Untreated stormwater runoff to lakes, streams, and wetlands

Stuctural stormwater Best Management Practices (BMPs) are designed to collect sediment and absorb the pollutants, slow the destructively high flow rates, and/or decrease the volume of water *before* being discharged into the states lakes, streams, and wetlands. The following guidelines are intended to provide clarity on the prohibition of using natural water bodies as stormwater treatment devices for other state agencies and local governments as well as the regulated public.

Using wetlands for stormwater treatment

Stormwater contains high levels of pollutants and sediment and will degrade a wetland over time. Also, the large volumes of stormwater into wetlands create large fluctuations in the water levels and can drown out most desirable wetland plant species, leaving a degraded, monoculture wetland of reed canary grass or cattails. Recent studies show that these unnaturally large fluctuations in wetlands can cause phosphorus releases and methyl mercury formation, further degrading or impairing downstream waterbodies.

The issue of when to provide treatment for stormwater before discharging into a wetland is sometimes confusing for local implementation because many communities have had a long history of discharging untreated stormwater to wetlands over the years. Today, communities often label these wetlands as “storm ponds” in their local water inventories. *The Minnesota Pollution Control Agency (MPCA) supports projects that remove past discharges to wetlands o provide full stormwater treatment prior to discharging to wetlands.*

The National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit prohibits further degradation of wetlands with new untreated stormwater discharges or significant expansions of existing untreated discharges from new impervious surfaces to wetlands. There may be limited situations or projects where wetlands may be used for stormwater treatment if there are no prudent and feasible alternatives to providing BMPs in upland areas. In these cases, permits can be issued if the full wetland mitigation sequence (avoid, minimize and mitigate) has been satisfied and completed according to MPCA Water Quality Standards in Minn. R. 7050.0186.

Stormwater treatment areas located in-line with streams or lakes

Using existing creeks, streams, or lakes to help remove pollutants from stormwater runoff is called in-stream treatment. The Clean Water Act expressly prohibits the use of in-stream treatment as a pollution treatment system except in the most extreme situations. All these waters are defined as “Waters of the State” in Minn. Stat. § 115.01, subd. 22 and have varying protections under MPCA Water Quality Standards (Minn. R. ch. 7050) according to their designated uses. This also includes the partial taking of a lake to create a forebay treatment area. In-stream treatment systems have poor performance due to the re-suspension of sediment during high flow storm events.

Stormwater ponds used for recreation

Stormwater contains many different pollutants and levels are quite variable from site to site. Many stormwater ponds contain elevated levels of some organic chemicals (Polycyclic Aromatic Hydrocarbons) while others do

not. Because of the variability in urban runoff, the MPCA highly recommends a limited recreational usage of stormwater ponds. While surface water use may be safe (canoe, rowboat) fishing and swimming are highly discouraged. The MPCA discourages fishing in stormwater ponds or facilitating any body contact. Native species plantings and using more natural wetland design features may enhance the aesthetic qualities of a stormwater pond and provide for greater acceptance by neighbors.

Another concern is the formation of some types of blue-green algae. The dangers of a "toxic bloom" of blue-green algae are well known in Minnesota lakes and may occur in stormwater ponds as well. Certain environmental conditions that generally occur late in summer can trigger a sudden overgrowth of a certain family of algae called cyanobacteria. This type of algae occurs in many aquatic environments year-round, but may thrive to a dangerous degree during periods of sustained warm, sunny days in shallow, nutrient rich bodies of water. In these conditions, the blue-green algae suddenly "blooms" – that is, reproduces exponentially. The algae produce a powerful toxin – one of the most powerful natural poisons known. The state of Minnesota warns its citizens about this hazard, stating that the blue-green algae blooms are occasionally responsible for the deaths of livestock and dogs that drink contaminated water.

Stormwater ponds used as ice skating rinks may be safe if there is no flow in or out of the pond, however it is very important to remember that ice is *never* considered 100% safe. Even at temperatures below freezing, de-icing or other sources of runoff can occur, especially from such surfaces as bituminous pavement or some roof materials when exposed to sunshine. Ice near pond inlets (which are sometimes under the normal waterline, not visible) may be weakened and unsafe even during periods of sub-freezing weather.