

## Water Chemistry Of Famous Dal Lake Kashmir

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**Abstract:** During the present study stress has been made to observe the pressure and causes of eutrophication to the famous Dal Lake Kashmir. Dal Lake is facing tremendous change in the physicochemical parameters like oxygen, carbon dioxide, alkalinity, pH, etc. The present study was undertaken to evaluate the trophic status of Dal Lake Kashmir on the basis of physicochemical parameters criterion. The urban valley lake (Dal) operating under tremendous anthropogenic pressures pumping heavy load of autochthonous and allochthonous material leads to its rapid trophic evolution in the form of eutrophication.

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**Key words:** Trophic status, catchments, anthropogenic, autochthonous, allochthonous, eutrophication.

### Introduction

Kashmir being famous for its lakes, crystal clear water, mountains, snow and spring fed meadows and alpine forests. However the most fascinating character that nature has gifted it is its water resources. Kashmir valley is bestowed within numerable freshwater bodies (lakes, wet lands, ponds, rivers, springs and streams) which are not only important for the ecological, socio economic and cultural heritage of the state but also serve as primary source for the upliftment of local economy. Besides, 80% population of valley is entirely dependent on these water bodies used for drinking, irrigation and domestic purposes while most of the water bodies have been maintained and decorated for tourist purposes and are the best health resorts of Kashmir valley.

### Study Area

Dal Lake, the urban valley lake offluviatile origin is situated at an altitude of 1886m (ASL) between 34°5' - 34°6' N latitude and 74°8' - 74°9' E longitudes, in the heart of Kashmir Valley on the northeast of the state summer capital Srinagar at the foot of Zabarwan Mountains. The total water surface area of the lake is 11.45km<sup>2</sup>, of which 4.1km<sup>2</sup> is floating under gardens, 1.51km<sup>2</sup> and 2.25km<sup>2</sup> are land and marsh respectively, whereas the total volume estimated is 9.05×10<sup>3</sup> m<sup>3</sup> and the ratio between the mean and maximum depth (m) ranges between 0.20 and 0.25 indicating the gentle slope of the lake bed. This open drainage eutrophic lake is multi basined with the Hazratbal, Bod-dal, Gagribal and Nigeenas its four basins, which differ markedly in their area, volume, depth and shoreline development indices *etc.*

### Physico-Chemical characteristics of water of Dal lake

Parameter	Hazratbal	Nagin
pH Scale	8.45	8.78
Temperature (oC)	14.5	15
Depth (M)	2.73	4.5
Conductivity	221.50	310
Dissolved Oxygen (mg/l)	6.10	6.4
Alkalinity (mg/l)	110	111

The valley lakes, , are densely covered with macrophytic vegetation because during growing season bulk of nutrients are locked up within the macrophytic tissues. In the valley lakes the problem of pollution is mainly due to addition of major plant nutrients particularly nitrogen and phosphorus, derived from human wastes, detergents, fertilizers, agricultural activities *etc.* at an accelerated rate. The nutrients have been chiefly responsible for an increase in organic production particularly in the

form of dense macrophytic growth and the overall deterioration of water quality. The deterioration of water quality and other associated problems as a result of racing eutrophication have reduced the recreational and aesthetic appeal of the lakes, besides other economic benefits. Kaul and Handoo<sup>5</sup> are of the view that eutrophication of aquatic ecosystems has a regional aspect in as much as it is dependent upon the regional nutrient contributing factors viz., precipitation, natural drainage, morphology of the

basin and many others, as well as their metabolism is influenced by the complex interrelationship of climatic, hydro-geographical and civilization / cultural features. In view of the variability of these nutrient contributing and metabolism related factors, Kaul opined that the forests and valley lakes experiencing higher trophic evolution and enjoying various degrees of eutrophication need conservatory measures to be adopted for arresting the degradation of these lake ecosystems.

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