Maximum phytoplankton concentrations in the sea

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ABSTRACT: A simplification of plankton dynamics using coagulation theory provides predictions of the maximum algal concentration sustainable in aquatic systems. These predictions have previously been tested successfully against results from iron fertilization experiments. We extend the test to data collected in the North Atlantic as part of the Bermuda Atlantic Time Series program as well as data collected off Southern California as part of the Southern California Bight Study program. The observed maximum particulate organic carbon and volumetric particle concentrations are consistent with the predictions. The results imply that physical processes control maximum particle concentrations in planktonic systems.

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