

Scorecard for Chemical Treatments to Control Nutrients in Surface Water Restorations in Florida

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Various metallic salts such as alum (aluminum sulfate) have been used in the water treatment industry for decades to clarify raw drinking water, and more recently have been applied to surface waters and storm water to remove solids and nutrients, especially phosphorus. These applications typically involve the introduction of the chemical treatment in order to create a flocculent (floc), which as it settles, strips the water column of particulate matter. Various combinations of chemicals, including residuals from water treatment plants, have been used in freshwater restorations or land applications prior to reflooding. Removal efficiencies for alum are excellent compared to many other technologies, but the use of chemical treatments in surface water restoration is not without controversy. Some communities have chosen not to use this technology due to concerns about toxicity. Others have operating stormwater treatment systems which have recurring operation and maintenance costs, including the need for skilled operators. On the other hand, Florida has numerous impaired waterbodies statewide that could benefit from chemical treatments to remove nutrients, fecal coliforms, and other sources of impairment. This paper compares the benefits and drawbacks associated with the use of selected chemical treatments for surface water restorations, and summarizes its uses for surface water load reductions by cities and counties throughout the water management districts of Florida.