

Effect of Floods on Water Quality: A Global Review and Analysis

Authors : Apoorva Bamal, Agnieszka Indiana Olbert

Abstract : Floods are known to be one of the most devastating hydro-climatic events, impacting a wide range of stakeholders in terms of environmental, social and economic losses. With difference in inundation durations and level of impact, flood hazards are of different degrees and strength. Amongst various set of domains being impacted by floods, environmental degradation in terms of water quality deterioration is one of the majorly effected but less highlighted domains across the world. The degraded water quality is caused by numerous natural and anthropogenic factors that are both point and non-point sources of pollution. Therefore, it is essential to understand the nature and source of the water pollution due to flooding. The major impact of floods is not only on the physico-chemical water quality parameters, but also on the biological elements leading to a vivid influence on the aquatic ecosystem. This deteriorated water quality is impacting many water categories viz. agriculture, drinking water, aquatic habitat, and miscellaneous services requiring an appropriate water quality to survive. This study identifies, reviews, evaluates and assesses multiple researches done across the world to determine the impact of floods on water quality. With a detailed statistical analysis of top relevant researches, this study is a synopsis of the methods used in assessment of impact of floods on water quality in different geographies, and identifying the gaps for further abridgement. As per majority of the studies, different flood magnitudes have varied impact on the water quality parameters leading to either increased or decreased values as compared to the recommended values for various categories. There is also an evident shift of the biological elements in the impacted waters leading to a change in its phenology and inhabitants of the specified water body. This physical, chemical and biological water quality degradation by floods is dependent upon its duration, extent, magnitude and flow direction. Therefore, this research provides an overview into the multiple impacts of floods on water quality, along with a roadmap of way forward to an efficient and uniform linkage of floods and impacted water quality dynamics.

Keywords : floods, statistical analysis, water pollution, water quality

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