Water Quality of Lake Prespa Tributaries

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The water resources in the Prespa valley are used for different purposes:

- water supply for populated regions in the valley,
- water for industrial capacities and irrigation of agricultural regions in all three countries.

Beside agriculture use tourism and fishery have economic importance in the lake basin.

The Lake Prespa, under some natural and anthropogenic factors, during the last decades manifests changes in the morphometric of the basin and quicker process of eutrophication.

The rapid decrease in the level of the lake, due to the intense usage of the water, resulted in decrease in its volume and in deterioration of the waters quality.

The tributaries of Lake Prespa are recipients of industrial and communal waste waters.

The aim of our study was to determine water quality and assess the anthropogenic impact on the tributaries of Lake Prespa during 2023.

The study included microbiological parameters of ecological and sanitary aspects, organic and nutrient loading.

These investigations were done according to standard limnologic methods.

Results of this investigations indicate that all tributaries of Lake Prespa, are under high anthropogenic impact, and

they pollute the littoral region in front of their inflow.

Microbiological results support ecological and physico-chemical assessment of the natural state and water quality of the Lake Prespa and its tributaries.

The most polluted is the River Golema (class IV and V) exclusively fecal and organic pollution),

Kranska is less polluted (III , IV class) , and

Brajcinska is the least polluted (II and III class).

According concentrations of organic matter, total nitrogen and total phosphor all tributaries of Lake Prespa belongs from IV-V class.

River Golema is maximal polluted

Development of bacteria directly depends on the concentration of organic substances.

The main sources of pollution are wastewaters from households, industries and agriculture.

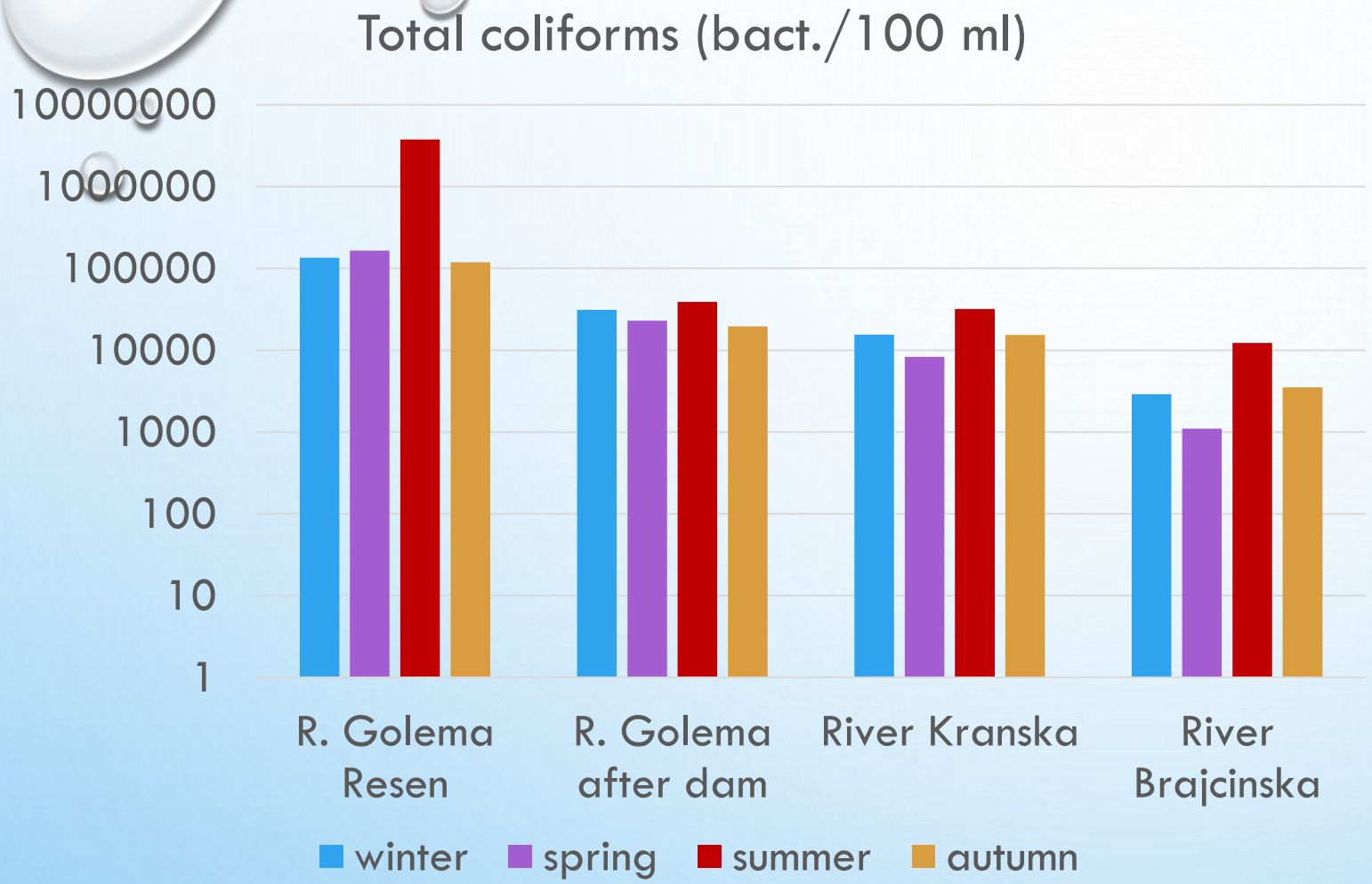
In order to prevent further eutrophication processes certain measures have to be undertaken,

such as increased control of the waters that flow into the lake,

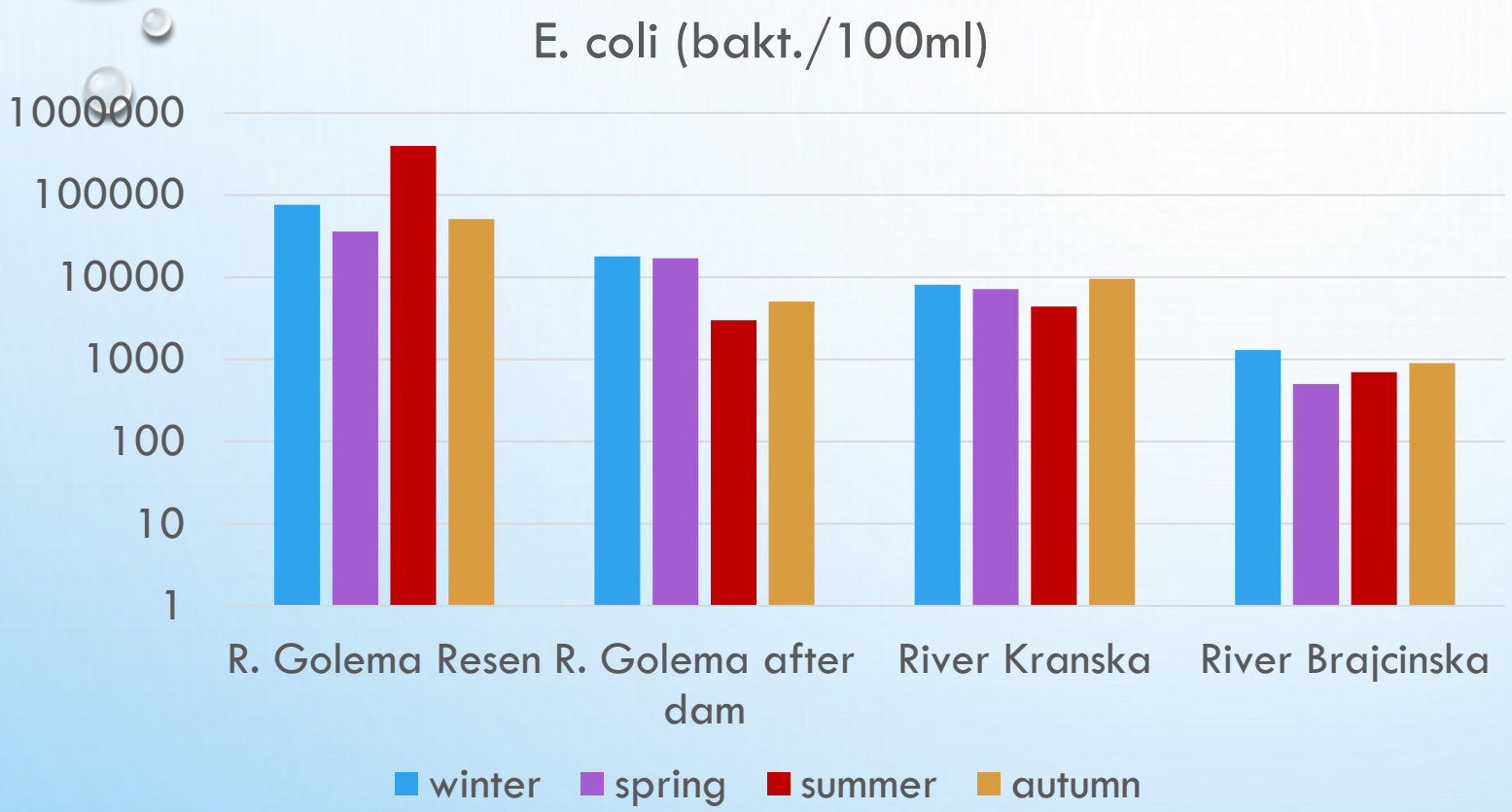
to be cautions of the biological minimum of the water in the rivers,

which also during the summer period are used for irrigation

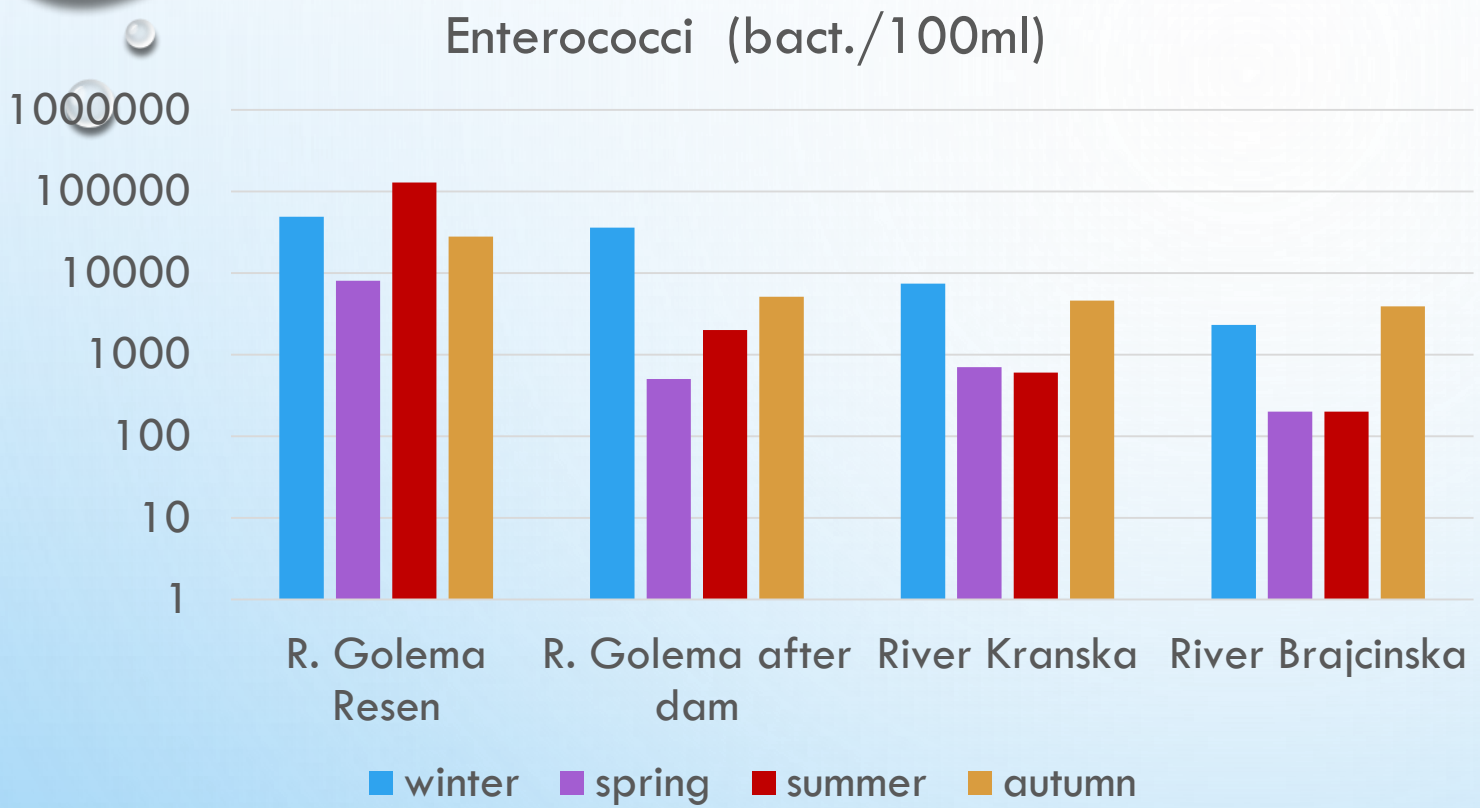
without any control.



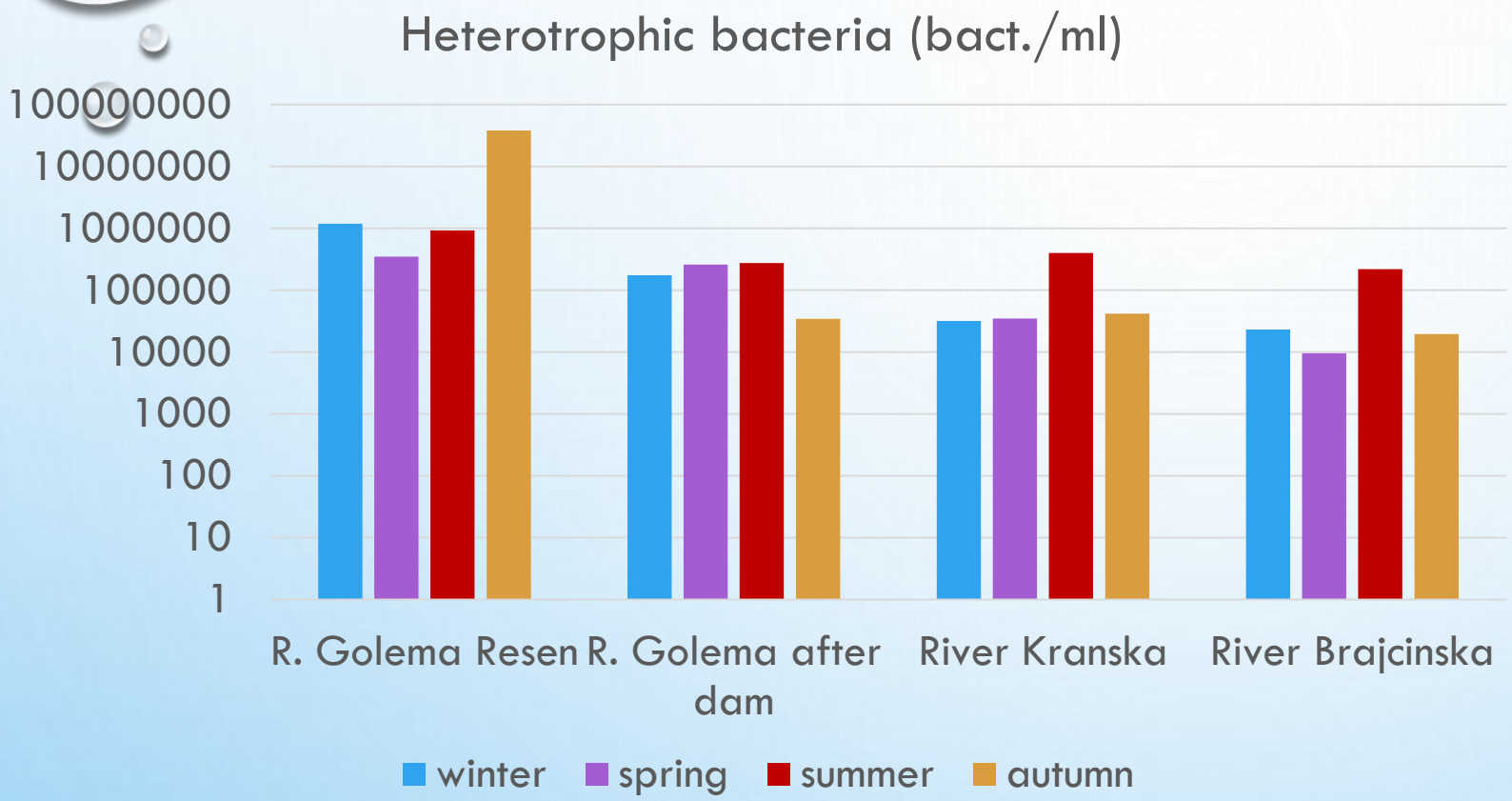
Classification of fecal pollution - Kavka&Poetsch, 2002				
	R. Golema Resen	R. Golema after dam	River Kranska	River Brajcinska
winter	IV	III	II	II
spring	IV	III	II	II
summer	V	III	III	III
autumn	IV	III	III	II



Classification of fecal pollution - Kavka&Poetsch, 2002				
	R. Golema Resen	R. Golema after dam	River Kranska	River Brajcinska
winter	IV	IV	III	III
spring	IV	IV	III	II
summer	V	III	III	II
autumn	IV	III	III	II

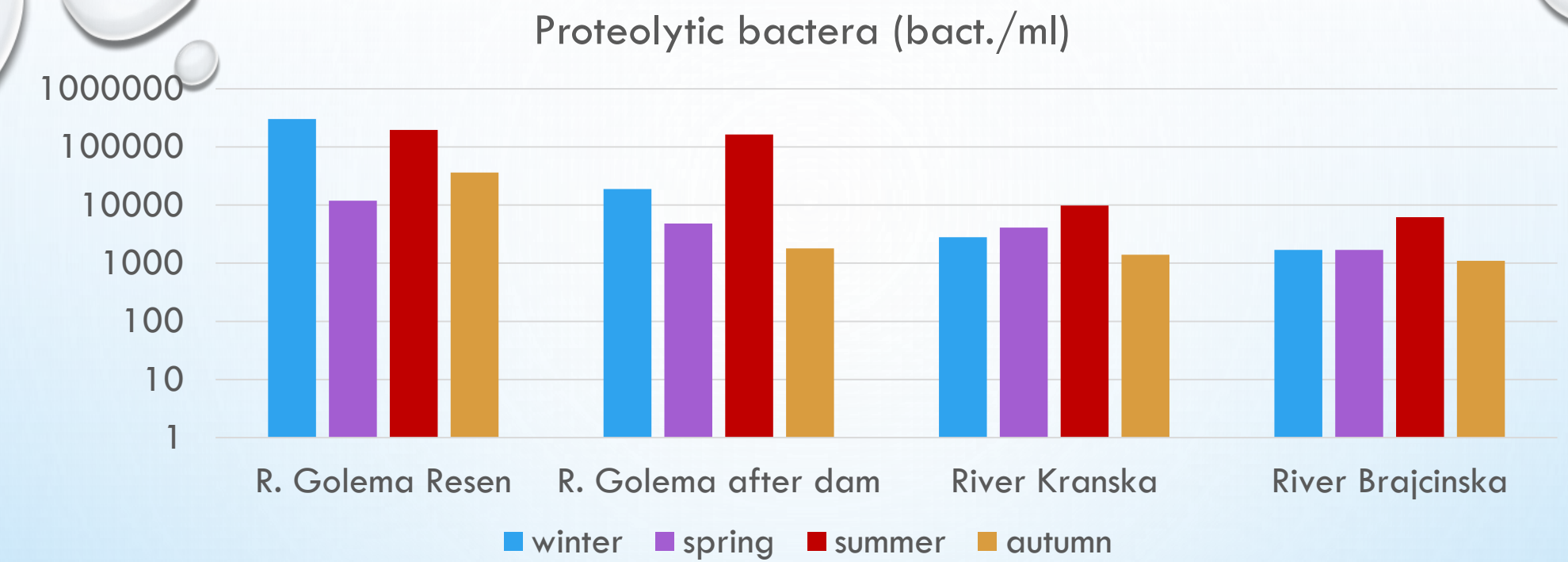


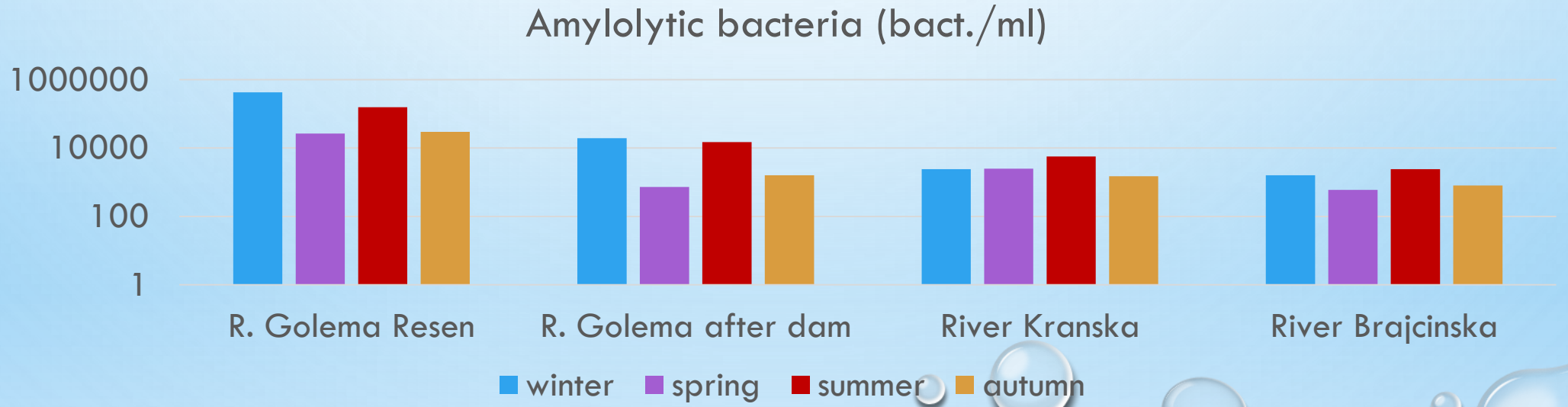
Classification of fecal pollution - Kavka&Poetsch, 2002				
	R. Golema Resen	R. Golema after dam	River Kranska	River Brajcinska
winter	V	IV	IV	III
spring	IV	III	III	II
summer	V	III	III	II
autumn	IV	IV	IV	III

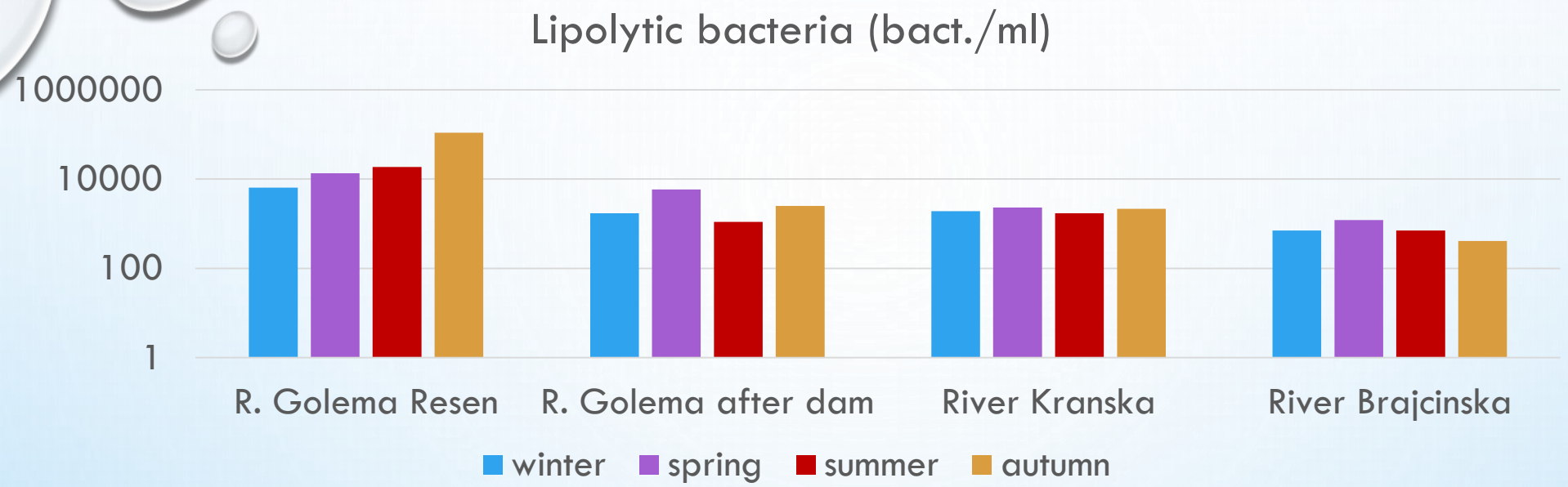


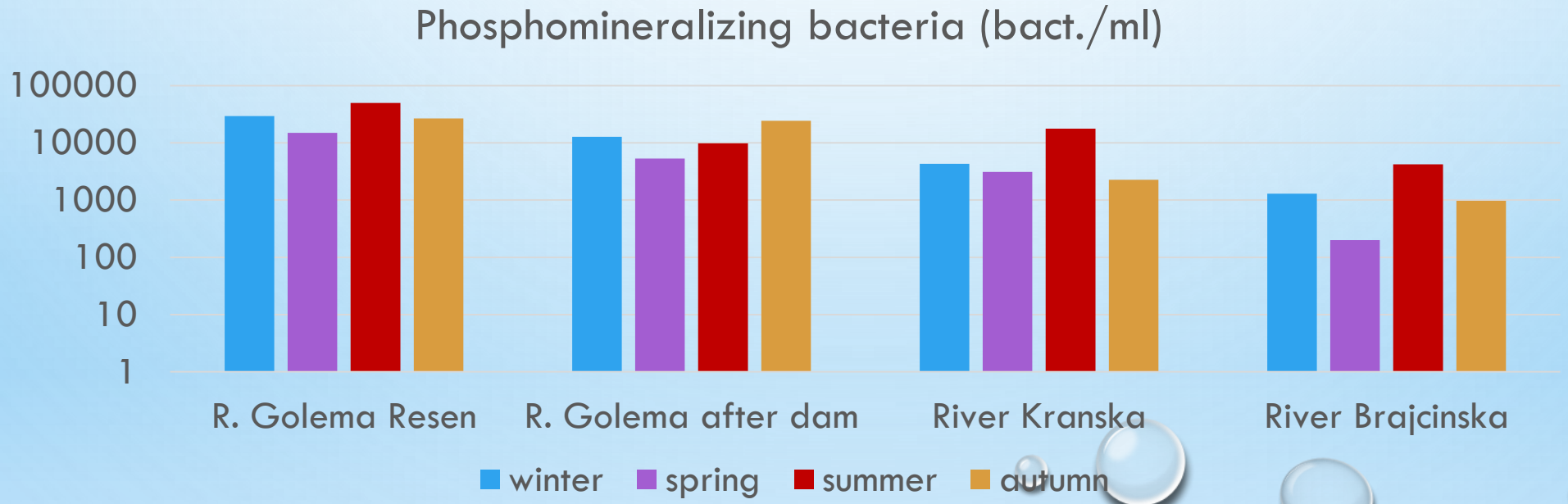
Classification of organic pollution - Kavka&Poetsch, 2002

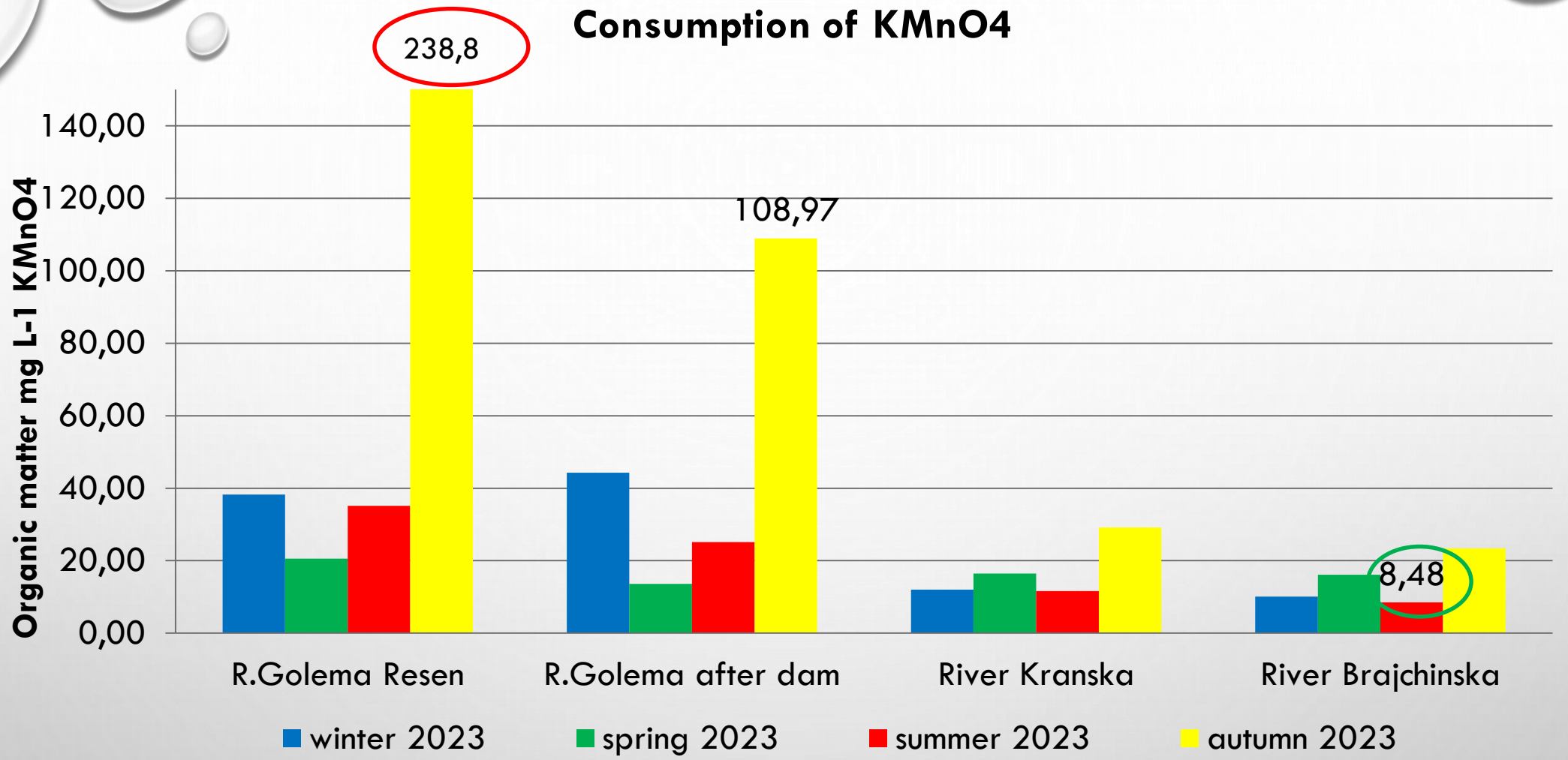
	R. Golema Resen	R. Golema after dam	River Kranska	River Brajcinska
winter	V	IV	III	III
spring	IV	IV	III	III
summer	V	IV	IV	IV
autumn	V	III	III	III


Proteolytic bactera (bact./ml)
1000000
100000
10000
1000
100
10
1
R. Golema Resen
R. Golema after dam
River Kranska
River Brajcinska
winter
spring
summer
autumn


Amylolytic bacteria (bact./ml)
1000000
10000
100
1
R. Golema Resen
R. Golema after dam
River Kranska
River Brajcinska
winter
spring
summer
autumn


Lipolytic bacteria (bact./ml)
1000000
10000
100
1
R. Golema Resen
R. Golema after dam
River Kranska
River Brajcinska
winter
spring
summer
autumn

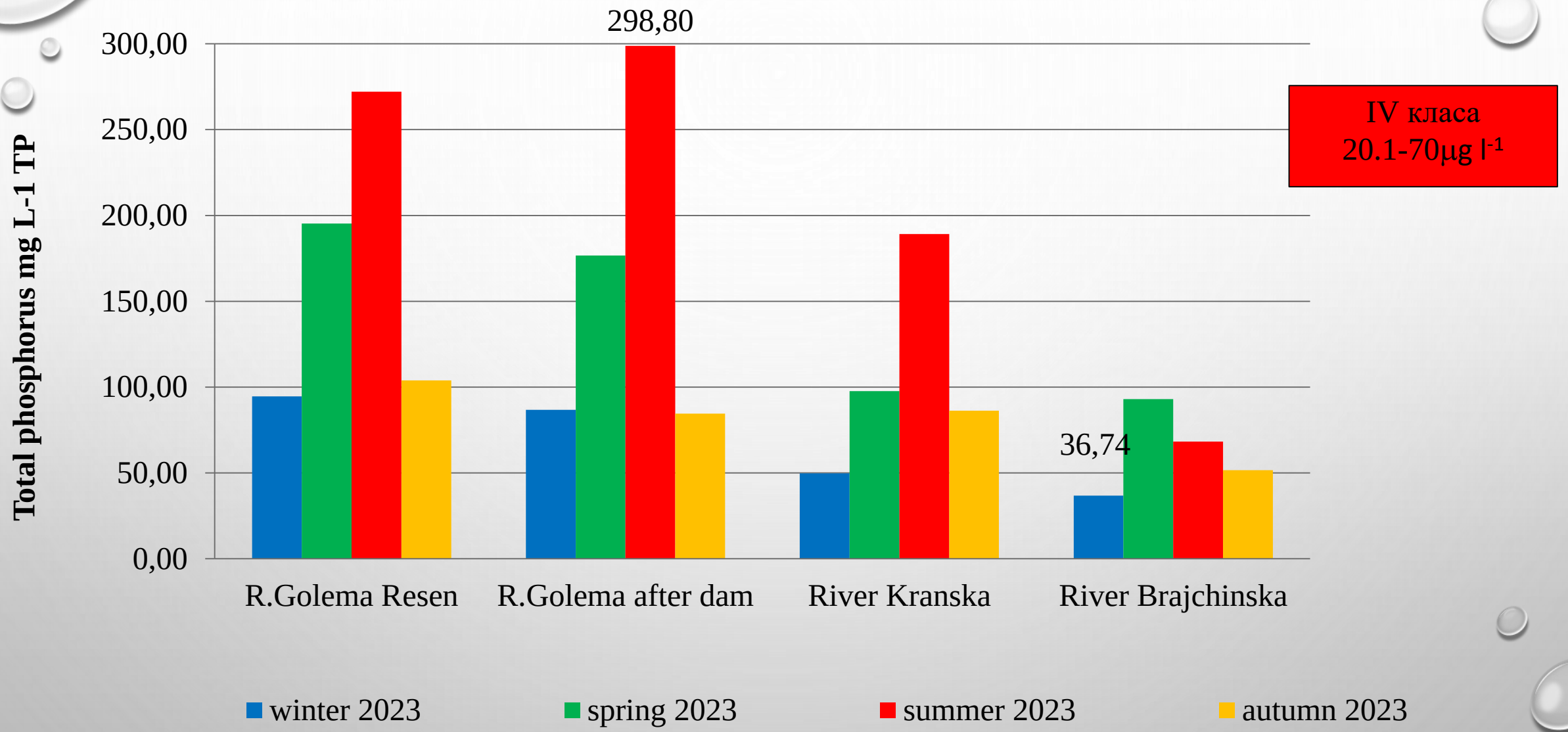

Phosphomineralizing bacteria (bact./ml)
100000
10000
1000
100
10
1
R. Golema Resen
R. Golema after dam
River Kranska
River Brajcinska
winter
spring
summer
autumn

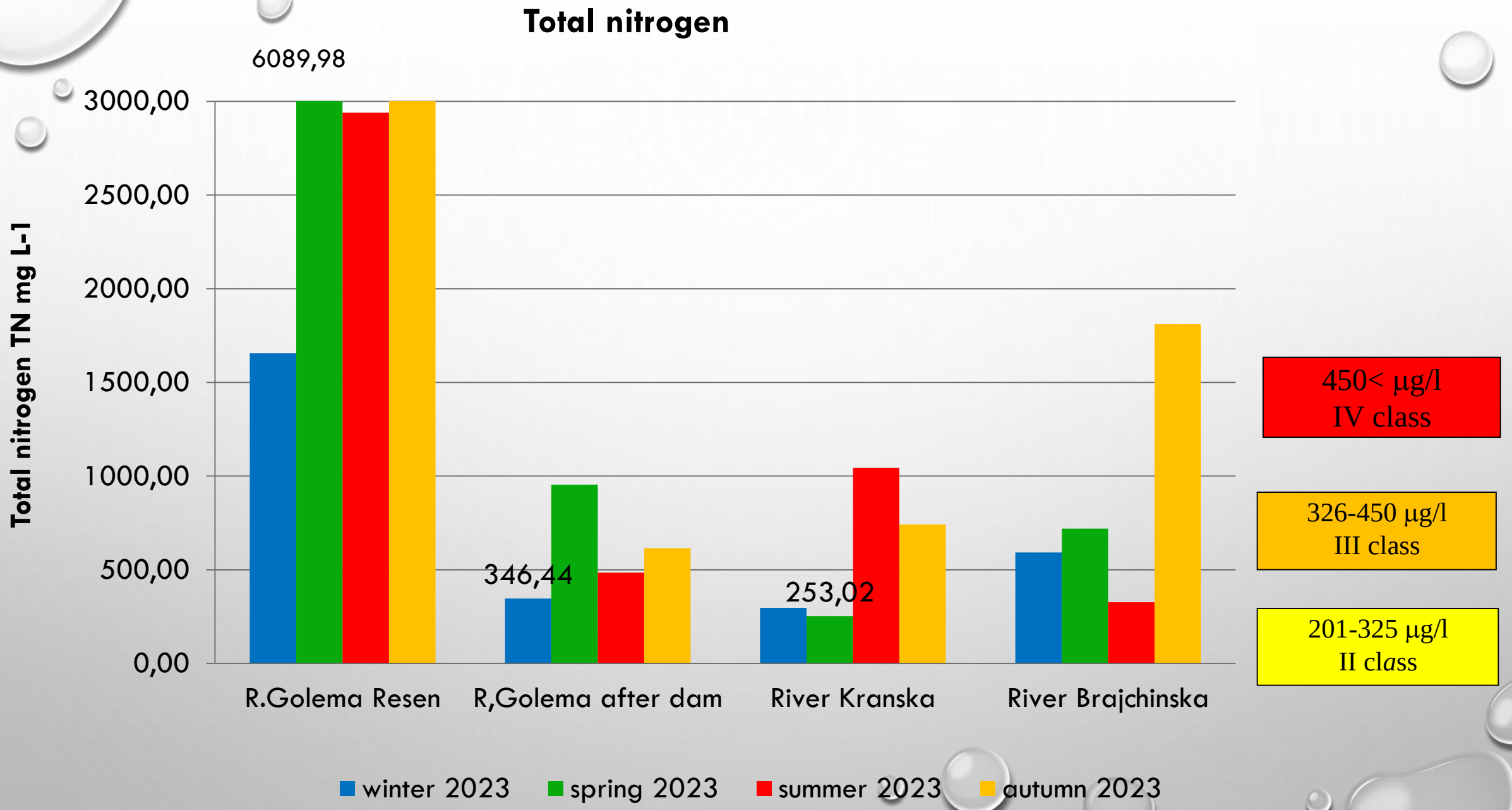


III class 5,01 – 10 mg/l

IV class 10,01 – 20 mg/l

Total phosphorus




Total nitrogen
6089,98
3000,00
2500,00
2000,00
1500,00
1000,00
500,00
0,00
Total nitrogen TN mg L-1
346,44
253,02
R.Golema Resen
R,Golema after dam
River Kranska
River Brajchinska
winter 2023
spring 2023
summer 2023
autumn 2023
450< µg/l
IV class
326-450 µg/l
III class
201-325 µg/l
II class