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Correction: Detection and occurrence of microcystins and nodularins in Lake Manatee and Lake Washington-two Floridian drinking water systems

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KEYWORDS

drinking water, enzyme-linked immunosorbent assay, microcystins, nodularins, cyanotoxin

A Correction on

[Detection and occurrence of microcystins and nodularins in lake Manatee and lake Washington-two Floridian drinking water systems](#)

by Melaram, R., and Lopez-Dueñas, B. (2022). *Front. Water* 4:899572.
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In the published article, there were errors in reporting the highest concentration in Lake Manatee and correlation results between nutrient and cyanotoxin concentrations.

Corrections have been made to the **Abstract**. The sentences previously stated:

“The highest toxin concentration (0.46 µg/L) was reported in Lake Manatee at Site 15, a location where other toxin concentrations demonstrated statistical significance with toxins detected at Sites 6 ($p = 0.014$) and 8 ($p = 0.011$).”

“Furthermore, phosphate and nitrite concentrations strongly correlated with total MCs and NODs in each lake ($p < 0.01$).”

The corrected sentences appear below:

“The highest toxin concentration (0.47 µg/L) was reported in Lake Manatee at Site 15, a location where other toxin concentrations demonstrated statistical significance with toxins detected at Sites 6 ($p = 0.014$) and 8 ($p = 0.011$).”

“Furthermore, phosphate and nitrite concentrations showed no significant relationships with total MCs and NODs in each lake ($p > 0.05$).”

Corrections have been made to the **Introduction**, Paragraphs 7 and 9. The sentences previously stated:

“ELISA can track relative changes in MC concentrations and serve as an indication to control algae blooms (Guo et al., 2005).”

“Two years later, the adjacent Manatee River was endured algal blooms scattered along riverbanks as blue and green hues.”

The corrected sentences appear below:

“ELISA can track relative changes in MC concentrations and serve as an indicator to control algae blooms (Guo et al., 2005).”

“Two years later, the adjacent Manatee River endured algal blooms scattered along riverbanks as blue and green hues.”

Corrections have been made to the **Materials and Methods, Nutrient Measurement**. The detection range of the Griess Reagent Kit ab234044 was missing. Also, the final concentrations of nutrients were incorrectly converted and reported as $\mu\text{g/L}$. The sentences previously stated:

“They assessed concentrations between 0.001 and 1 mM.”

“Final concentrations were converted and reported in $\mu\text{g/L}$.”

The corrected sentences appear below:

“They assessed concentrations between 0.001 and 1 mM and between 0.1 and 1 mM, respectively.”

“Final concentrations were converted and reported in mg/L .”

Corrections have been made to the **Materials and Methods, Statistical Analysis**. The units of concentration for nutrients (nitrite and phosphate) were misrepresented as $\mu\text{g/L}$. The sentences previously stated:

“Two-tailed Pearson correlations measured the strength of associations between nutrients and cyanotoxins.”

“For nutrients, 11 samples (nitrite) returned non-detectable concentrations ($< 0.01 \mu\text{g/L}$).”

The corrected sentences appear below:

“Two-tailed Spearman rank correlations measured the strength and direction of associations between nutrients and cyanotoxins.”

“For nutrients, 11 samples (nitrite) returned non-detectable concentrations ($< 0.01 \text{ mg/L}$).”

Corrections have been made to **Results, Measurement and Frequency of Nitrite and Phosphate Concentration**. The sentences previously stated:

“Nitrite concentrations occurred in 49 (81.66%) samples and ranged from 0.005 to 0.845 $\mu\text{g/L}$. In Lake Manatee, nitrite concentrations largely measured at 0.13 $\mu\text{g/L}$ or 0.29 $\mu\text{g/L}$ (Figure 4). Nitrite concentrations in Lake Washington varied considerably, with three samples having a concentration of 0.19 $\mu\text{g/L}$ (Figure 5). Phosphate concentrations occurred in 60 (100 %) and ranged from 0.12 $\mu\text{g/L}$ to 0.58 $\mu\text{g/L}$. Most samples had a concentration of 0.19 $\mu\text{g/L}$, with two samples attaining a maximum concentration of 0.52 $\mu\text{g/L}$ (Figure 6).”

The corrected statements appear below:

“Nitrite concentrations occurred in 49 (81.66%) samples and ranged from 0.005 to 0.845 mg/L . In Lake Manatee, nitrite concentrations largely measured at 0.13 or 0.29 mg/L (Figure 4). Nitrite concentrations in Lake Washington varied considerably, with three samples having a concentration of 0.19 mg/L (Figure 5). Phosphate concentrations occurred in 60 (100%) and ranged from 0.12 to 0.58 mg/L . Most samples had a concentration of 0.19 mg/L , with two samples attaining a maximum concentration of 0.52 mg/L (Figure 6).”

Corrections have been made to **Results, Associations Between Nutrients and Cyanotoxins**. The sentences previously stated:

“Associations between nutrient and cyanotoxin concentrations in Lake Manatee and Lake Washington were measured by two-tailed Pearson correlations. Correlation results indicated strong associations between total MC and NODs and nutrients in the drinking water systems ($p < 0.01$). Correlation coefficients were higher for associations between nutrients and total MCs and NODs in Lake Manatee (Table 3).”

The corrected statements appear below:

“Associations between nutrient and cyanotoxin concentrations in Lake Manatee and Lake Washington were measured by

two-tailed Spearman rank correlations. Correlation results indicated no significant relationships between total MCS and NODs and nutrients in the drinking water systems ($p > 0.05$). Correlation coefficients were similar for associations between nutrients and total MCs and NODs in Lake Manatee and Lake Washington (Table 3).”

Corrections have been made to **Discussion, Paragraph 4**. The sentences previously stated:

“Strong positive associations occurred between nutrient and cyanotoxin concentrations in each lake, suggesting increased nitrite and phosphate concentrations influence increased total MC and NOD concentrations. The observed associations supported multiple studies on nutrients and cyanobacterial growth (Smith et al., 2006; Dodds et al., 2009; Paerl et al., 2011; O’Neil et al., 2012). Total phosphorus demonstrated a weak relationship with MC concentrations in the Harris Chain of Lakes in Florida (Bigham et al., 2009), contradictory of the observed relationship between soluble phosphorus and total MCs and NODs in Lake Manatee and Lake Washington.”

The corrected statements appear below:

“No significant associations occurred between nutrient and cyanotoxin concentrations in each lake, suggesting nutrient availability alone may not directly influence total MCs and NODs during the sampling period. The observed associations differed from multiple studies on nutrients and cyanobacterial growth (Smith et al., 2006; Dodds et al., 2009; Paerl et al., 2011; O’Neil et al., 2012). Total phosphorus demonstrated a weak relationship with MC concentrations in the Harris Chain of Lakes in Florida (Bigham et al., 2009), which is consistent with the weak relationship observed between phosphate and total MCs and NODs in Lake Manatee and Lake Washington.”

In the published article, there was an error in the units of concentration in Figures 4, 5, and 6 as published. In addition, the presentation of Figure 5 was representative of phosphate as opposed to nitrite. The corrected Figures 4, 5, and 6 are presented below.

There was an error in the presentation of results in Table 3. These originally stated r 0.955 and 0.986, N 24 and 30, and $p < 0.01$ and < 0.01 for nitrite and phosphate, respectively, in Lake Manatee, and r 0.876 and 0.988, N 25 and 30, and $p < 0.01$ and < 0.01 for nitrite and phosphate, respectively, in Lake Washington.

The corrected Table 3 appears below.

In the published article, there was an error in Supplementary Table 3. The units of concentration were missing, as well as the nutrient concentration levels for Sample ID 30 in Lake Manatee and Lake Washington. The correct material statement appears below.

The original article has been updated.

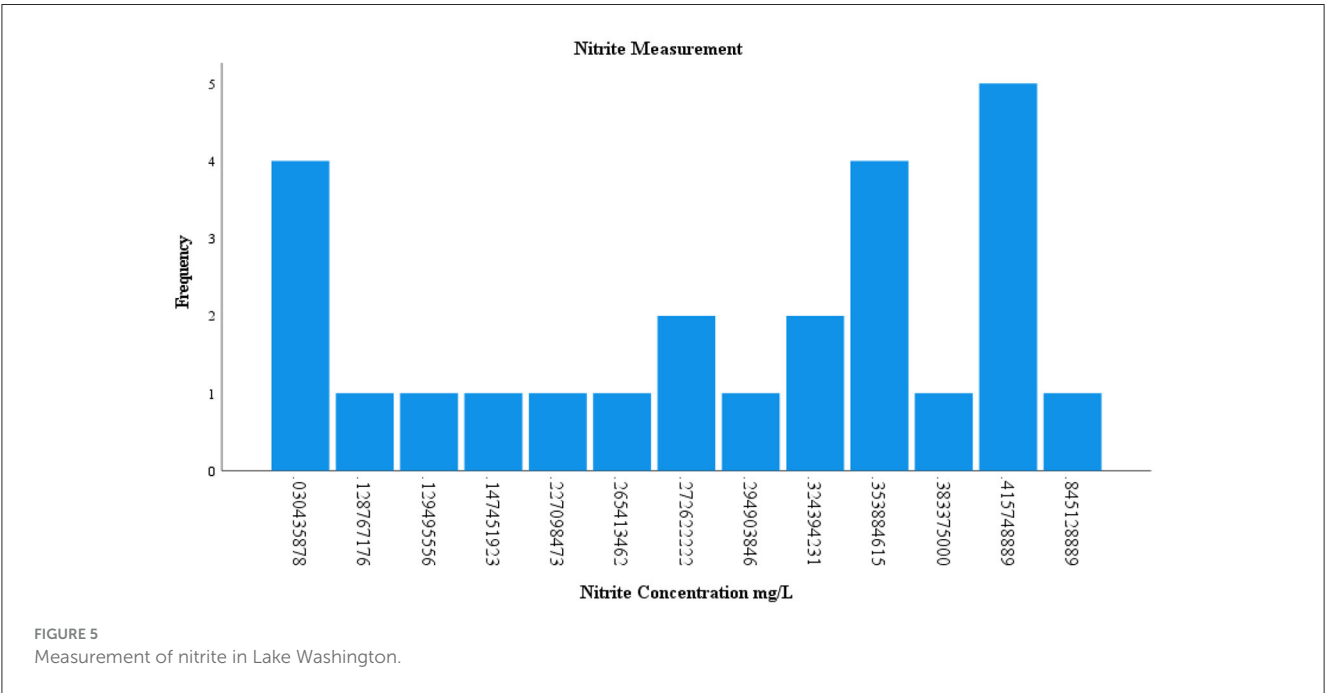
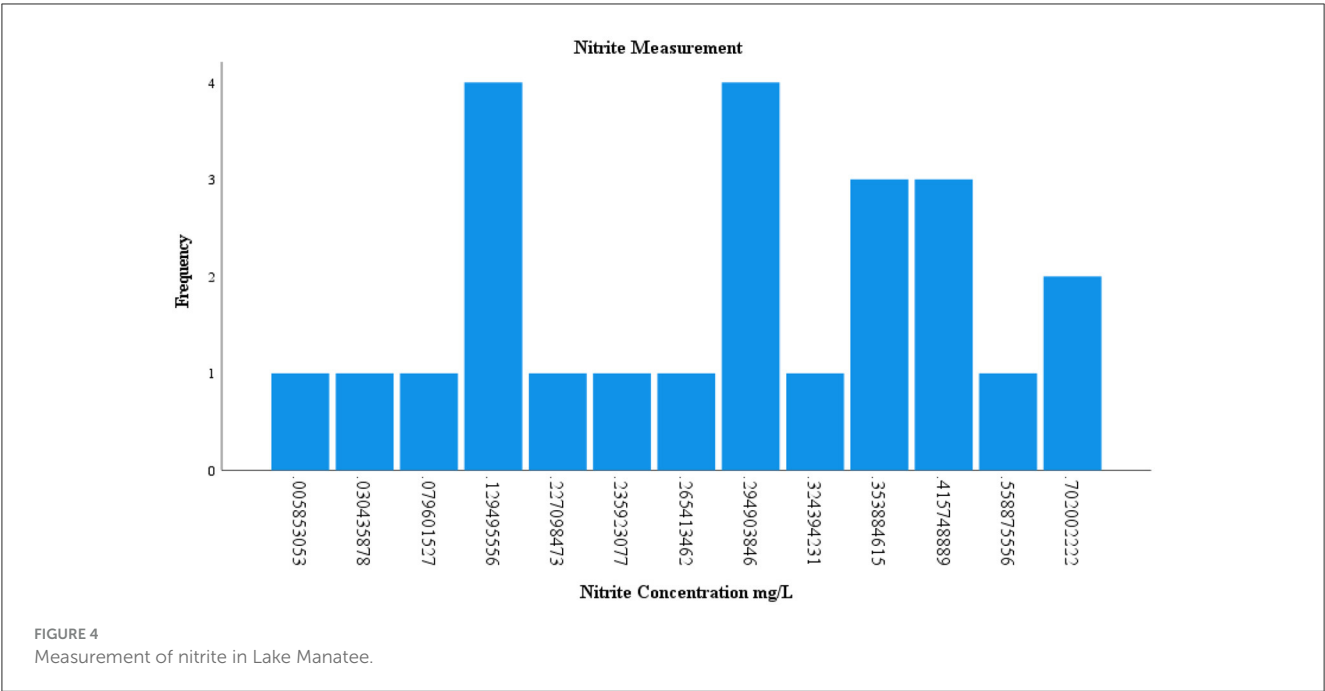
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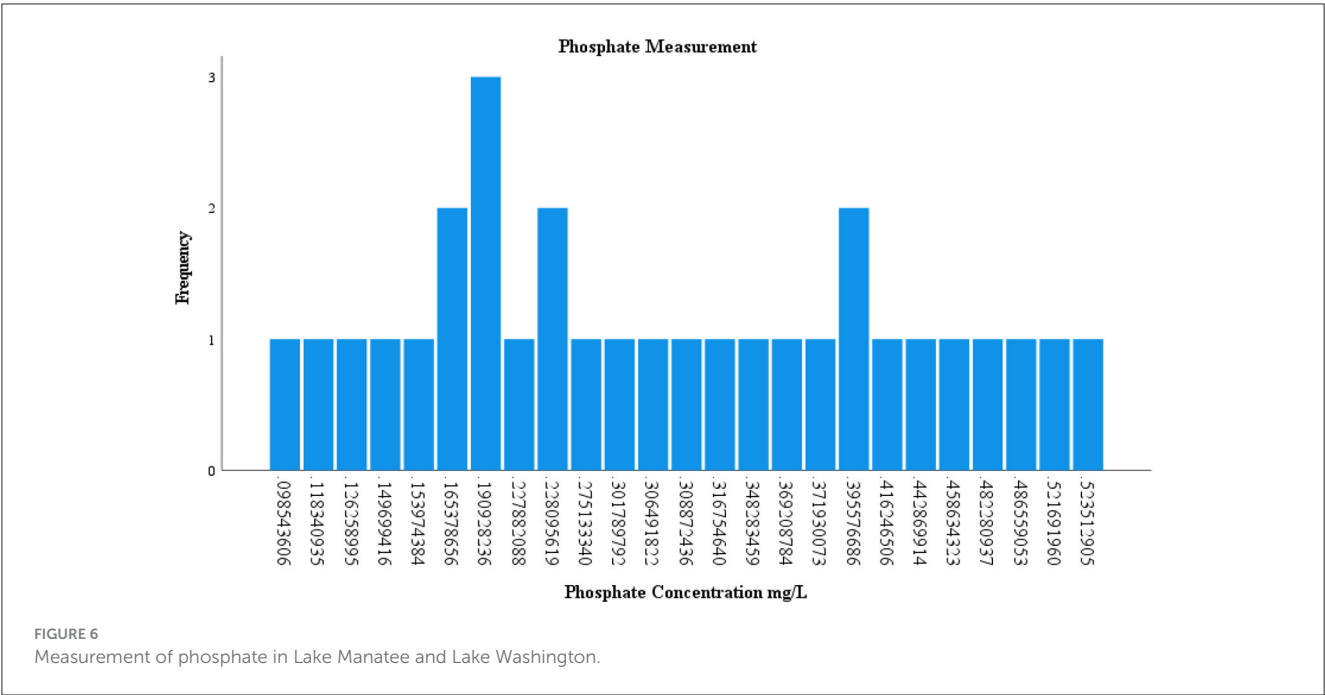


TABLE 3 Correlation coefficients for nutrients and total microcystins and nodularins.

	Statistic	Nitrite	Phosphate
Lake Manatee	<i>r</i>	0.034	−0.309
Total microcystins and nodularins	<i>N</i>	23	29
	<i>p</i>	0.877	0.102
Lake Washington	<i>r</i>	−0.028	−0.129
Total microcystins and nodularins	<i>N</i>	24	29
	<i>p</i>	0.898	0.504

SUPPLEMENTARY TABLE 3 Concentrations of nitrite and phosphate in environmental samples from Lake Manatee and Lake Washington.

Sample ID	Nitrite (mg/L)	Phosphate (mg/L)	Sample ID	Nitrite (mg/L)	Phosphate (mg/L)
LM1	0.227098473	0.523512905	LW1	0.030435878	0.523512905
LM2	0.079601527	0.486559053	LW2	0.030435878	0.486559053
LM3	0.030435878	0.153974384	LW3	0.030435878	0.153974384
LM4	0.005853053	0.301789792	LW4	0.030435878	0.301789792
LM5	0.353884615	0.227882088	LW5	0.128767176	0.227882088
LM6	0.235923077	0.098543606	LW6	0.227098473	0.098543606
LM7	0.353884615	0.190928236	LW7	0.324394231	0.190928236
LM8	0.324394231	0.190928236	LW8	0.353884615	0.190928236
LM9	0.294903846	0.190928236	LW9	0.294903846	0.190928236
LM10	0.353884615	0.126258995	LW10	0.265413462	0.126258995
LM11	0.294903846	0.118340935	LW11	0.324394231	0.118340935
LM12	0.294903846	0.165378656	LW12	0.353884615	0.165378656
LM13	0.265413462	0.149699416	LW13	0.353884615	0.149699416
LM14	0.294903846	0.165378656	LW14	0.383375	0.165378656
LM15	0.558875556	0.27513334	LW15	0.147451923	0.27513334
LM16	0.702002222	0.228095619	LW16	0.353884615	0.228095619
LM17	0.415748889	0.228095619	LW17	0.415748889	0.228095619
LM18	0.415748889	0.416246506	LW18	0.415748889	0.416246506
LM19	0.129495556	0.369208784	LW19	0.845128889	0.369208784
LM20	0.129495556	0.306491822	LW20	0.272622222	0.306491822
LM21	0.129495556	0.458634323	LW21	0.415748889	0.458634323
LM22	0.415748889	0.348283459	LW22	0.129495556	0.348283459
LM23	0.129495556	0.395576686	LW23	0.272622222	0.395576686
LM24	0.702002222	0.371930073	LW24	0.415748889	0.371930073
LM25	<0.01	0.52169196	LW25	0.415748889	0.52169196
LM26	<0.01	0.31675464	LW26	<0.01	0.31675464
LM27	<0.01	0.482280937	LW27	<0.01	0.482280937
LM28	<0.01	0.395576686	LW28	<0.01	0.395576686
LM29	<0.01	0.442869914	LW29	<0.01	0.442869914
LM30	<0.01	0.308872436	LW30	<0.01	0.308872436