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Water Quality Criteria for Water Bodies in Urban Areas and Accompanying Changes in Surrounding and *In-Situ* Vegetation: Considerations from the Landscape Aspect of Planning Water Recreational Areas

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ABSTRACT

Water bodies in urban areas are important as recreational areas. Thus, management plans that maintain high water quality are quite important. At the Hatadate Water Park adjacent to Miyagi University, water quality parameters such as visibility, COD, TOC, and TN were monitored at a small pond and the inflowing stream from August to December in 2011, and photographs were taken of these sites. Variations in COD and TOC were highly related to changes in the physical appearance, especially changes in vegetation. These findings suggest: 1) the importance of management of vegetation for water quality control; and 2) the importance of collecting photographic records of sites for research purposes of interpreting data and even as a data point of water quality. Together with the water quality goals for water bodies in urban areas proposed by Sudo *et al*. [1], these water quality criteria were assessed, and it was notable that COD often exceeded the set goal. These results suggest that the maintenance of vegetation is more important than controlling incoming TN for primary production in the pond. Seasonal variations in COD and TOC were plotted for surface water of Kamafusa and Okura dams, both are important lakes in Miyagi area and the catchments of both lakes are mainly hilly area, using published water quality reports. Similar annual-cycle changing patterns were shown both for the dams, implying that some kinds of ecological factors in the catchments are affecting the water qualities of the dam, even at those larger scale water bodies. Finally, by shifting the focus from only water to upstream features such as small park, or pocket park, with a parking lot for the water body, the importance of landscape including vegetation and tree cover was highlighted.

KEYWORDS

Small Water Body; COD; TOC; Vegetation; Landscape

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