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Diatoms as indicators of flooding events: paleoreconstruction of floodplain lakes along river IJssel (The Netherlands)

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Global Change will have a serious influence on the flooding frequency and intensity of lowland rivers in The Netherlands. The increased flooding events will cause major effects on the aquatic communities present along these lowland rivers. Floodplain lakes are one of the first ecosystems that are likely to be touched by an increased flooding frequency since water of a different chemical composition and/or quality will enter these closed environments. The effects on the aquatic organisms such as diatoms, macrophytes and macro-invertebrates are still not entirely understood. The purpose of the present study is to investigate the possible effects of flooding on the diatom composition and ecological water quality of floodplain lakes by reconstructing the flooding events of the past 100-150 years.

Using both piston and gravity coring equipment, a sediment sequence of 120 years was obtained in a small floodplain lake near Huize de Poll. The combination of the diatom analysis, radiometric dating and historical records of past floodings allowed us to reconstruct the effects of these floodings on the diatom composition. Prior to 1960, the floodings increased the nutrient load in the floodplain lake altering the diatom composition from a *Cyclotella*-dominated flora to a *Stephanodiscus*-dominance whereas after 1960, a decrease in the nutrient conditions were observed following the flooding with *Aulacoseira granulata* and *A. ambigua* being the dominant species. A morphometric analysis of the *A. granulata* valves gave us a reliable instrument to indicate the exact flooding event in the core.

This poster presents the results of the diatom analysis with the reconstruction of the nutrient conditions in the Huize de Poll floodplain lake. The results of the morphometric analysis of *A. granulata* are discussed in full detail.