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Sommario/riassunto	Many oceans are currently undergoing rapid changes in environmental conditions such as warming temperature, acidic water condition, coastal hypoxia, etc. These changes could lead to dramatic changes in the biology and ecology of phytoplankton and consequently impact the entire marine ecosystems and global biogeochemical cycles. Marine phytoplankton can be an important indicator for the changes in marine environments and ecosystems since they are major primary producers that consolidate solar energy into various organic matter transferred to marine ecosystems throughout the food-webs. Similarly, the N2 fixers (diazotrophs) are also vulnerable to changing environmental conditions. It has been found that the polar regions can be introduced to diazotrophic activity under warming conditions and the increased N availability can lead to elevated primary productivity. Considering the fundamental roles of phytoplankton in marine ecosystems and global biogeochemical cycles, it is important to understand phytoplankton ecology and N2 fixation as a potential N source in various oceans. This Special Issue provides ecological and biogeochemical baselines in a wide range of geographic study regions for the changes in marine environments and ecosystems driven by global climate changes.