

**EUTROPHICATION TRENDS IN BOLGODA NORTH LAKE,
SRI LANKA**

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ABSTRACT

Chlorophyll-a (Chl-a) concentration in the Bolgoda North Lake (06.40⁰–06.48⁰ N; 079.55⁰-079.58⁰E), which is a shallow brackish water body situated in the western coastal region of Sri Lanka, was determined through correlating Advanced Space-borne Thermal Emission and Reflection Radiometer (ASTER) optical sensor data with *in-situ* data measured from April 2013 to October 2013 in 05 sampling sites. ASTER band ratio of B1/B2 which gave the highest correlation with *in-situ* Chl-a data was used to generate 15 m resolution Chl-a distribution maps.

Chl-a distribution maps generated using ASTER data indicated that most areas of Bolgoda North Lake were eutrophic. Some regions of the Weras Ganga which flows into the Lake showed very high Chl-a concentrations during April indicating hypereutrophic conditions while in June, September and October these areas indicated eutrophic conditions. Observations on land use pattern revealed that industrial zones border these areas. High Chl-a concentrations were also observed in the areas bordered by the lands with low income houses from which household waste as well as sewage are discharged directly to the lake.

Chl-a distribution maps developed for 2005, 2008, 2010 and 2011 revealed that eutrophication of the Bolgoda North Lake has gradually increased in the recent past. This may possibly be due to the increase in the industrial effluents as a result of industrial development in the area and also due to increased population of low income groups that live in some areas bordering the lake.

Key words: Bolgoda Lake, ASTER, Eutrophication, Chlorophyll-a