

## ATTACHED INTERTIDAL DIATOMS HAVE STRONGER PHOTOPROTECTIVE CAPACITY COMPARED TO MOTILE DIATOMS.

Lander Blommaert<sup>1</sup>, Alexandre Barnett<sup>2</sup>, Wim Vyverman<sup>1</sup>, Johann Lavaud<sup>2</sup> & Koen Sabbe<sup>1</sup>

<sup>1</sup>Laboratory of Protistology and Aquatic Ecology, Department of Biology, Ghent University

<sup>2</sup>UMR7266 LIENSs, Institut du Littoral et de l'Environnement, CNRS/Université de La Rochelle

Despite being exposed to a highly fluctuating light climate, intertidal sediments belong to the most productive ecosystems on Earth. The main primary producers in this habitat are diatoms which can be divided in different functional groups [attached, motile/biofilm-forming, (tycho) planktonic]. It is hypothesized that large motile diatoms (epipelon) can migrate within a vertical light gradient to the most optimal light climate whereas smaller attached forms (epipsammon) must be able to cope with a fluctuating light climate using mainly physiological mechanisms. In this study we compared the response of the motile diatom *Seminavis robusta* and the attached diatom *Opephora* sp. to different light intensities using non-sequential light curves. After each light step we measured the main photoprotective mechanisms [non-photochemical quenching of fluorescence (NPQ), and associated xanthophyll cycle and the PSII electron cycle (PSII CET)] using PAM fluorometry, HPLC and a flash O<sub>2</sub> electrode. *Opephora* sp. showed a higher capacity for both NPQ and PSII CET, which might be an adaptation related to its incapability to migrate away from oversaturating light conditions.