Panel Information Pack

Woods Lake Scientific Panel

20240220

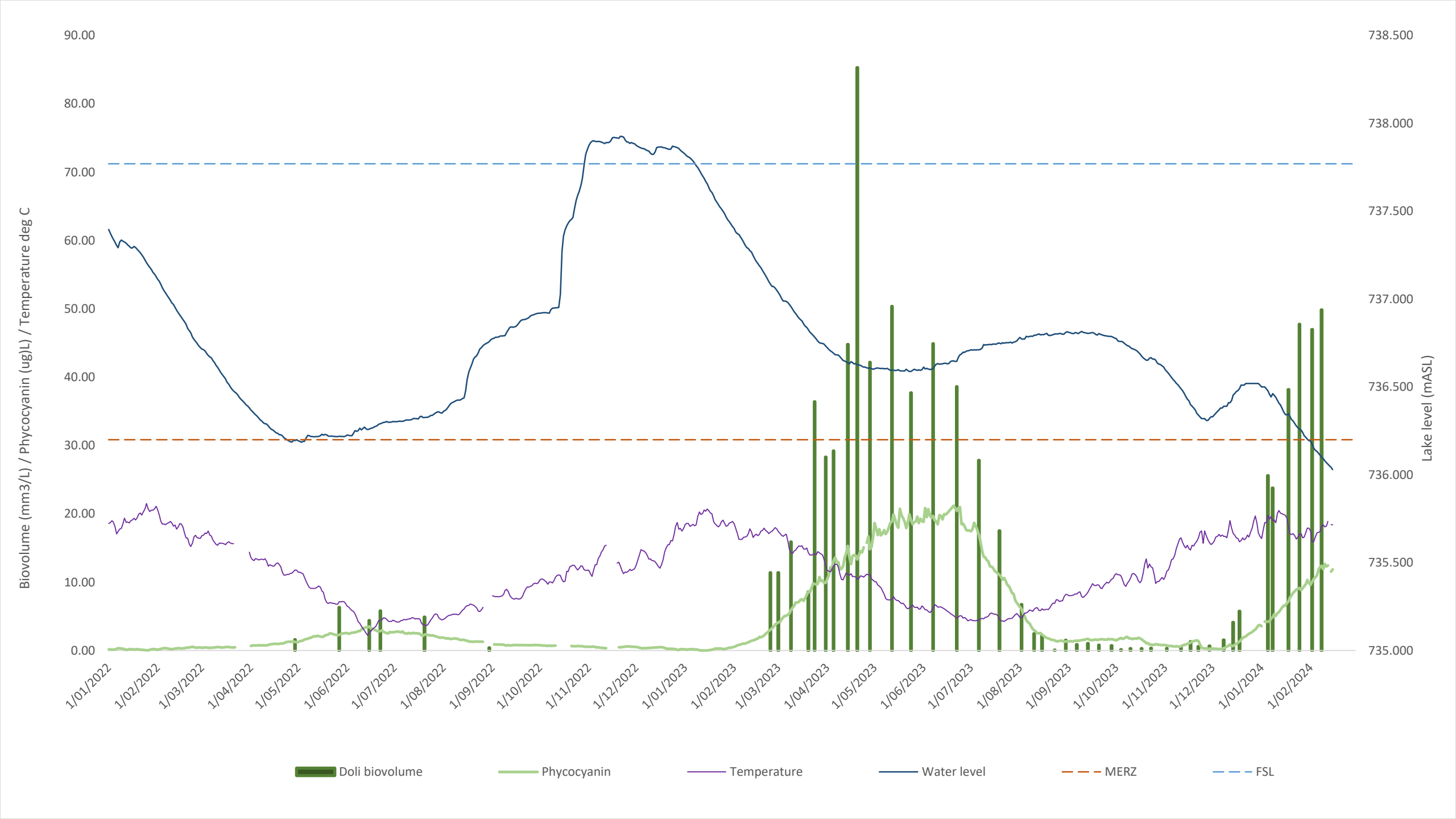
PHYTOPLANKTON COMMUNITY

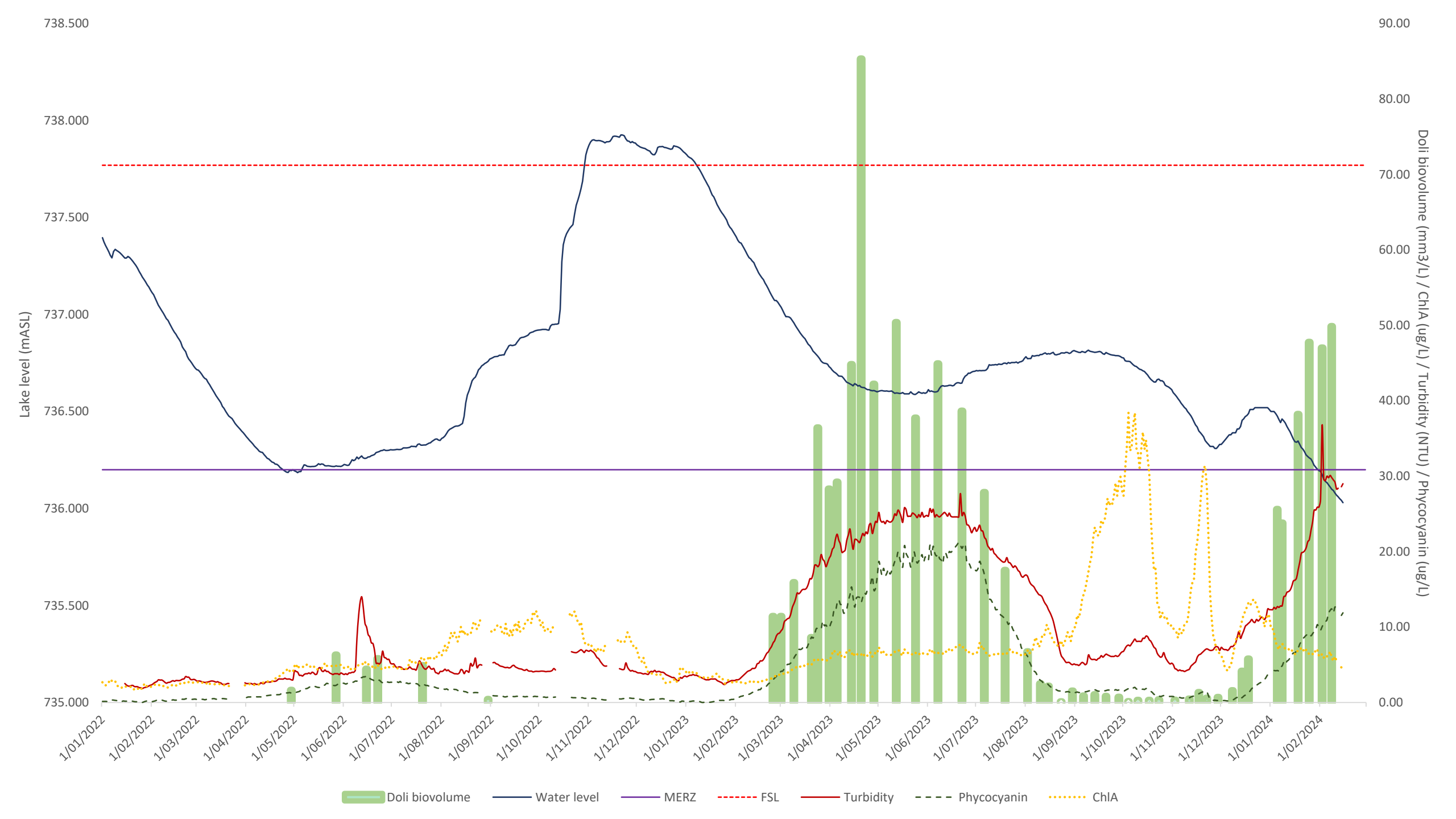
Species	Calculated biovolume (mm3/L
Aphanocapsa sp	0.0059
Dolichospermum sp	49.85
Snowella sp	0.0186

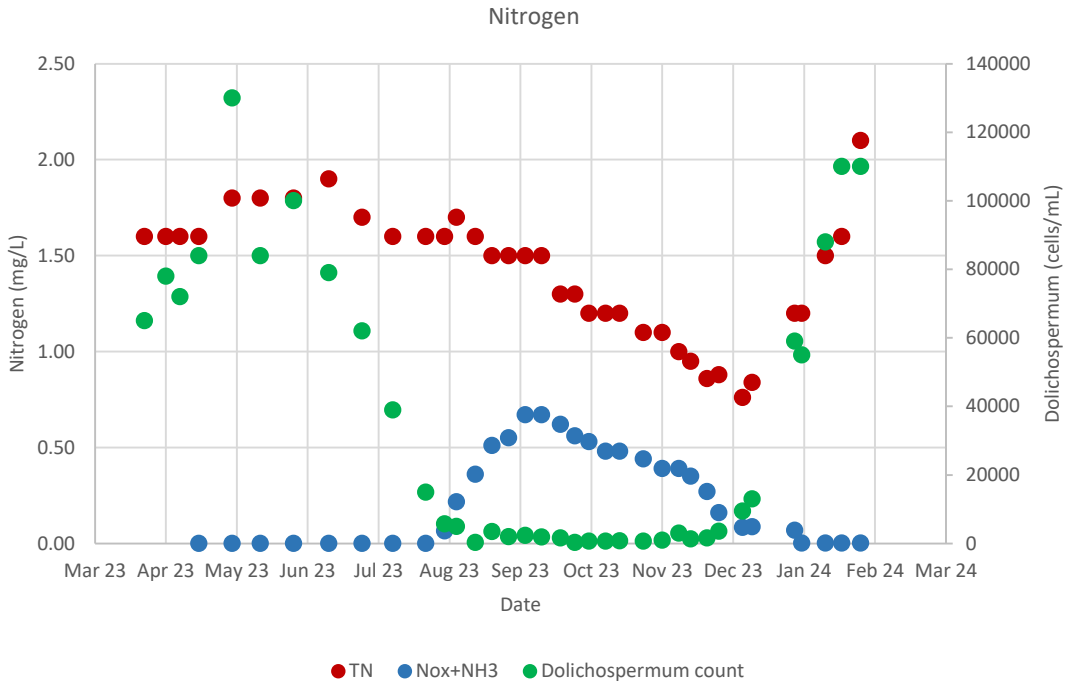
8 Feb 2024 @ 15:35

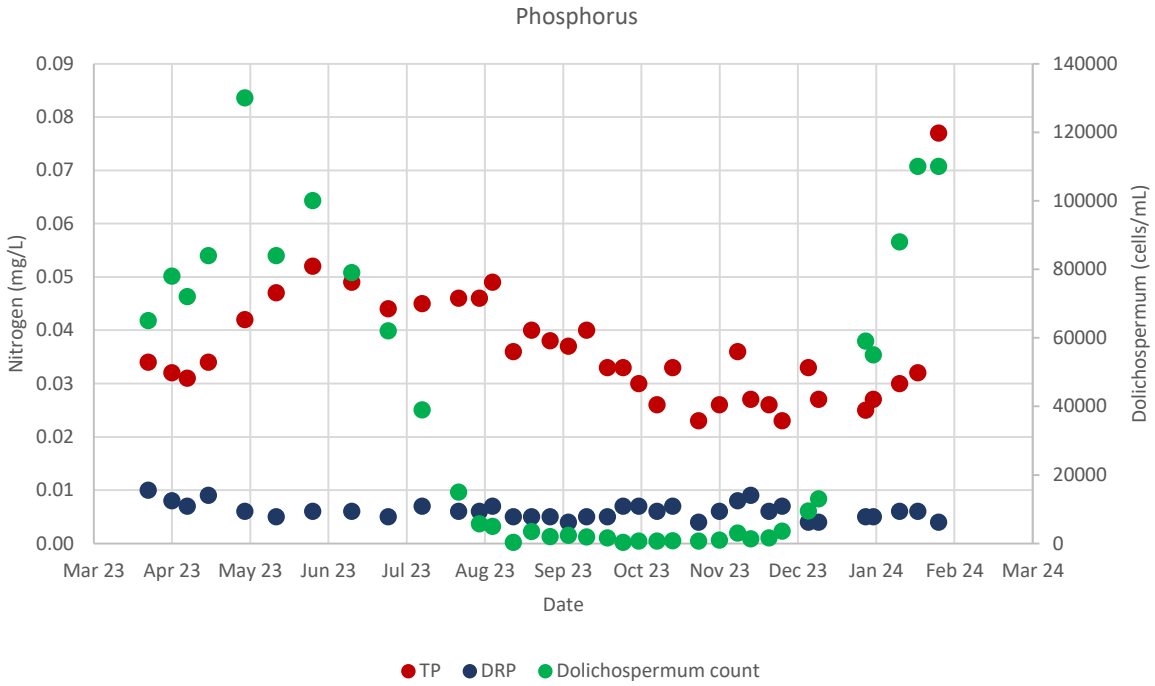
Parameter	Measure
Silica (mg/L)	12.3 (2 Feb 2024)
Heterocyte: vegetative cell ratio	1/39 (8 Feb 2024)

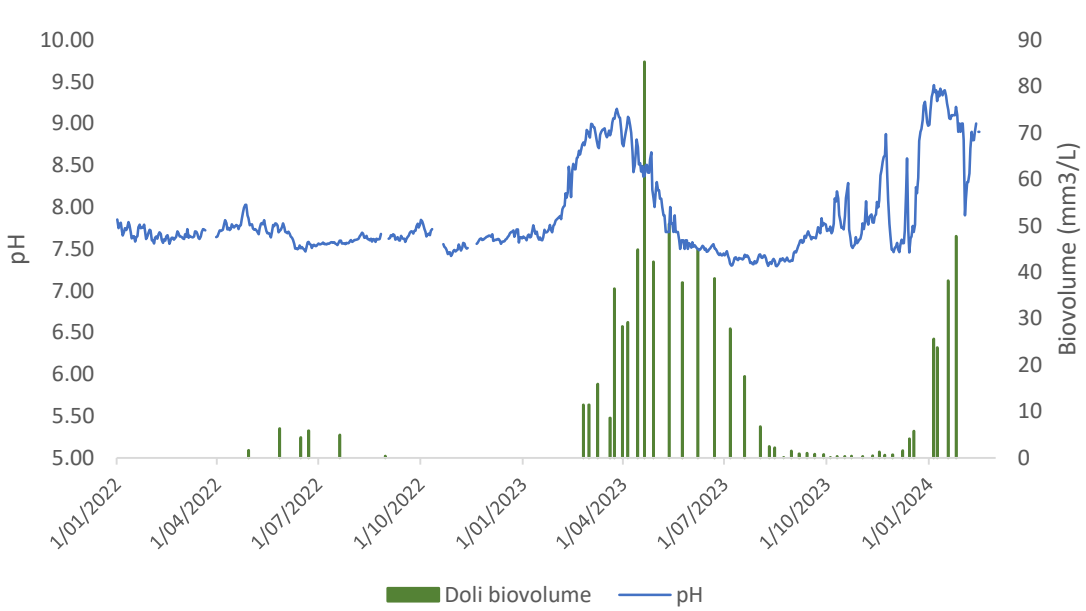
Akinetes not present in Dolichospermum filaments

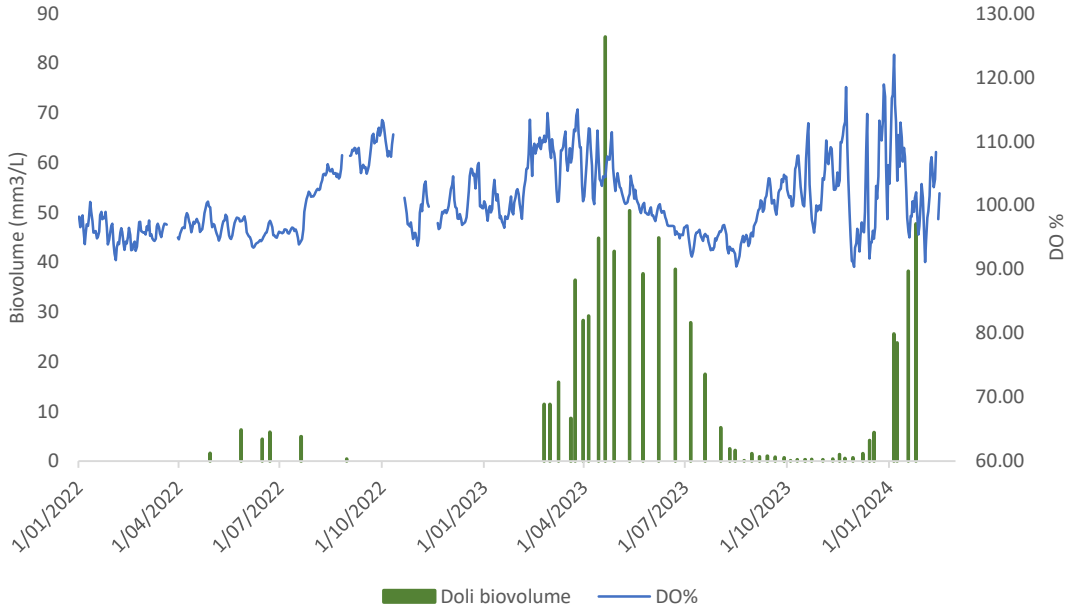

90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Biovolume (mm3/L) / Phycocyanin (ug/L) / Temperature deg C
738.500
738.000
737.500
737.000
736.500
736.000
735.500
735.000
Lake level (mASL)
1/01/2022
1/02/2022
1/03/2022
1/04/2022
1/05/2022
1/06/2022
1/07/2022
1/08/2022
1/09/2022
1/10/2022
1/11/2022
1/12/2022
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
1/01/2024
1/02/2024
Doli biovolume
Phycocyanin
Temperature
Water level
MERZ
FSL

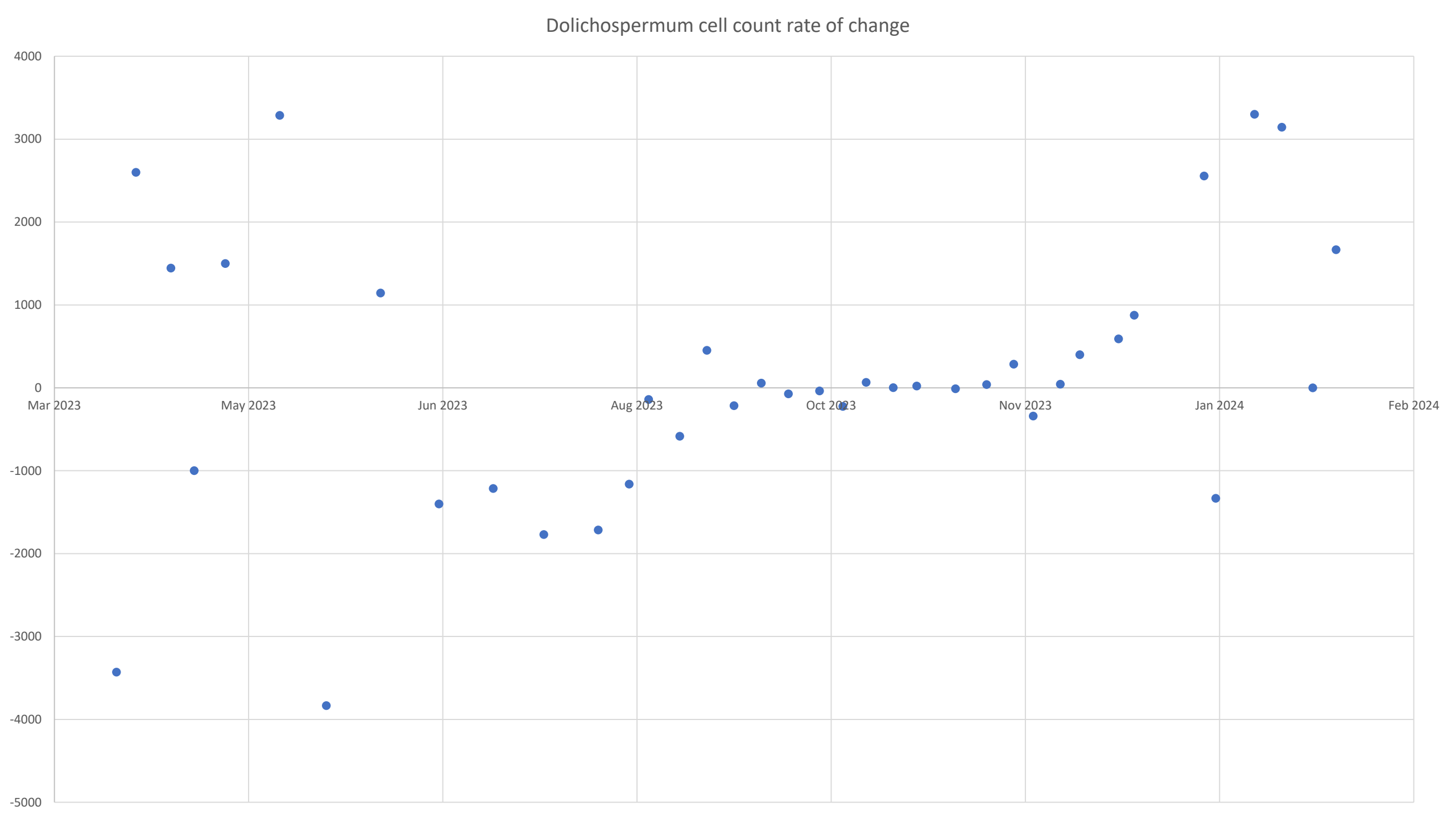

738.500
738.000
737.500
737.000
736.500
736.000
735.500
735.000
Lake level (mASL)
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Doli biovolume (mm3/L) / ChlA (ug/L) / Turbidity (NTU) / Phycocyanin (ug/L)
1/01/2022
1/02/2022
1/03/2022
1/04/2022
1/05/2022
1/06/2022
1/07/2022
1/08/2022
1/09/2022
1/10/2022
1/11/2022
1/12/2022
1/01/2023
1/02/2023
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
1/01/2024
1/02/2024
Doli biovolume
Water level
MERZ
FSL
Turbidity
Phycocyanin
ChlA

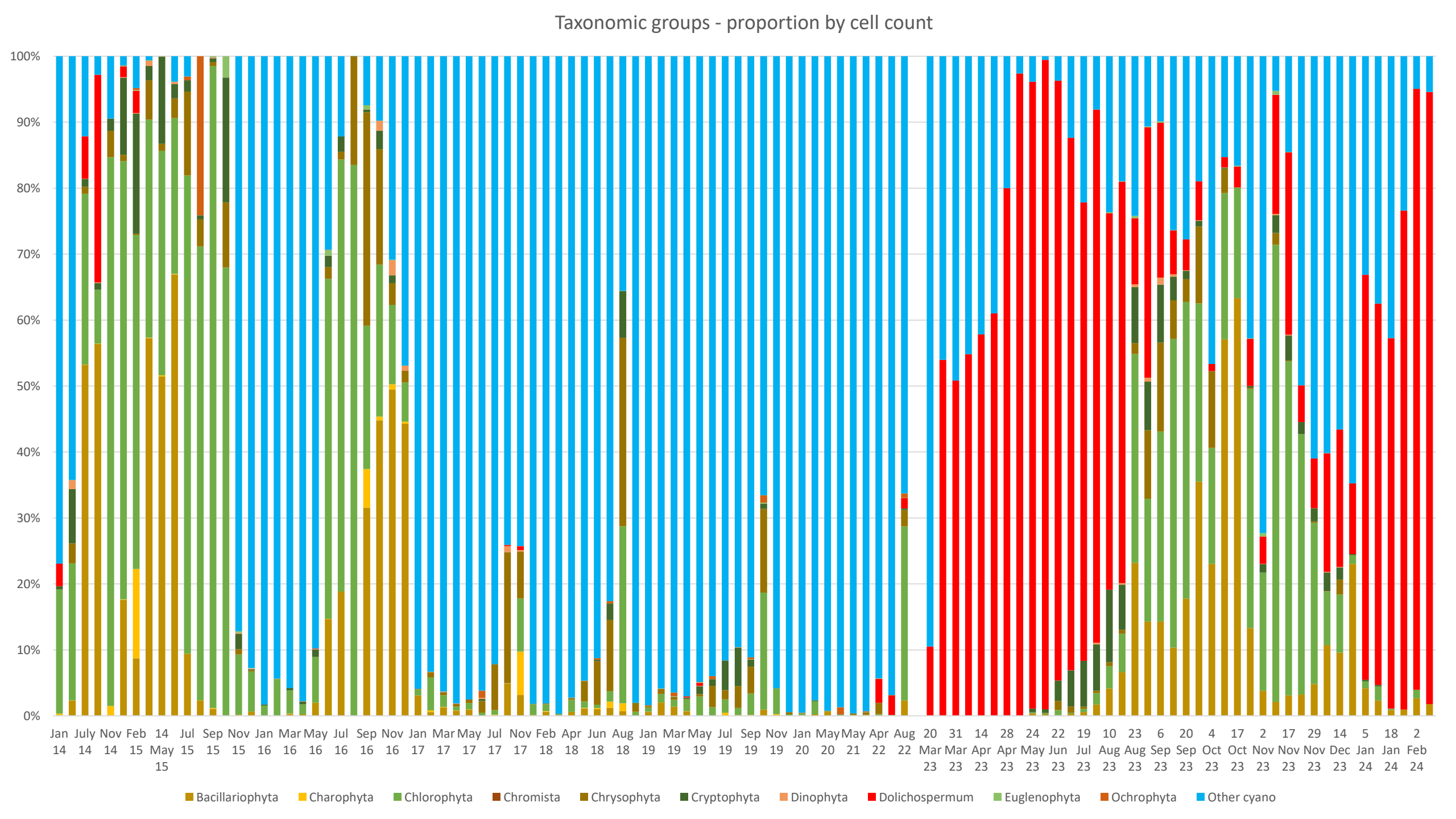

Nitrogen
Nitrogen (mg/L)
Dolichospermum (cells/mL)
Date
Mar 23
Apr 23
May 23
Jun 23
Jul 23
Aug 23
Sep 23
Oct 23
Nov 23
Dec 23
Jan 24
Feb 24
Mar 24
TN
Nox+NH3
Dolichospermum count

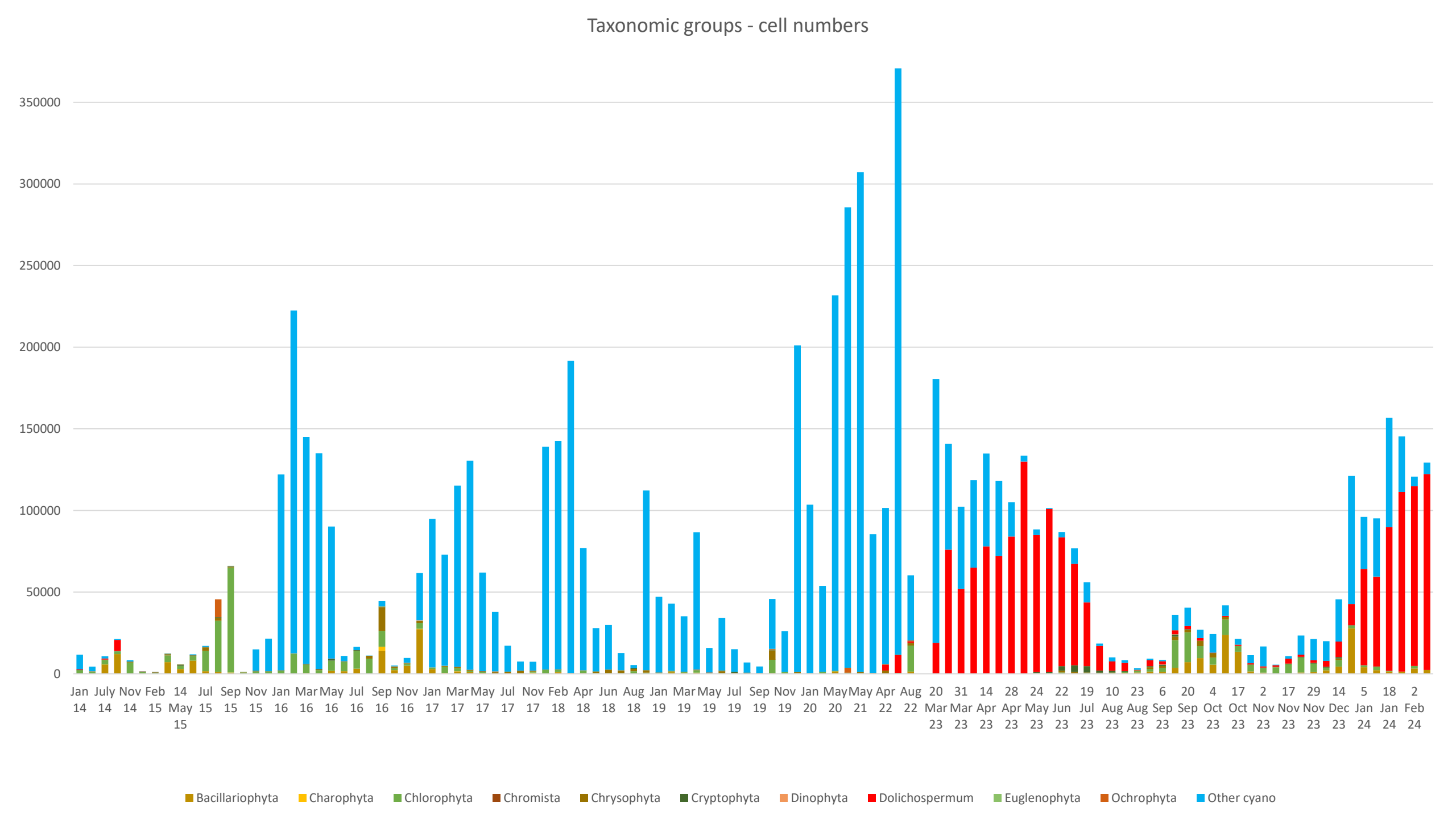

Phosphorus
Nitrogen (mg/L)
Dolichospermum (cells/mL)
Date
Mar 23
Apr 23
May 23
Jun 23
Jul 23
Aug 23
Sep 23
Oct 23
Nov 23
Dec 23
Jan 24
Feb 24
Mar 24
TP
DRP
Dolichospermum count


pH
Biovolume (mm3/L)
1/01/2022
1/04/2022
1/07/2022
1/10/2022
1/01/2023
1/04/2023
1/07/2023
1/10/2023
1/01/2024
Doli biovolume
pH

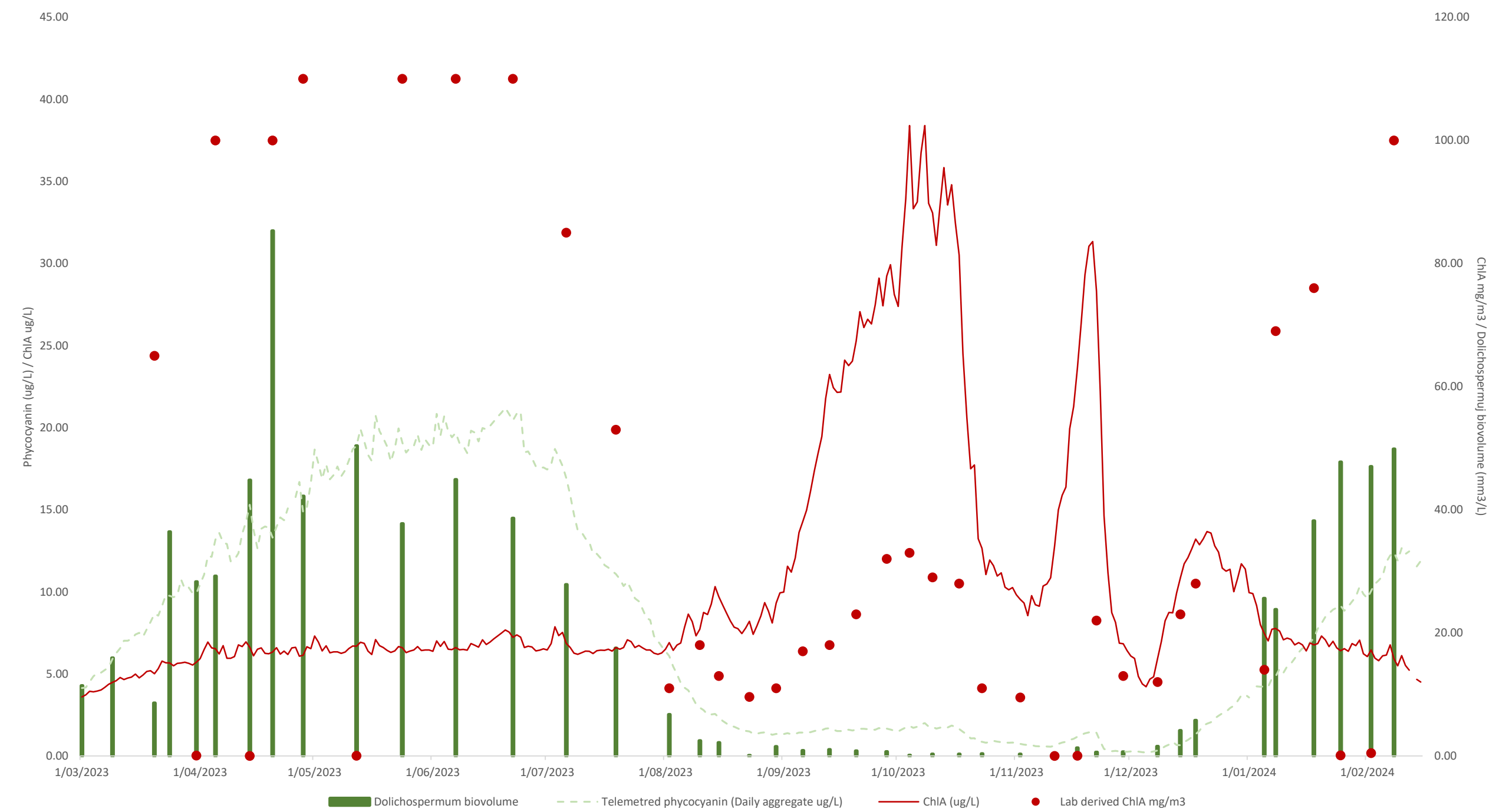

Biovolume (mm3/L)
DO %
1/01/2022
1/04/2022
1/07/2022
1/10/2022
1/01/2023
1/04/2023
1/07/2023
1/10/2023
1/01/2024
Doli biovolume
DO%

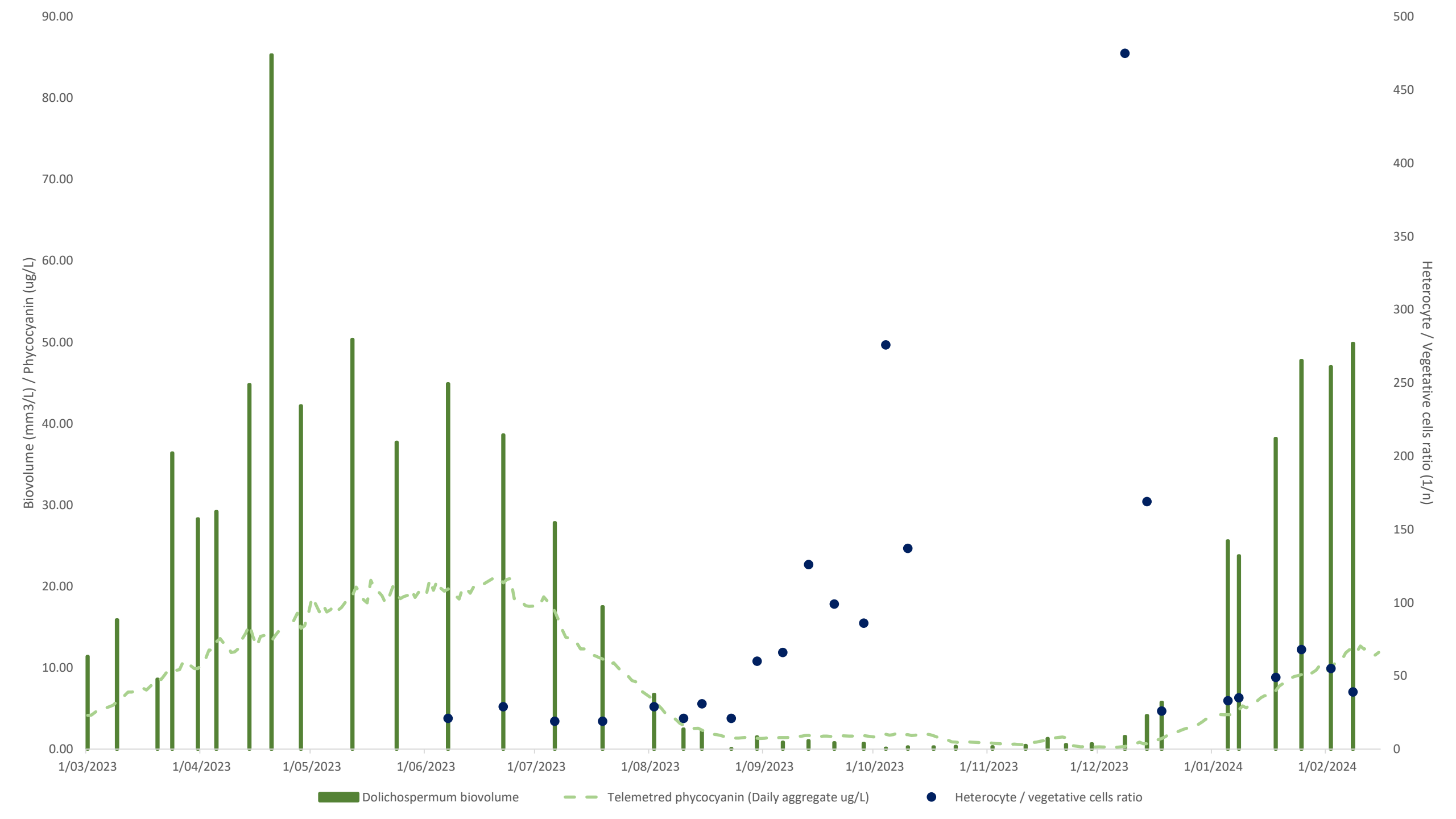

Dolichospermum cell count rate of change
4000
3000
2000
1000
0
-1000
-2000
-3000
-4000
-5000
Mar 2023
May 2023
Jun 2023
Aug 2023
Oct 2023
Nov 2023
Jan 2024
Feb 2024


Taxonomic groups - proportion by cell count
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jan 14
July 14
Nov 14
Feb 15
14 May 15
Jul 15
Sep 15
Nov 15
Jan 16
Mar 16
May 16
Jul 16
Sep 16
Nov 16
Jan 17
Mar 17
May 17
Jul 17
Nov 17
Feb 18
Apr 18
Jun 18
Aug 18
Jan 19
Mar 19
May 19
Jul 19
Sep 19
Nov 19
Jan 20
May 20
May 21
Apr 22
Aug 22
20 Mar 23
31 Mar 23
14 Apr 23
28 Apr 23
24 May 23
22 Jun 23
19 Jul 23
10 Aug 23
23 Aug 23
6 Sep 23
20 Sep 23
4 Oct 23
17 Oct 23
2 Nov 23
17 Nov 23
29 Nov 23
14 Dec 23
5 Jan 24
18 Jan 24
2 Feb 24
Bacillariophyta
Charophyta
Chlorophyta
Chromista
Chrysophyta
Cryptophyta
Dinophyta
Dolichospermum
Euglenophyta
Ochrophyta
Other cyano

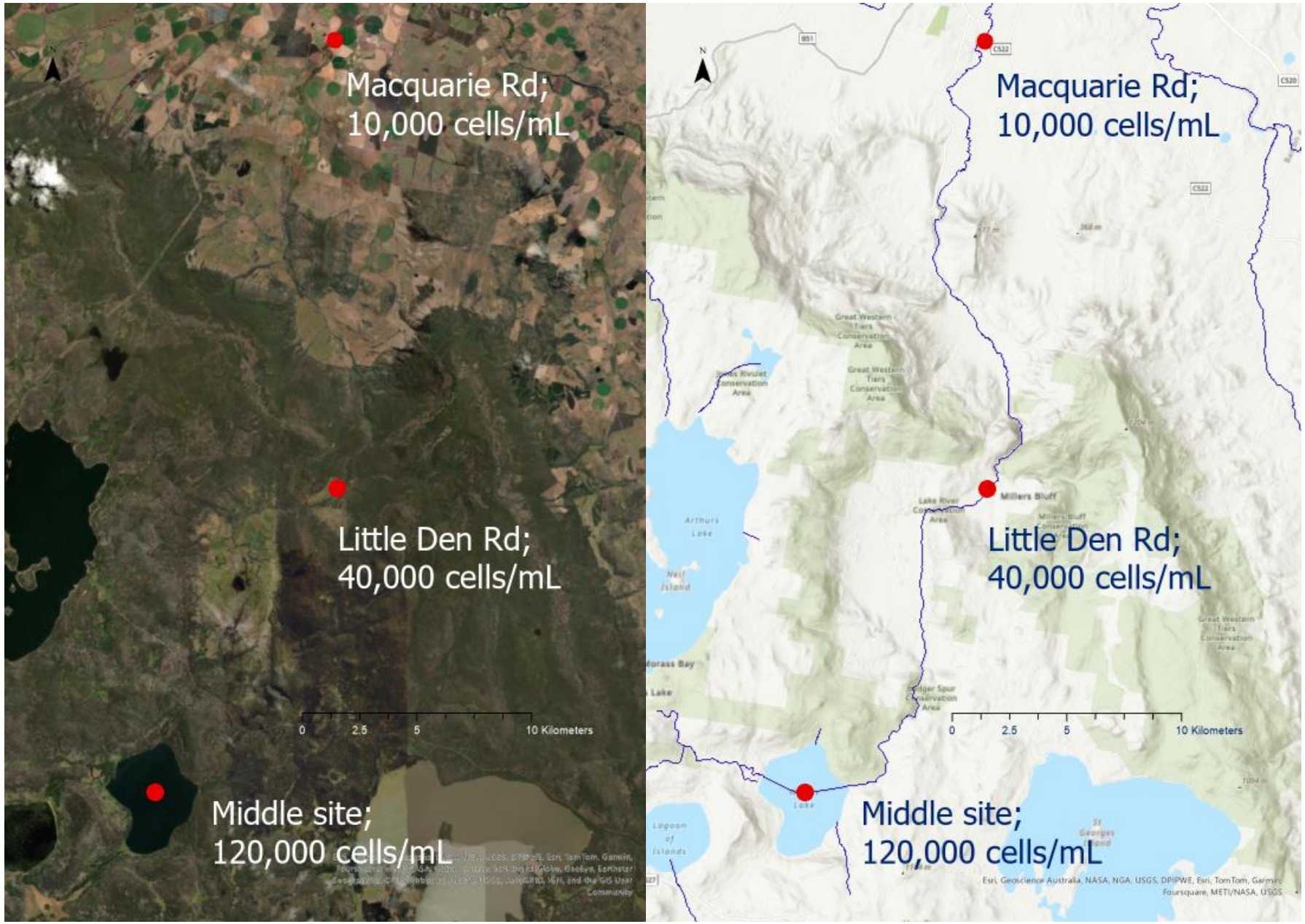

Taxonomic groups - cell numbers
350000
300000
250000
200000
150000
100000
50000
0
Jan 14
July 14
Nov 14
Feb 15
14 May 15
Jul 15
Sep 15
Nov 15
Jan 16
Mar 16
May 16
Jul 16
Sep 16
Nov 16
Jan 17
Mar 17
May 17
Jul 17
Nov 17
Feb 18
Apr 18
Jun 18
Aug 18
Jan 19
Mar 19
May 19
Jul 19
Sep 19
Nov 19
Jan 20
May 20
May 21
Apr 22
Aug 22
20 Mar 23
31 Mar 23
14 Apr 23
28 Apr 23
24 May 23
22 Jun 23
19 Jul 23
10 Aug 23
23 Aug 23
6 Sep 23
20 Sep 23
4 Oct 23
17 Oct 23
2 Nov 23
17 Nov 23
29 Nov 23
14 Dec 23
5 Jan 24
18 Jan 24
2 Feb 24
Bacillariophyta
Charophyta
Chlorophyta
Chromista
Chrysophyta
Cryptophyta
Dinophyta
Dolichospermum
Euglenophyta
Ochrophyta
Other cyano

MIDDLE SITE @ 8 Feb 2024 (Cells/mL)			DAM SITE @ 8 Feb 2024 (Cells/mL)	
Aphanocapsa sp.	4700		Aphanocapsa sp.	2000
Aulacoseira sp.	1300		Aulacoseira sp.	690
Cosmarium sp.	1		Closteriopsis sp.	1
Dolichospermum sp	120000		Dictyosphaerium sp.	1
Fragilaria sp.	1000		Dolichospermum sp	41000
Oocystis sp.	1		Fragilaria sp.	5200
Pediastrum sp.	1		Nodularia spumigena	0
Snowella sp.	2300		Pediastrum sp.	1
Staurastrum sp.	1		Snowella sp.	1
Trachelomonas sp.	19		Staurastrum sp.	1


45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Phycocyanin (ug/L) / ChlA ug/L)
120.00
100.00
80.00
60.00
40.00
20.00
0.00
ChlA mg/m3 / Dolichospermuj biovolume (mm3/L)
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
1/01/2024
1/02/2024
Dolichospermum biovolume
Telemetred phycocyanin (Daily aggregate ug/L)
ChlA (ug/L)
Lab derived ChlA mg/m3


90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Biovolume (mm3/L) / Phycocyanin (ug/L)
500
450
400
350
300
250
200
150
100
50
0
Heterocyte / Vegetative cells ratio (1/n)
1/03/2023
1/04/2023
1/05/2023
1/06/2023
1/07/2023
1/08/2023
1/09/2023
1/10/2023
1/11/2023
1/12/2023
1/01/2024
1/02/2024
Dolichospermum biovolume
Telemetred phycocyanin (Daily aggregate ug/L)
Heterocyte / vegetative cells ratio

Dolichospermum sp. cell count at 8 Feb 2024



LIGHT CLIMATE HISTORY

Updated Euphotic Depth Calculations

Previously:

1) $Kd_{(z)} = 0.16\ Chla + \frac{1.3}{\sqrt{SD}}$

2) $Z_{eu} \approx \frac{4.6}{Kd_z}$

Now:

1) $I_{(z)} = I_{(0)}\ exp\ (-Kd_z)$

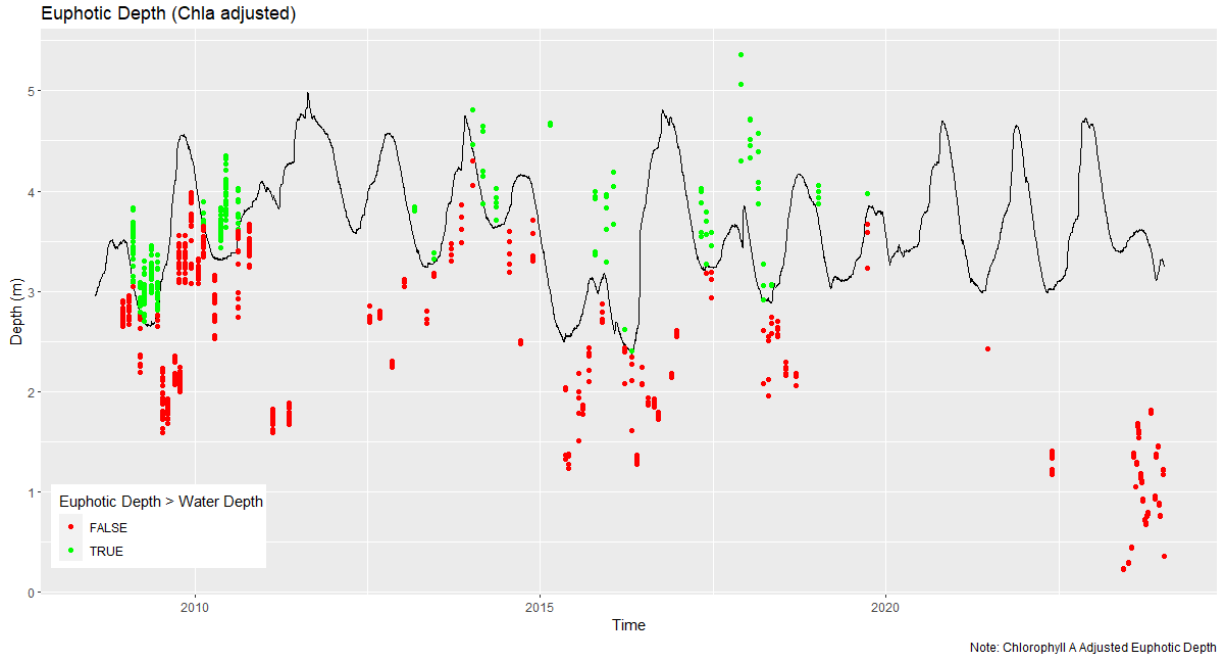
2) $Z_{eu} \approx \frac{Kd_z}{SD}$

where:

Kd = vertical attenuation coefficient
Z_{eu} = euphotic depth
SD = secchi depth (m)

I = Irradiance
Z = Depth

Euphotic Depth using the same methods as previously, that is doubling up on the attenuation coefficient and chlorophyll a content.



Euphotic Depth with the light attenuation coefficient calculated based on historical light profiles within the lake.

Please Note: This plot and method is currently in draft form and has not been reviewed prior to inclusion in this data pack, comments welcome.