

OD4) Longitudinal Distribution of Phytoplankton Community in Weirpools of the Nakdong River

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1. Introduction

Our study examined the distribution of phytoplankton in 13 weir pools in the Nakdong River during the summer of 2018 and 2019.

2. Materials and Methods

In 2018, it was carried out from Andong (Andong regulated dam) to Busan (estuarine barrages), and at Changnyeong-Haman weir and estuarine barrages in 2019.

3. Results and Discussions

The phytoplankton taxa consisted of 79 species in 38 genera, followed by green algae>diatom=blue-green algae>cryptomonad>euglenoid=dinoflagellate. Total cell counts tended to increase in the reaches of Sangju-Nakdan weirs and Dalseong-HapcheonChangnyeong weirs. The cell densities of diatoms, blue-green algae and green algae increased toward the downstream, and the maximum values of the taxa were observed in HapcheonChangnyeong weir, ChangnyeongHaman weir, and GangjeongGoryeong weir, respectively. Especially, harmful cyanobacteria were observed in small quantities from between Andong and Gudam weirs. In the upstream and downstream reaches, the relative abundance of cyanobacteria against the total cell counts was absolute compared to other taxa, and their differences became larger toward the estuary. Prior to the landing of the typhoon Soulik in 2018, the estuarine area have dramatically changed their density to 9.0×10^4 , 2.1×10^6 and 3.1×10^7 cells/mL over a short day. After opening the weir sluice on the Nakdong River in July 2017, a pulsed discharges of harmful cyanobacteria in the lower part (ChangnyeongHaman weir, estuarine barrages) could have major detrimental effects on the freshwater and coastal ecosystems.