

PS-019. Pesticide Pollution in Ecosystems

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Pesticide pollution affects both aquatic and soil ecosystems. Factors that promote pesticide pollution include drainage patterns, properties of the pesticide, rainfall, microbial activity, treatment surface and rate of application. Pesticides are able to move from one ecosystem to another through processes such as transfer (mobility) and transformation (degradation). Transfer may occur through surface runoff, vapourization to atmosphere, sorption (adsorption/desorption), plant uptake or soil water fluxes. Transformation occurs through chemical, microbial and photo-degradation. A risk to a water body by a particular pesticide is dictated by the unique properties of the pesticide. For example, half-life, mobility and solubility are three properties of pesticides which determine their specific effects. Although pesticides are used on a local scale, their effects are ubiquitous and can be felt regionally and globally. They are transported into aquatic systems through processes such as direct applications, surface runoffs, spray drifts, agricultural returns and groundwater intrusions; either as single chemicals or complex mixtures. The transportation of pesticides to their final destination in the aquatic ecosystem may result in adverse health effects on the organisms found there. All members that form the different communities of an ecosystem, from the smallest invertebrates to birds and humans, are affected by pesticides. Most toxic pesticides in urban and agricultural settings are responsible for the deaths of many birds, fish and zooplanktons that fish depend on for food. It has been reported that pesticides contaminate many breeding sites of amphibians and that some of them may persist in the environment for a very long time even at lower concentrations.

Keywords: Pesticide, Pollution, Ecosystem