

2008 UF Water Institute Symposium abstract

Will Increased Reliance On Reuse Further Impair Our Waterways?

Attempts to limit increasing withdrawals of high quality groundwater have increasingly led to the use of treated wastewater for irrigation throughout Florida and the country. Varying levels of treatment result in a range of nutrient concentrations supplied via reuse. To assess this variation, data from FDEP's Wastewater Facility Regulation (WAFR) database for plants discharging to reuse systems within the SJRWMD from 2002 to 2006 were analyzed. Mean monthly total phosphorus concentrations from WWTPs ranged from 0.04 to 2.4 mg P/L, while total nitrogen ranged from 0.23 to 38.7 mg N/L. These concentrations are sufficiently high that over 25% of plants provided total phosphorus loading in excess of IFAS recommendations for turf, assuming that irrigation followed the SJRWMD's watering rules. However, in contrast to potable water, the SJRWMD's conservation rules do not apply to reuse, increasing potential irrigation and nutrient loading.

While media water conservation messages are common, messages discussing the nutrient implications of reuse irrigation have not been developed. Thus, uninformed homeowners could be applying unnecessary fertilizer to their yards. Over fertilization of turf and expanding reuse systems could contribute significant nutrient loads to waterbodies, including nutrient-impaired waterbodies with existing TMDL programs. Several steps should be evaluated to reduce the nutrient impacts of reuse irrigation; improve WWTP nutrient removal efficiency, educational messages on the nutrients provided by local reuse, application of conservation rules to reuse and construction reuse distribution networks away from waterbodies and high recharge areas, particularly those in watersheds with already impaired systems or those with special protection status (eg. OFWs). While reuse water networks may conserve high quality groundwater for potable uses, the resulting increased nutrient distribution and loading to watersheds is likely to create or exacerbate nutrient impairment problems. More effort is

required to better balance the needs of water supply and healthy aquatic ecosystems.

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