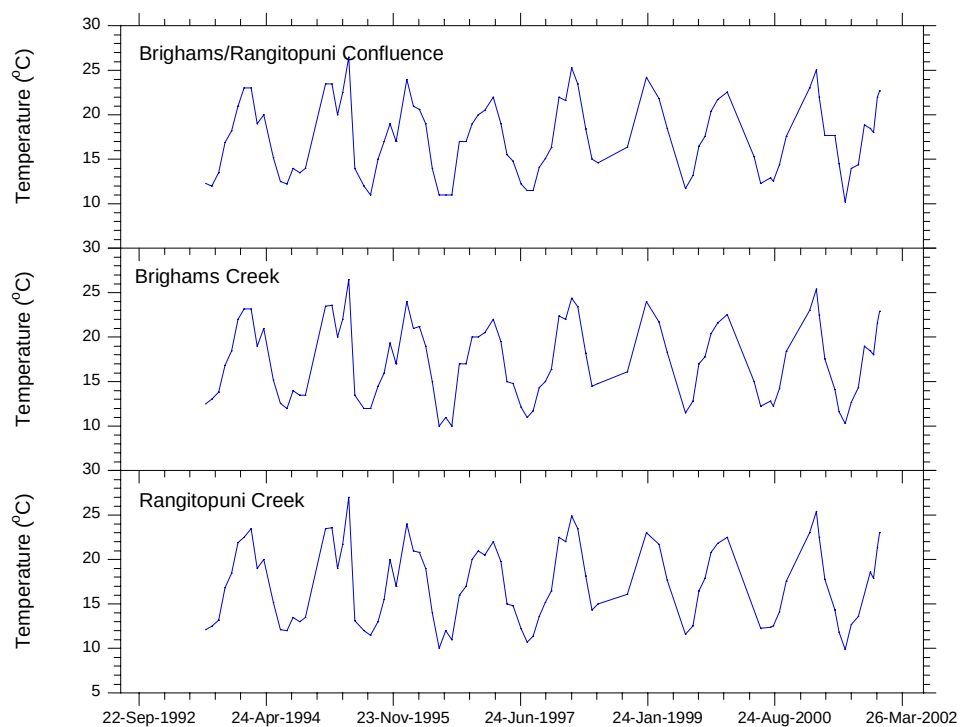
Date	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
30-Jan-01	22.6	22.5	22.5	22.6	23.1	23.0	23.0	23.0
11-Feb-01	17.9	18.2	18.3	18.8	18.4	18.5	18.5	18.6
14-Mar-01	22.0	22.0	22.0	22.0	21.0	22.0	22.5	22.5
09-Apr-01	18.4	17.8	18.0	17.9	17.4	17.7	17.6	17.8
24-May-01	15.5	14.1	14.9	13.6	14.4	14.5	14.1	14.3
12-Jun-01	11.8	11.2	12.2	12.0	11.9		11.6	11.8
11-Jul-01	11.0	9.6	10.4	10.4	10.9	10.2	11.6	9.9
08-Aug-01	13.2	13.1	13.6	13.0	13.4	14.0	12.7	12.7
07-Sep-01	14.3	14.3	14.3	14.1	14.3	14.4	14.3	13.6
04-Oct-01	17.7	18.2	18.2	18.7	19.1	18.9	19.0	
02-Nov-01	17.3	17.9	17.8	18.2	17.5	18.0	18.0	17.9
14-Dec-01	21.5	22.8	22.3	23.0	23.1	22.7	22.9	23.0
Median	17.5	17.9	17.9	18.1	17.5	18.0	17.8	18.0
IQR/Median %	29	30	28	34	32	33	34	42

Statistical summary for 1992-2001: Temperature (°C)

	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams Creek	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence		Creek
N	89	89	89	89	89	89	89	87
Median	16.7	17.0	17.0	17.0	17.0	17.0	17.0	17.0
Normality	T	F	F	F	F	T	F	F
Seasonality	Y	Y	Y	Y	Y	Y	Y	Y.
Trend	91	NS	NS	NS	NS	NS	NS	NS
Slope	0.17	NS	NS	NS	NS	NS	NS	NS

c) The graphs on the following pages show pH measurements from January 1993 to December 2001 (where data available).





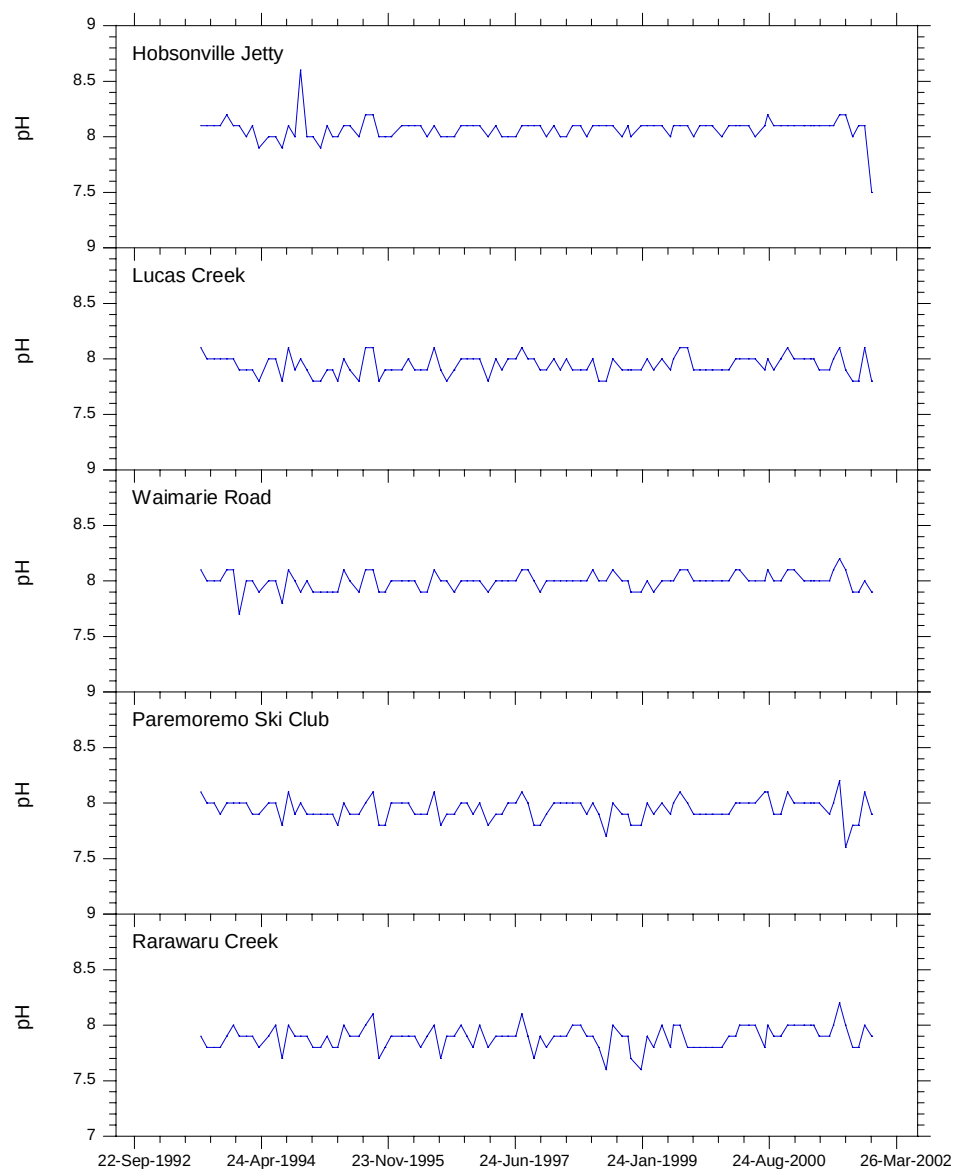
APPENDIX 43: UPPER WAITEMATA HARBOUR – PH**a) pH (units) during January 2001 - December 2001**

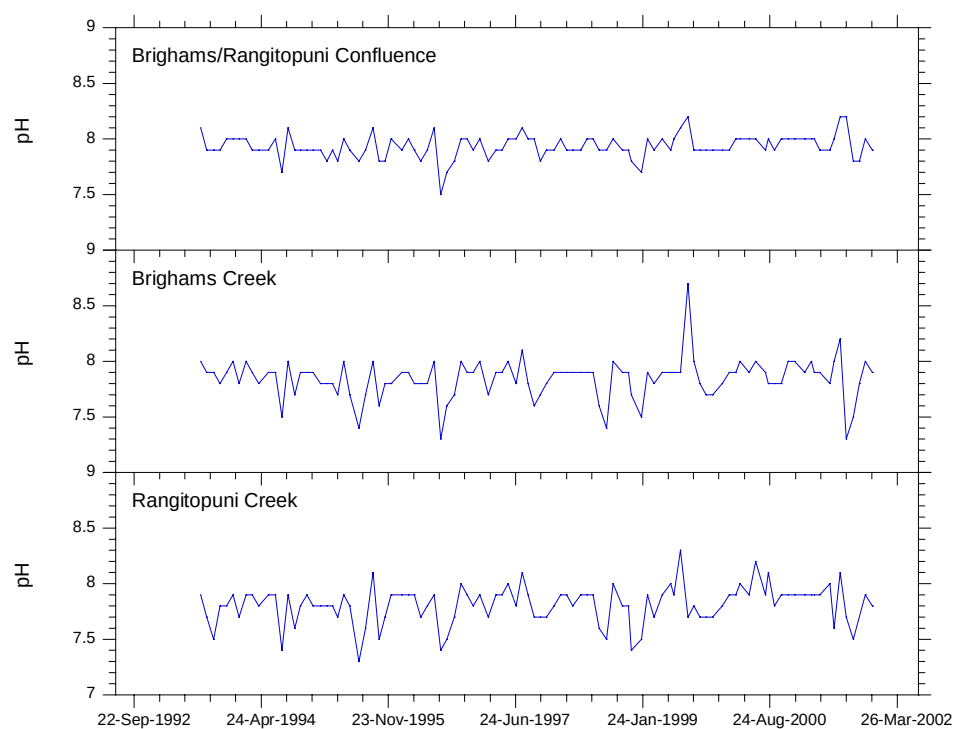
Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01	8.1	8.0	8.0	8.0	8.0	8.0	7.9	7.9
02-Mar-01	8.1	8.0	8.0	8.0	8.0	8.0	8.0	7.9
14-Mar-01	8.1	8.0	8.0	8.0	8.0	8.0	7.9	7.9
09-Apr-01	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.9
24-May-01	8.1	7.9	8.0	7.9	7.9	7.9	7.8	8.0
12-Jun-01	8.1	8.0	8.1	8.0	8.0	8.0	8.0	7.6
11-Jul-01	8.2	8.1	8.2	8.2	8.2	8.2	8.2	8.1
08-Aug-01	8.2	7.9	8.1	7.6	8.0	8.2	7.3	7.7
07-Sep-01	8.0	7.8	7.9	7.8	7.8	7.8	7.5	7.5
04-Oct-01	8.1	7.8	7.9	7.8	7.8	7.8	7.8	
02-Nov-01	8.1	8.1	8.0	8.1	8.0	8.0	8.0	7.9
04-Dec-01	7.5	7.8	7.9	7.9	7.9	7.9	7.9	7.8
Median	8.1	8.0	8.0	8.0	8.0	8.0	7.9	7.9
IQR/Median %	0	2	1	2	1	1	3	2

b) Statistical summary for 1992-2001: pH (units)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	102	102	102	102	102	102	102	101
Median	8.1	7.9	8.0	8.0	7.9	7.9	7.9	7.9
Normality	F	F	F	F	F	F	F	F
Seasonality	N	N	N	N	N	N	N	Y
Trend	96	NS	95	NS	95	95	NS	98
Slope	0	NS	0	NS	0	0	NS	0.00

c) The graphs on the following pages show pH measurements from January 1993 to December 2001 (where data available).





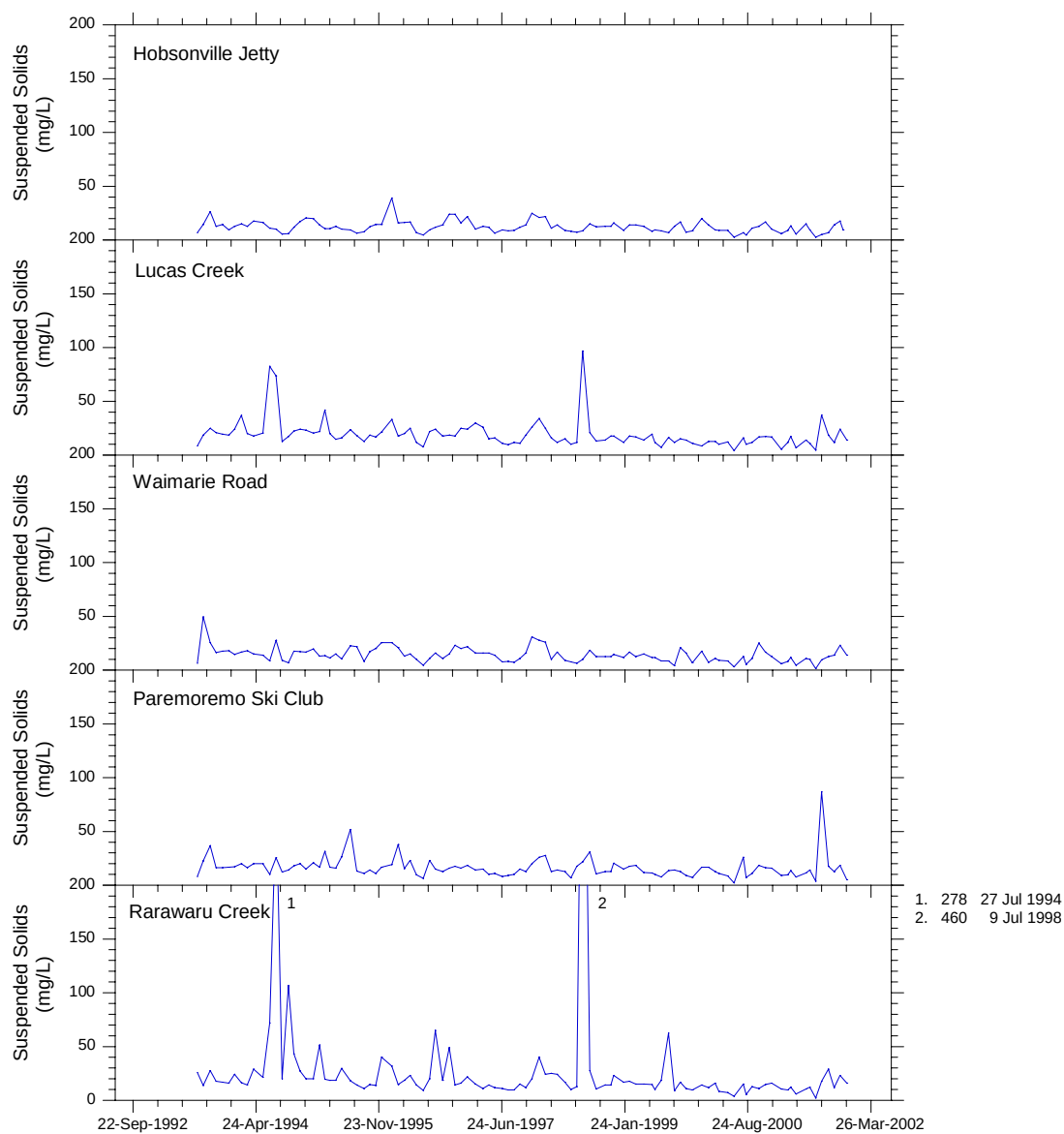
APPENDIX 44: UPPER WAITEMATA HARBOUR – SUSPENDED SOLIDS**a) Suspended solids (mg/L) during January 2001 - December 2001**

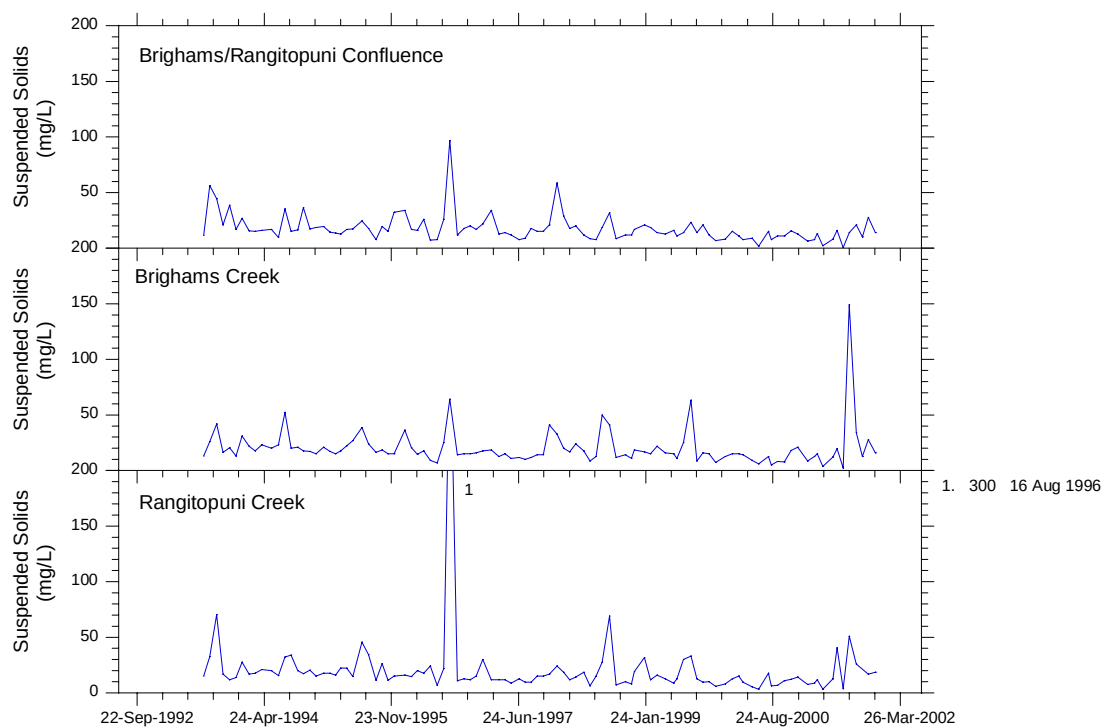
Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01	5.8	5.6	6.0	9.0	10.5	6.4	8.7	7.7
02-Mar-01	9.1	11.8	8.3	9.5	9.9	7.7	12.6	8.9
14-Mar-01	13.5	17.2	11.9	13.6	12.1	13.4	14.9	12.0
09-Apr-01	5.3	7.1	4.6	7.7	6.0	2.5	3.5	3.4
24-May-01	15.1	14.2	11.0	11.4	10.7	8.3	12.2	12.9
12-Jun-01	9.9	10.8	10.2	14.0	12.1	16.0	19.7	40.7
11-Jul-01	2.7	4.6	1.5	3.5	2.4	0.8	2.2	3.6
08-Aug-01	5.2	37.2	9.9	87.0	17.8	13.9	149.0	51.0
07-Sep-01	7.0	19.0	13.0	18.0	29.0	21.0	34.0	26.0
04-Oct-01	14.0	12.0	14.0	13.0	12.0	10.0	13.0	
02-Nov-01	18.0	24.0	23.0	19.0	23.0	28.0	28.0	17.0
04-Dec-01	9.6	14.0	14.0	5.1	16.0	14.0	16.0	19.0
Median	9.4	13.0	10.6	12.2	12.1	11.7	14.0	12.9
IQR/Median %	85	60	52	52	51	61	75	110

b) Statistical summary for 1992-2001: Suspended solids (mg/L)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	102	102	102	102	102	102	102	101
Median	12.0	17.2	13.5	15.0	16.0	15.2	16.0	15.0
Normality	F	F	T	F	F	F	F	F
Seasonality	Y	Y	Y	N	N	Y	N	N
Trend	99	100	100	100	100	100	100	100
Slope	-0.41	-1.20	-0.75	-0.67	-1.34	-1.18	-1.00	-1.12

c) The graphs on the following pages show suspended solids measurements from January 1993 to December 2001 (where data available).





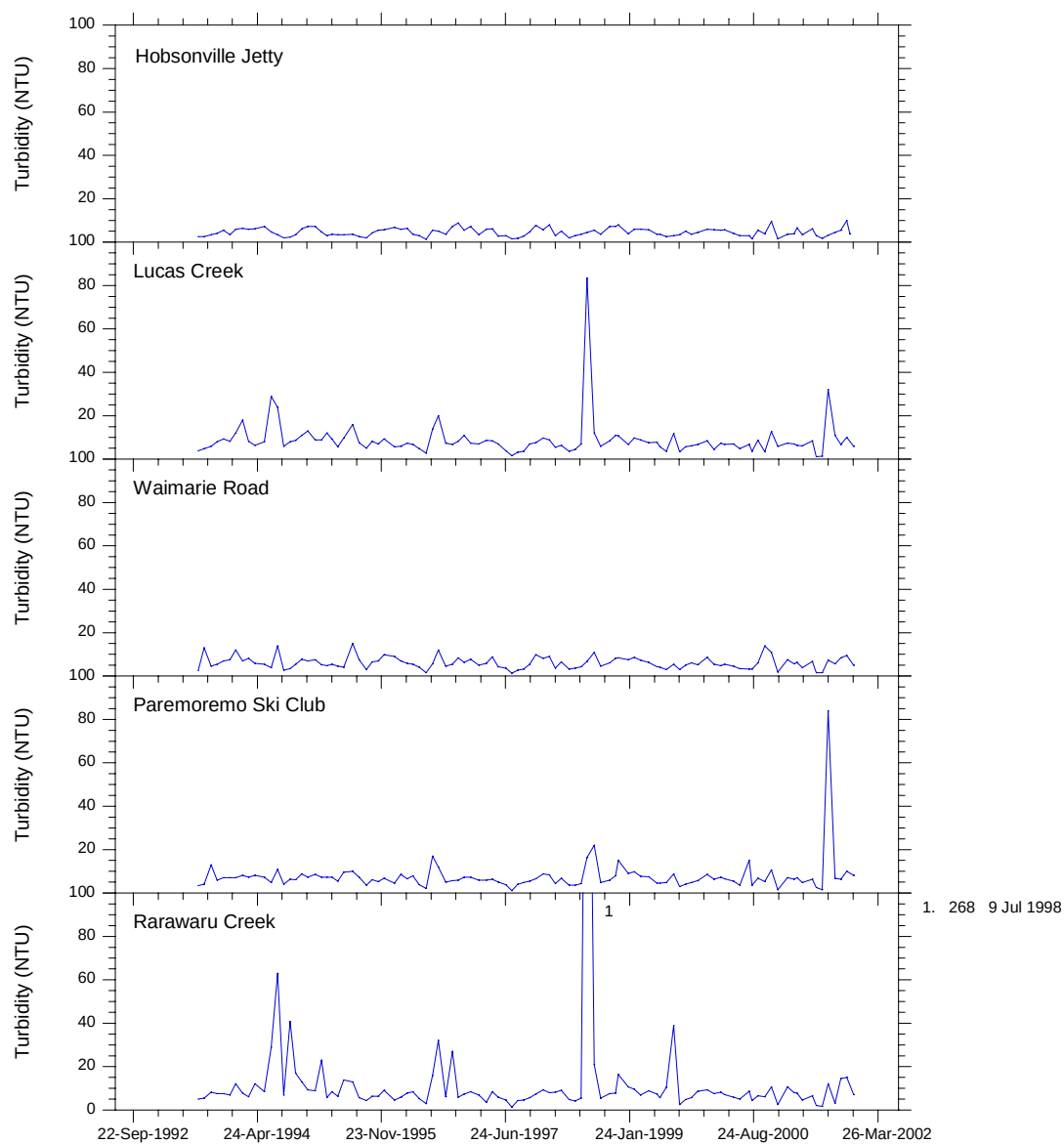
APPENDIX 45: UPPER WAITEMATA HARBOUR – TURBIDITY**a) Turbidity (NTU) during January 2001 - December 2001**

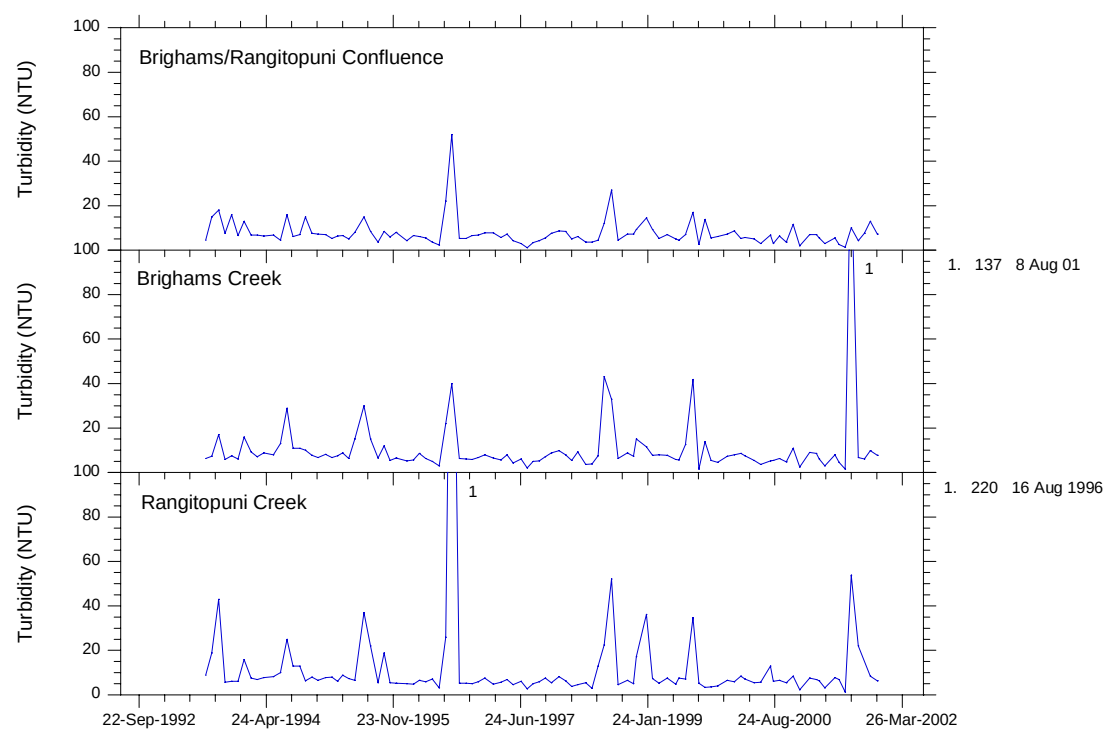
Date	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	Confluence	Creek	Creek
30-Jan-01	3.68	7.42	7.55	7.13	10.8	7.04	9.09	7.5
02-Mar-01	4.0	7.1	5.8	6.4	7.9	7.1	8.6	6.8
14-Mar-01	6.6	6.3	6.3	7.0	7.8	5.6	6.2	6.4
09-Apr-01	3.53	6.07	4.03	4.77	4.45	2.96	3.02	3.25
24-May-01	6.2	8.5	6.8	6.3	6.7	5.6	7.9	7.8
12-Jun-01	2.9	1.1	1.6	2.6	2.2	2.5	4.5	6.8
11-Jul-01	1.9	1.4	1.5	1.6	1.6	1.4	1.6	1.4
08-Aug-01	3.2	32	7.4	84	12	10	137	54
07-Sep-01	4.5	11	5.7	6.9	3.3	4.3	6.9	22
04-Oct-01	5.6	6.8	8.5	6.5	14.6	7.5	6.1	
02-Nov-01	10	10	9.6	10	15	13	9.7	8.5
04-Dec-01	3.9	6.0	5.0	8.1	7.1	7.2	7.7	6.4
Median	4.0	7.0	6.1	6.7	7.5	6.3	7.3	6.8
IQR/Median %	58	41	44	22	93	52	41	26

b) Statistical summary for 1992-2001: Turbidity (NTU)

	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
N	102	102	102	102	102	102	102	101
Median	4.2	7.3	5.7	6.6	7.5	6.6	7.3	6.6
Normality	F	F	T	F	F	F	F	F
Seasonality	Y	N	Y	Y	N	Y	N	N
Trend	NS	99	NS	NS	NS	94	90	92
Slope	NS	-0.27	NS	NS	NS	-0.18	-0.17	-0.20

c) The graphs on the following pages show turbidity measurements from January 1993 to December 2001 (where data available).





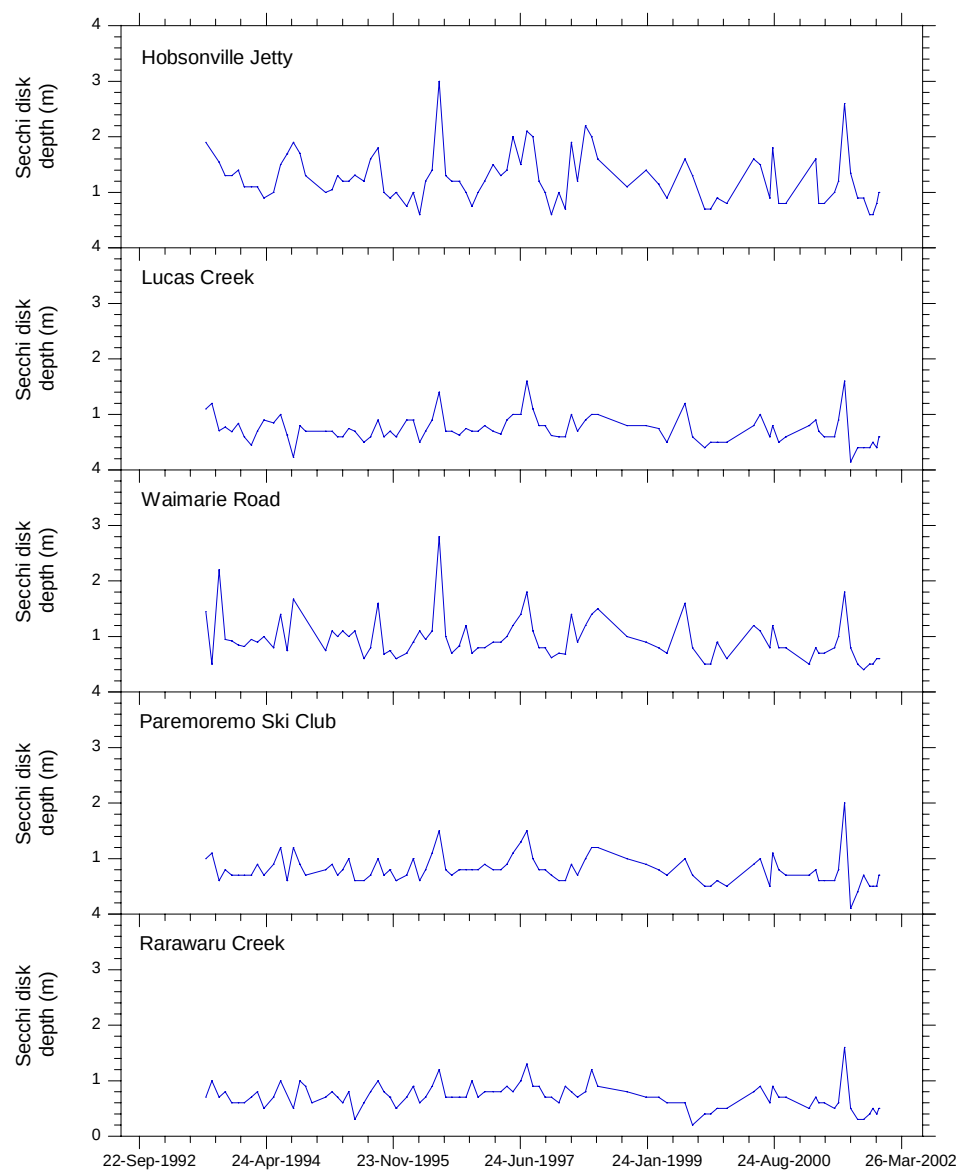
APPENDIX 46: UPPER WAITEMATA HARBOUR – SECCHI DEPTH**a) Secchi depth (m) during January 2001 - December 2001**

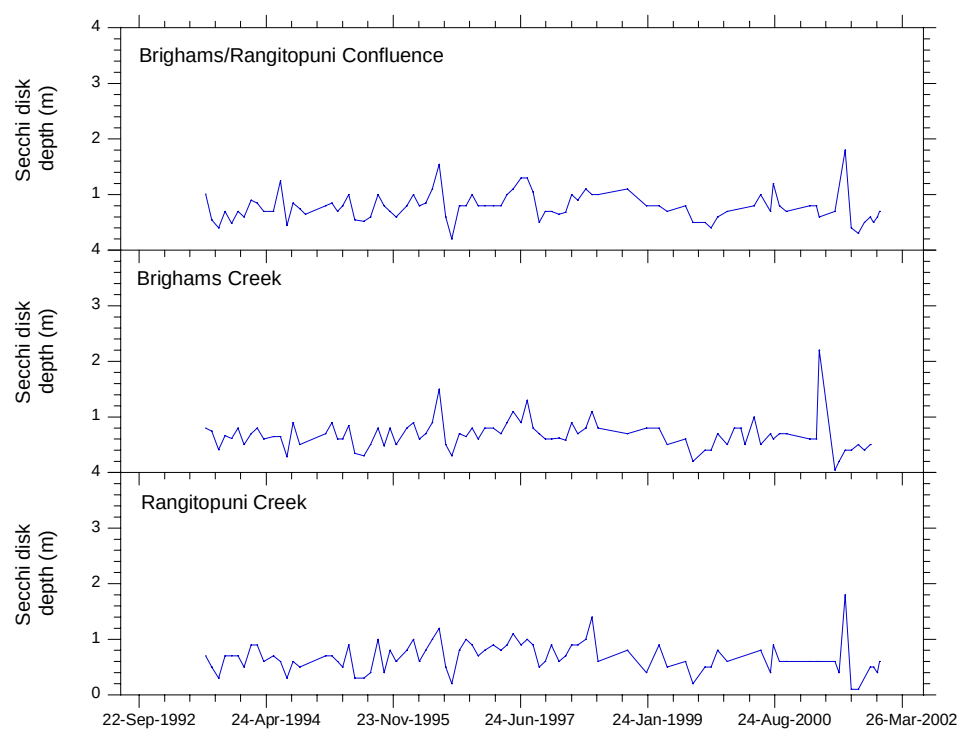
Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01		0.8	0.5	0.7	0.5	0.8	0.6	0.6
11-Feb-01	0.6	0.4	0.5	0.5	0.4	0.6	0.4	0.5
14-Mar-01	1.0	0.7	0.7	0.6	0.6	0.6	0.7	0.6
09-Apr-01	0.8	0.6	0.7	0.6	0.6			
24-May-01	1.0	0.6	0.8	0.6	0.5	0.7	0.6	0.6
12-Jun-01	1.2	0.9	1.0	0.8	0.7		0.6	0.4
11-Jul-01	2.6	1.6	1.8	2.0	1.6	1.8	2.2	1.8
08-Aug-01	1.35	0.15	0.8	0.1	0.5	0.4	0.05	0.1
07-Sep-01	0.9	0.4	0.5	0.4	0.3	0.3	0.2	0.1
04-Oct-01	0.9	0.4	0.4	0.7	0.3	0.5	0.4	
02-Nov-01	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
04-Dec-01	0.8	0.4	0.6	0.7	0.4	0.6	0.4	0.6
Median	0.9	0.6	0.7	0.6	0.5	0.6	0.5	0.6
IQR/Median %	33	59	46	33	40	29	40	32

b) Statistical summary for 1992-2001: Secchi depth (m)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	86	88	86	88	88	86	86	84
Median	1.2	0.7	0.9	0.8	0.7	0.8	0.7	0.6
Normality	F	F	F	F	F	F	F	F
Seasonality	Y	Y	Y	Y	Y	Y	N	Y
Trend	97%	92%	100%	93%	99%	NS	NS	NS
Slope	-0.037	-0.015	-0.032	-0.015	-0.017	NS	NS	NS

c) The graphs on the following pages show Secchi depth measurements from January 1993 to December 2001 (where data available).





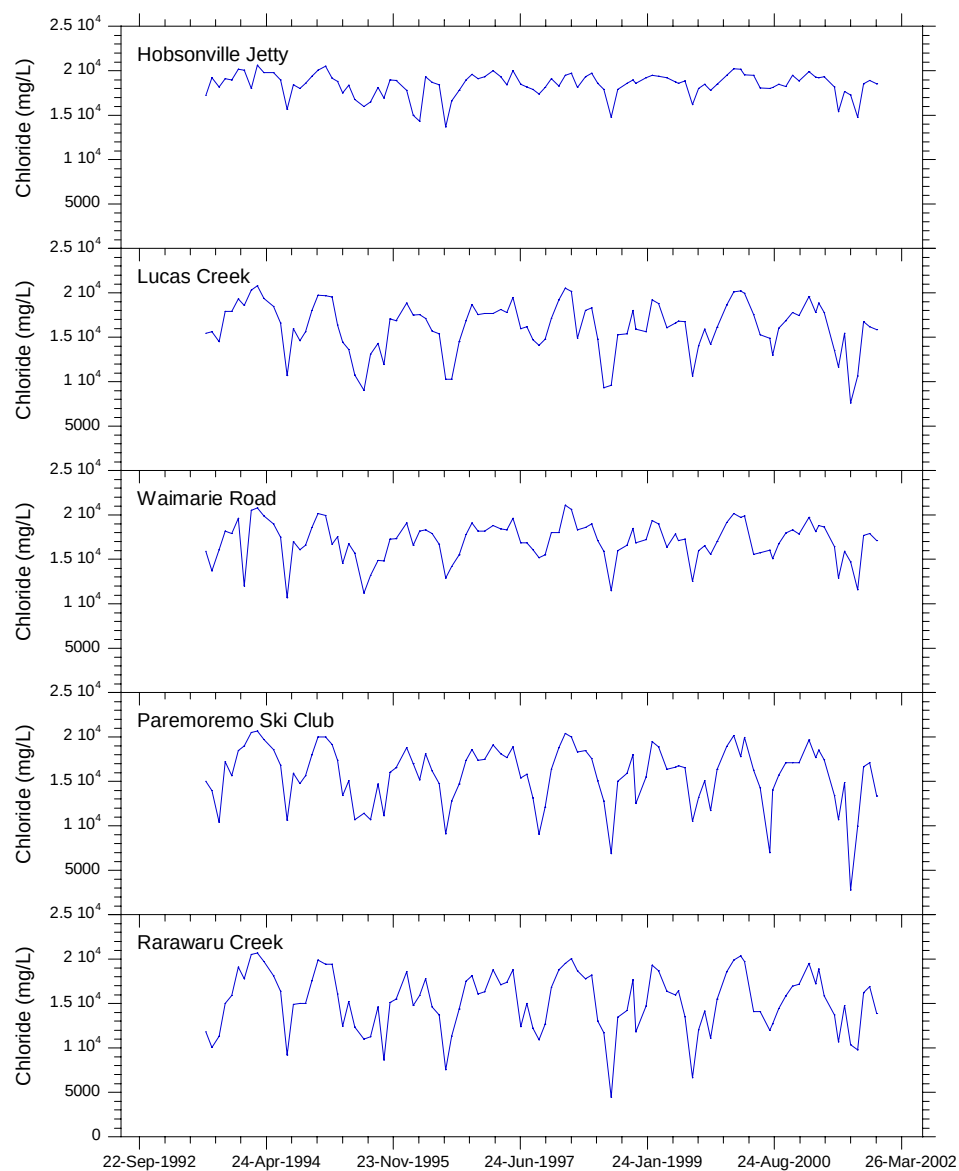
APPENDIX 47: UPPER WAITEMATA HARBOUR – CHLORIDE**a) Chloride (mg/L) during January 2001 - December 2001**

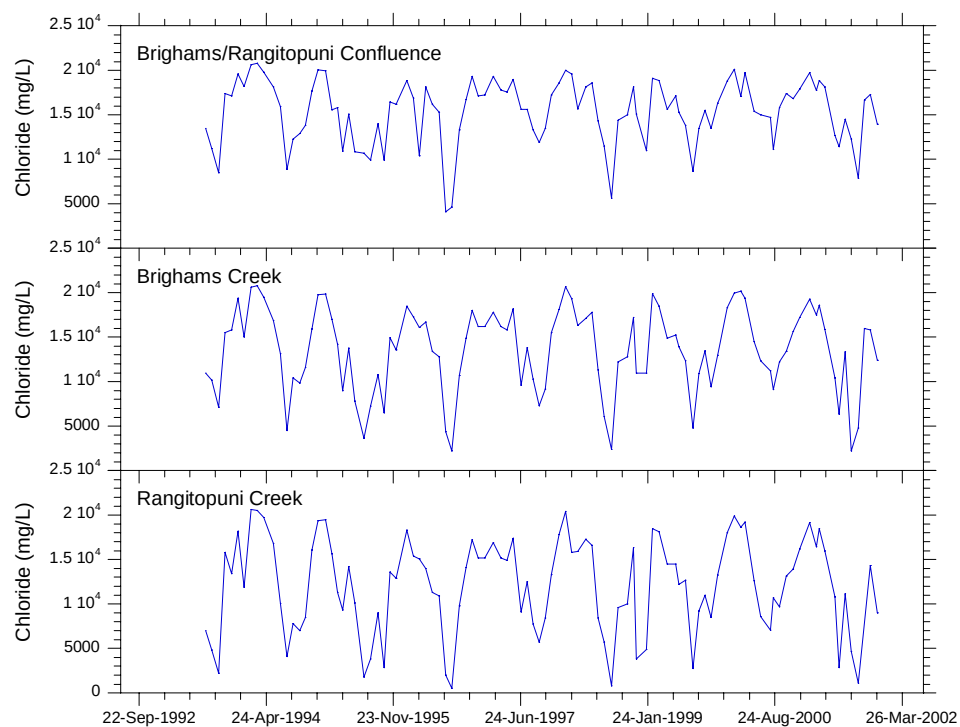
Date	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
30-Jan-01	19880	19609	19747	19674	19521	19707	19260	19153
02-Mar-01	19241	17829	18132	17658	17250	17752	17521	16420
14-Mar-01	19208	18878	18810	18544	18884	18860	18605	18451
09-Apr-01	19338	17791	18670	17464	15876	18152	15856	15955
24-May-01	18193	13527	16450	13414	13725	12680	10376	10795
12-Jun-01	15381	11667	12929	10698	10708	11460	6401	2861
11-Jul-01	17702	15469	15950	14883	14768	14481	13338	11131
08-Aug-01	17265	7616	14718	2771	10365	12264	2236	4669
07-Sep-01	14776	10643	11603	9969	9789	7834	4756	1073
04-Oct-01	18534	16765	17674	16653	16184	16692	15994	
02-Nov-01	18945	16213	17902	17096	16875	17312	15805	14323
04-Dec-01	18545	15884	17121	13388	13850	13962	12383	8981
Median	18540	16049	17398	15768	15322	15587	14572	11131
IQR/Median %	9	30	15	30	26	34	48	84

b) Statistical summary for 1992-2001:Chloride (mg/L)

	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
N	102	102	102	102	102	102	102	101
Median	18600	15600	17246	15150	14500	14350	11900	9990
Normality	F	F	T	F	F	F	F	F
Seasonality	Y	Y	Y	Y	Y	Y	Y	Y
Trend	NS	NS	NS	NS	NS	NS	NS	NS
Slope	NS	NS	NS	NS	NS	NS	NS	NS

c) The graphs on the following pages show chloride measurements from January 1993 to December 2001 (where data available).





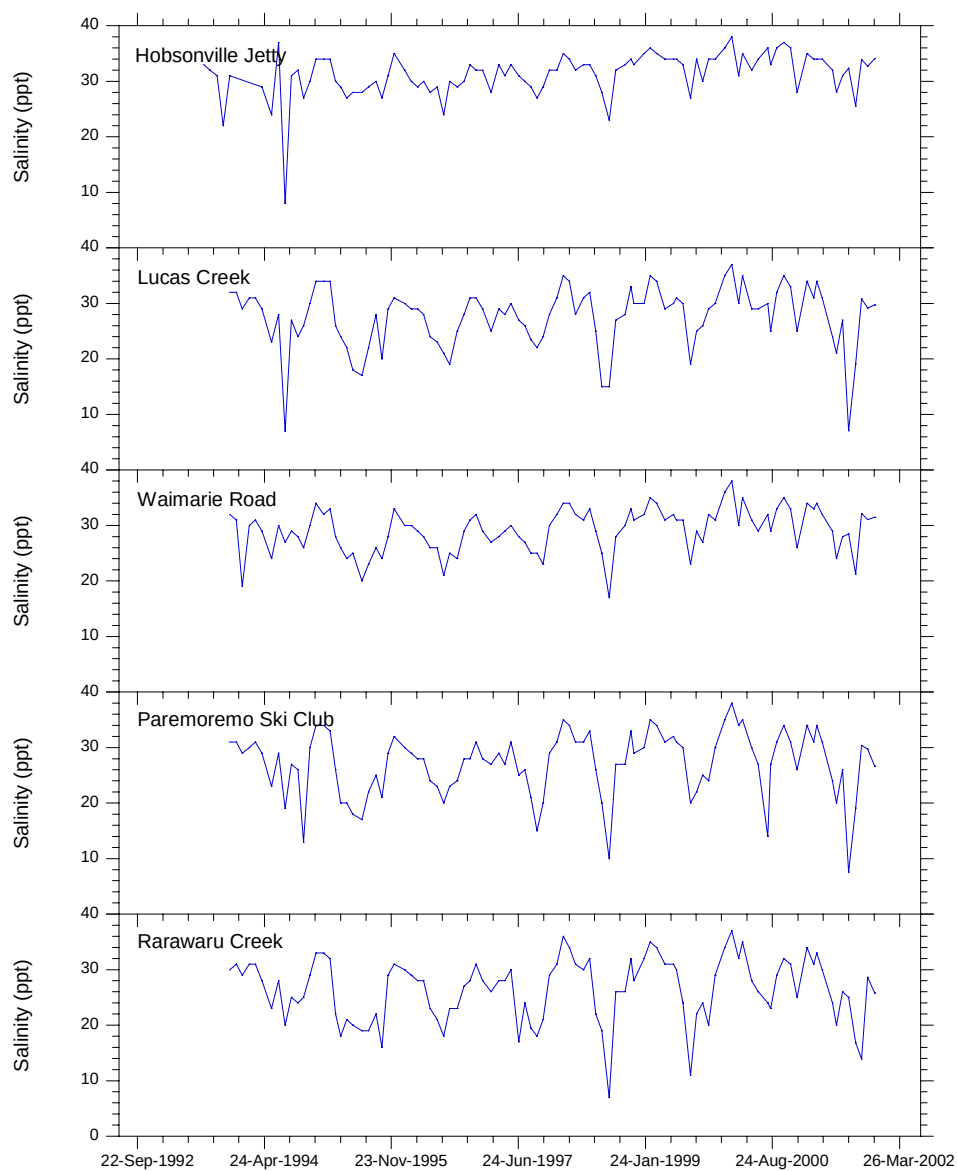
APPENDIX 48: UPPER WAITEMATA HARBOUR – SALINITY**a) Salinity (ppt) during January 2001 - December 2001**

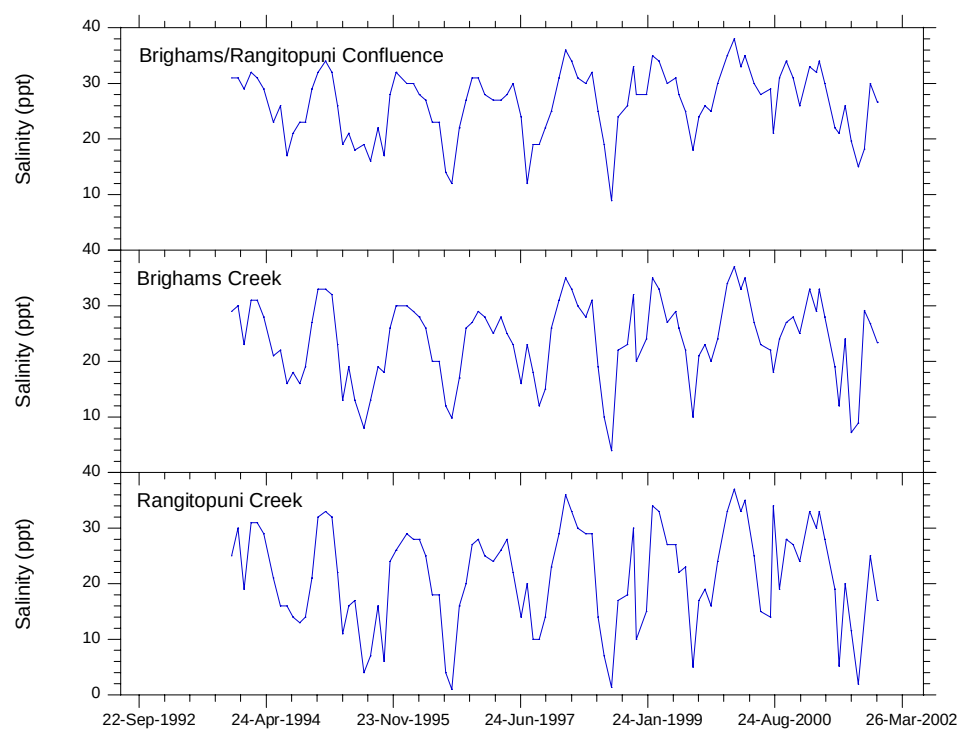
Date	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
30-Jan-01	35.0	34.0	34.0	34.0	34.0	33.0	33.0	33.0
02-Mar-01	34.0	31.0	33.0	31.0	31.0	32.0	29.0	29.0
14-Mar-01	34.0	34.0	34.0	34.0	33.0	34.0	33.0	33.0
09-Apr-01	34.0	31.0	32.0	31.0	30.0	30.0	28.0	28.0
24-May-01	32.0	24.0	29.0	24.0	24.0	22.0	19.0	19.0
12-Jun-01	28.0	21.0	24.0	20.0	20.0	21.0	12.0	12.0
11-Jul-01	31.0	27.0	28.0	26.0	26.0	26.0	24.0	24.0
08-Aug-01	31.3	13.8	26.7	5.0	18.8	22.3	4.1	4.1
07-Sep-01	26.8	19.3	21.1	18.1	17.8	14.2	8.6	8.6
04-Oct-01	33.6	30.4	32.1	30.2	29.4	30.3	29	29
02-Nov-01	34.4	29.4	32.5	31.0	30.6	31.4	28.7	28.7
04-Dec-01	33.7	28.8	31.1	24.3	25.1	25.3	22.5	22.5
Median	33.7	29.1	31.6	28.1	27.7	28.0	26.0	26.0
IQR/Median %	8	27	16	28	28	33	45	45

b) Statistical summary for 1992-2001: Salinity (ppt)

	Hobsonville	Lucas	Waimarie	Paremoremo	Rarawaru	Brighams/Rangitopuni	Brighams	Rangitopuni
	Jetty	Creek	Road	Ski Club	Creek	confluence	Creek	Creek
N	98	98	98	98	98	98	98	97
Median	32.0	29.0	30.0	28.5	28.0	28.0	24.5	22.0
Normality	F	F	T	F	F	F	F	T
Seasonality	Y	Y	Y	Y	Y	Y	Y	Y
Trend	100%	95%	100%	95%	90%	96%	90%	95%
Slope	0.67	0.33	0.52	0.39	0.30	0.45	0.45	0.51

c) The graphs on the following pages show salinity measurements from January 1993 to December 2001 (where data available).





APPENDIX 49: UPPER WAITEMATA HARBOUR – CONDUCTIVITY**a) Conductivity (mS/m) during January 2001 - December 2001**

Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni Confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01								
02-Mar-01								
14-Mar-01								
09-Apr-01								
24-May-01	4834	3745	4420	3714	3806	5079	2994	3070
12-Jun-01	4301	3404	3698	3140	3140	3331	1979	936
11-Jul-01	4883	4338	4443	4197	4162	4092	3811	3231
08-Aug-01								
07-Sep-01								
04-Oct-01								
02-Nov-01								
04-Dec-01								
Median	4834	3745	4420	3714	3806	4092	2994	3070
IQR/Median %	6	12	8	14	13	21	31	37

b) Statistical summary for 1992-2001: Conductivity (mS/m)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	5	5	5	5	5	5	5	4
Median	4883	4338	4443	4197	4162	4630	3811	3150
Normality	F	T	T	T	T	T	T	T
Seasonality	INS.	INS.	INS.	INS.	INS.	INS.	INS.	INS.
Trend	INS.	INS.	INS.	INS.	INS.	INS.	INS.	INS.
Slope	INS.	INS.	INS.	INS.	INS.	INS.	INS.	INS.

c) The graphs on the following pages show conductivity measurements from January 1993 to December 2001 (where data available).

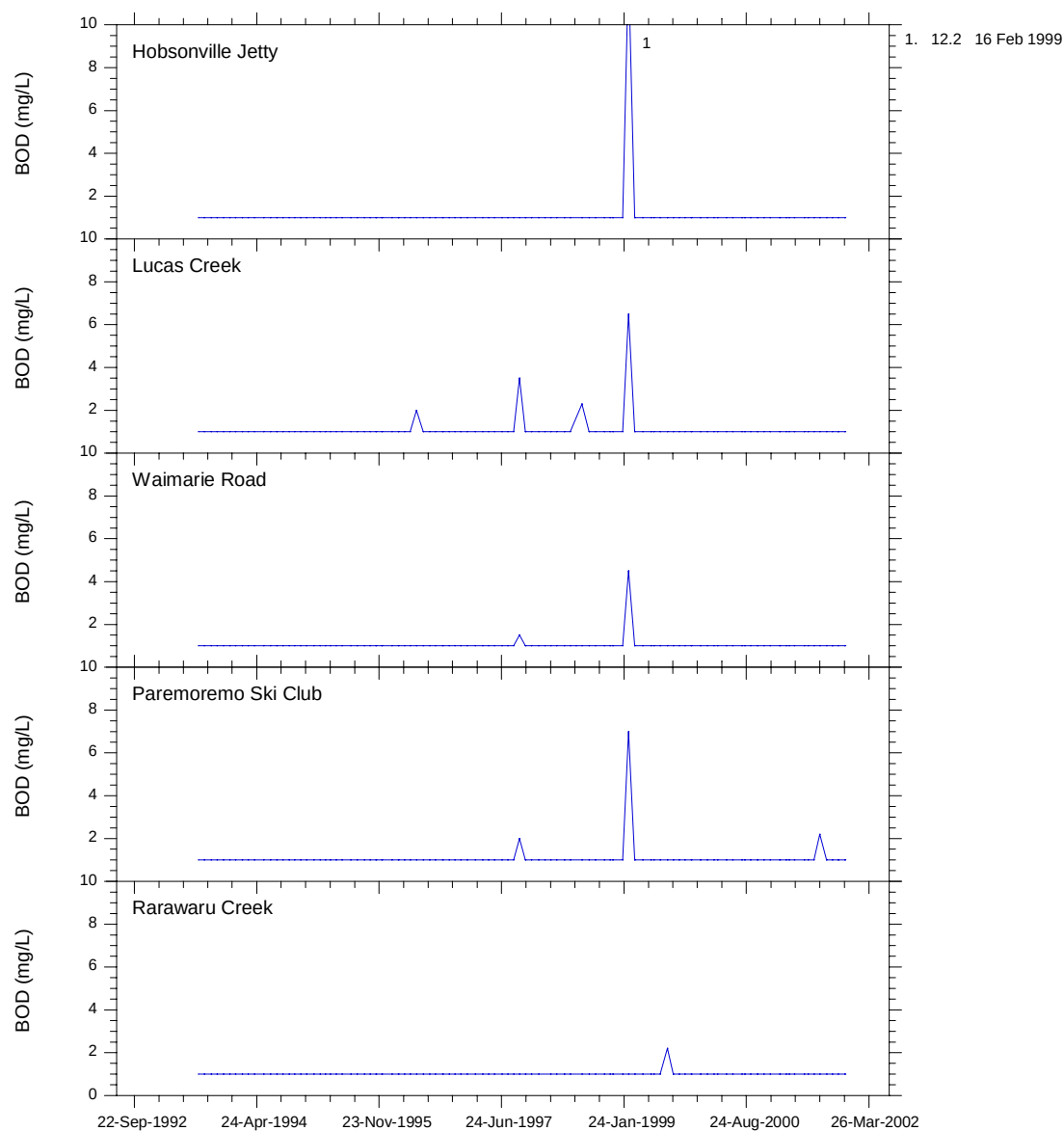
APPENDIX 50: UPPER WAITEMATA HARBOUR – BIOCHEMICAL OXYGEN DEMAND**a) Biochemical oxygen demand (mg/L) during January 2001 - December 2001**

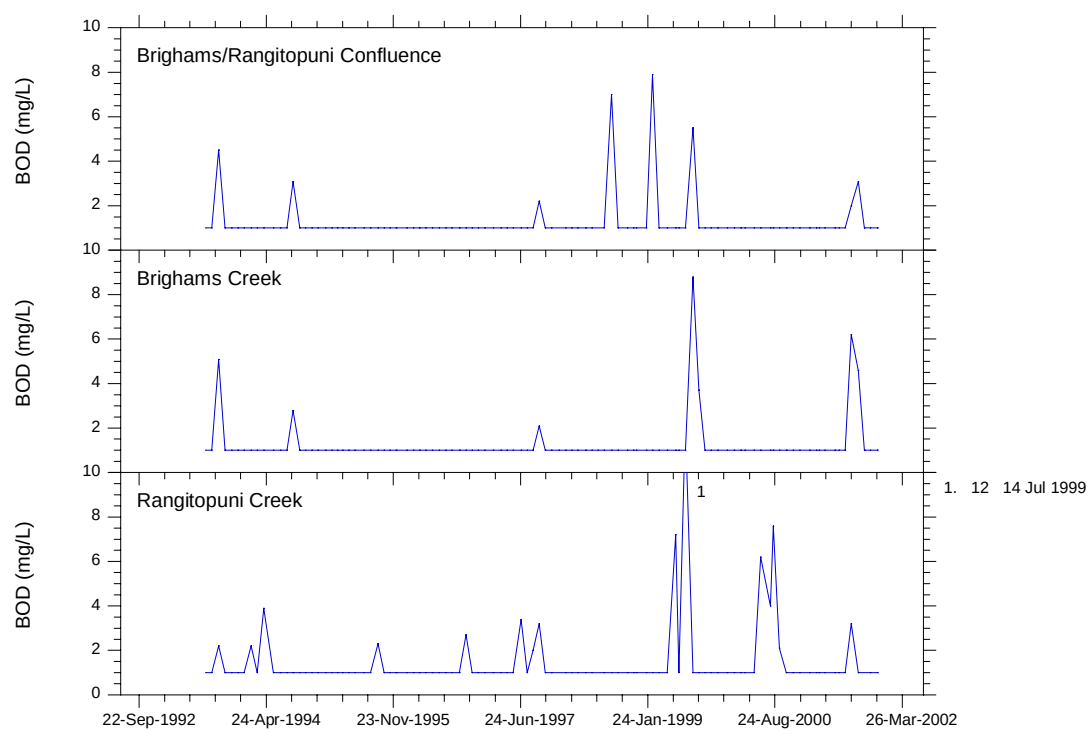
Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
02-Mar-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
14-Mar-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
09-Apr-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
24-May-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
12-Jun-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
11-Jul-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
08-Aug-01	<2	<2	<2	2.2	<2	2	6.2	3.2
07-Sep-01	<2	<2	<2	<2.0	<2	3.1	4.6	<2.0
04-Oct-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
02-Nov-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
04-Dec-01	<2	<2	<2	<2.0	<2	<2.0	<2.0	<2.0
Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
IQR/Median %	0	0	0	0	0	0	0	0

b) Statistical summary for 1992-2001: Biochemical oxygen demand (mg/L)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	101	101	102	101	100	100	102	99
Median	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Normality	F	F	F	F	F	F	F	F
Seasonality	N	N	N	N	N	Y	Y	Y
Trend	NS	NS	NS	100%	NS	NS	NS	NS
Slope	NS	NS	NS	0	NS	NS	NS	NS

c) The graphs on the following pages show BOD measurements from January 1993 to December 2001 (where data available).





APPENDIX 51: UPPER WAITEMATA HARBOUR – DISSOLVED OXYGEN**a) Dissolved oxygen demand (% saturation) during January 2001 - December 2001**

Date	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni Confluence	Brighams Creek	Rangitopuni Creek
30-Jan-01								
02-Mar-01								
14-Mar-01								
09-Apr-01								
24-May-01								
12-Jun-01	92.0	88.0	87.0	85.0	88.0	89.0	86.0	89.0
11-Jul-01	80.0	77.0	80.0	81.0	77.0	81.0	84.0	82.0
08-Aug-01	102.0	97.0	92.0	75.0	95.0	107.0	96.0	97.0
07-Sep-01	85.0	82.0	84.0	80.0	82.0	89.0	85.0	87.0
04-Oct-01	88.0	75.0	81.0	77.0	80.0	81.0	79.0	
02-Nov-01	85.0	81.0	85.0	85.0	84.0	85.0	83.0	81.0
04-Dec-01	81.0	75.0	77.0	73.0	75.0	76.0	74.0	70.0
Median	85.0	81.0	84.0	80.0	82.0	85.0	84.0	84.5
IQR/Median %	8	11	7	9	9	9	5	9

b) Statistical summary for 1992-2001: Dissolved oxygen demand (% saturation)

	Hobsonville Jetty	Lucas Creek	Waimarie Road	Paremoremo Ski Club	Rarawaru Creek	Brighams/Rangitopuni confluence	Brighams Creek	Rangitopuni Creek
N	68	67	63	63	63	63	65	62
Median	89.4	81.0	83.5	82.3	79.5	82.7	81.3	70.0
Normality	F	F	F	F	F	F	F	F
Seasonality	Y.	Y	Y	Y	Y	Y	Y	Y
Trend	95	NS	95	95	95	95	90	90
Slope	-1.9	NS	-1.5	-2.1	-1.2	-1.2	-1.2	-1.1

c) The graphs on the following pages show dissolved oxygen (% saturation) measurements from January 1993 to December 2001 (where data available).