

Potential Impacts of Landfills on Wetlands

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The siting of a landfill adjacent to or near a wetland can have a significant adverse impact on the wetland. A summary of key issues of concern is presented herein. This summary is based on the authors' investigations of the impacts of landfills on wetlands over the past 25 years.

Alteration of Hydrology

The water balance of a wetland is key to maintaining its health and viability. The presence of a landfill significantly alters the surface and groundwater hydrology (water flow) of a region. The siting of a landfill typically changes the flow of surface water runoff in a way that can adversely affect the water balance of a nearby wetland. In addition, the recharge of surface water to groundwater in the area of a landfill is altered by the presence of the landfill, potentially causing disturbance of the water balance for a wetland. The alteration of a wetland's water balance can change the habitat of wetland aquatic plant and animal species and overall ecosystem health. Further, since wetland areas can serve as spawning areas for fish and other aquatic life, an alteration of water balance for a wetland can adversely affect reproduction of fish and other aquatic organisms that can, in turn, have adverse effects well-beyond the wetland itself.

Landfill-Derived Pollutants

The functioning of a wetland is sensitive to chemical pollutants and suspended solids. A variety of landfill-derived chemical pollutants and suspended solids can be transported to a wetland via surface water runoff. Further, with the inevitable failure of a landfill liner system, groundwater pollution under the landfill can be transported to a wetland via groundwater flow. If the groundwater hydrology is such that the polluted groundwater will be discharged in a wetland, the pollutants in the groundwaters can significantly adversely affect the plant community as well as aquatic and terrestrial life that depend on the wetland for habitat and/or food. Further, the introduction of hazardous and otherwise deleterious chemicals from a landfill to a wetland can adversely affect the reproduction and health of fish and other aquatic and terrestrial life that can, in turn, have adverse effects well-beyond the wetland itself.

Overall

Great caution should be exercised in the siting of landfills near wetlands. If an attempt is made to site a landfill near a wetland, comprehensive surface and groundwater hydrologic investigations need to be conducted to determine if the landfill has the potential to alter the hydrology of the wetland and/or pollute the wetland with waste-derived constituents.