

Nutrient utilization traits of phytoplankton

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Abstract. This paper presents a compilation of nutrient utilization traits of marine and freshwater phytoplankton. The literature was comprehensively searched for culture experiments using nitrate, ammonium, or phosphate as the limiting nutrient. The following traits were extracted: the response of growth to nutrient supply (maximum growth rate under unlimited nutrient supply and the nutrient concentration at which growth is half-saturated); the response of internal nutrient content to nutrient supply (the minimum subsistence quota at which growth ceases and the maximum nutrient quota under unlimited nutrient supply); and nutrient uptake kinetics for nutrient-limited cells (maximum uptake rate and the nutrient concentration at which uptake is half-saturated). The resulting data set includes 1319 measurements on 129 species from 138 publications. Potential uses of these data include studies of community structure and trait evolution, parameterization of ecosystem models, and biofuel development.

Key words: algae; allometry; competition; Droop; Monod; nitrogen; phosphorus; physiology; stoichiometry; uptake kinetics.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at <http://esapubs.org/archive> (the accession number for each Data Paper is given directly beneath the title).