

RESEARCH ARTICLE

Impact of the dams on water and plankton quality of the River Ganga (Gangotri to Vindhyachal)

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Abstract

The river Ganga originates from Gangotri and travels approximately 1,300 km to Vindhyachal, bypassing through a series of dams. Water quality parameters including temperature, pH, dissolved oxygen, alkalinity, chloride, biological oxygen demand, dissolved organic matter, and nutrients were studied from various centers of the river Ganga from Gangotri to Vindhyachal (24 centers). Specific conductivity increased gradually from Muzeri above barrage area and reached maximum at Kanpur as the river receives industrial and domestic effluents near Kanpur. Allahabad, Haridwar, and Vindhyachal sampling points were found to be affected by anthropogenic influences. A chloride as well as Myxophyceae were maximum at Kanpur, which indicated that maximum organic pollution at Kanpur plankton population and composition were much more affected by temperature and nutrients than by the construction of dams. However, the pattern of release of water affected the accumulation of nutrients in surface water, which impacted the quality of planktonic fauna and flora. The upper stretch was dominated by diatoms and the middle stretch by green and blue-green algae as the accumulation of nutrients shifted eutrophic conditions. Near the source, diatoms like *Fragilaria*, *Achnanthes*, *Cymbella*, *Diatoma*, *Fabellaria* were found to be dominant but as river moves toward downstream, species of *Synedra*, *Melosira*,