

The hydraulic cycle in Florida's metropolitan areas

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The hydraulic cycle is the anthropogenic analog to the hydrologic cycle. Water stored in reservoirs (including aquifers) is centrally treated and distributed to users after which it is collected, centrally treated again and finally either disposed of or returned to a reservoir. This paper describes the hydraulic cycle in the most significant metropolitan statistical areas in Florida and evaluates water resource sustainability scenarios for these areas. The historic definition of resource sustainability has meant resource consumption at a rate that will leave “enough” for “future generations”. For water resources, a sustainable rate of consumption is commonly considered to be at or below the renewable supply. In most of Florida, this would imply that water consumption rates should be consistent with the supply available from rainfall—rather than depleting groundwater tables, or importing water. Moreover, more modern interpretations of water resource sustainability have imposed the dual constraints of consumption at or below renewable supplies while also leaving enough water for natural ecosystems to function. Perhaps the most current application of sustainability ideals further introduces the goal of also ensuring social and economic sustainability. Here emphases are placed on demographic projections and likely water-related impacts on natural resources. Results and implications are discussed in context with other metropolitan areas that rely on both groundwater and surface water resources.