

APPENDIX 5 WATER AND SEDIMENT QUALITY MONITORING

The water quality indicators (WQI) for secondary contact selected are:

1. Algal Blooms,
2. Sediment Quality (contamination)
3. Physio-chemical key indicators as per Table 2

TABLE 2 - Water and Sediment Quality Indicators & Program

Water Quality Indicator	Frequency for 2 ^o Contact	Replication
DO	Bi-weekly 7 ppm	
Ph	Bi-weekly 5.0 – 9.0	yes
Temperature	Bi-weekly 15 – 35oC	
Turbidity (NTU)	Bi-weekly ?	yes
Algal Biomass	Bi-weekly 15,000 cells/100 ml	yes
Conductivity (ppm)	Bi-weekly 35,000 (seawater)	yes
Chlorophyll - a (ug/l)	Bi-weekly, calculated with biomass?	yes
Phaeophytin (ug/l)	Bi-weekly, calculated with biomass?	yes
Total Pigment (ug/l)	Bi-weekly, calculated with biomass?	yes
Total Bacterial Plate Count (organisms/1ml)	Bi-weekly?	yes
E.coli (organisms/100ml)	Bi-weekly 230 orgs/100 ml	yes
Streptococcus (organism/100ml)	Weekly ?	yes
Faecal Coliform (organisms/100ml)	Bi-weekly 1000 orgs/100 ml	yes
Total Coliform (organisms/100ml)	Bi-weekly ?	yes
Phosphate	3 monthly ?	yes
Nitrogen (Nitrate)	3 monthly 10,000ug/L	yes
Ammonia	3 monthly 10ug/L	yes
Copper	3 monthly 1000ug/L	yes
Lead	3 monthly 50ug/L	yes
Zinc	3 monthly 5000ug/L	yes
Cadmium	3 monthly 5ug/L	yes
Sediment Quality Indicator	Frequency?	Replication
sediment digestion		
Copper	3 monthly ?	yes
Lead	3 monthly ?	yes
Zinc	3 monthly ?	yes
Cadmium	3 monthly ?	yes

* An analysis of BOD will not tell you a great deal, as the presence of algae in the sample will interfere with the result, which would be expected to be low. Bacteriological analyses such as total plate count and total coliforms will not provide much either. The guidelines for environmental water are based on faecal coliforms and sometimes-faecal streptococcus. TPC count is expected to be very high and total coliforms can exist in warm environmental water and may not be an indicator of contamination. Probably faecal coliforms and E coli are useful. Streptococcus generally lasts longer in environmental water than coliforms so are used as an indicator if there is expected to be a quick die off of coliforms. This does not seem to be the case in the lakes.

Notes from Peter Mockeridge, Lab Chemist, Citiwater.