

HYDROLOGIC VARIATIONS RENDERED BY MOTHER NATURE

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Declines in the magnitude of regulatory flows have been noticed in technical evaluations of hydrologic records as well as in reviews of permit applications. Anthropogenic impacts such as human consumptive use of water and reservoir regulations cannot fully explain such declines. The magnitude of the former is dwarfed by the magnitude of flow declines, while the latter can be removed by only looking at runoff materialized in unregulated drainage areas (i.e. incremental flows). Precipitation records have been carefully reviewed from the beginning of instrumentation measurement to 2013. A demarcation of pre-development and post-development has been set at 1975. Substantial deviations of monthly precipitation have been identified in the post-development period in comparison to the re-development one. Higher winter precipitations and lower spring and summer precipitations are characteristic of the post-development period in comparison to the pre-development one. Lower low flows in the modern period can at least be partially explained by such deviation of monthly precipitation patterns.

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