

Appendix 6.1

Annual Marine Water Quality
Monitoring Data at Stations
VM2 and VT11

Parameters	VM2								VT11							
	2002	2003	2004	2005	2006	2007	2008	Average	2002	2003	2004	2005	2006	2007	2008	Average
Temperature (°C)	22.9 (16.2 - 27.4)	23.2 (16.9-27.1)	23.5 (15.9-28.0)	22.9 (15.8-28.0)	23.5 (17.4-27.5)	22.9 (17.2-27.8)	23.4 (16.2-27.3)	23.2	23.7 (17.8 - 27.2)	23.2 (17.3-27.0)	23.4 (15.8-28.0)	22.4 (16.0-26.3)	23.5 (17.2-28.6)	23.3 (18.2-26.3)	23.1 (15.4-26.8)	23.2
Salinity	32.4 (30.4 - 33.4)	32.6 (31.6-33.7)	32.5 (28.6-33.8)	31.9 (28.5-33.3)	31.7 (27.8-33.0)	32.2 (30.1-33.6)	31.4 (26.3-33.2)	32.1	31.6 (28.7 - 33.1)	32.1 (31.4-32.7)	32.1 (28.7-33.6)	31.2 (27.6-32.7)	30.5 (21.8-32.7)	31.7 (28.6-33.3)	31.2 (29.8-32.2)	31.5
Dissolved Oxygen (mg/L)	6.0 (4.2 - 7.1)	5.5 (4.1-7.4)	5.4 (3.4-7.9)	5.6 (4.4-6.8)	5.8 (3.4-7.1)	5.4 (3.6-7.5)	5.4 (3.2-7.1)	5.6	5.0 (4.3 - 5.7)	5.1 (4.1-6.1)	5.7 (4.2-7.4)	6.1 (37-8.0)	6.0 (3.9-7.9)	5.2 (4.0-7.0)	5.4 (4.1-7.5)	5.5
	5.6 (2.2 - 7.1)	5.3 (3.9-7.4)	5.4 (3.2-7.9)	5.6 (3.8-6.8)	5.8 (2.5-7.4)	5.2 (2.7-7.6)	5.3 (3.0-7.0)	5.5	5.1 (4.1 - 6.4)	5.0 (3.7-6.4)	5.8 (3.9-7.4)	6.1 (3.8-7.7)	6.0 (3.7-8.0)	5.2 (4.0-7.1)	5.2 (4.1-7.5)	5.5
	84 (62 - 107)	78 (61-93)	75 (51-102)	78 (66-92)	81 (49-97)	79 (52-97)	76 (46-97)	79	71 (65 - 76)	71 (59-80)	76 (64-101)	85 (55-115)	83 (56-115)	72 (58-91)	74 (61-91)	76
Dissolved Oxygen (% Saturation)	8.0 (7.8 - 8.2)	8.1 (8.0-8.3)	8.1 (7.9-8.2)	8.1 (7.7-8.3)	7.9 (7.7-8.1)	8.0 (7.7-8.3)	8.1 (7.9-8.3)	8.0	8.0 (7.8 - 8.2)	7.9 (8.0-8.4)	8.0 (7.9-8.2)	8.2 (8.0-8.4)	8.0 (7.7-8.3)	7.9 (7.4-8.1)	8.0 (7.9-8.2)	8.0
	8.0 (30 - 106)	8.1 (54-93)	8.1 (49-102)	8.1 (54-90)	7.9 (36-103)	8.0 (38-97)	8.1 (43-90)	8.0	8.0 (62 - 82)	7.9 (54-84)	8.0 (60-102)	8.2 (56-110)	8.0 (54-117)	7.9 (59-92)	8.0 (59-91)	8.0
pH	2.1 (1.0 - 3.1)	2.5 (1.5-3.5)	2.5 (1.2-3.8)	2.2 (1.2-3.5)	2.0 (1.4-3.1)	2.2 (1.5-2.8)	2.6 (1.8-3.2)	2.3	1.8 (1.0 - 2.5)	2.3 (1.5-3.1)	2.2 (1.7-3.7)	1.7 (1.0-2.2)	1.7 (0.9-2.5)	1.6 (0.9-2.0)	2.3 (1.5-3.1)	1.9
Secchi Disc Depth (m)	9.6 (1.1 - 5.9)	8.1 (5.4-10.8)	8.9 (5.5-12.1)	9.8 (4.8-15.8)	11.2 (5.4-15.0)	11.1 (4.3-24.4)	7.4 (2.5-11.3)	9.4	9.6 (7.0 - 13.2)	8.3 (5.0-11.8)	8.6 (3.7-11.7)	8.8 (5.6-10.7)	14.8 (9.0-22.1)	12.3 (4.0-19.1)	8.3 (4.7-10.5)	10.1
Turbidity (NTU)	5.8 (2.4 - 9.9)	4.3 (1.9-6.4)	5.2 (2.1-12.8)	3.6 (1.3-8.5)	4.2 (1.2-12.8)	3.5 (1.8-6.0)	3.9 (1.9-7.5)	4.4	6.5 (2.7 - 12.5)	4.6 (2.4-9.0)	5.5 (4.0-7.5)	4.4 (1.3-7.3)	6.7 (2.4-20.6)	5.2 (2.1-15.5)	4.5 (1.7-8.3)	5.3
Suspended Solids (mg/L)	1.1 (0.5 - 2.3)	1.1 (0.5-1.8)	0.8 (0.3-1.9)	0.9 (0.4-1.5)	0.6 (0.1-1.2)	1.2 (0.5-2.6)	0.7 (0.3-1.1)	0.9	0.7 (0.4 - 1.2)	1.1 (0.3-1.5)	1.1 (0.5-2.8)	1.5 (0.7-3.4)	1.0 (0.6-1.6)	1.0 (0.6-1.7)	0.8 (0.3-1.3)	1.0
5-day Biochemical Oxygen Demand (mg/L)	0.13 (0.02 - 0.26)	0.13 (0.04-0.26)	0.13 (0.06-0.28)	0.13 (0.04-0.21)	0.11 (0.04-0.20)	0.12 (0.03-0.21)	0.12 (0.03-0.18)	0.12	0.17 (0.012 - 0.22)	0.15 (0.06-0.22)	0.20 (0.05-0.29)	0.14 (0.06-0.19)	0.12 (0.06-0.21)	0.17 (0.09-0.26)	0.15 (0.08-0.21)	0.16
Ammonia Nitrogen (mg/L)	0.004 (0.001 - 0.010)	0.007 (0.002-0.012)	0.006 (0.003-0.014)	0.006 (0.002-0.015)	0.004 (0.001-0.007)	0.005 (<0.001-0.009)	0.006 (0.001-0.012)	0.005	0.007 (0.003 - 0.012)	0.008 (0.004-0.018)	0.008 (0.004-0.016)	0.008 (0.004-0.015)	0.004 (0.002-0.006)	0.007 (0.001-0.011)	0.006 (0.002-0.013)	0.007
Unionised Ammonia (mg/L)	0.02 (0.01 - 0.04)	0.02 (<0.01-0.05)	0.02 (<0.01-0.05)	0.02 (0.01-0.05)	0.02 (0.004-0.084)	0.03 (0.009-0.089)	0.03 (0.009-0.140)	0.02	0.03 (0.01 - 0.04)	0.02 (0.01-0.03)	0.02 (0.01-0.03)	0.03 (0.02-0.05)	0.03 (0.012-0.059)	0.03 (0.011-0.055)	0.03 (0.023-0.041)	0.03
Nitrite Nitrogen (mg/L)	0.07 (0.03 - 0.13)	0.08 (0.02-0.14)	0.07 (0.02-0.15)	0.12 (0.03-0.23)	0.10 (0.03-0.25)	0.11 (0.043-0.273)	0.15 (0.056-0.433)	0.10	0.09 (0.04 - 0.16)	0.09 (0.05-0.15)	0.09 (0.06-0.11)	0.16 (0.09-0.23)	0.16 (0.05-0.42)	0.14 (0.046-0.260)	0.18 (0.107-0.240)	0.13
Nitrate Nitrogen (mg/L)	0.23 (0.09 - 0.44)	0.24 (0.11-0.38)	0.22 (0.08-0.39)	0.28 (0.08-0.46)	0.23 (0.07-0.40)	0.26 (0.09-0.52)	0.30 (0.14-0.71)	0.25	0.29 (0.22 - 0.41)	0.26 (0.23-0.33)	0.31 (0.17-0.42)	0.33 (0.27-0.41)	0.31 (0.13-0.54)	0.34 (0.18-0.55)	0.36 (0.30-0.43)	0.31
Total Inorganic Nitrogen (mg/L)	0.29 (0.14 - 0.44)	0.29 (0.17-0.42)	0.25 (0.12-0.45)	0.28 (0.14-0.38)	0.29 (0.17-0.42)	0.32 (0.18-0.47)	0.30 (0.18-0.39)	0.29	0.32 (0.26 - 0.37)	0.33 (0.24-0.47)	0.36 (0.29-0.50)	0.34 (0.27-0.39)	0.34 (0.28-0.41)	0.36 (0.27-0.44)	0.35 (0.21-0.55)	0.34
Total Kjeldahl Nitrogen (mg/L)	0.38 (0.19 - 0.55)	0.39 (0.19-0.57)	0.33 (0.15-0.55)	0.43 (0.22-0.63)	0.42 (0.20-0.64)	0.46 (0.24-0.66)	0.48 (0.28-0.93)	0.41	0.43 (0.35 - 0.56)	0.44 (0.36-0.56)	0.47 (0.37-0.63)	0.53 (0.51-0.58)	0.53 (0.39-0.80)	0.53 (0.36-0.75)	0.56 (0.46-0.77)	0.50
Total Nitrogen (mg/L)	0.016 (0.002 - 0.035)	0.027 (0.02-0.05)	0.030 (0.01-0.05)	0.030 (<0.01-0.04)	0.030 (0.01-0.04)	0.030 (0.010-0.049)	0.026 (0.008-0.040)	0.027	0.023 (0.011 - 0.036)	0.029 (0.02-0.05)	0.040 (<0.01-0.05)	0.030 (0.01-0.04)	0.028 (0.007-0.050)	0.036 (0.030-0.049)	0.033 (0.021-0.050)	0.031
Orthophosphate Phosphorus (mg/L)	0.04 (0.02 - 0.06)	0.04 (0.02-0.06)	0.04 (0.02-0.07)	0.04 (0.02-0.06)	0.05 (0.03-0.06)	0.04 (0.03-0.07)	0.04 (0.02-0.06)	0.04	0.04 (0.03 - 0.05)	0.05 (0.04-0.07)	0.05 (0.03-0.06)	0.05 (0.04-0.09)	0.05 (0.04-0.06)	0.05 (0.05-0.08)	0.06 (0.04-0.09)	0.05
Total Phosphorus (mg/L)	0.6 (0.1 - 1.2)	0.7 (0.2-1.2)	0.7 (0.2-1.5)	0.7 (0.2-1.4)	0.8 (0.3-1.5)	0.8 (0.2-2.0)	1.0 (0.2-2.4)	0.8	0.8 (0.3 - 1.3)	0.7 (0.1-1.1)	0.5 (0.1-0.8)	0.8 (0.3-1.1)	0.7 (0.2-1.6)	1.0 (0.4-2.1)	1.1 (0.6-2.1)	0.8
Silica (as SiO ₂) (mg/L)	3.6 (0.7 - 11.3)	4.0 (0.2-19.0)	2.4 (0.6-7.3)	2.4 (0.8-6.0)	3.0 (1.0-8.9)	6.4 (0.7-36.0)	3.7 (0.4-18.3)	3.6	2.0 (0.6 - 6.8)	4.0 (0.6-9.6)	4.9 (0.8-15.3)	7.3 (0.5-32.3)	7.9 (1.0-20.5)	3.6 (0.9-6.3)	3.5 (1.1-6.1)	4.7
Chlorophyll-a (µg/L)	660 (33 - 8000)	1100 (130-6600)	630 (27-3300)	1600 (120-31000)	1100 (58-14000)	1900 (210-47000)	1100 (76-14000)	1077	590 (160 - 3600)	490 (170-1700)	730 (200-1300)	690 (150-2800)	1100 (340-4400)	2100 (290-5500)	510 (160-1600)	777
<i>E. coli</i> (count/100mL)	1400 (90 - 27000)	2100 (160-13000)	1400 (41-13000)	3600 (340-50000)	2600 (130-25000)	4200 (550-68000)	2500 (95-26000)	2357	1500 (280 - 14000)	1300 (280-6500)	1900 (710-4000)	1900 (880-7200)	2600 (860-8300)	4500 (620-10000)	1500 (570-2900)	1990