
GUIDELINES

Northern Territory Recreational Microbiological Water Quality Guidelines

December 2007

Introduction

The National Health and Medical Research Council's (NHMRC) *Guidelines for Managing Risks in Recreational Water 2005* do not provide adequate criteria for microbial assessment of fresh waters within the Northern Territory regulatory framework and therefore their suitability for use in the Territory is currently limited.

Until a database of enterococci sampling is established over time for Northern Territory waters, both the Environment Protection Agency (EPA) and the Department Health & Community Services (DHCS) endorse the following guidelines for microbial risk management of recreational water in the Northern Territory.

It should be noted that testing for thermotolerant (faecal) coliforms is no longer considered to be best practice because it lacks the specificity required for the demonstration of faecal contamination. The two existing methods for enumerating thermotolerant coliforms are being phased out by Standards Australia and there will be no further standard methods that include thermotolerant coliforms. Consequently the NT Government Water Laboratories in Berrimah and Alice Springs no longer test for thermotolerant (faecal) coliforms, however they can test for *E. coli* and Enterococci.

Sampling Methods

- **Enterococci monitoring** –Enterolert™ or USEPA Method 1600 or relevant Australian Method.
- ***E. coli* monitoring** –Colilert™, Colisure™ where the water is coloured, or USEPA Method 1103.1 Membrane Filter Method for *E. coli* (24 hour result)

References

MoE 2002; *Microbial Water Quality Guidelines for Marina and Freshwater Recreational Areas*; Ministry for the Environment, Wellington.

NHMRC 2005; *Guidelines for Managing Risks in Recreational Water*; National Health and Medical Research Council, Australian Government, Canberra.

NWQMS 2000; *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*; ANZECC, ARMCANZ, Environment Australia, Canberra.

WHO 1999; *Health Based Monitoring of Recreational Waters: The Feasibility of a New Approach (the 'Annapolis Protocol')*; World Health Organisation, Geneva.

Document prepared by: David Dettrick, Northern Territory Environment Protection Agency (EPA) with input from Peter Rogers, Dagmar Schmitt and Xavier Schobben, Department Health & Community Services (DHCS).

Note: These Guidelines will be reviewed by the EPA and DHCS within two years.

Guidelines for Fresh and Marine Waters

Green Mode

STATUS: Surveillance / Open for Swimming

WATER QUALITY CRITERIA

All samples to be less than or equal to **50** Enterococci /100 mL (See note 1)

or

All samples to be less than or equal to **200** *E. coli* /100 mL

and

Less than **10** pathogenic protozoans /100 mL (See note 2)

ACTION

- Continue routine sampling (See note 3)

Amber Mode

STATUS: Alert / Open for Swimming

WATER QUALITY CRITERIA

All samples between **51** and **200** Enterococci /100 mL (See note 1)

or

Single sample greater than **200** *E.coli* /100 mL

and

Less than **10** pathogenic protozoans /100 mL (See note 2)

ACTIONS

- Increase sampling rates to daily (See note 4)
- Confirm poor water quality with replicate sampling
- Undertake a sanitary survey (NHMRC 2006) and identify sources of contamination

Red Mode

STATUS: Closed for Swimming

WATER QUALITY CRITERIA

Two consecutive samples within 24 hours greater than **201** enterococci /100mL (See note 1)

or

Single sample greater than **500** *E. coli* /100mL

and

Greater than **10** pathogenic protozoans detected (See note 2)

ACTIONS

- Erect warning signs to inform public near affected areas and access points
- Inform public through media that a public health problem exists
- Increase sampling rates to daily (See note 4)
- Confirm poor water quality with replicate sampling
- Undertake a sanitary survey (NHMRC 2005) and identify sources of contamination

Note 1: Microbiological indicator

Enterococci is the preferred indicator, however until a robust enterococci data base is established in the Northern Territory, the use of E.coli is acceptable.

Note 2: Pathogenic protozoans

There is no generic test for pathogenic protozoans, however there may need to be specific testing for the following protozoans depending on the outcomes of a specific risk assessment process:

- Naegleria fowleri (*preferred testing organism in fresh waters*)
- Acanthamoeba spp
- Entamoeba spp
- Cryptosporidium

Note 3: Frequency of routine sampling – Green Mode

The frequency of routine sampling for both marine and fresh waters is relative to the daily use of the water body. The following criteria applies:

Sampling Frequency	Frequency of Daily Use	
Weekly	High	> 100 people
Monthly	Medium	10 – 100 people
Monthly or greater*	Low	< 10 people

**Sampling frequency of monthly or greater can be applied if data history shows high reliability good water quality*

Note 4: Frequency of sampling – Amber and Red Modes

The declaration of Red and Amber Modes demands daily water sampling, which may pose logistical issues in regional and remote areas. The viability of daily sampling needs to be considered in any specific risk assessment process.