

Interactive aggregation of phytoplankton communities and suspended particulate matter

Zhang Jianwei

Protistology and Aquatic Ecology, Ghent University, K.L. Ledeganckstraat 36, 9000 Gent, Belgium
E-mail: jianwei.zhang@ugent.be

Flocculation is an important mechanism for the removal of suspended particles from the water column in streams, lakes, estuaries and oceans. Floc growth in flocculation processes occurs over several phases. Initially, aggregation is dominant, and flocs rapidly increase in size, forming large, open structures. Eventually, floc aggregation and breakage balance to create a steady-state particle size distribution (PSD), meanwhile flocs reaching a limited size. The effect of flocculation on suspended particulate matter (SPM) was widely investigated. However, its effects between phytoplankton communities and SPM is poorly understood. Hence, a rotated chamber set-up was developed to investigate its mechanism. The rotor was used to simulate shear rate in natural waters, and a camera and a laser were used to capture images. Salinity, nutrient abundance were controlled and act as environmental parameters in this chamber. Both temporal PSD and phytoplankton communities development will be studied under previously mentioned conditions.

Keywords: Flocculation; Phytoplankton communities; Suspended particulate matter; Rotated chamber