

# Ecological State of Lake Durowskie

Algae Assessment  
July 2018

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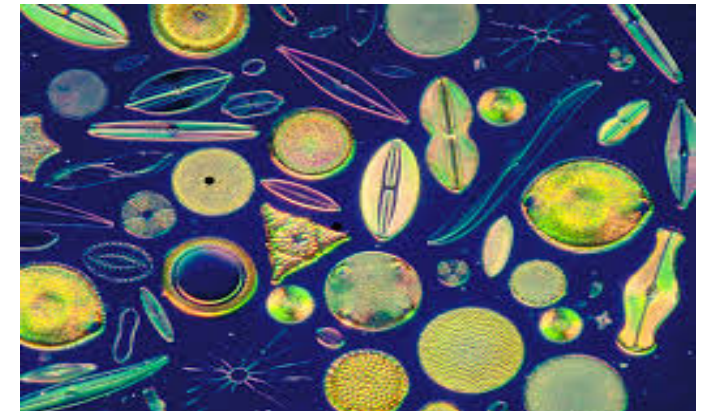


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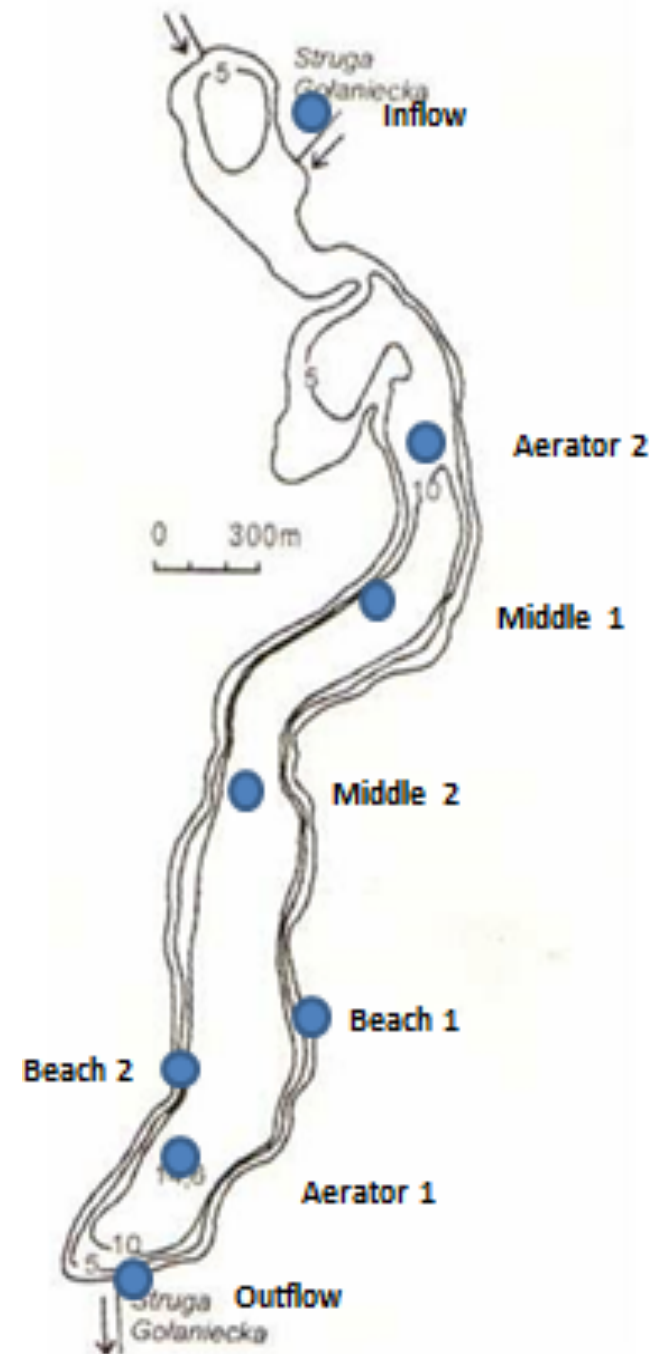
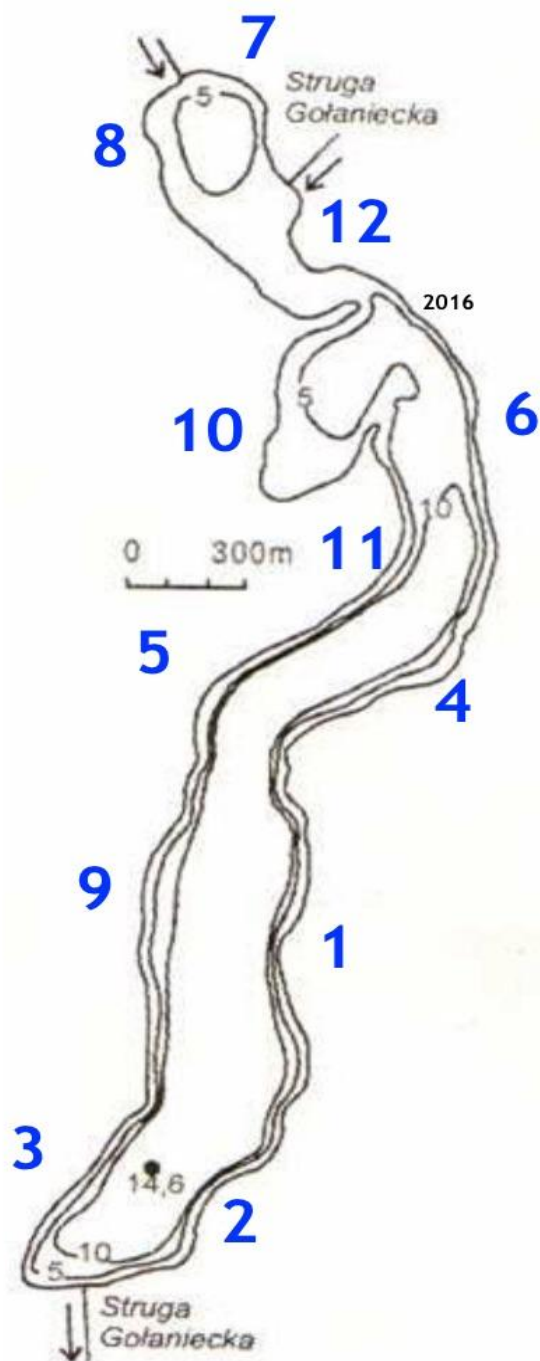
# Introduction

- Look into trophic state of Lake Durowskie by conducting Phytoplankton and Periphyton analyses
- Why algae?
  - Sensitive indicators
  - Foundation of the food web
  - Environmental adaptive features



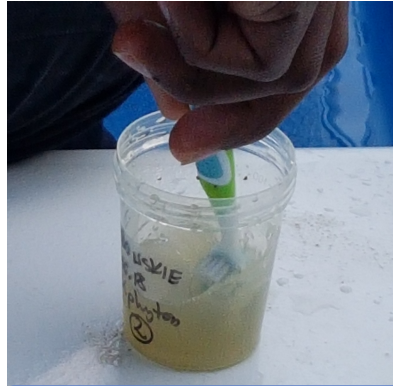
# Methods

Periphyton  
sampling sites



Phytoplankton  
sampling sites

# Methods



Sampling



Identification

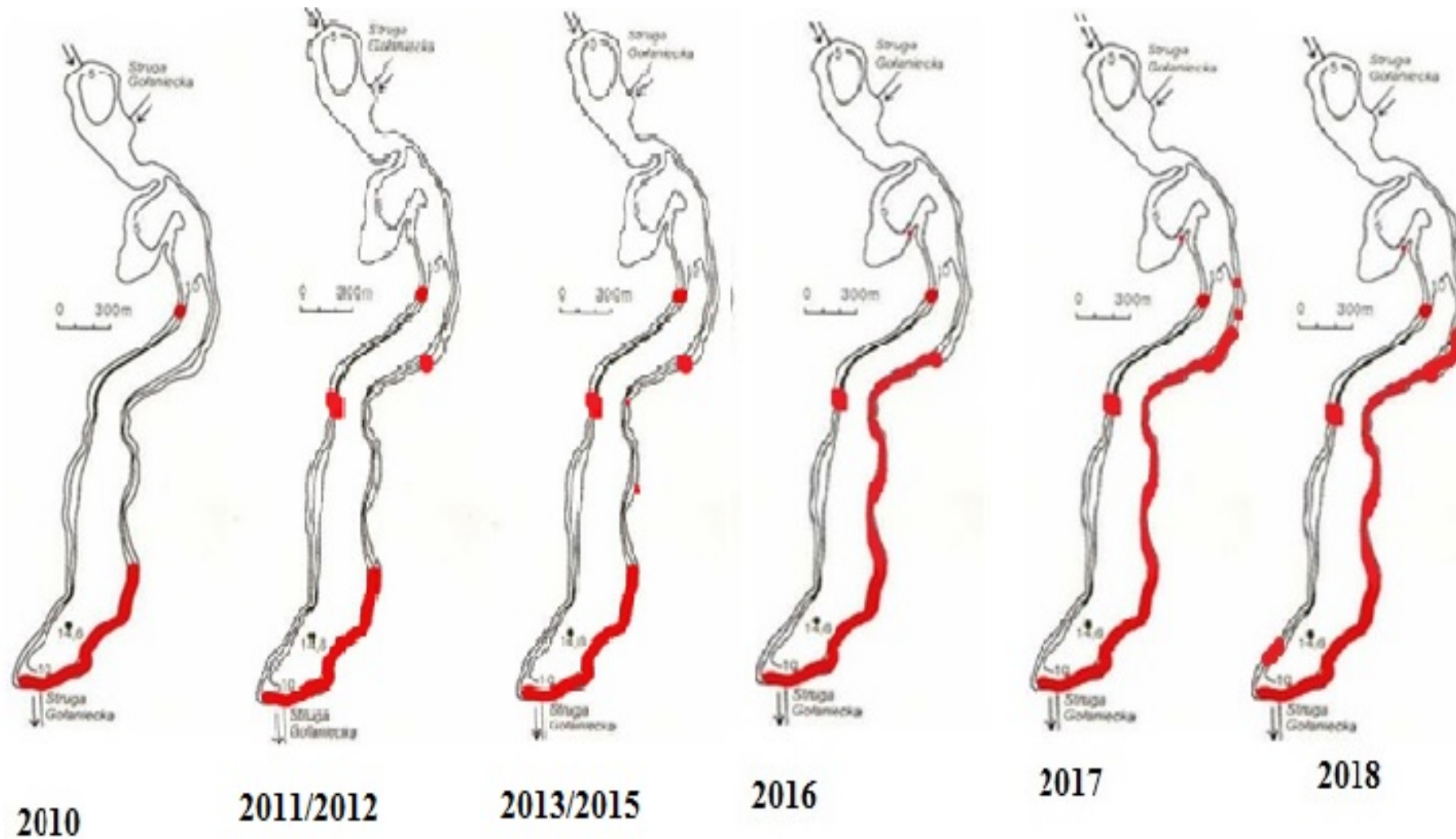


Data analyses

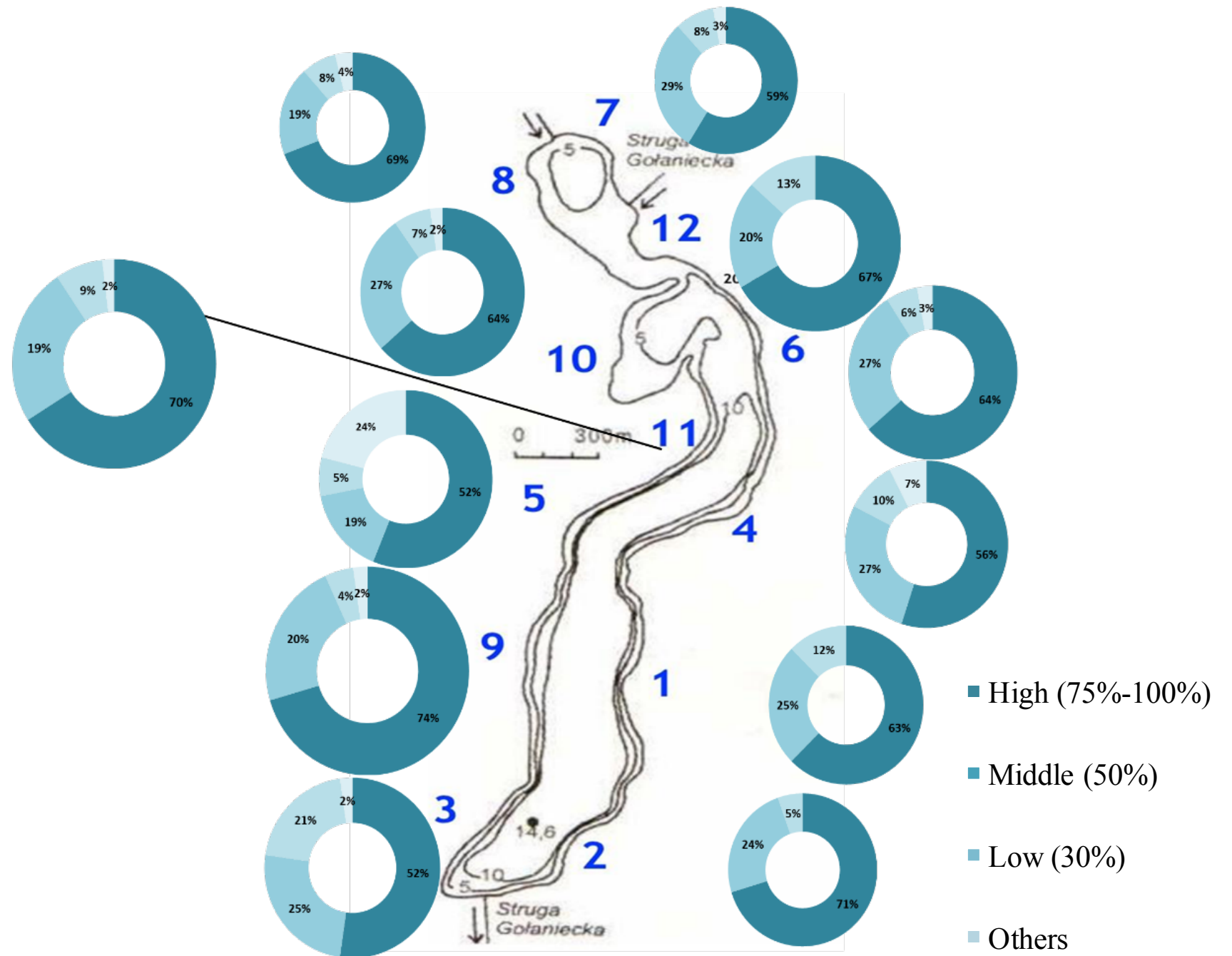


# Results

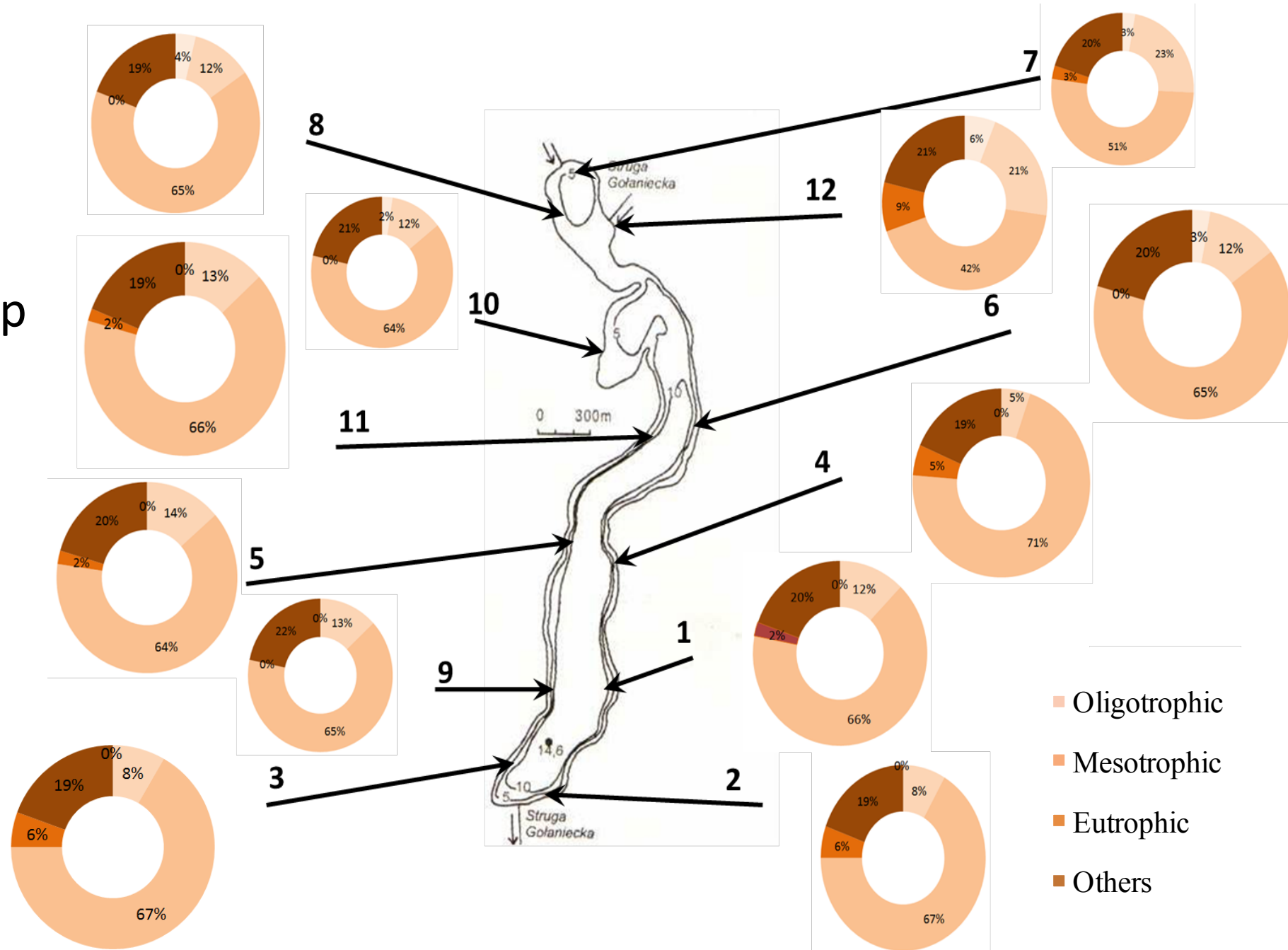
## Periphyton map



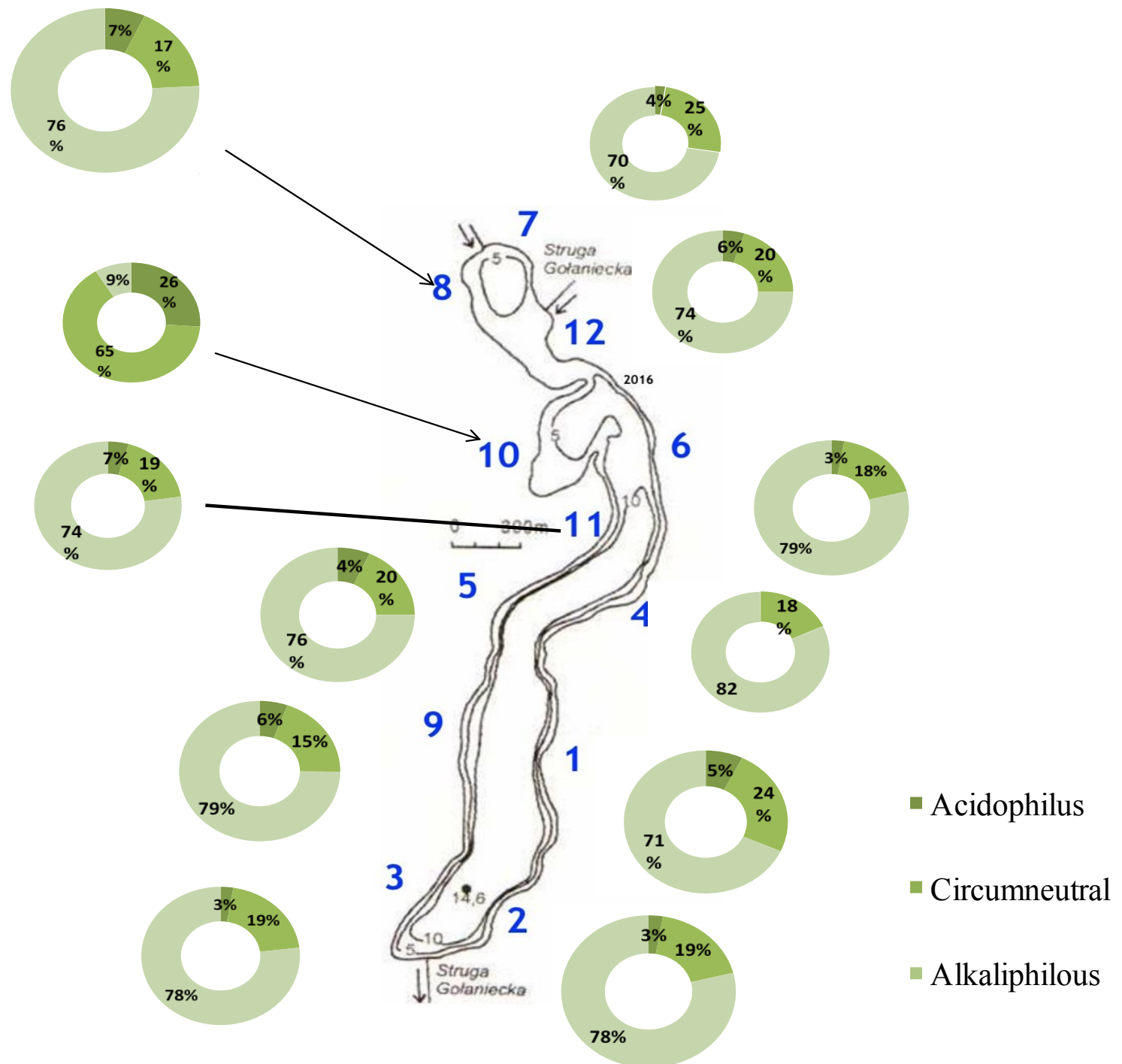
# Periphyton species O<sub>2</sub> preference map



# Periphyton species Trophic preference map



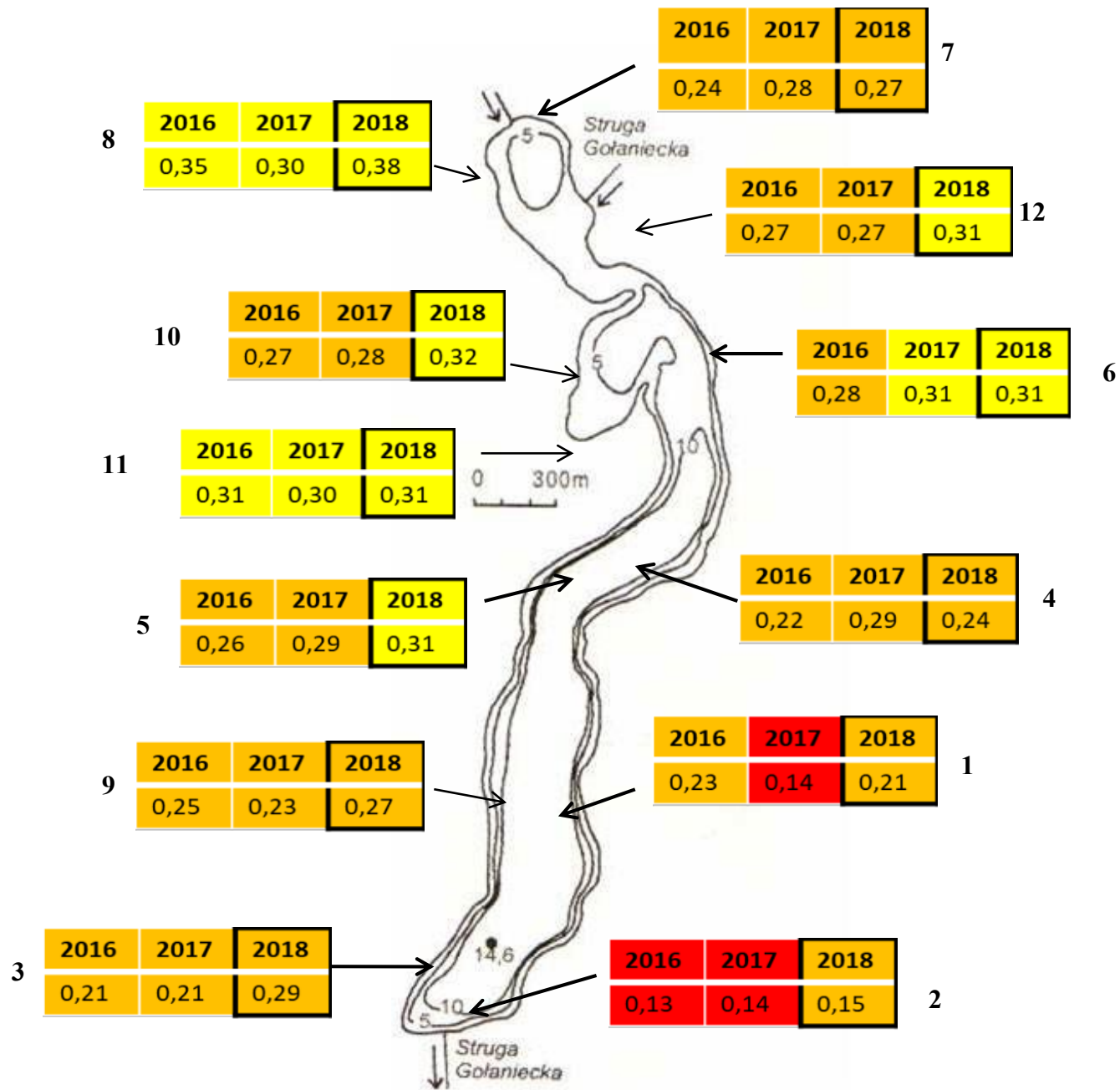
# Periphyton species pH preference map





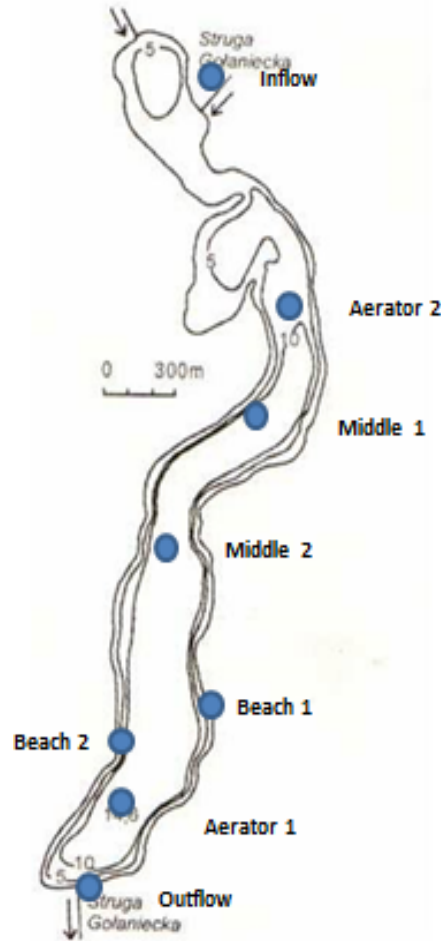
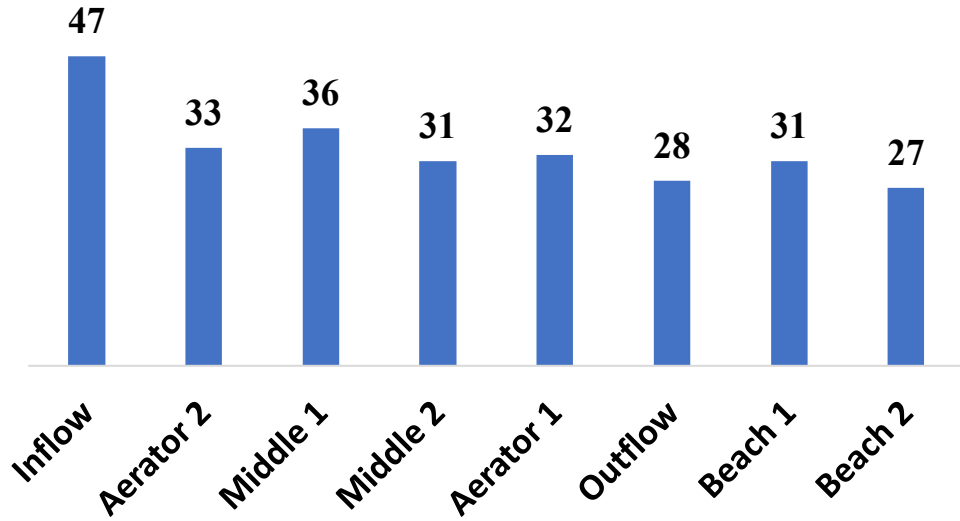
# Diatom Index map

>0,83	Very good
0,55	Good
0,30	Moderate
0,15	Poor
<0,15	Bad

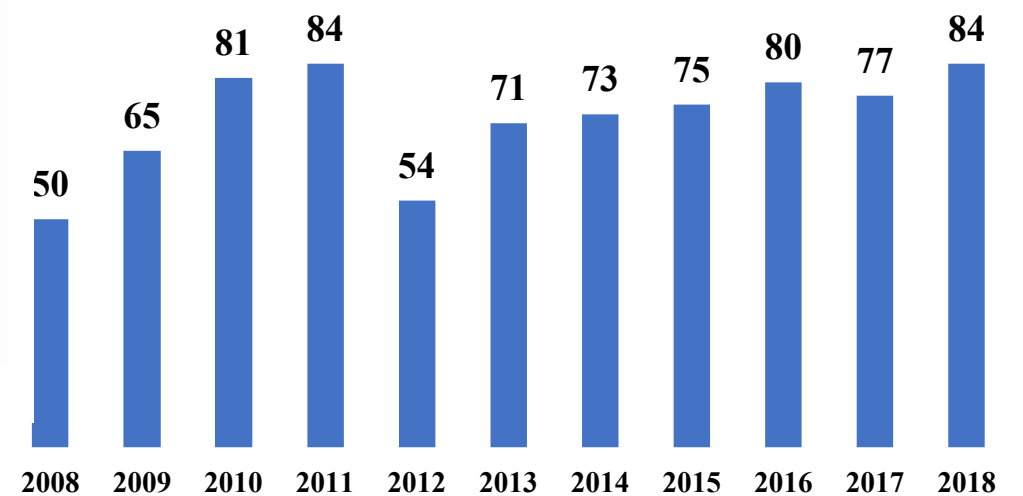


# Phytoplankton number of species

Species abundance by site

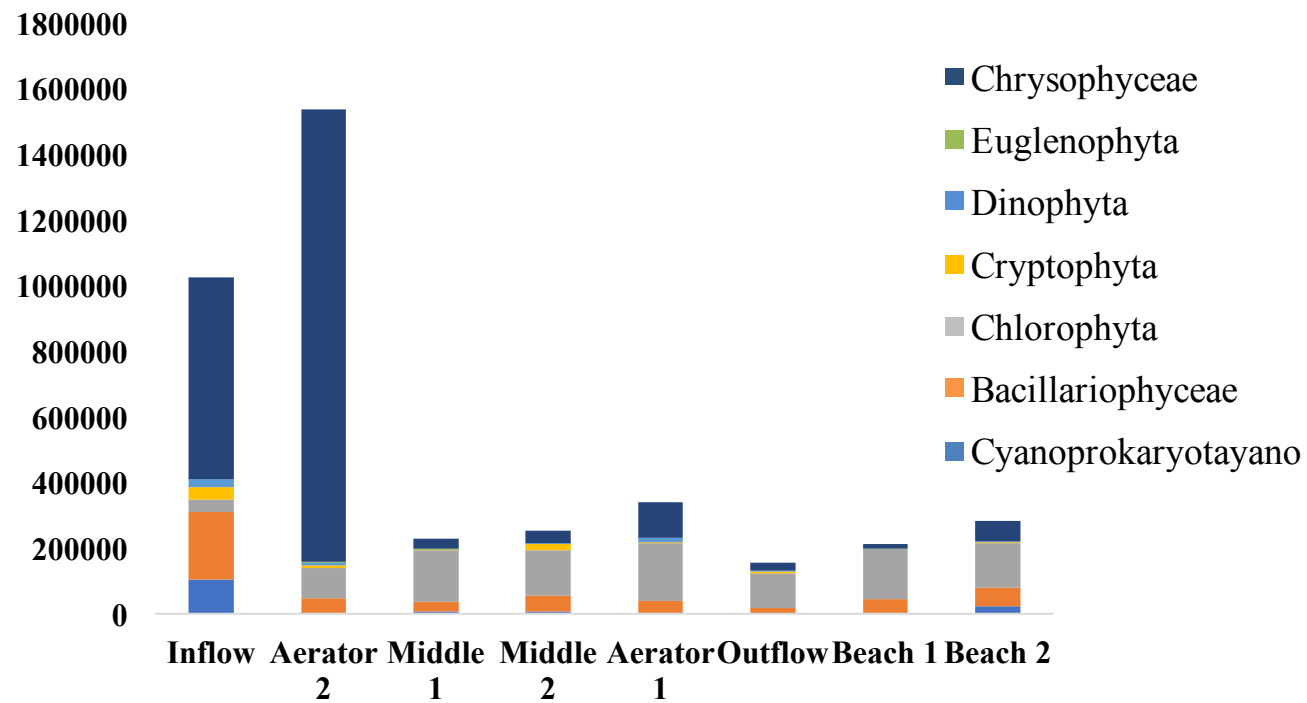


Number of species

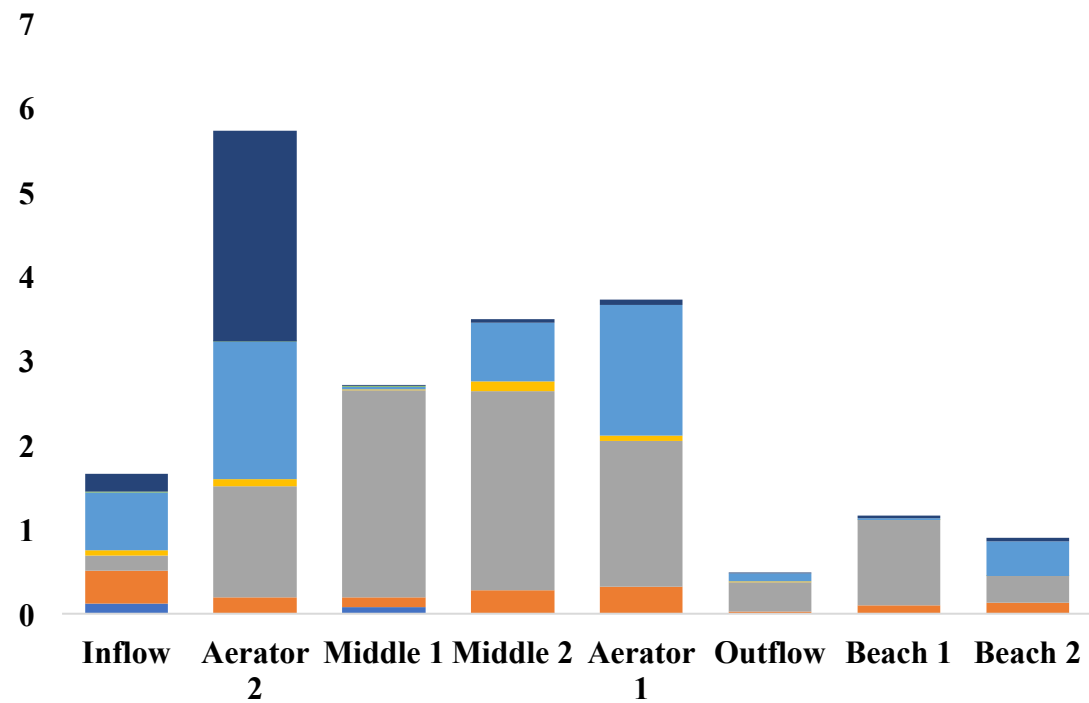


# Phytoplankton groups

## Abundance of Phytoplankton

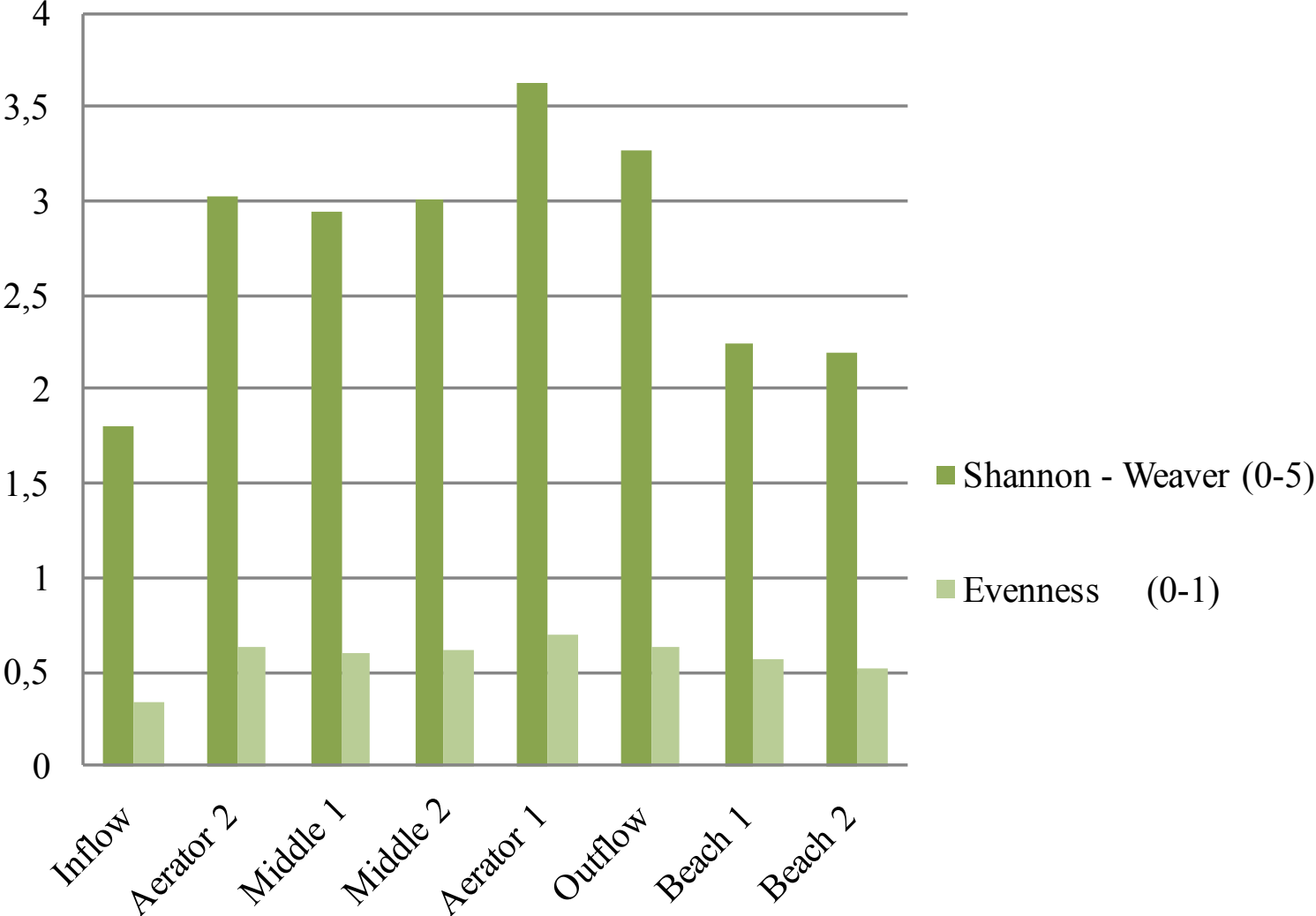


## Biomass of Phytoplankton



# Shannon-Weaver and Evenness Index

## Diversity Index 2018





## Mixed Index of Nygaard

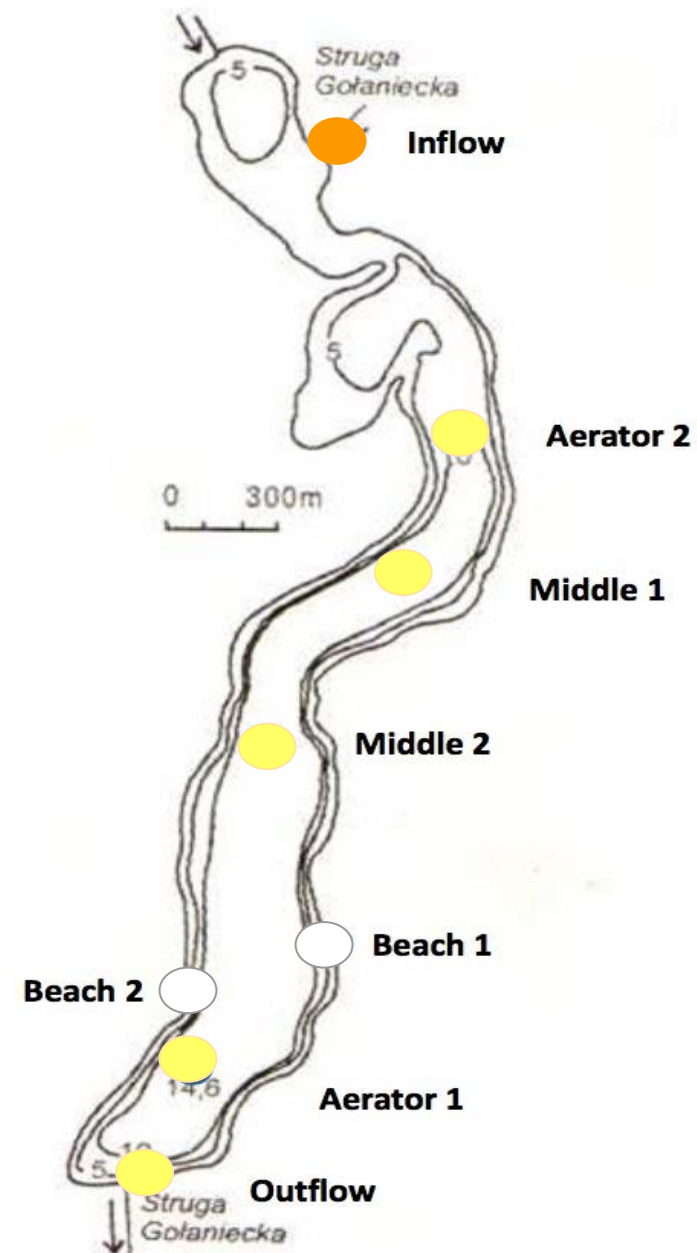
Station	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Inflow	-	1,8	17	9	19	3,8	17	7	9	7
Aerator 2	26	11,5	5	8	14	20	4,3	12	8	8
Middle 1	9	12,5	13	3	5,50	11	4,8	7,7	6	4,8
Middle 2	-	8,3	18	9	7,5	20	4	8,5	6	5
Beach 1	-	-	3	9	7	5	5,5	-	3	3
Beach 2	-	-	-	5	6	10	12	-	5	5
Aerator 1	16	8,3	9	7	8	9	6,7	-	7	5
Outflow	-	6,5	5	-	12	8	8	14	5	4

Dystrophy	0.0 - 0.2
Oligotrophy	0.2 - 1.0
Mesotrophy	1.0 - 3.0
Eutrophy	3.0 - 5.0
Hypertrophy	5.0 - 43.0

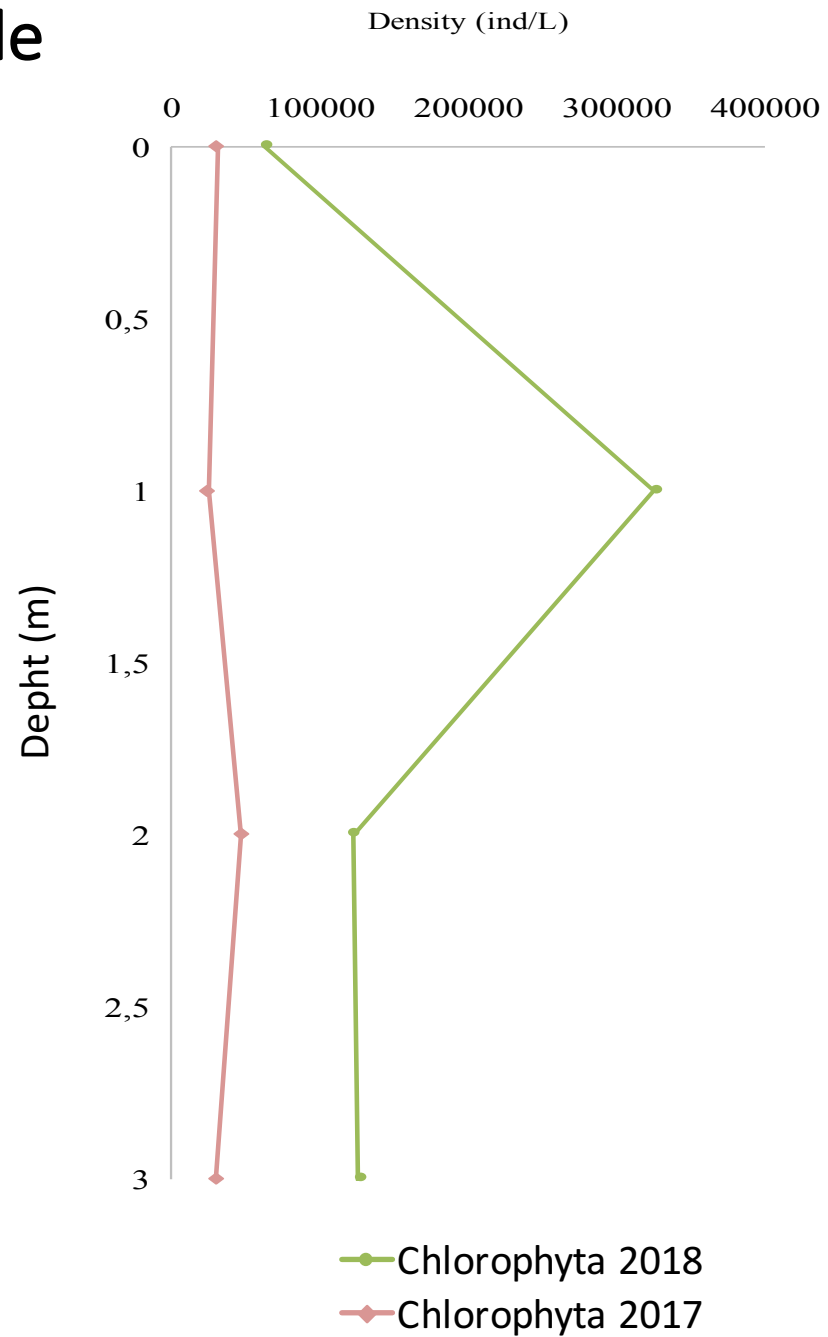
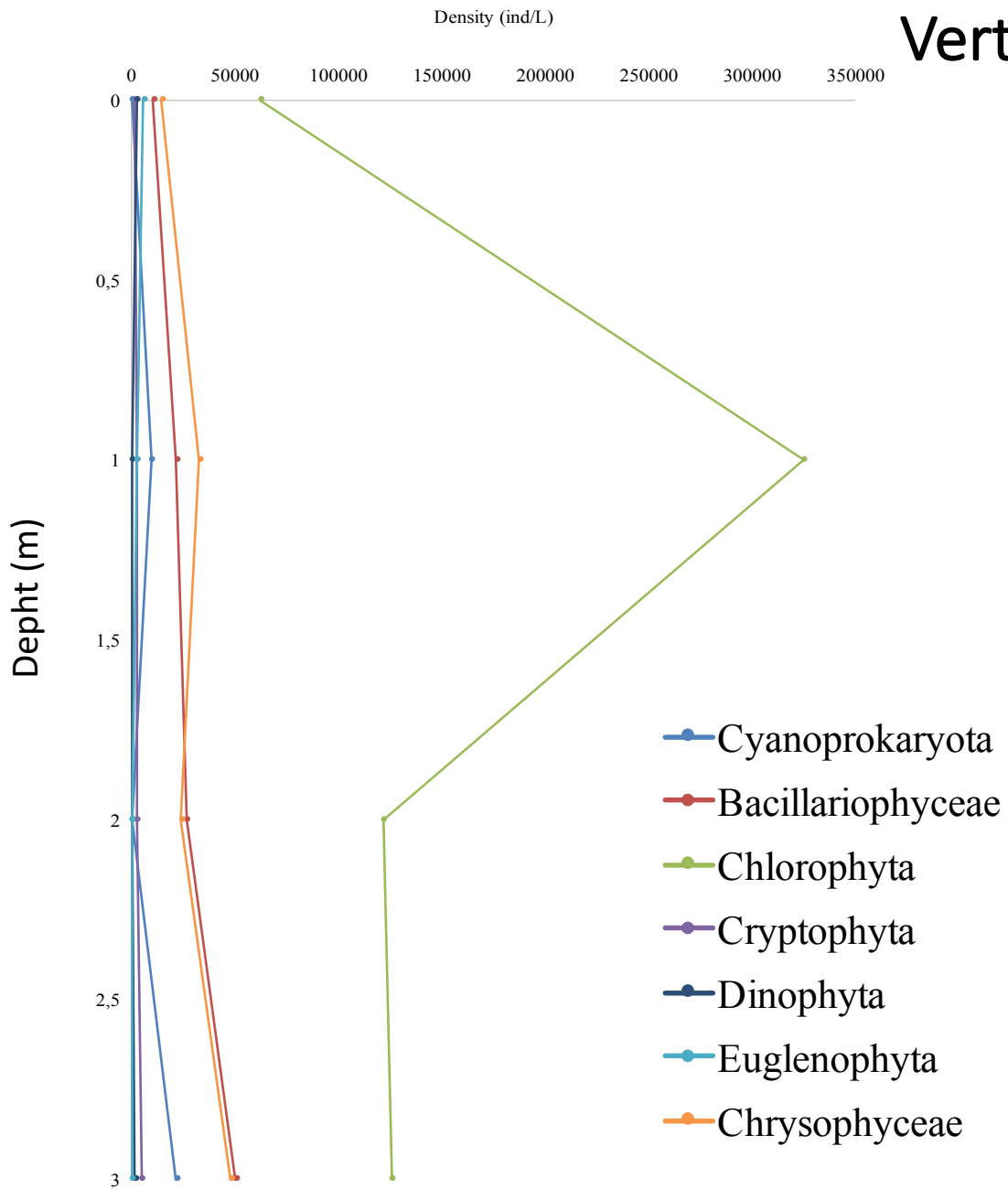
# PMPL index

	Inflow	A2	M1	M2	A1	Outflow
2018	3.32	2.8	2.79	2.78	2.61	2.63
2017	3.4	2.74	2.78	2.78	2.78	2.5
2016	3.7	2.78	2.76	2.76	2.67	2.53

Ecological status	PMPL
very good	0,0 - 1,0
good	1,01 - 2,0
moderate	2,1 - 3,0
poor	3,1 - 4,0
bad	4,01 - 5,0



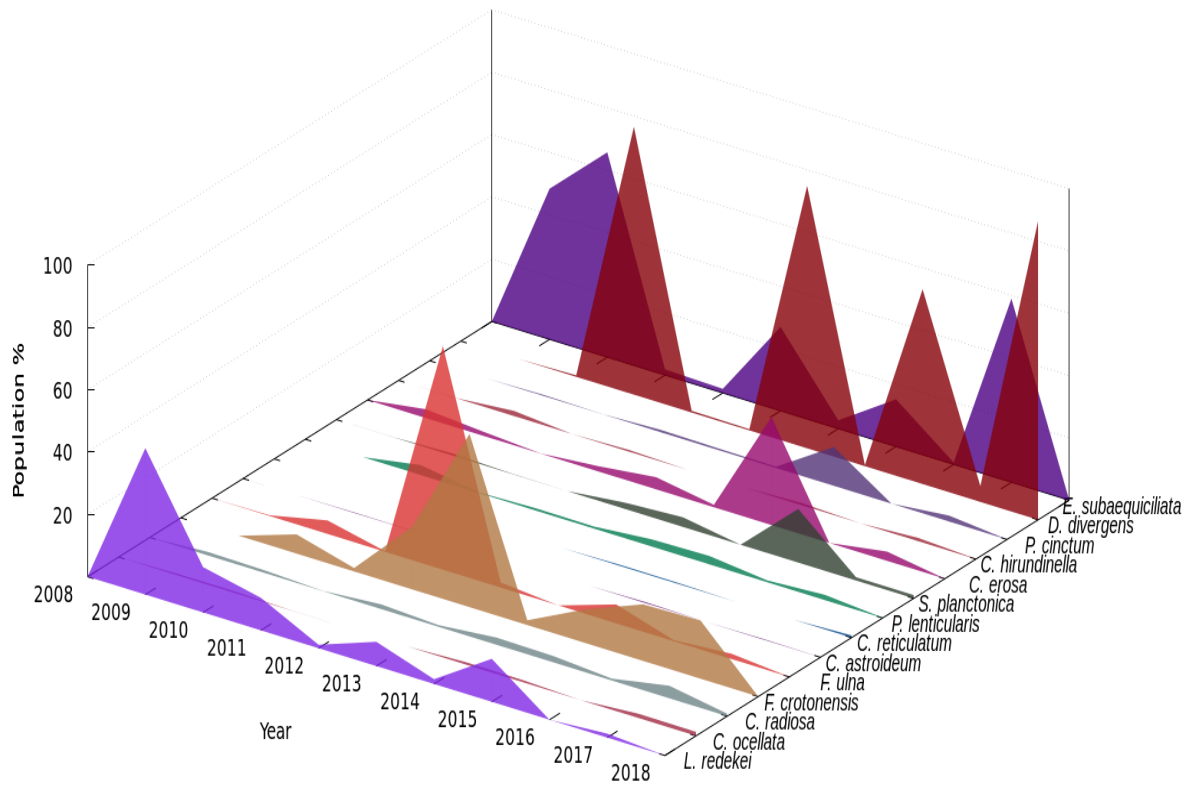
# Vertical profile





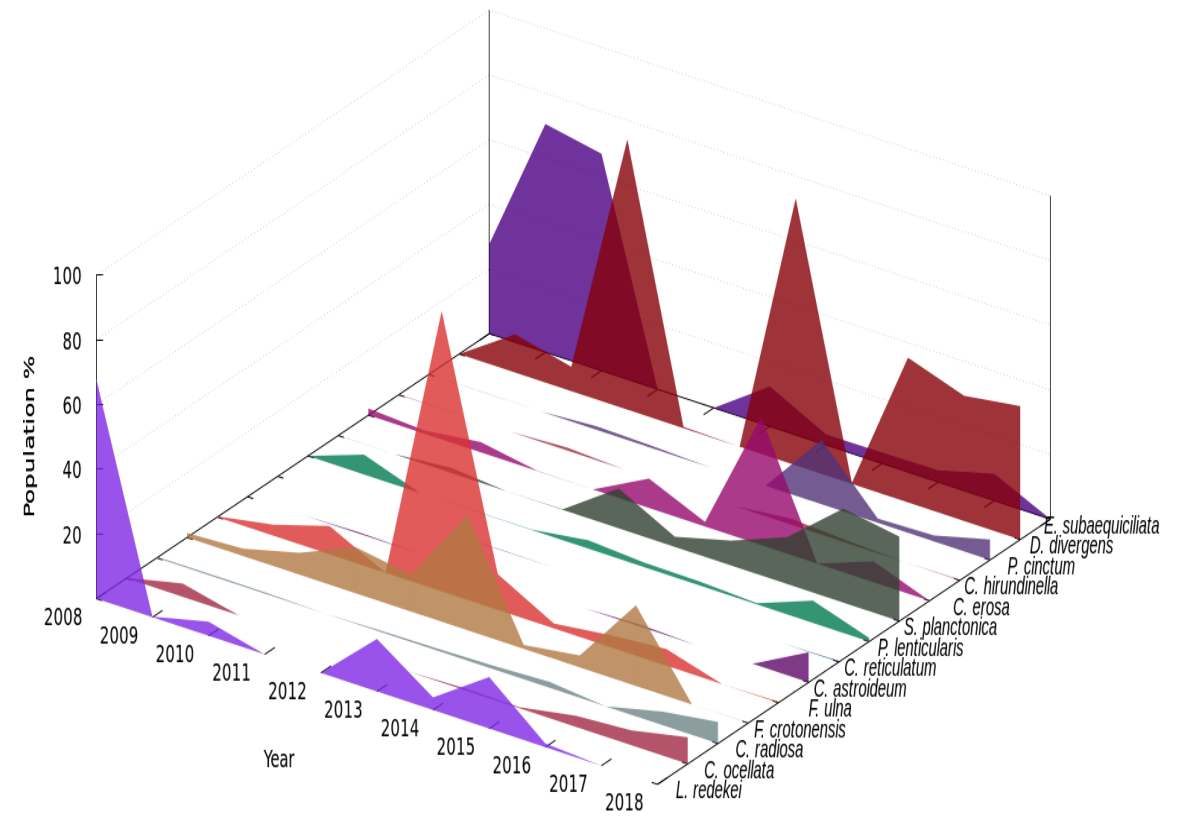
# Dominant Phytoplankton species over 10 years

Dominant Species 2008-2018



**Inflow**

Dominant Species 2008-2018



**Aerator 1**

# Discussion

- Periphyton
  - High oxygen levels
  - Dominantly eutrophic
  - Dominantly alkaliphilous
  - Diatom index slightly increased
- Phytoplankton
  - More species abundance in inflow, but lower biomass
  - Cyanobacteria in inflow, shift in species
  - Dominant species; *Shaerocystis planctonica* and *Coelastrum reticulatum*
  - Dominantly eutrophic
  - PMPL is moderate, besides inflow
  - Higher levels of green algae

# Conclusion

- Lake Durowskie is mainly eutrophic, but it has been observed that mesotrophic conditions are steadily increasing
- Water quality is improving slightly



Thank you  
for  
your attention