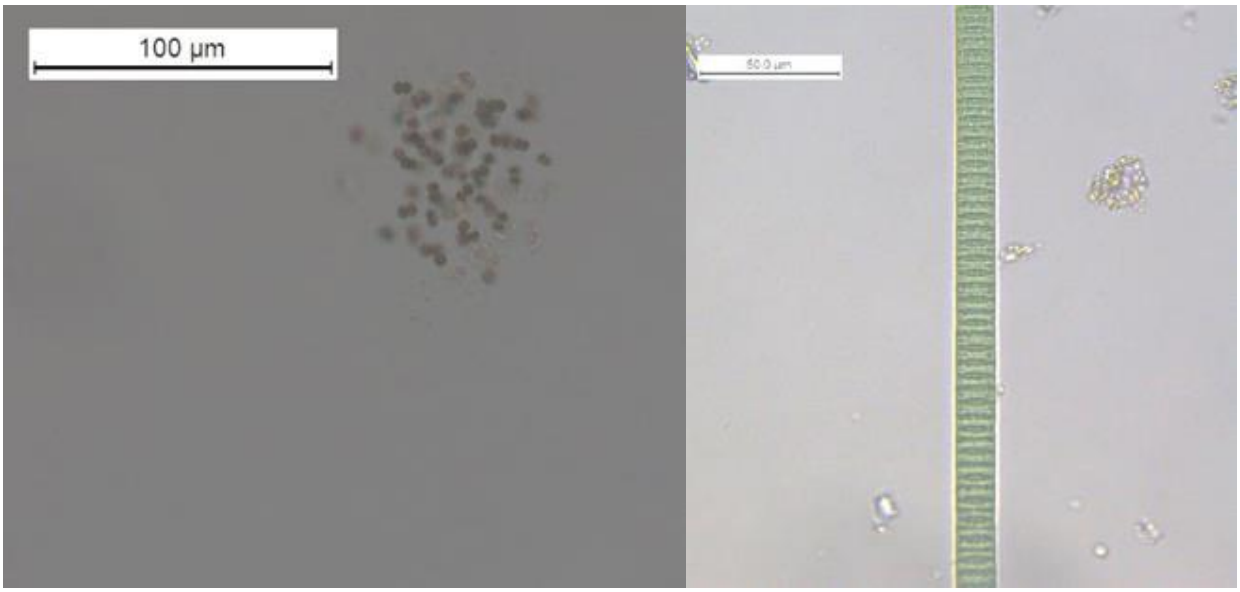
Project Update: April 2019

Cyanotoxins threat for Danube salmon (Hucho hucho) caused by eutrophication process in Vrbas River

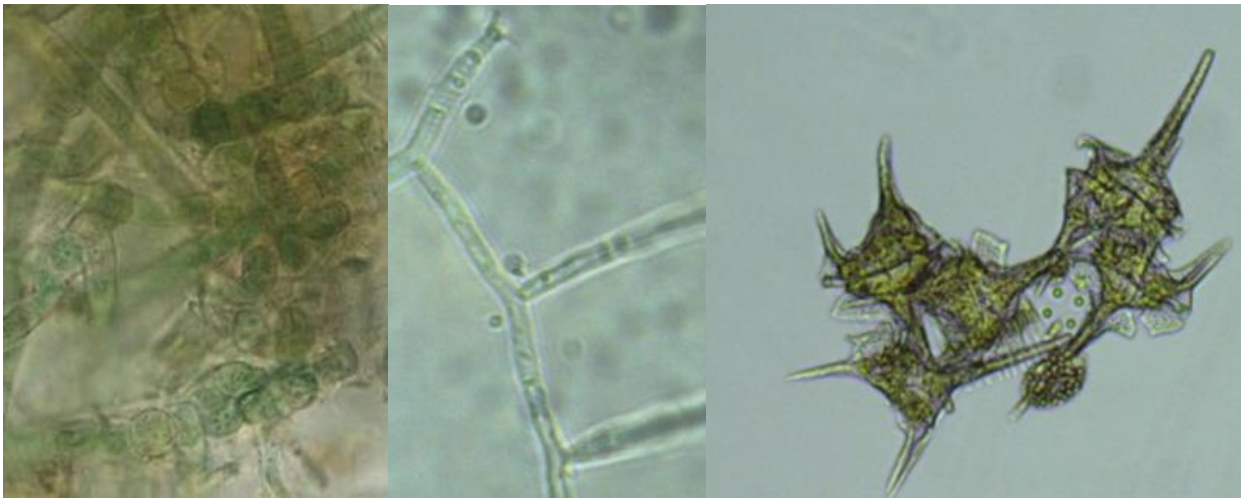
All of the planed field activities were finished in time and according to the methodologies described in the project proposal and previous project update. That includes measuring oxygen, temperature, pH, electrical conductivity, transparency and sampling water samples for various analysis.

From that point on, we spent a lot of time in laboratory conducting qualitative and quantitative phytoplankton analyses, determination of *chlorophyll a* concentration which includes cyanotoxin analysis done in another laboratory, in all samples gathered between August and November 2018.

The results show that the entire phytoplankton population consist of 31 different taxon species. From *Cyanobacteria* phylum we found five different taxa: *Chroococus limneticus* Lemm., *Gleocapsa minuta* Holl, *Microcystis aerigunosa* (Kütz.) Trev., *Oscilatoria limnetica* Lemm., and *Hapalosyphon sp*.



Left: *Mycrocystis aerigunosa*. Right: *Oscilatoria limnetica*



Left: Haphalosyphon sp. Middle: *Haphalosyphon sp.* Right: *Ceratium hirundinela*

In October 2018 began a massive blooming of the species *Hapalosyphon sp*. which was dominant in the November as well. This species is yet to be determined and is possibly a new species. Besides *Hapalosyphon* sp, the highest abundance had *Ceratium hirundinela* from *Pyrophyta* phylum, which also produce certain toxins that could have negative impact on aquatic organisms especially on the sensitive Danube salmon.

Concentration of chlorophyll *a* varies from month to month depending on abundance of phytoplankton and has shown fluctuation in values thus putting the lake trophic status from oligotrophic to eutrophic.

Cyanotoxin analysis of the water samples was conducted in all the samples even though the algal bloom occurred in the October and November mainly.

With other collected data such as temperature, pH, electrical conductivity, transparency, oxygen concentration, alongside with chlorophyll a concentration, the next step is to determine trophic status of the lake and analyse all other collected data which will be presented to the groups of interest after creating a promotional material.