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Effects of environmental factors on phytoplankton communities in the marine ranching ground of Tongyeong coastal waters

Seung Won Jung, Jin Hwan Lee, Jong Man Kim and Mal Nam Kim*
 Division of Natural Science, Sangmyung University, Seoul 110-743, Korea
 Korea Ocean Research and Development Institute, Ansan 400-629, Korea

In order to investigate a structures and dynamics of phytoplankton communities, the present studies were dealt with physicochemical environmental factors, species composition, standing crop and dominant species of phytoplankton communities in the marine ranching ground of Tongyeong coastal waters from April to October, 2000. During the study period, mean temperature and salinity were 18.8°C and 33.1psu, respectively. pH, dissolved oxygen, suspended solid and transparency was varied from 7.54 ~ 8.43, 5.43 ~ 11.39 mg/l, 14.6 ~ 32.4 mg/l and 3.5 ~ 9.0m, respectively. Light intensity was varied from minimum 0.04 μ E/m²/s (average in 30m, October) to maximum 966 μ E/m²/s(average in surface, August), which decrease with increasing depth. NH₄-N, NO₃-N, NO₂-N, PO₄-P and SiO₂-Si were 0.0644 ~ 0.3324mg/l, 0.0396 ~ 0.7997mg/l, 0.0014 ~ 0.4680mg/l, 0.0020 ~ 0.1430mg/l and 0.0070 ~ 0.5997mg/l, respectively. Concentration of chlorophyll-*a* was fluctuated from 0.7 μ g/l to 8.9 μ g/l. A total of 130 taxa of phytoplanktons, diatoms occupied more 90% of the total species, and others were dinoflagellates and silicoflagellates. Phytoplankton standing crops was ranged from 4.6 $\times 10^4$ ~ 2.6 $\times 10^6$ cells/l. In October, there showed blooms level more than 1.0 $\times 10^6$ cells/l at all stations and layer. Dominant species was various by month and station. *Leptocylindrus danicus* occupied 59.84% in April and June. In August *Pseudo-nitzschia pungens* and *Dictyocha speculum* were predominant species, and *Chaetoceros socialis* and *Skeletonema costatum* in October. From the results of the physicochemical factors, it was apparent that this area was mesotrophic level. Pearson correlation analysis between phytoplankton standing crops and environmental factors indicated that salinity was negative correlation and silicate positive. As a result of multiple regression analysis, dissolved oxygen, silicate, nitrate and salinity were represented as the important factors which have influenced on the phytoplankton standing crops.