

**The Geomorphological gradient and its impact on thermal stratification  
within the stagnant surface water conditions at the village Pargaon, Dist.  
Pune, Maharashtra (India)**

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The physico-chemical and biological characteristics of river water were studied at village Pargaon in the Bhima basin during pre- and post-monsoon seasons. The study was undertaken after reporting of the mass-killing of the fish within the river bed of Mula-Mutha. It was revealed that the temporary bunds constructed along gentler gradient of the river bed, triggered off the bi-chemical and hydrodynamic conditions within the aquatic environment. It led to the formation of thermal stratification, with reduced dissolved oxygen (DO) and associated toxic conditions. Although, there were identical geo-chemical environment in the downstream of the river, it did not result into mass mortality. It is, therefore, inferred that the fresh water supply from the adjacent region had retained the sustainable conditions in the river, except the diseased site. The seniority (meandering) of the river and along the gentler gradients, allowed the retention of enhanced thermal stratification and toxicity in the river environment.

It is advised that such environmental hazards may be minimized or avoided if the thermal stratification is reduced by means of a fresh water supply at the diseased sites.

**Key words :** Geomorphological gradient, thermal stratification, Bhima basin, fish death, dissolved oxygen.