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Biogeochemistry: Matthew Johnson

Research Interests

My lab studies predator-prey and host-symbiont interactions among marine protists. The protists are a conglomerate of distantly related single celled eukaryotes that frequently dominate carbon fixation and its consumption in pelagic ocean food webs. Marine phytoplankton play a central role in many biogeochemical cycles and, along with cyanobacteria, are responsible for about half of our planets atmospheric oxygen. My lab studies their chemical and cellular interactions with protistan zooplankton (protozoa) in an effort to better understand how these grazers shape phytoplankton communities and their bloom dynamics. My lab also studies the ecology and evolution of mixotrophic protists. While protists are often classified as either plants or animals, many species combine these trophic roles. Mixotrophy is a widespread phenomenon in marine microbial foodwebs, and includes algae that eat and protozoa that steal chloroplasts (i.e. kleptoplasty) or host algal endosymbionts.

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