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Sommario/riassunto	<p>The cycling of energy and elements in aquatic environments is controlled by the interaction of autotrophic and heterotrophic processes. In surface waters of lakes, rivers, and oceans, photosynthetic microalgae and cyanobacteria fix carbon dioxide into organic matter that is then metabolized by heterotrophic bacteria (and perhaps archaea). Nutrients are remineralized by heterotrophic processes and subsequently enable phototrophs to grow. The organisms that comprise these two major ecological guilds are numerous in both numbers and in their genetic diversity, leading to a vast array of physiological and chemical responses to their environment and to each other. Interactions between bacteria and phytoplankton range from obligate to facultative, as well as from mutualistic to parasitic, and can be mediated by cell-to-cell attachment or through the release of chemicals. The contributions to this Research Topic investigate direct or indirect interactions between bacteria and phytoplankton using chemical, physiological, and/or genetic approaches. Topics include nutrient and vitamin acquisition, algal pathogenesis, microbial community structure during algal blooms or in algal aquaculture ponds, cell-cell interactions, chemical exudation, signaling molecules, and nitrogen exchange. These studies span true symbiosis where the interaction is evolutionarily derived, as well as those of indirect interactions such as bacterial incorporation of phytoplankton-produced organic matter and man-made synthetic</p>

symbiosis/synthetic mutualism.
