Abstract Submitted
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Feeding and swimming of flagellates[1] JULIA DOELGER, Department of Physics and Centre for Ocean Life, Technical University of Denmark, LASSE TOR NIELSEN, THOMAS KIORBOE, National Institute for Aquatic Resources and Centre for Ocean Life, Technical University of Denmark, TOMAS BOHR, ANDERS ANDERSEN, Department of Physics and Centre for Ocean Life, Technical University of Denmark — Hydrodynamics plays a dominant role for small planktonic flagellates and shapes their survival strategies. The high diversity of beat patterns and arrangements of appendages indicates different strategies balancing the trade-offs between the general goals, i.e., energy-efficient swimming, feeding, and predator avoidance. One type of flagellated algae that we observe, are haptophytes, which possess two flagella for flow creation and one so-called haptonema, a long, rigid structure fixed on the cell body, which is used for prey capture. We present videos and flow fields obtained using velocimetry methods around freely swimming haptophytes and other flagellates, which we compare to analytical results obtained from point force models. The observed and modelled flows are used to analyse how different morphologies and beat patterns relate to different feeding or swimming strategies, such as the capture mechanism in haptophytes.

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