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Seasonal Variations in the Structure of Phytoplankton Communities near Nuclear Power Plants

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To investigate effects of thermal discharge effluent from nuclear power plants on the surrounding marine environment, especially on the phytoplankton community, environmental data gained by seasonal survey around Hanbit and Hanul nuclear power plants during the periods of 11 years from 1999 to 2009 were analysed. The data used were from environmental survey and assessment around Hanbit and Hanul nuclear power plants of Korea during the period of 11 years from 1999 to 2009. The purposes of this study are (1) to evaluate the effect of operation of nuclear power plants on phytoplankton community, (2) to find out whether the thermal discharge affected negatively phytoplankton community, and (3) to evaluate the difference of thermal discharge influence on phytoplankton community between West and East coastal area, Korea.

Through this study, (1) quantitative evaluation of the effect of thermal discharge effluent on marine ecology, especially on abundance and biomass of phytoplankton were performed, (2) found that depending on the season, the effect of thermal discharge effluent from nuclear power plant on the marine environment is not always negative (i.e. warm water may increase or prevent decline of abundance in seasons with low temperature such as winter in Hanbit area), and (3) found that same thermal discharge effluent rate to different marine environments, such as west and east coast of Korea, does not result in same effect on the marine ecosystem.

Country or International Organization

Republic of Korea

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