

Results of the Seasonal Kendall Test for water quality trends in the Tolo Harbour and Channel WCZ, 1986 – 2005

Monitoring Station		TM2	TM3	TM4	TM5	TM6	TM7	TM8
		1986	1986	1986	1986	1986	1986	1986
Monitoring Period								
		2005	2005	2005	2005	2005	2005	2005
Parameter	Water Depth							
	Surface							
Temperature (°C)	Surface	↗	↗	↗	↗	↗	↗	↗
	Middle	NA	↗	↗	NA	↗	↗	↗
	Bottom	↗	↗	↗	↗	↗	↗	↗
	Average	↗	↗	↗	↗	↗	↗	↗
Salinity	Surface	↗	-	-	-	-	-	-
	Middle	NA	-	-	NA	-	-	-
	Bottom	-	-	-	-	-	-	↗
	Average	-	-	-	-	-	-	-
Dissolved Oxygen (mg/L)	Surface	↘	↘	↘	↘	↘	↘	↘
	Middle	NA	-	-	NA	↗	-	↘
	Bottom	↗	↗	↗	-	↗	↗	↗
	Average	-	-	-	-	-	-	-
Dissolved Oxygen (%)	Surface	-	↘	↘	↘	↘	↘	↘
	Middle	NA	↗	↗	NA	↗	↗	↗
	Bottom	↗	↗	↗	↗	↗	↗	↗
	Average	↗	↗	-	-	↗	↗	↗
pH	Surface	-	↘	↘	↘	↘	↘	↘
	Middle	NA	-	-	NA	↘	↘	↘
	Bottom	-	-	-	↘	-	↘	↘
	Average	-	-	-	↘	-	↘	↘
Secchi disc depth (m)								
Turbidity (NTU)	Surface	↗	↗	↗	↗	↗	↗	↗
	Middle	NA	↗	↗	NA	↗	↗	↗
	Bottom	↗	↗	↗	↗	↗	↗	↗
	Average	↗	↗	↗	↗	↗	↗	↗
Suspended Solids (mg/L)	Surface	-	-	↘	-	-	-	↘
	Middle	NA	-	-	NA	-	-	↘
	Bottom	-	-	-	-	-	-	-
	Average	-	-	-	-	↘	-	-
Total volatile solids (mg/L)	Surface	-	-	-	-	-	↘	↘
	Middle	NA	-	-	NA	-	-	↘
	Bottom	-	-	↘	-	↘	-	-
	Average	↘	-	↘	-	↘	-	↘
5-day Biochemical Oxygen Demand (mg/L)	Surface	↘	↘	↘	↘	↘	↘	↘
	Middle	NA	↘	↘	NA	-	-	↘
	Bottom	↘	↘	↘	↘	↘	↘	↘
	Average	↘	↘	↘	↘	↘	↘	↘
Ammonia nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	-
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Nitrite nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	-
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Nitrate nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	↘
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Total inorganic nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	-
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Total Kjeldahl nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	↘
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Total nitrogen (mg/L)	Surface	↘	↘	↘	-	-	-	↘
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Orthophosphate phosphorus (mg/L)	Surface	↘	↘	↘	-	-	-	-
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Total phosphorus (mg/L)	Surface	↘	↘	↘	-	-	-	↘
	Middle	NA	↘	↘	NA	↘	↘	-
	Bottom	↘	↘	↘	↘	↘	↘	-
	Average	↘	↘	↘	↘	↘	↘	-
Silica (mg/L)	Surface	-	-	-	↗	↗	-	-
	Middle	NA	-	-	NA	-	-	-
	Bottom	-	-	-	-	-	-	-
	Average	-	-	-	-	-	-	-
Chlorophyll- <i>a</i> (µg/L)	Surface	-	-	-	-	-	-	-
	Middle	NA	-	-	NA	-	-	-
	Bottom	-	-	-	-	-	-	-
	Average	↘	-	-	-	-	-	-
<i>E. coli</i> (cfu/100mL)	Surface	↘	-	↘	-	-	-	-
	Middle	NA	-	-	NA	-	-	-
	Bottom	↘	-	↘	-	-	-	-
	Average	↘	↘	↘	-	↘	-	-
Faecal coliforms (cfu/100mL)	Surface	-	-	-	↗	-	-	-
	Middle	NA	-	-	NA	-	-	-
	Bottom	-	-	-	-	-	-	-
	Average	-	-	-	↗	-	-	-

Note: 1. Results of the Seasonal Kendall Test statistically significant at $p < 0.05$
 2. - indicates no significant trend
 3. NA (Not Applicable) indicates the measurement was not made due to shallow water
 4. Test applied to past 20 years' data from each station unless stated otherwise
 5. ↗ significant increase
 6. ↘ significant decrease