

MICROBIAL PLANKTON COMMUNITY RESPONSES TO NUTRIENT AND B12-VITAMIN ADDITIONS

Recent studies in coastal waters suggest that phytoplankton is eventually limited or colimited by some metabolites derived from bacterial activity. The majority of phytoplankton species require an exogenous source of B12 vitamin for growth. As only selected prokaryotes are able to synthesize B12, they must be the ultimate source of B12 for auxotrophic phytoplankton. We conducted 3 microcosm experiments to assess the response of microbial plankton to B12-vitamin amendment in the coastal-ocean transition zone off NW Spain. Surface seawater was mixed with inorganic nutrients, B12-vitamin or a combination of both and incubated during 72h, under *in situ* temperature and light conditions. Size-fractionated (20, 3 and 0.2 μm) chlorophyll-*a* concentration and picoplankton abundance were monitored every 24h and changes in the size-fractionated eukaryotic and prokaryotic community structure were assessed by ARISA (automatic rRNA intergenic spacer analysis) at the end of the experiments. We observed that phytoplankton responded to B12-vitamin (alone or in combination) in 2 experiments. Nanophytoplankton was the most responsive fraction in terms of biomass, whereas changes in community structure associated to B12-vitamin addition were mainly observed for large eukaryotes.