

Assessment of water eutrophication in selected locations of the Diyawanna Oya using visual assessment method

L.D.R. Samarawicrama*, K.S. Sanjeevani, D.G.P. Sammani, A.K.V.H. Rathnayake
and W.M.D.N. Wijeyaratne

Department of Zoology & Environmental Management, Faculty of science
University of Kelaniya

***Corresponding author: dilinir91@gmail.com**

Diyawanna Oya is one of the precious assets in the Colombo metropolitan of Sri Lanka. Some parts of Diyawanna oya is currently under the threat of eutrophication due to rapid development and urbanization of the area. There is a large number of low income houses and several large scale apartment complexes in close proximity to Diyawanna oya. Quality of water and habitat in most of the areas is mainly influenced by public effluent discharges to the canal system, which has a significant environmental effects on the wetland. The objectives of the case study were to use the visual assessment method to compare the levels of eutrophication and to identify the perspectives of the local community on the eutrophication. Three sites were selected for the study and, sites 1 and 2 were rehabilitated sites while site 3 was a non-rehabilitated site. Replicate water samples were collected from each site to cover wet and dry seasons. In visual assessment, presence of Pheriphytons , Phytoplankton, Free floating aquatic plants, Rooted submerged plants, color and odor of water was ranked according to standard visual assessment criteria. Face to face interviews using a questionnaire were carried out by interviewing 40 individuals in the local community. Considerable amount of Pheriphytons, Phytoplankton, Free floating aquatic plants, Rooted submerged plants were observed in sites 1 and 2 while site 3 indicated an elevated level of phytoplankton. The community survey revealed the lack of knowledge of the respondents on eutrophication is the major cause for eutrophication associated problems. The results of the community survey revealed that, majority of the respondent population (74.6%) that lives close proximity to Diyawanna oya does not use the water that can be obtained from that water body for any commercial activity as a result of heavy water pollution, lack of cleanliness and hygiene , but few people (25.6%) uses water that can be obtained mainly for washing vehicles and for fishing activities During the survey it was noted that the residents of the area have frequently suffered from various skin diseases (especially during the rainy season) and vector borne diseases such as Dengue and Filariasis. Majority (59%) of the respondents were not aware of the animal kills associated with eutrophication and related problems. While (41%) expressed observation of fish and bird kills from time to time. The results of this case study shows that Diyawanna oya is heavily polluted with sewage, domestic organic waste and cleaning materials. The pollution is worsened due to over population, urbanization, decrepit infrastructure, inadequate cleaning programs and malfunctioning in the existing programs and also due to breaches in local government management system. The results of this study

highlights the immediate control measures to overcome the environmental impacts of eutrophication in Diyawanna oya.

Keywords: Diyawanna oya, visual assessment, eutrophication