The studies detailed in this thesis comprise of investigations on the periodicity of Phytoplanktons in a small lake, in relation to the environmental factors which directly or indirectly affect them. It was originally planned to include the filamentous and epiphytic algae also but because of the magnitude of the survey, emphasis was consequently directed towards the phytoplanktons. During the investigations, it was found necessary to study certain special aspects to understand the implications of the main problem. The inverse correlation between the pulses of certain groups of organisms suggested a possible formation of inhibitory substances by some planktons and consequently, experiments using different algae were conducted to elucidate this aspect. The implications of these observations are discussed. In view of the economic importance of the phytoplanktons as fish food, the gut contents of some common fish were also examined to find out their feeding habits. A detailed discussion of the lake type is also included.

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