

**Title:** Response of aquatic organisms to pollution in a Flemish lowland river: a comparison between diatoms and macro-invertebrates

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**Summary:** The European Water Framework Directive (WFD) of 2000, requests that all EU member states perform water quality assessment based on biological, physical- chemical and hydro-morphological elements. The biological monitoring includes besides fish fauna and macrophytes, also macroinvertebrates and benthic diatoms. Both groups have already proven to be quite reliable bioindicators for general water quality monitoring and biological indices for both macroinvertebrates and diatoms have been adjusted to comply with the guidelines of the WFD.

In Flanders, both systems are currently being used since more than 15 years in a regular monitoring of the quality of our rivers. The results show that organic, salinity and nutrient pollution lead to significant changes in the species composition for both the macro-invertebrates and the diatoms.



In 2006-2007 and 2019-2020, comparative studies were performed on the water quality of the Dommel, a small lowland river on the border between Flanders and the Netherlands, impacted by heavy metals. These studies showed a gradual decrease of the effects moving away from the most polluted sites. However, No evaluation at the sites with the highest pollution was included. Therefore, a new study is proposed

to evaluate and discuss in more detail the impact of these metals on both macroinvertebrates and diatoms at the most polluted sites and its effect on the assessment of the water quality on the Dommel river. Changes in community composition due to pollution are evaluated by means of the application of multivariate statistical analyses using cluster analysis and ordination techniques.

**Keywords:** Flanders – water quality – microscopical algae – macro-invertebrates

**Practical info:** Samples will be collected several times on the Dommel River and some of its tributaries for chemical analysis to perform an abiotic characterization and to sample diatoms and macro-invertebrates.

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Samples will be analyzed for macro-invertebrates in the ECOSPHERE lab and diatoms will be studied in the Diatom, Phycology and Myxomycete Unit at Meise Botanic Garden; As most of the research will be performed in Meise Botanic Garden, disposing of a personal car is a plus.