



Research Article

Eco-status of Ramganga, Kali, Karmnasa, Yamuna, Ghagra and Gomti tributaries in middle stretch of river Ganga

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ABSTRACT

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It is important to monitor tributaries of river Ganga for the sustainable development, as each tributary has its own water quality and productivity. For the present investigation the samples were taken from the River Ramganga, Kali, Karmnasa, Yamuna, Ghagra and Gomti, which are important tributaries of the river Ganga in middle stretch. Their water quality parameters like Temperature, pH, DO, BOD, Alkalinity, Specific conductivity, TDS, Hardness, Nutrients, Gross and Net productivity and Chloride were studied during winter and summer of 2017. Total dissolved solids carried by these tributaries were 275 ppm-Ramganga, 143 ppm -Ghagra, 282 ppm -Kali, 186 ppm -Karmnasa, 271 ppm -Gomti- and 294 ppm-Yamuna and Chloride was 34 ppm-Ramganga, 38.3 ppm -Ghagra, 70ppm-Kali, 48 ppm- Karmnasa, 55.8 ppm - Gomti, and-83.7 ppm Yamuna. Dissolved oxygen ranged from 7.6 to 11.2 ppm, and BOD ranged from 0.8 to 3.4ppm (Yamuna and Kali). Water temp. ranged from 15-21.8 (winter) and 30-36.2 (summer). Specific conductivity ranged from 230 ppm (Ghagra) to 763 (Yamuna). Plankton analysis revealed dominance of Bacillariophyceae in Ramganga, Ghagra, Karmnasa, Chlorophyceae in Gomti and Myxophyceae in Yamuna and Kali. Other planktonic groups were Euglenophyceae, Protozoa, Rotifera and Crustacea. Bacillariophyceae ranged from 21% (Ghagra) to 69.5 % (Karmnasa), Chlorophyceae from 6 (Karmnasa) to 57.8 (Gomti). Reduction in Bacillariophyceae and increase in Myxophyceae was remarkable feature in the river Yamuna as compared to previous studies. Average Myxophyceae contribution was recorded as, 40 % in Kali, 44% in Yamuna, 11 % in Ramganga, 15% in Karmnasa, 22% in Ghagra and 20% in Gomti Suggesting that all the rivers are passing through anthropogenic and environmental stress. Palmer pollution index was also higher for Yamuna and Kali rivers.

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INTRODUCTION

The Ganga is the utmost significant river of India both from the point of view of its basin and cultural concern. The important arms of river Ganga are the Ramganga, the Gomti, the Ghaghara, the Gandak, the Kosi and the Mahanadi. The river finally discharges itself into the Bay of Bengal near the Sagar Island. These tributaries are the small rivers of Ganga river basin. Their source of origin is different but they merge with the river at confluence points and affects water quality because each tributary carry its own water quality and ecology. As NIMCG (National Mission for Clean Ganga) project was launched for cleaning of the river Ganga which was badly affected by discharge of industrial effluents, agricultural runoff and domestic waste. Therefore to clean Ganga it is necessary to clean whole Ganga river system (all small and

big adjoining tributaries). Fishes and plankton are important as they indicate the ecological processes and the producer-consumer interactions (Dwivedi *et al.*, 2016). Exploitation of aquatic resources in river and streams are an economic activity governed by social needs and pressures (Dwivedi and Nautiyal, 2012; Moryank and Dwivedi, 2015 and Dwivedi *et al.*, 2014).

Plankton being the primary producers, are the micro-organisms for fish food, also indicate water quality and productivity of the river. Nature of fauna and flora and water chemistry, just before mixing with the river Ganga, is presented in this paper. Yet it is in preliminary observation, even then, might be useful to improve the river Ganga in NIMCG mission.