

## LOW FLOW CHARACTERIZATION OF SATLUJ RIVER

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### **ABSTRACT**

*The present study was envisaged to estimate low flow characterization of Satluj River. For the present study, Satluj river basin upto Kasol gauging site has been considered and the low flow characterization has been done at three locations viz. Rampur, Suni, and Kasol. The daily discharges of Satluj River at these sites for the years 1964-2011 were used for low flow characterization. The flow characteristics related to low flow domain estimated in the present study were MAR, AMF, Q<sub>20</sub>, Q<sub>50</sub>, Q<sub>90</sub>, Q<sub>20</sub>/Q<sub>90</sub>, Q<sub>50</sub>/Q<sub>90</sub>, and Q<sub>90</sub>/Q<sub>50</sub>. Mean annual runoff of Satluj river varies from 10,606.43 MCM (Rampur) to 13,192.72 MCM (Kasol); Absolute minimum flow from 44.18 cumecs (Rampur) to 73.05 cumecs (Kasol); Q<sub>20</sub> from 625.75 cumecs (Rampur) to 826.55 cumecs (Kasol), Q<sub>50</sub> from 167.25 cumecs (Rampur) to 206.14 cumecs (Kasol), Q<sub>90</sub> from 84.60 cumecs (Rampur) to 98.34 cumecs (Kasol), Q<sub>20</sub>/Q<sub>90</sub> from 7.39 (Rampur) to 8.41 (Kasol), Q<sub>50</sub>/Q<sub>90</sub> from 1.98 (Rampur) to 2.10 (Kasol), and Q<sub>90</sub>/Q<sub>50</sub> from 0.47 (Kasol) to 0.51 (Rampur) respectively.*

*MAM<sub>10</sub> value of Satluj River varies from 80.67 cumecs (Rampur) to 92.30 cumecs (Kasol); 10Q<sub>2</sub> varies from 78.45 cumecs (Rampur) to 89.91 cumecs (Kasol) and 10Q<sub>10</sub> varies from 102 cumecs (Rampur) to 112.46 cumecs (Kasol). Similarly, for average weekly flow, minimum 7-day average flow (MAM<sub>7</sub>) varies from 79.02 cumecs (Rampur) to 91.10 cumecs (Kasol); 7Q<sub>2</sub> varies from 78.05 cumecs (Rampur) to 89.11 cumecs (Kasol) and 7Q<sub>10</sub> varies from 100.1 cumecs (Rampur) to 109.63 cumecs (Kasol) respectively. All these values are a very good indicator of aquatic habitat for various species during different growth stages and environmental flows globally are used for recommending.*

**KEYWORDS:** *Environmental Flow, Flow Duration Curve, Low flow Characterization, Satluj River*