

Sources of taste and odour in the Mid-Brisbane River water supply system

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Abstract

The Mid-Brisbane River (MBR) is a critical section of the Brisbane River water supply system between Wivenhoe Dam and the Mt Crosby Water Treatment Plant (WTP) which supplies Brisbane city. Concentrations of the taste and odour (T&O) compounds, geosmin and 2-MIB have exceeded guideline values for drinking water (total 2-MIB & geosmin $>10 \text{ ng L}^{-1}$) 10-50 % of the time at monitored MBR sites since 2008. Seqwater is interesting in understanding the causes of poor T&O quality in the MBR as this is expensive to treat and triggers customer complaints. Historically rivers have received less attention than aquaculture ponds and drinking water supplies, such as lakes and reservoirs. In this study we investigate the drivers of T&O in the MBR through analysis of historical monitoring data, an intensive field sampling campaign and targeted mesocosm experiments. Our studies to date have shown that geosmin concentrations were more variable spatially than 2-MIB concentrations and the concentrations of the two compounds are not highly correlated, implying that different processes are driving the accumulation and degradation of each compound. The mid reaches of the MBR had the highest geosmin concentrations and this pattern became more pronounced since 2012. Concentrations of both geosmin and 2-MIB entering the Mount Crosby WTP did not correlate with those directly below Lake Wivenhoe. Therefore, it seems that within-system habitats in rivers are providing a source of T&O producers, rather than the MBR simply acting as a transport route for T&O compounds released from upstream Lake Wivenhoe.