Micronutrient Addition Reduces Macronutrients and Cyanobacteria in Raw Water Storage

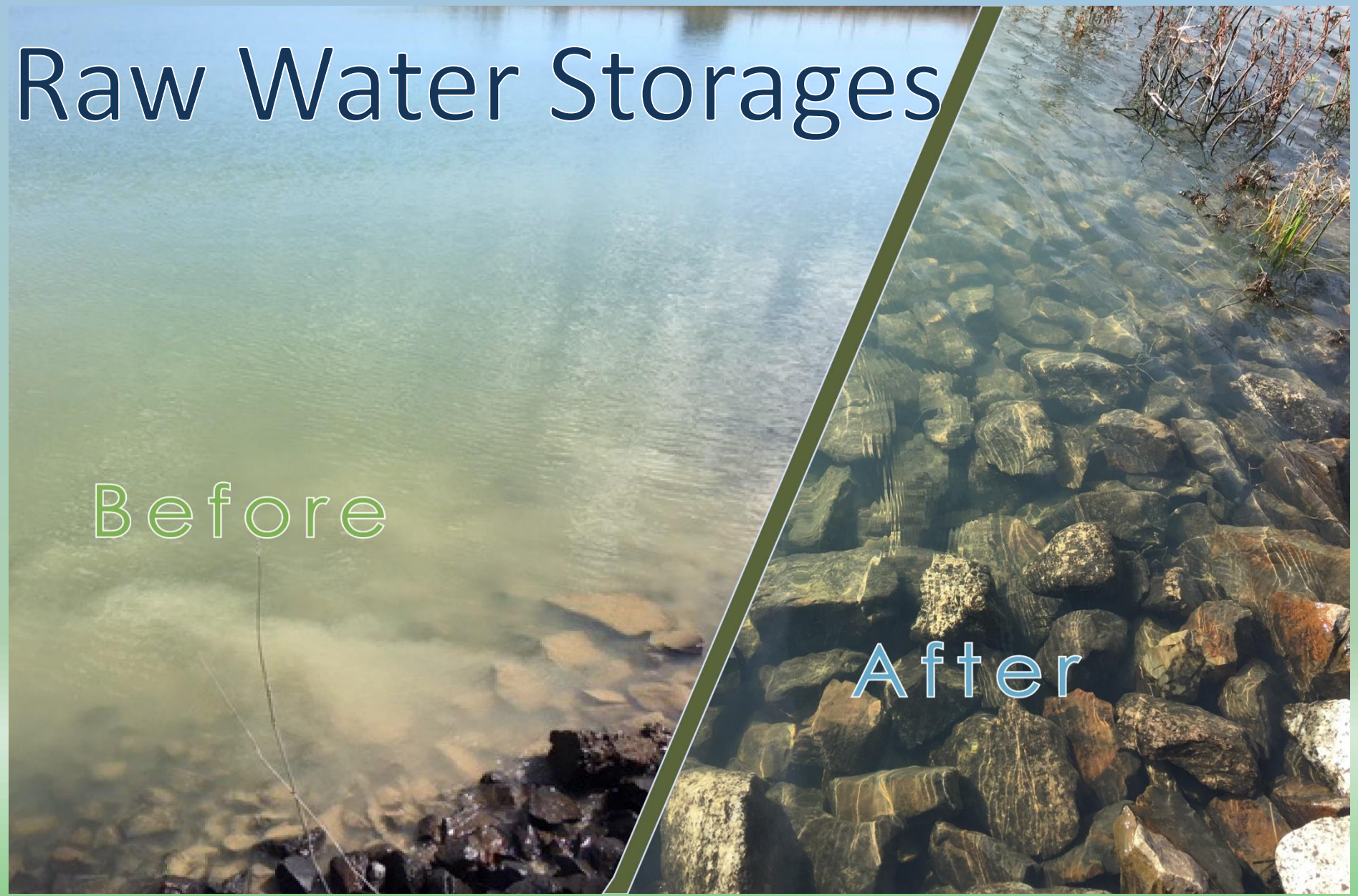
AlgaEnviro

AlgaEnviro

- Company started in 2015
- 6 water quality improvement products
- Supply to councils, utilities, aquaculture, farmers, gardeners, mines
- Treating raw-, waste- and stormwater, fish and prawn ponds, wetlands, remediation
- Supply throughout Australia, New Zealand, USA and Philippines

Reducing Nutrients in Aquaculture

Eliminate Blue-Green Algae Blooms



Cost-Effective, Sustainable Control

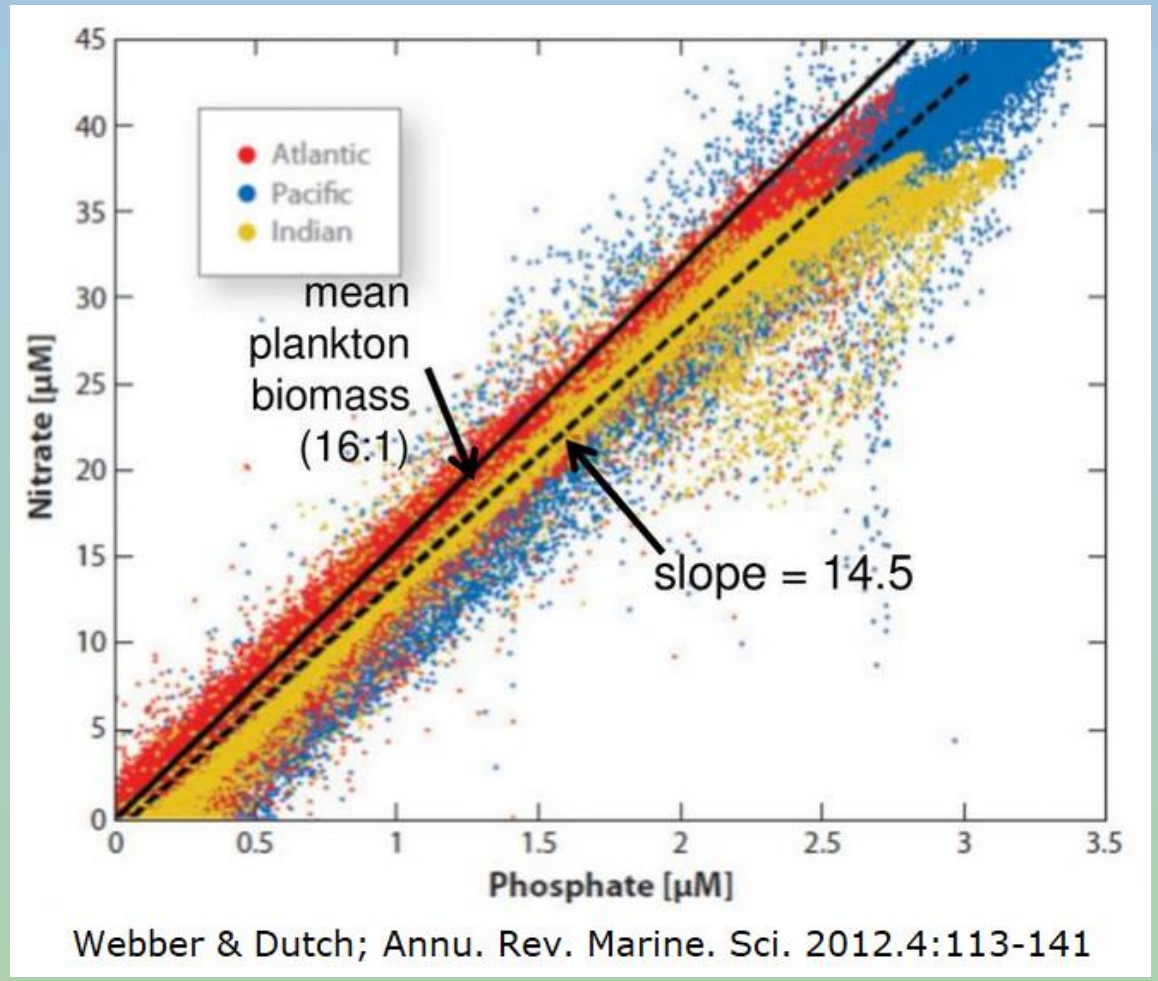
Eliminate Blue-Green Algae Blooms

It is all about the correct balance

There is a ratio between nitrogen, phosphorus, iron and other nutrients in water and in living organisms.

The Redfield ratio is approximately:

N:P:Fe = 16,000 : 1,000 : 1



Webber & Dutch; Annu. Rev. Marine. Sci. 2012.4:113-141

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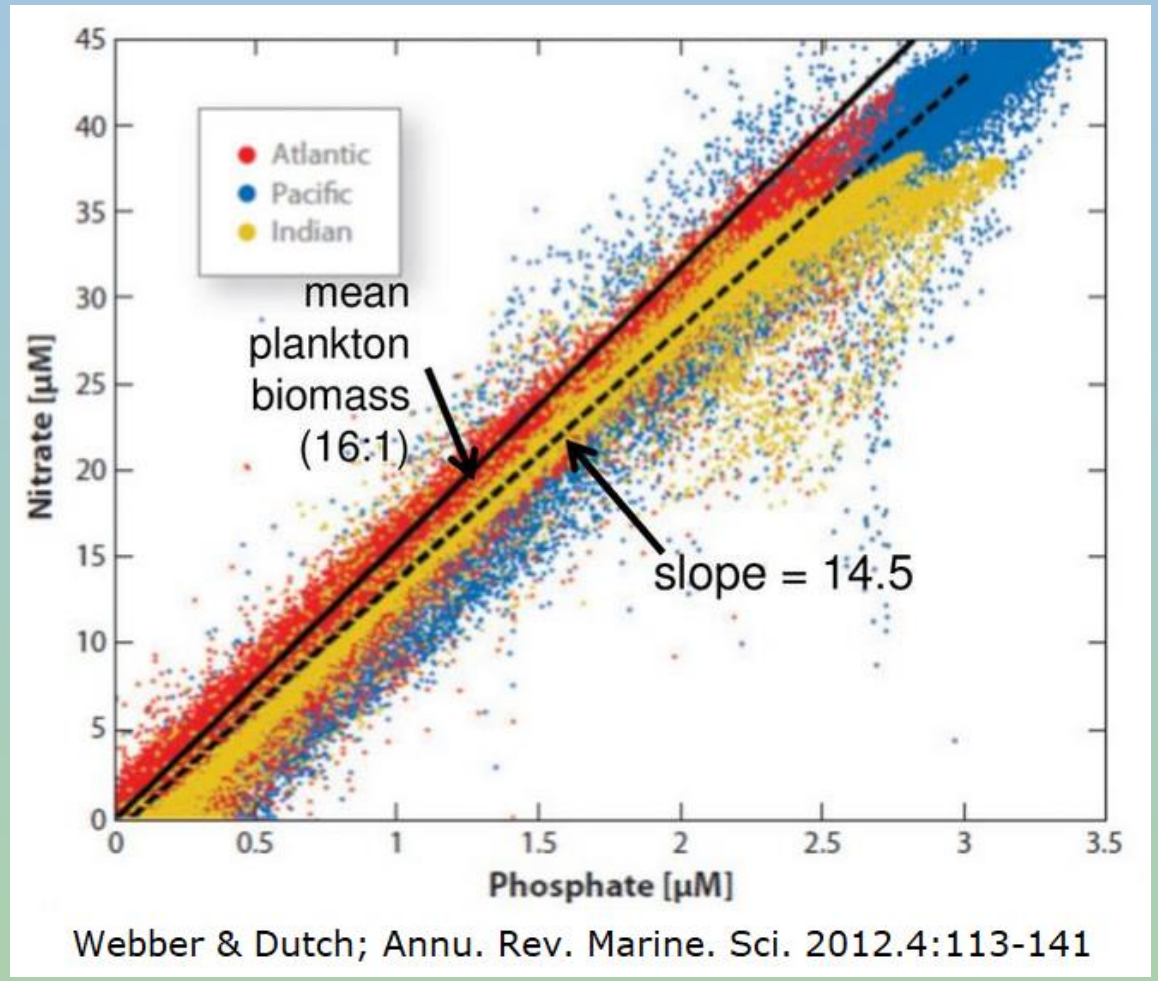
In a Polluted/Eutrophic waterbody:

N:P:Fe = 16,000,000 : 1,000,000 : 1



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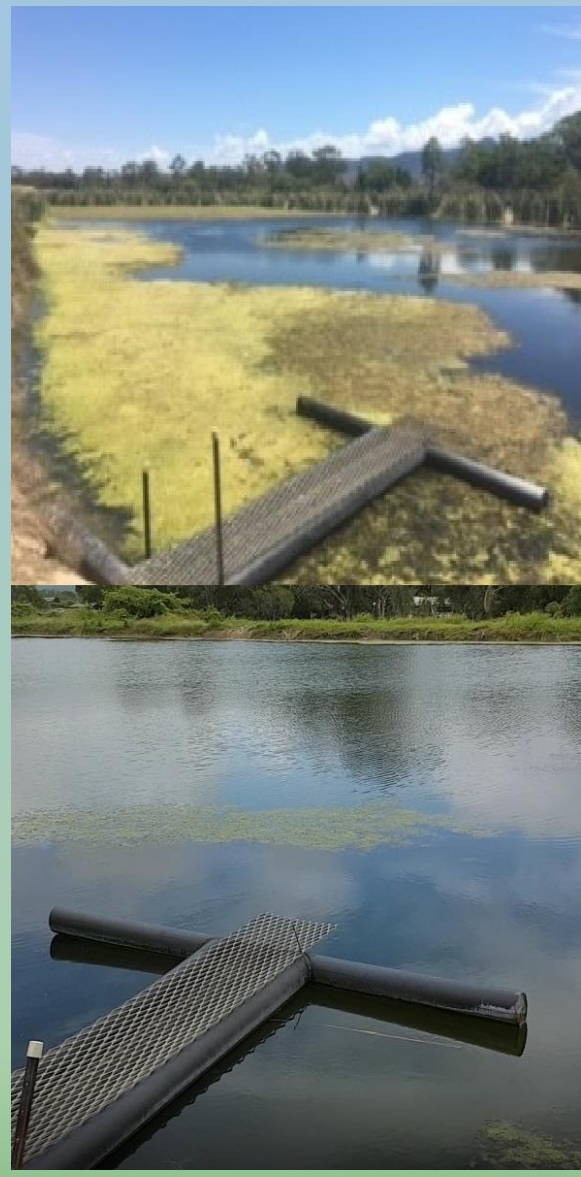
Targeted Micronutrient Addition

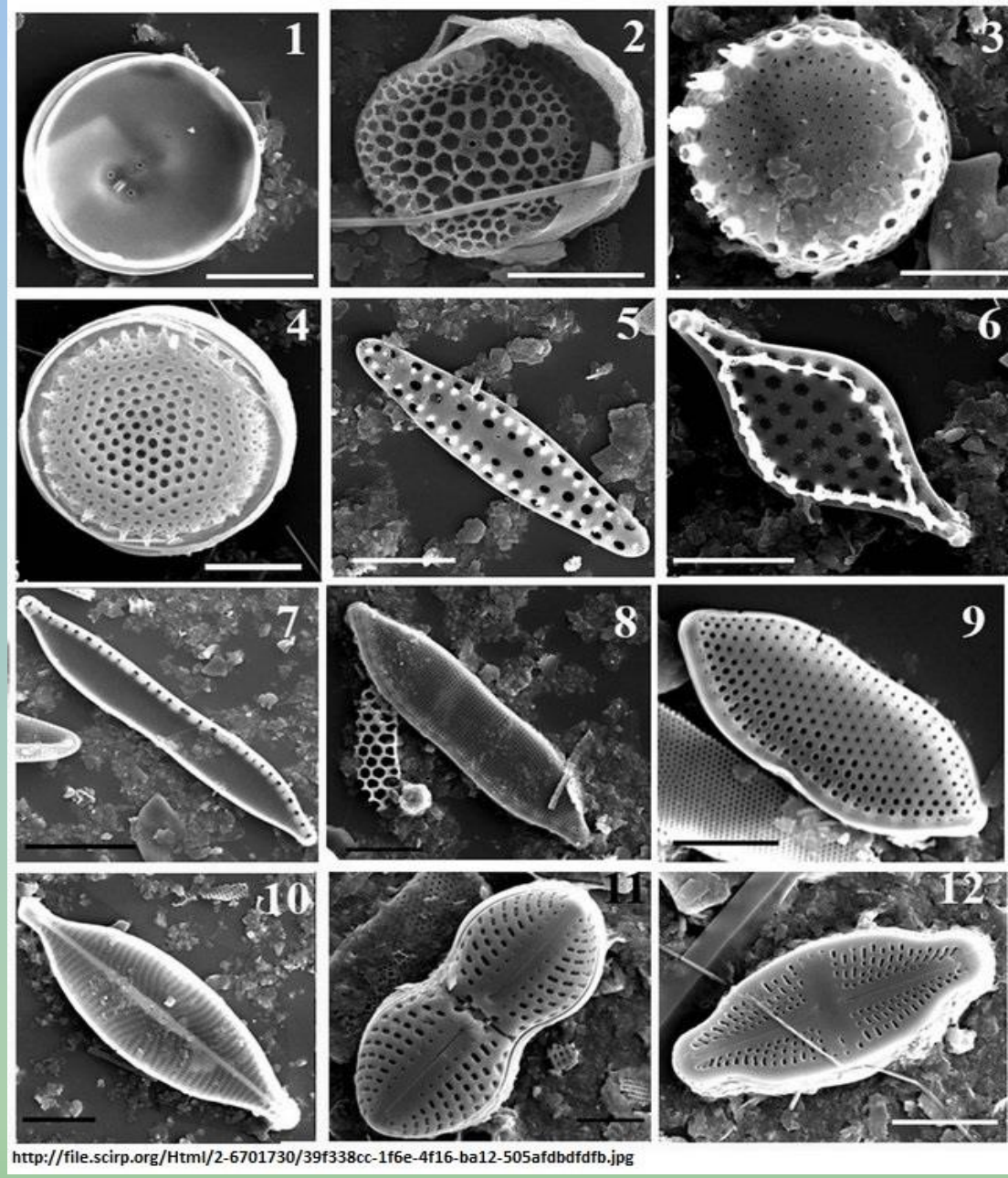
Diatomix™ is a liquid that contains silica compounds embedded with ten micronutrients that are only bio-available to the naturally occurring diatom algae in the waterbody.

- Iron
- Manganese
- Cobalt
- Molybdenum
- Calcium
- Boron
- Copper
- Magnesium
- Zinc
- Potassium



What are diatoms?

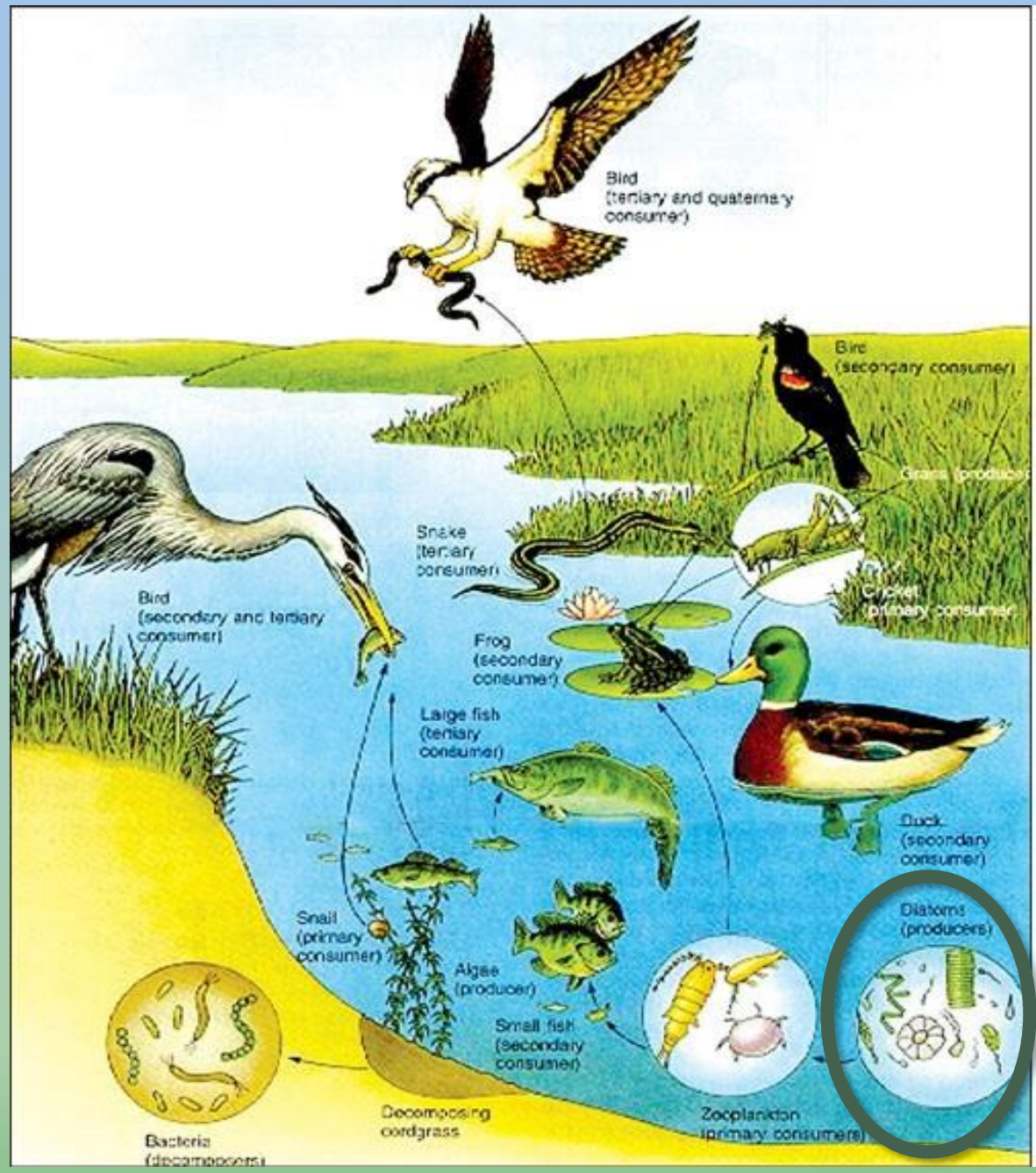
Diatoms are a diverse group of algae, one of the most common types of organism found in soils, oceans, lakes and freshwater ecosystems.



http://file.scirp.org/Html/2-6701730/39f338cc-1f6e-4f16-ba12-505afdbdfdfb.jpg

Why target diatoms?

Diatoms are a microscopic algae that make up a large proportion of the first step in the food chain for higher trophic levels e.g. zooplankton, insects, snails, fish, birds.



Raw Water Dam – 40 Hectares

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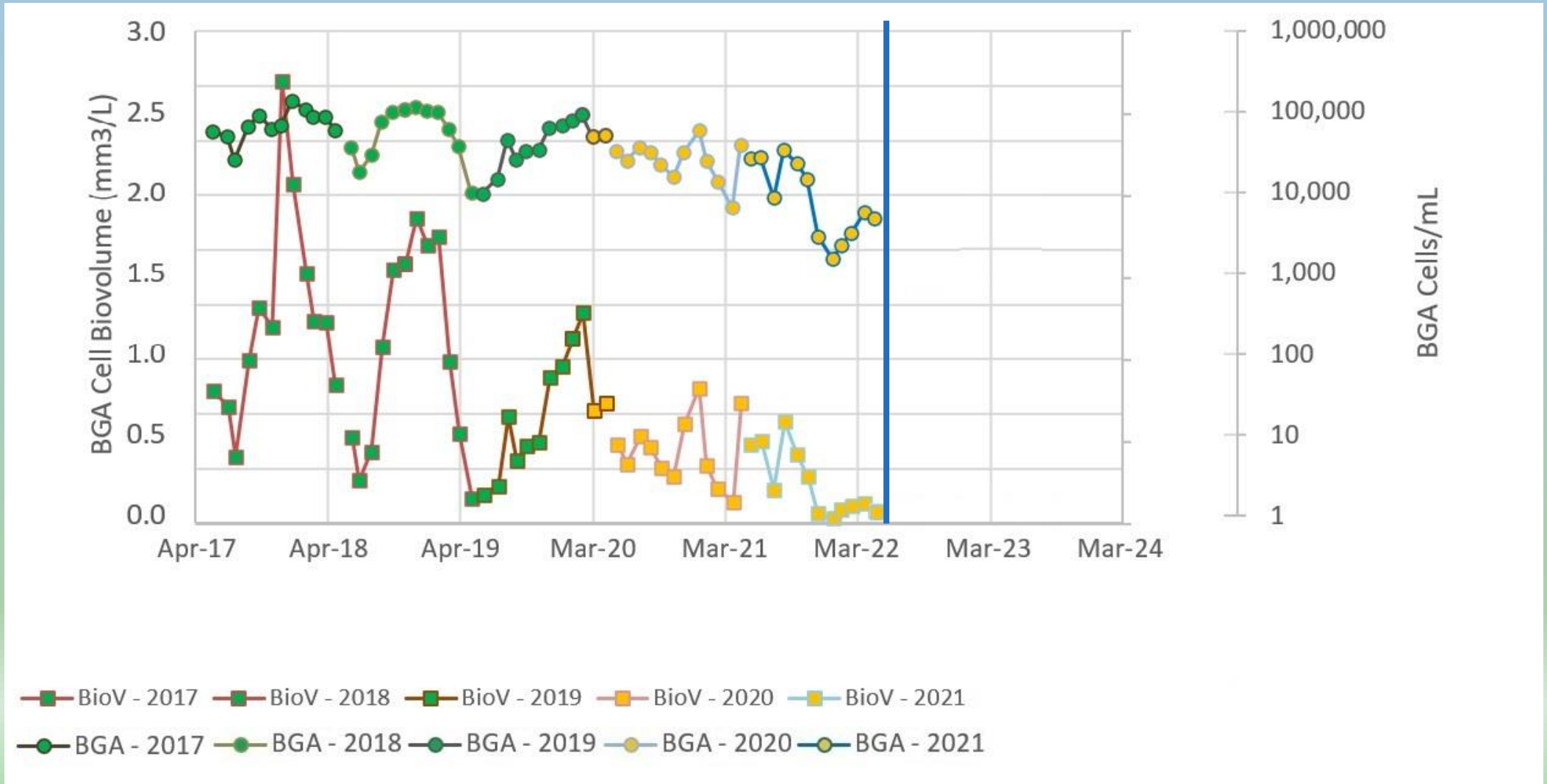

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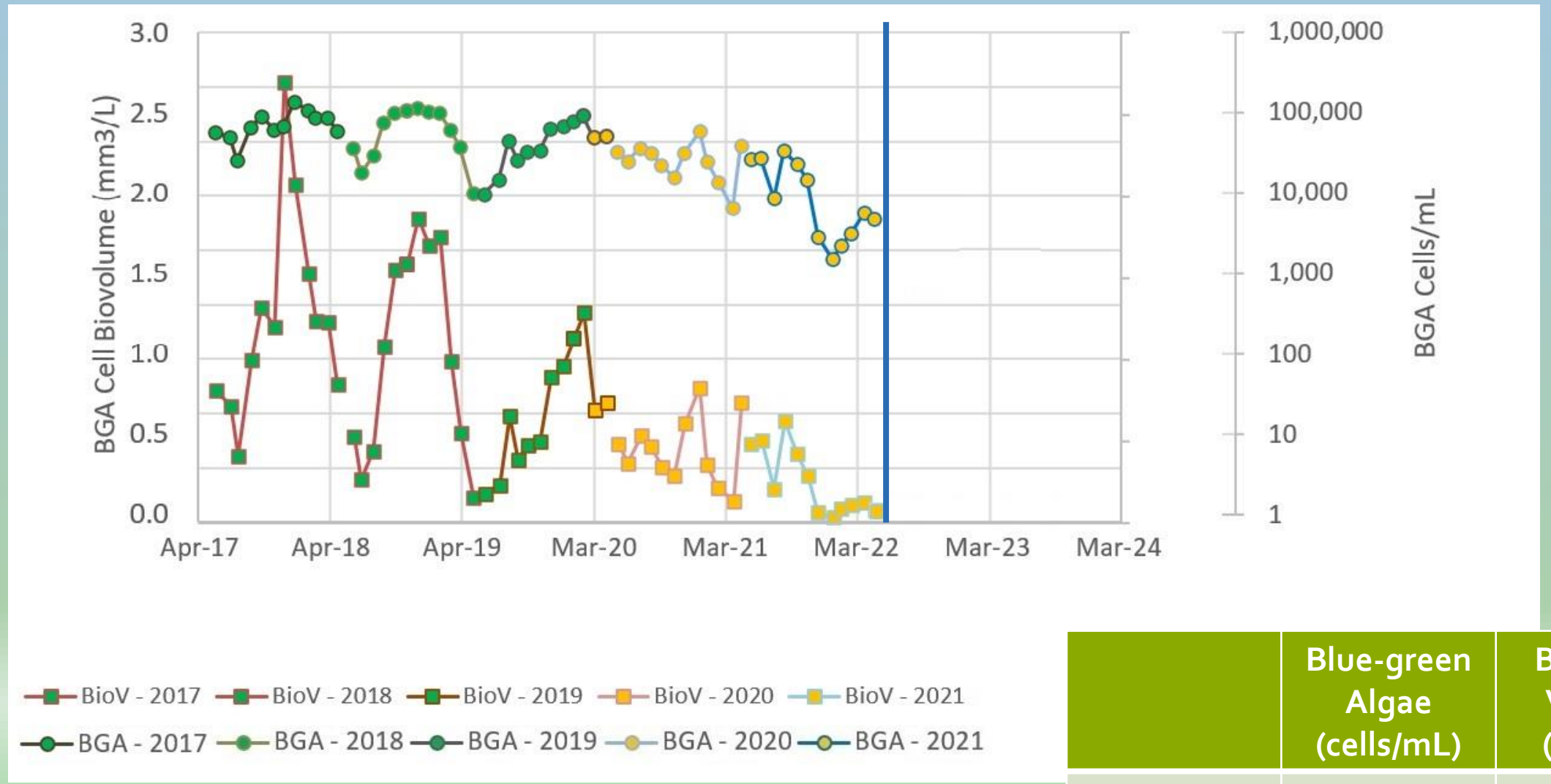

	Blue-green Algae (cells/mL)	BGA Bio-Volume (mm^3/L)
Pre vs. Txt % change	95% ↓	92% ↓

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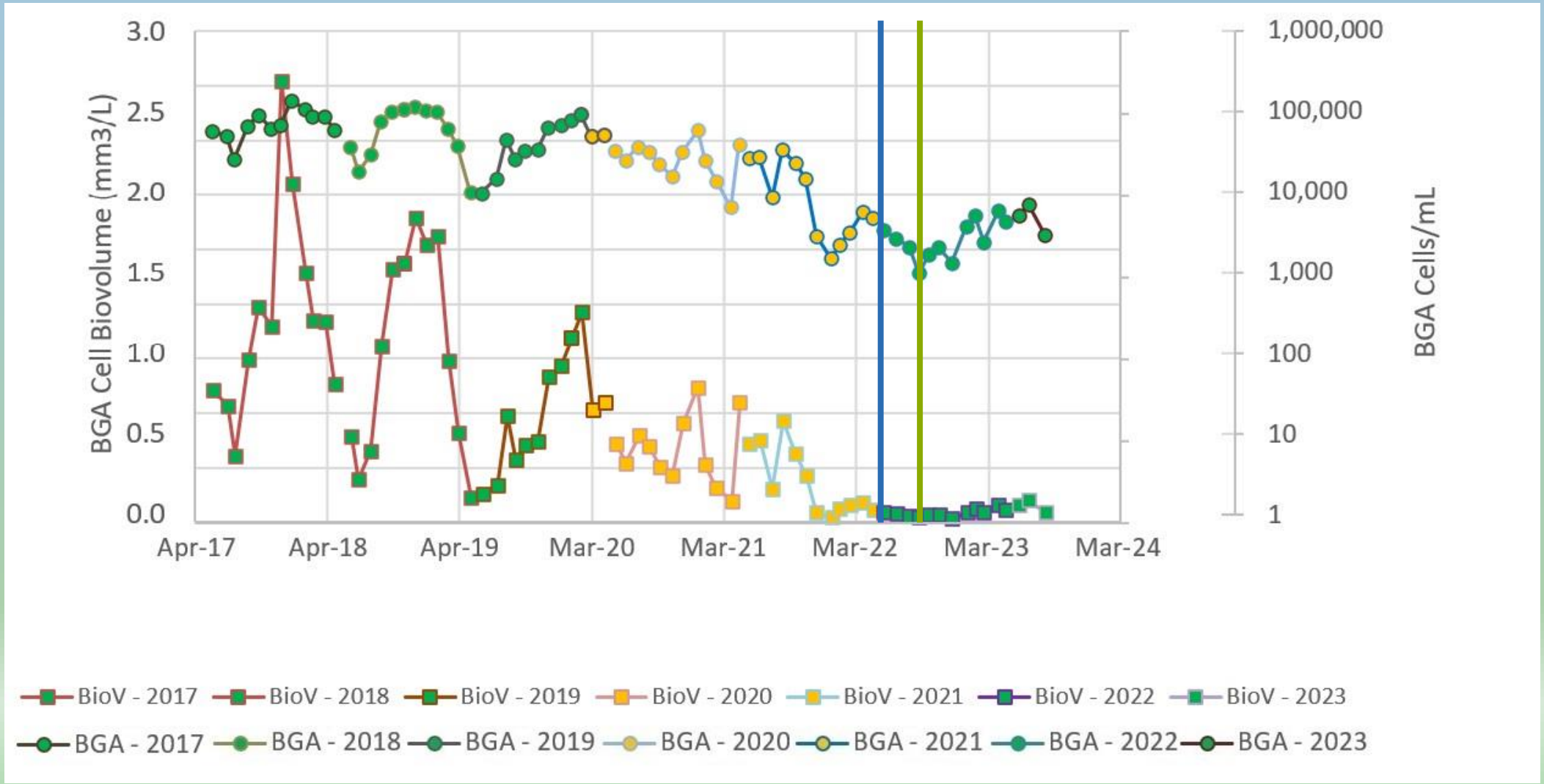

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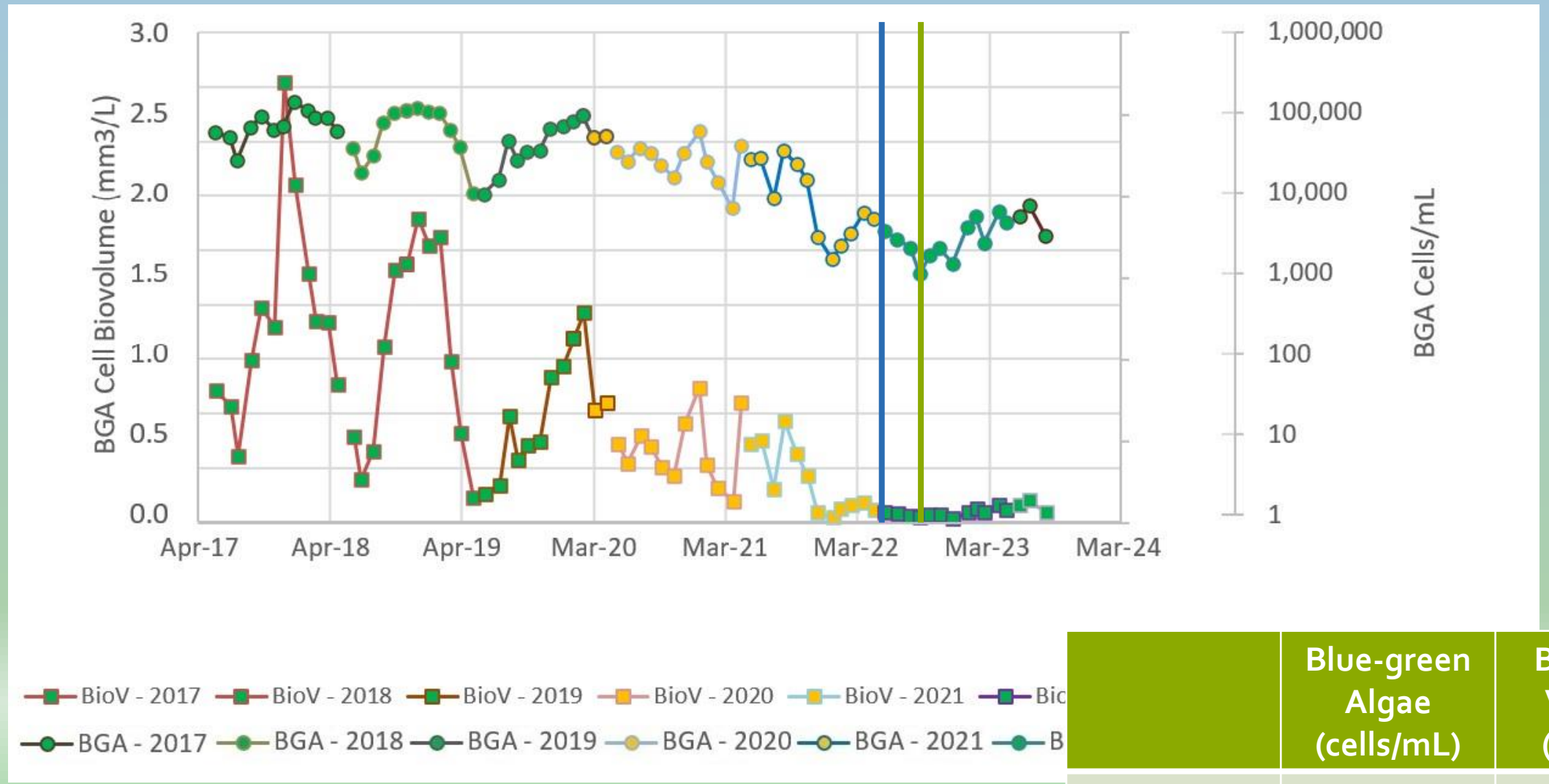

	Blue-green Algae (cells/mL)	BGA Bio-Volume (mm^3/L)
Txt vs. Post % change	62% ↑	24% ↑

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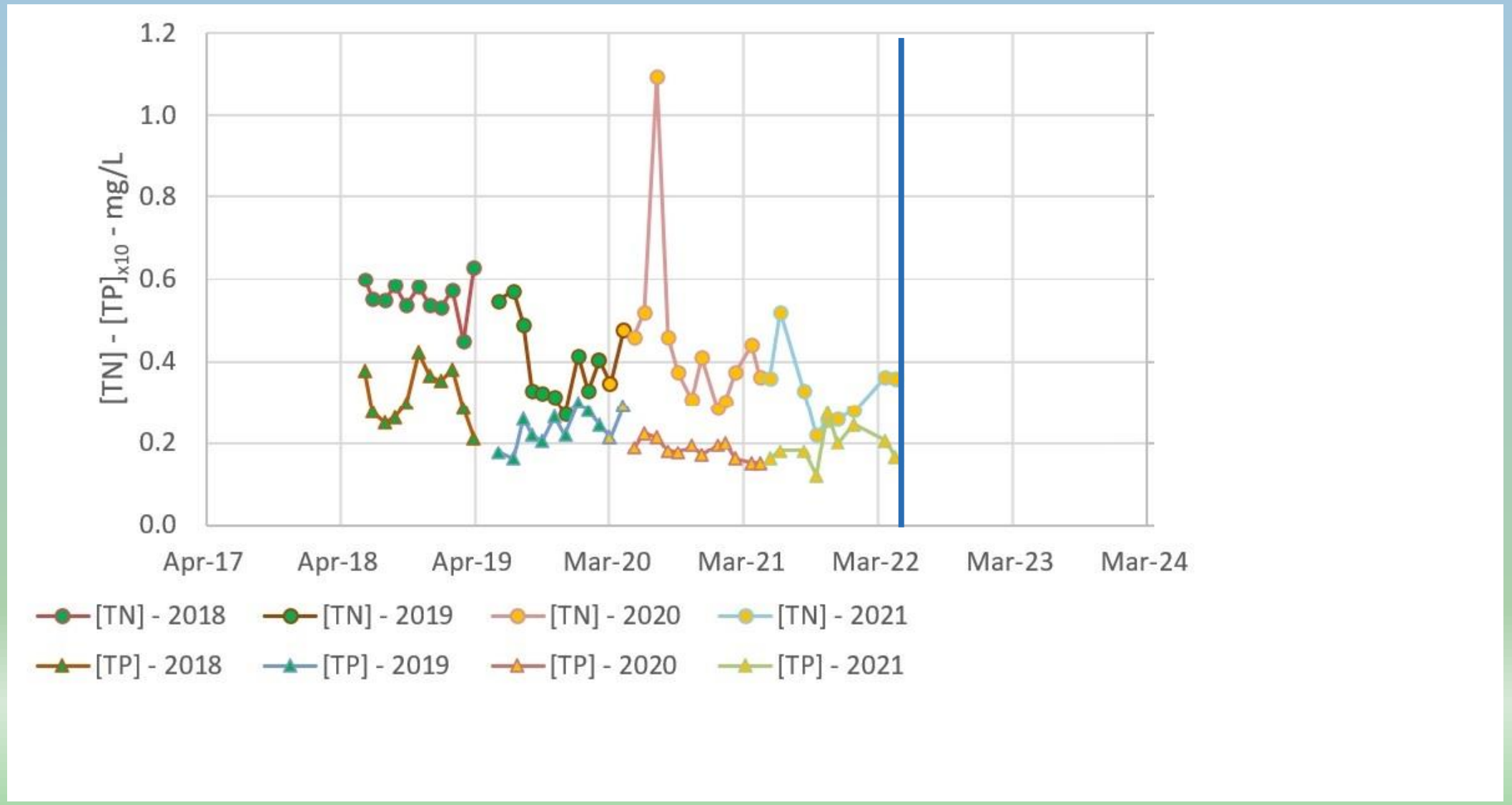

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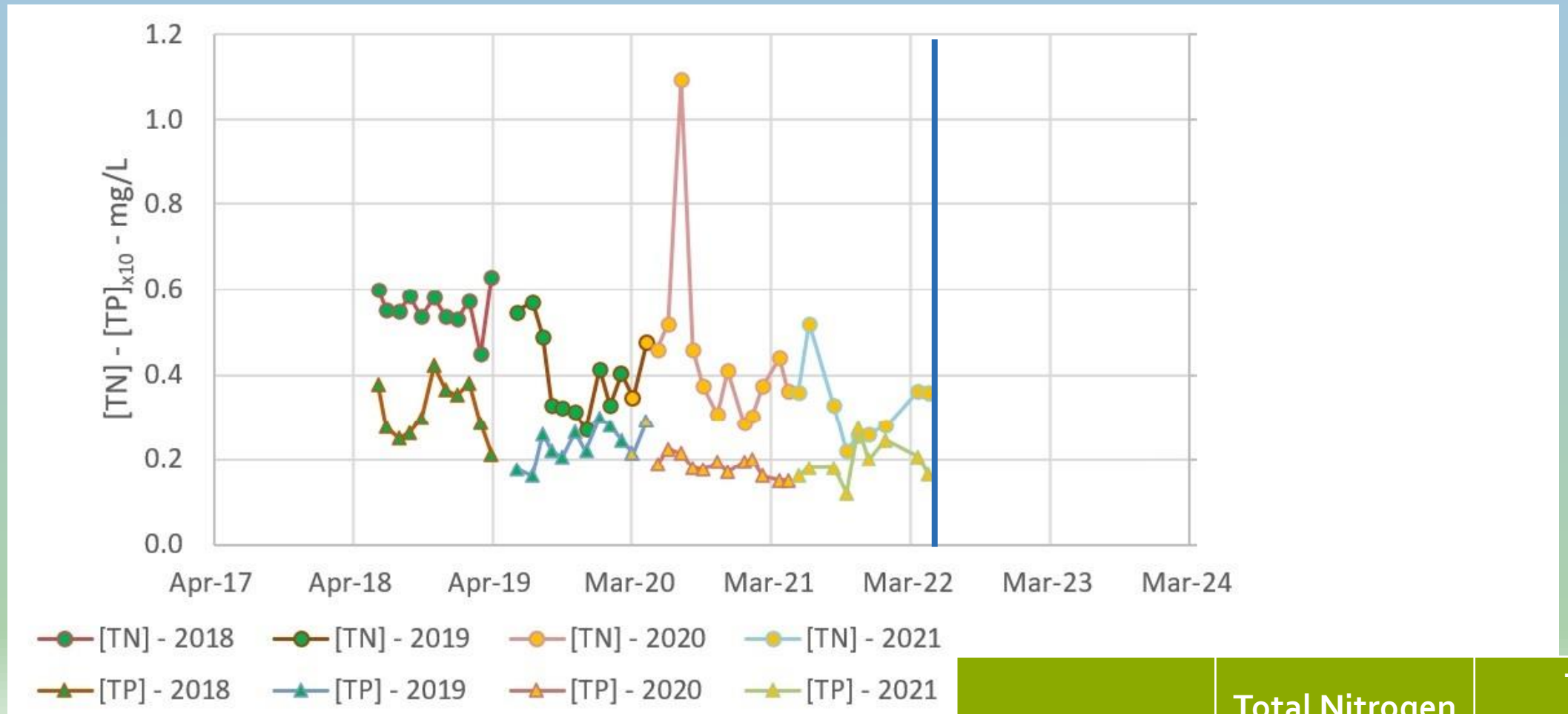

	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
Pre vs. Txt % change	44% ↓	45% ↓

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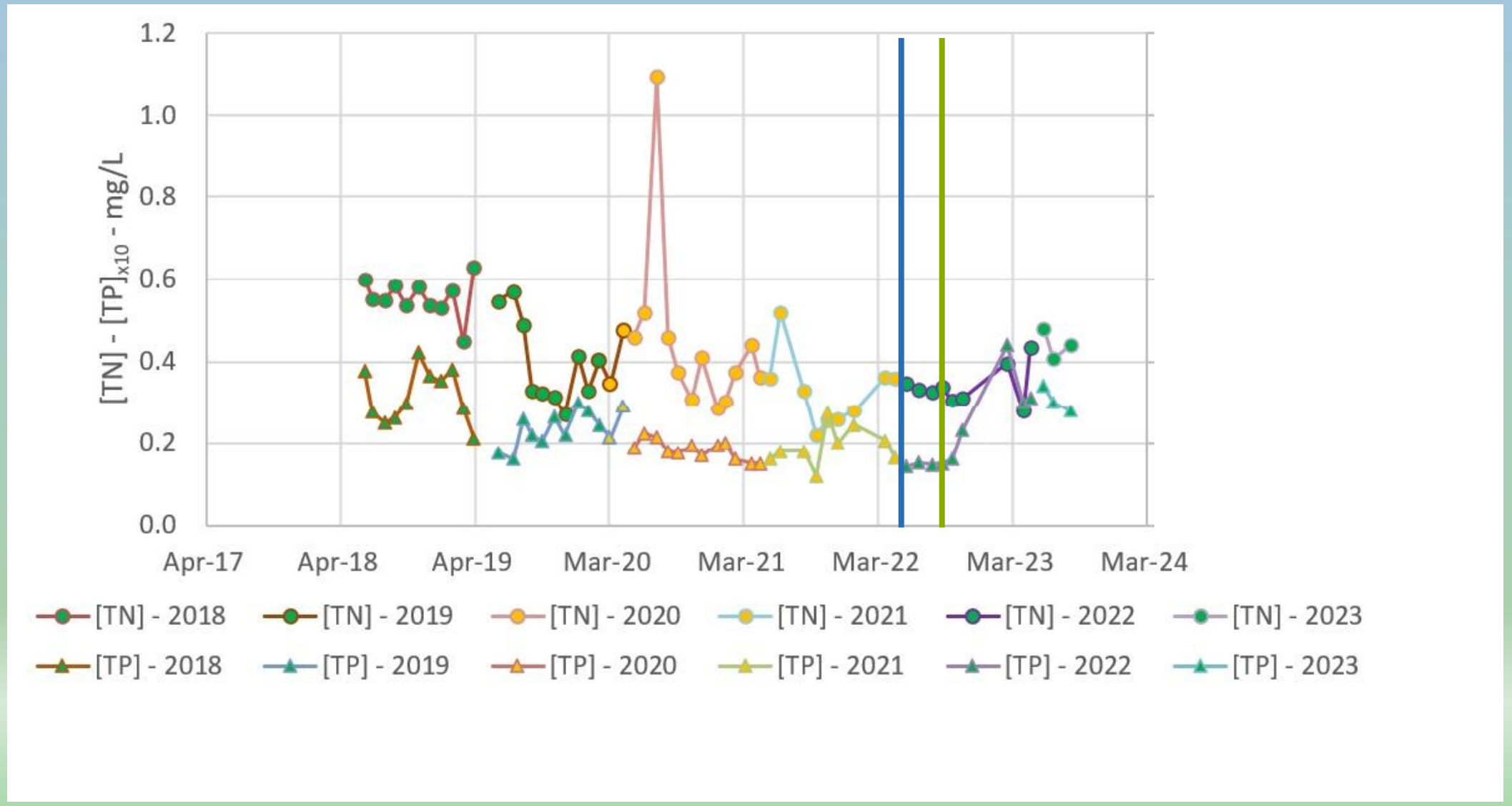

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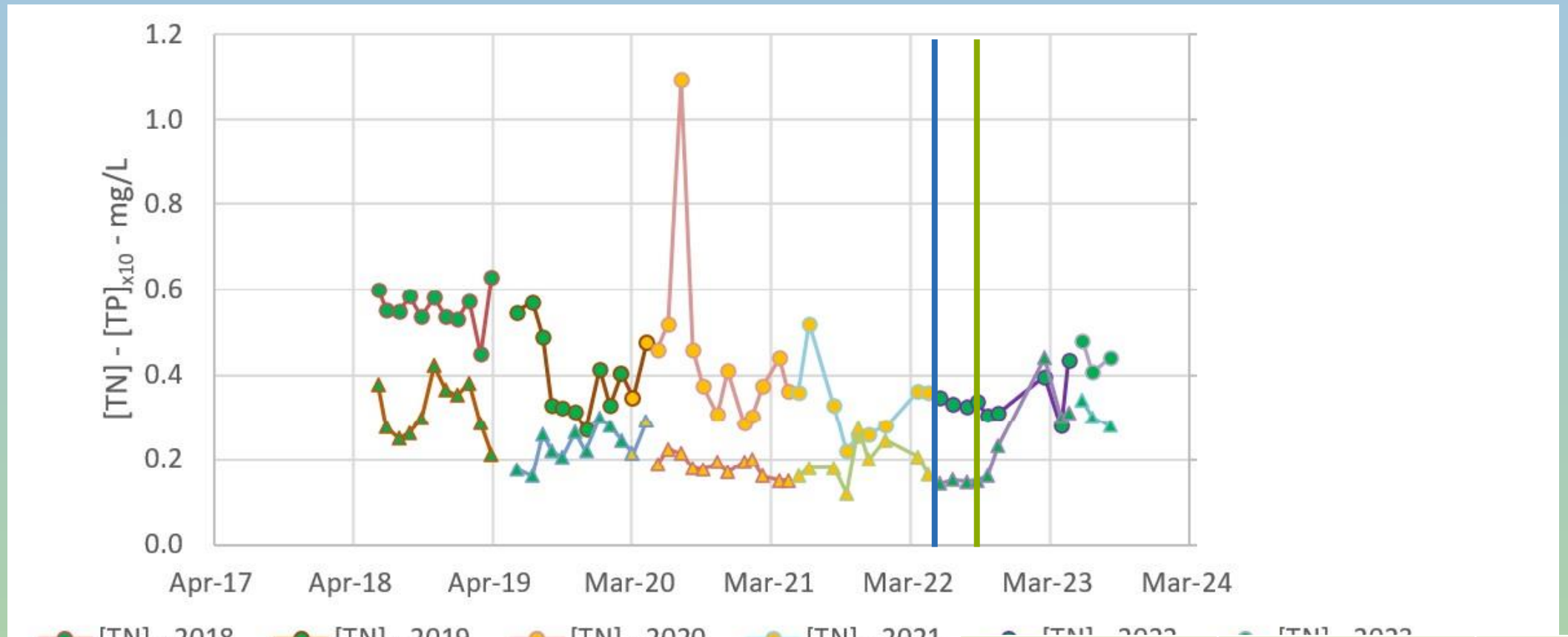

	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
Txt vs. Post % change	47% ↑	89% ↑

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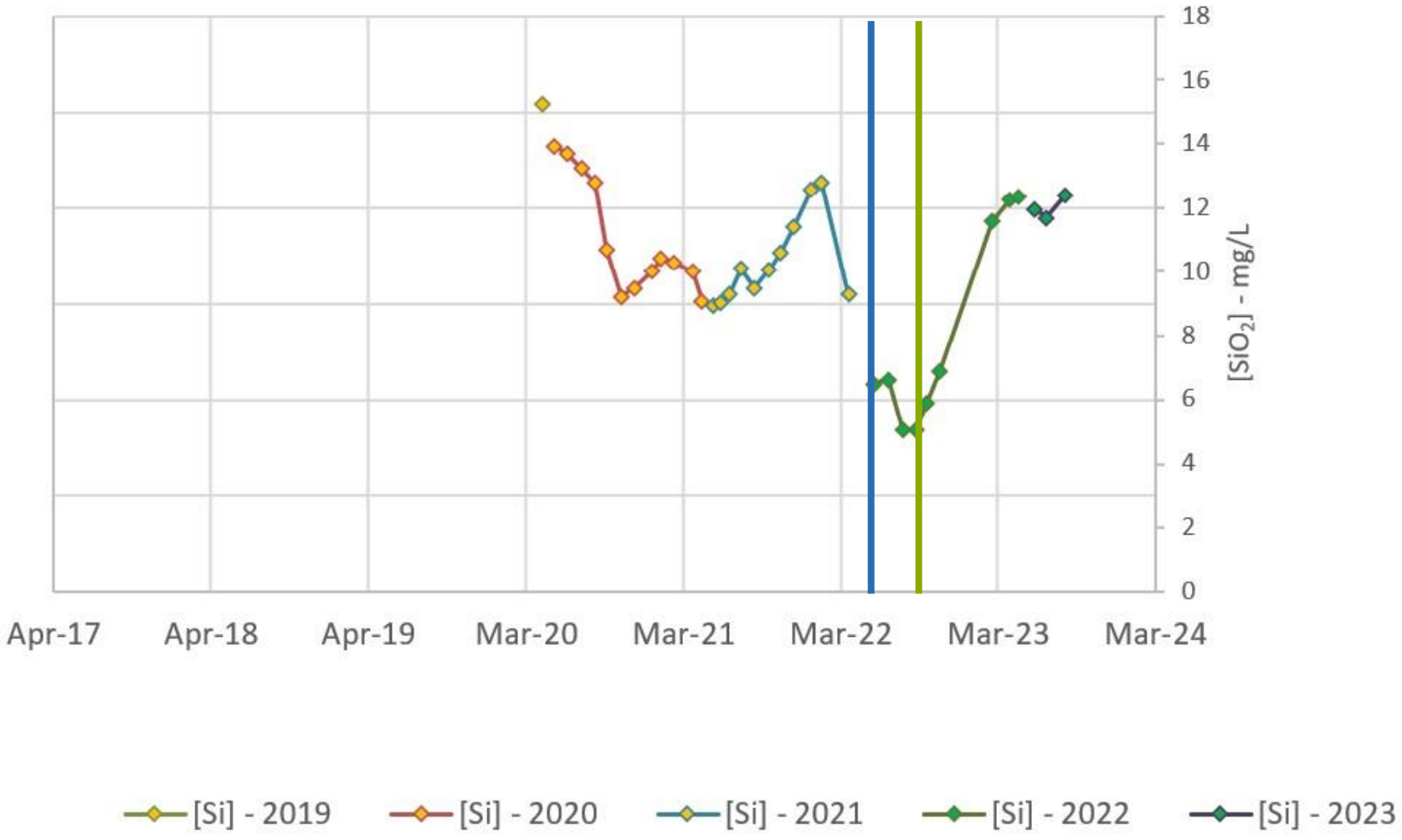

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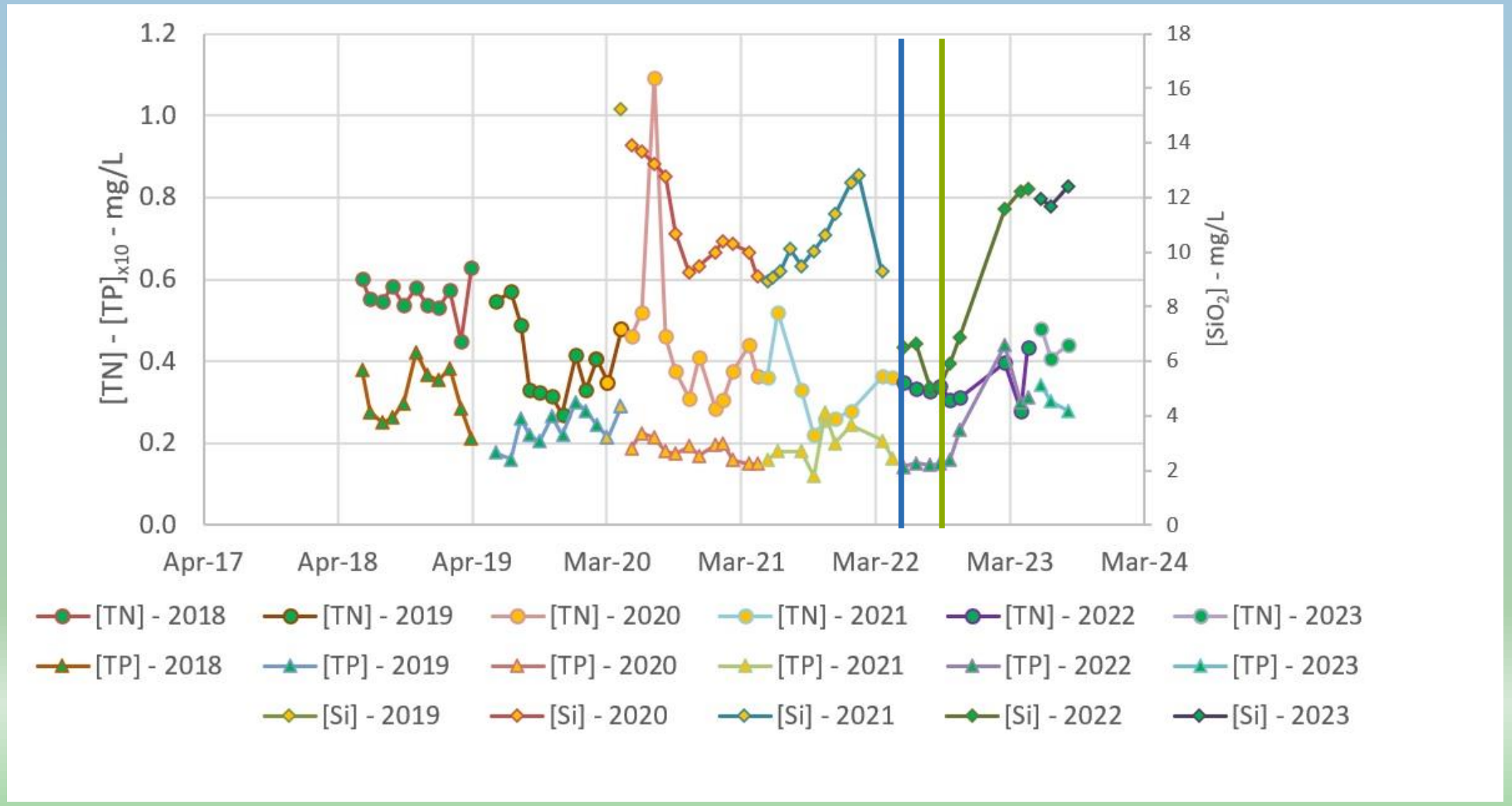

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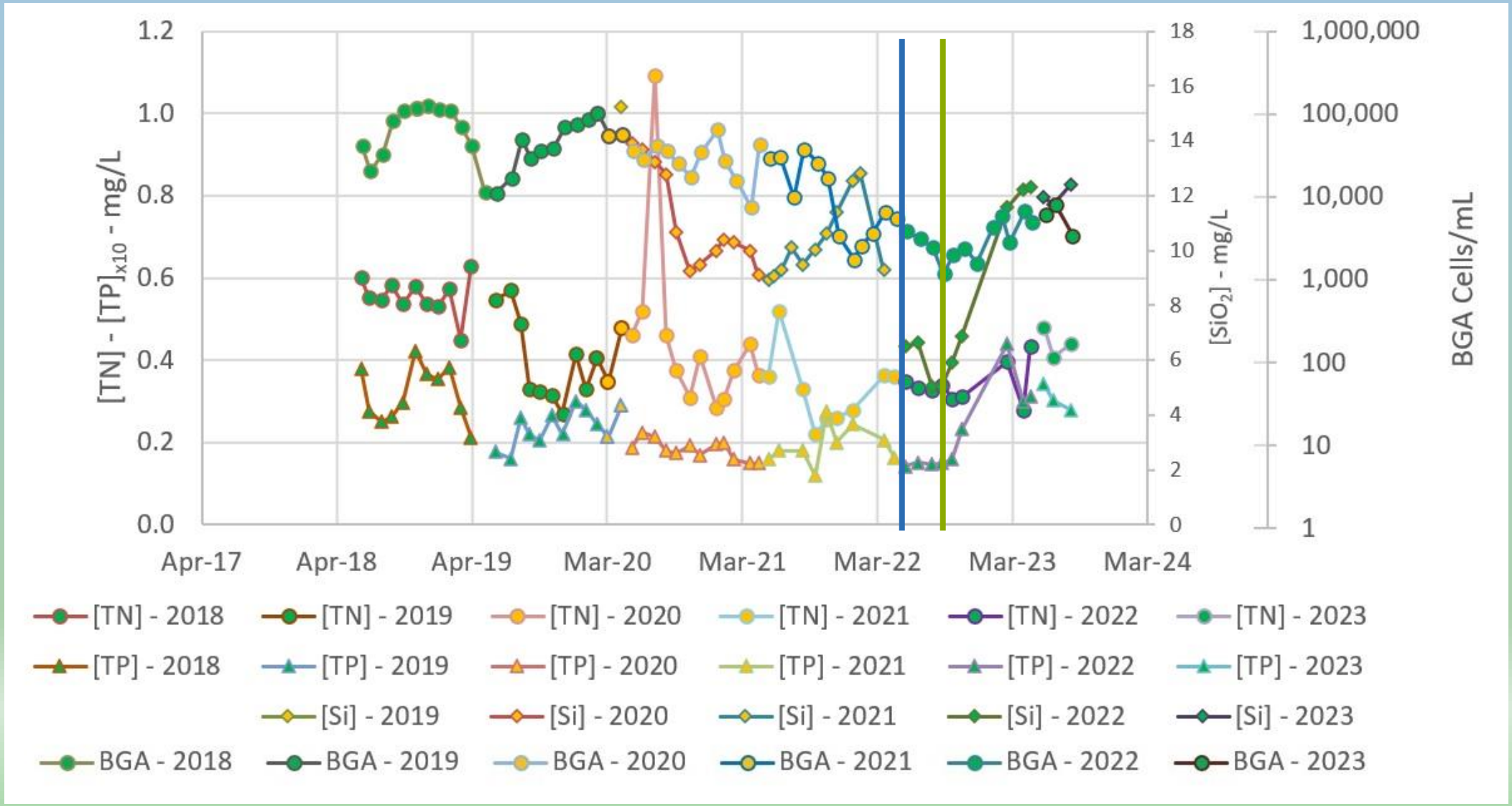

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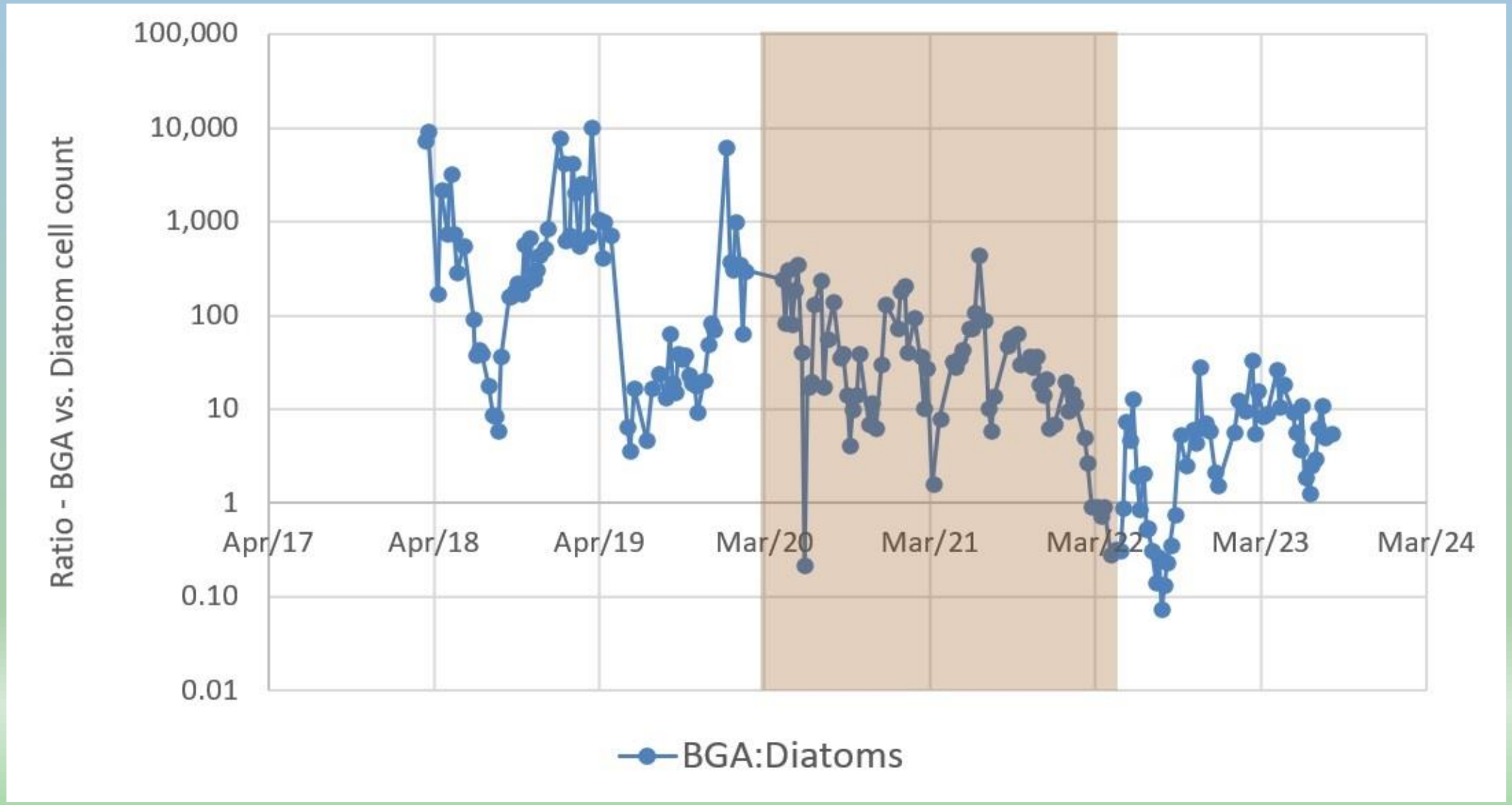

Raw Water Dam – 40 Hectares

	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Blue-green Algae (cells/mL)	BGA Bio-Volume (mm^3/L)
Pre-Treatment Average	0.54	0.029	65,217	1.493
Treatment Average	0.30	0.016	3,435	0.123
Post-Treatment Average	0.44	0.031	5,562	0.152
Pre vs. Txt % change	44% ↓	45% ↓	95% ↓	92% ↓
Txt vs. Post % change	47% ↑	89% ↑	62% ↑	24% ↑

Site Data Required by AlgaEnviro

For AlgaEnviro to determine a dosage regimen for a site, the following information is required:

- Ammonia as N (mg/L)
- Nitrate as N (mg/L)
- Orthophosphate (mg/L)
- Reactive Silica (mg/L) (not essential but strongly recommended)
- Surface area of waterbody (m2 or Ha)
- Inflow to waterbody (kL/day)
- Nutrient profile (as above) for influent flow
- Historical data for Algae and nutrients is useful but not essential

Questions

Dr Simon Tannock

Director of AlgaEnviro

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More information can be found on our website:

www.algaenviro.com.au