

1 Early warning of MIB episode based on gene abundance
2 and expression in drinking water reservoirs

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5 **Supplementary Material**

6 Figures and/or tables are provided below as the supplementary evidences to the
7 main text.

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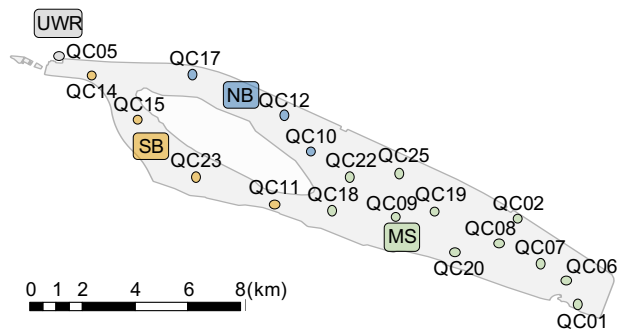


Fig. S1Map and sampling sites of QCS Reservoir

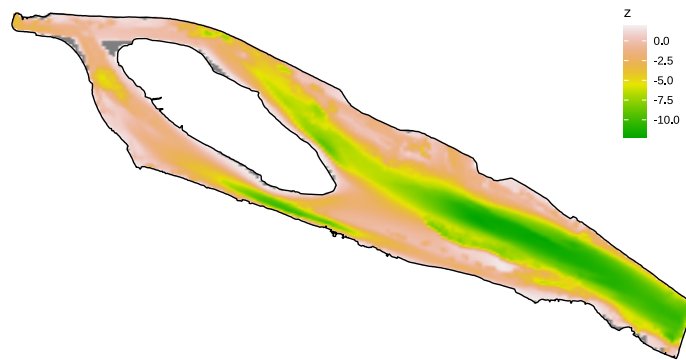


Fig. S2 Bathymetry of QCS Reservoir

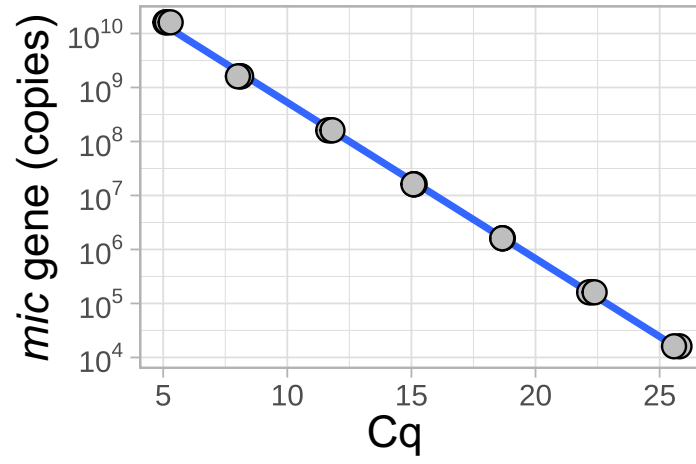


Fig. S3 Standard curve of *mic* gene quantification. The correlation between *mic* gene and Cq was: $Cq = -3.4537 \lg(c_{mic}) + 40.13 (R^2 = 0.999, p < 0.0001)$

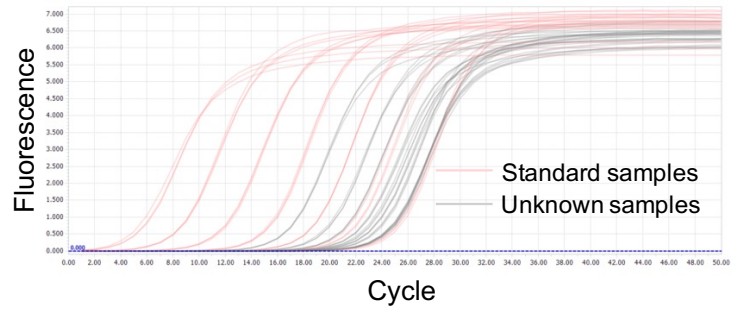


Fig. S4 Amplification curves of *mic* qPCR

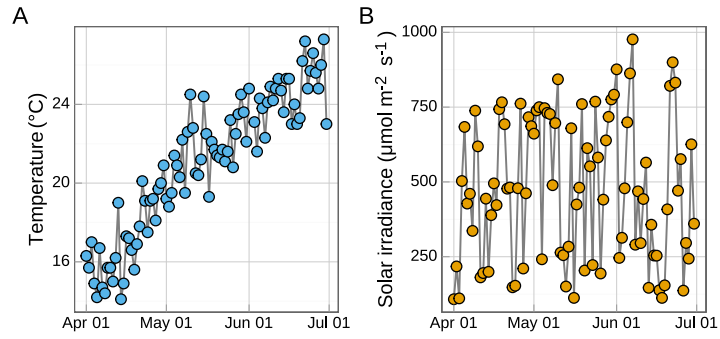


Fig. S5 Dynamics of water temperature and light irradiance during the MIB episode in QCS Reservoir in 2021

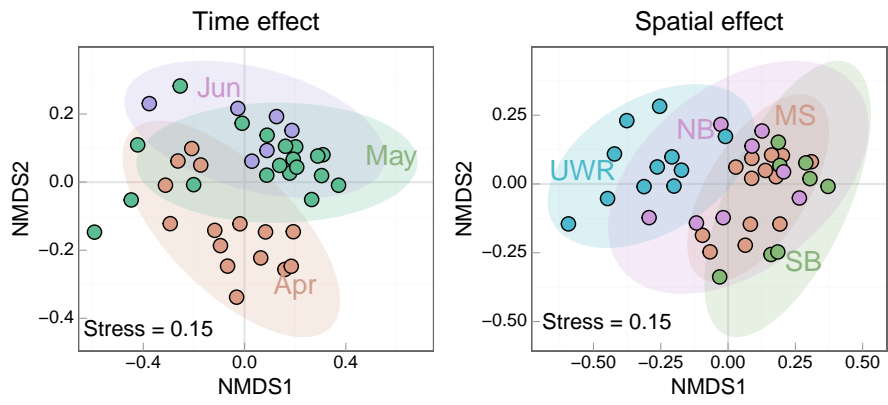


Fig. S6 Dynamics of phytoplankton communities in QCS Reservoir in 2021

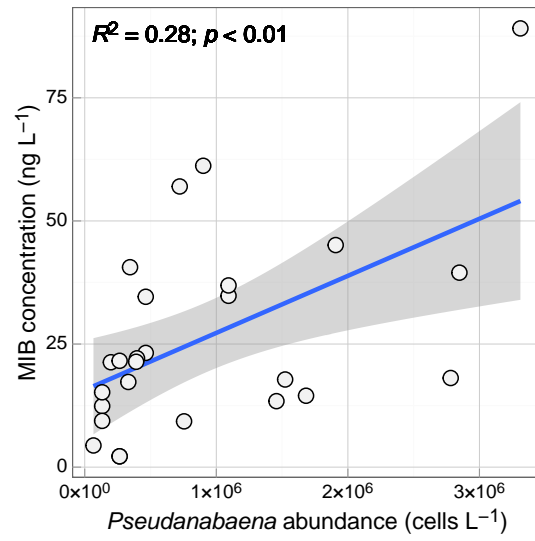


Fig. S7 Correlation between MIB concentration and *Pseudanabaena* cell density

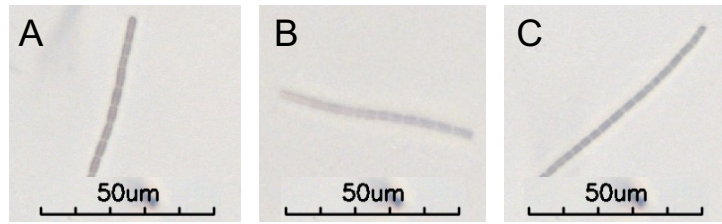


Fig. S8 Images of isolated *Pseudanabaena* strains (A: *P. cinerea*; B: *P. limnetica*; C: *P. catenate*)

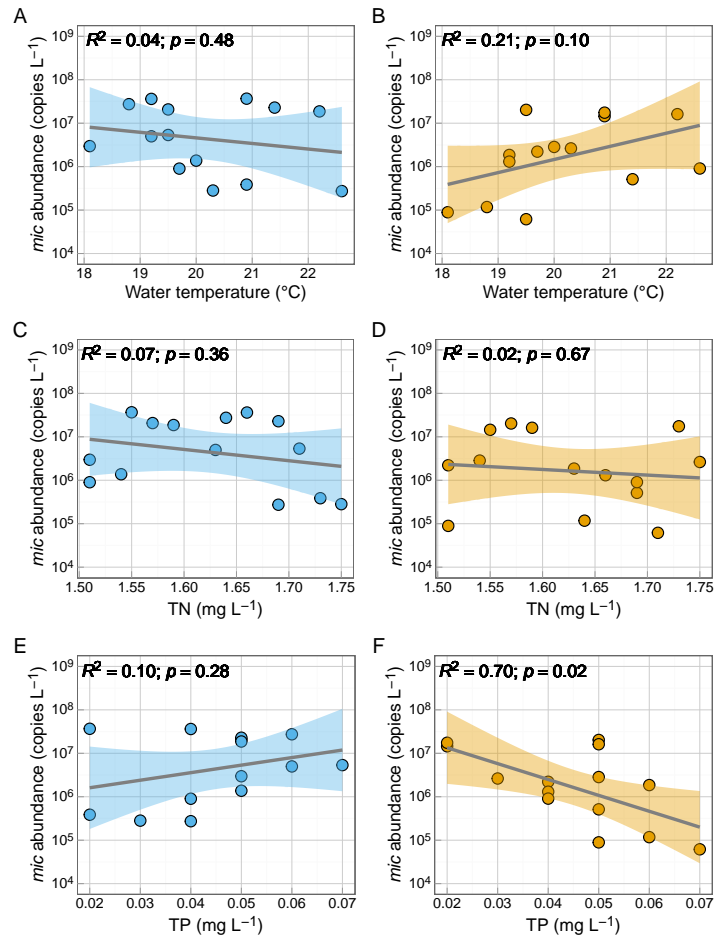


Fig. S9 Correlation between DNA or RNA abundance of *mic* gene and water temperature (A, B), TN (C, D), and TP (E, F), respectively, in QC10 during the MIB episode

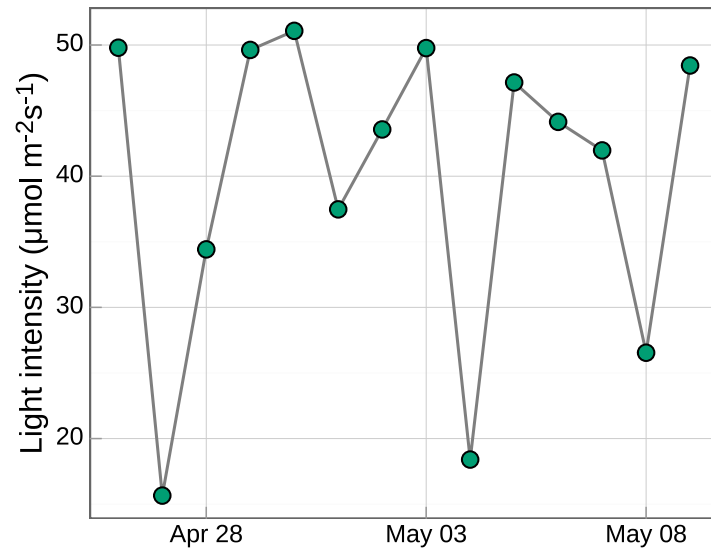


Fig. S10 The mean light intensity of the underwater column in QCS Reservoir during the MIB episode in 2021

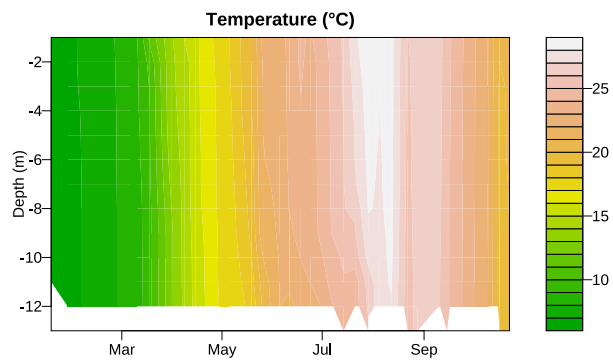


Fig. S11Temperature dynamics in QCS Reservoir

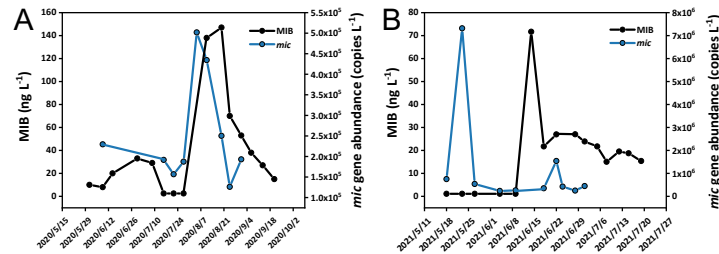


Fig. S12 Dynamics of MIB concentration and DNA abundance of *mic* gene in JZ Reservoir (A) and LH Reservoir (B), respectively.

Table S1 Distribution of sampling sites in 4 regions of QCS Reservoir

Sampling sites	Regions
QC05	Upstream river water (URW)
QC17, QC12, QC10	North branch (NB)
QC14, QC15, QC23, QC11	South branch (SB)
QC18, QC22, QC25, QC09, QC08, QC19, QC20, QC02, QC07, QC06, QC01	Middle section (MS)

Table S2 Three stains of *Pseudanabaena* isolated from QCS Reservoir. Taxonomic classification was identified by 16S rRNA gene sequencing and blasted with NCBI database

Isolation ID	Identification	Similarity	MIB	Accession number
1	<i>P. cinerea</i>	1.0000	+	ON571433
2	<i>P. limnetica</i>	0.9986	-	ON553403
3	<i>P. catenate</i>	0.9961	-	ON571434

8 References