

The frequency and abundance of dominant and harmful phytoplankton species in the area of cage culture in the southern part of the Caspian Sea

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Abstract

Several algal blooms have been recorded in the Caspian Sea and it led to the organized study about algal bloom in the area. In recent years marine aquaculture has been started and it is going to develop in the Caspian Sea (Nowshahr region). With considering the interactions between aquaculture and algal bloom, the present paper intends to study species that have bloom potential in the Nowshahr coastal area. The survey showed that more than 70% of the dominant species in different seasons have potential of direct and indirect undesirable biological and environmental impacts. Results showed that most of the species were present in all seasons however the percentages of dominant species and seasonal specific species were different. This indicates that in suitable conditions (mostly temperature and food) the harmful species have potential for increasing the abundance in different seasons. The toxic and harmful species (*Pseudonitzschia seriata*) increased and expanded in autumn as well as winter. Considering that periods of increasing the abundance of harmful and toxic species such as *Pseudonitzschia seriata*, *Cerataulina pelagica* and *Oscillatoria* is the same to the aquaculture period in the Caspian Sea, it is necessary to perform regular phytoplankton monitoring to prevent adverse ecological and economic events. Meanwhile executive procedures (such as control of nutrients inputs into the ecosystem) should be carried out in order to control the harmful phytoplankton abundance.

Keywords: Phytoplankton, bloom, aquaculture, Nowshahr, Caspian Sea