Degree projekt

Subject field: Ecology, Marine

Title: Factors terminating the subarctic spring bloom

Project period: Spring or autumn 2025. 15 to 60 ECTS

Background: Return of light irradiance during high levels of inorganic nutrients in late winter initiate the spring bloom in sub-arctic environments. It is a paucity of knowledge about what factors terminate the spring bloom. Both increased temperature, higher excretion of energy and carbon substrates, competition of nutrients with prokaryotes and elevated grazing are potential factors. This has implication for projecting climate change effects on marine primary productivity.

Phytoplankton spring bloom community. Photo: Siv Huseby, UMF

Overall aim: Clarifying the influence of temperature and substrate availability for regulating the extent of the spring bloom.

Research question: Is the spring bloom terminated by increased temperature, higher organic carbon supply or a combination of both?

Method: Data from a full factorial mesocosm experiment and simultaneous measurements from an adjacent field site will be evaluated. Effects of temperature and dissolved cell substrates on phytoplankton biomass, chlorophyll-a and prokaryotic growth will be investigated. The development of the spring bloom from late winter to spring in the field and mesocosm system will be compared.

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