

2011 GSA Annual Meeting in Minneapolis (9–12 October 2011)

**Paper No. 92-9**

Presentation Time: 10:05 AM-10:25 AM

## A DECISION SUPPORT SYSTEMS APPROACH TO MANAGING THE BARTON SPRINGS SEGMENT OF THE EDWARDS AQUIFER, CENTRAL TEXAS

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As implemented, the aquifer management program for the Barton Springs segment of the karstic Edwards Aquifer incorporates many of the components of a decision support system (DSS), including data collection and analysis; aquifer evaluation and modeling; scientific collaboration; joint planning with other resource managers; stakeholder input; effectiveness monitoring; and adaptive management. Approximately 60,000 people and an endangered species of salamander depend on an adequate quantity of high-quality water in the aquifer and in flow from Barton Springs. Without effective regulation, high rates of pumping from the aquifer during periods of extreme drought could cause water-supply wells to go dry and reduce the flow of water from the springs to the point that the endangered salamanders would not survive. The management of the aquifer is complex and must consider many scientific, regulatory, and political factors. Both scientific committees and stakeholder groups were formed to assist in formulating a sustainable yield policy that would protect water levels in wells and the endangered salamander. Input from these groups informed formulation of District policies on groundwater permitting, drought management, and protection of endangered species. The inclusion of these groups helped the District promulgate regulations that have been accepted by the broader community that has strong interests in management of the Barton Springs segment of the Edwards Aquifer. This DSS framework, with its sustainable-yield underpinnings, also has provided the basis for the District's participation in a subsequent, State of Texas-mandated groundwater planning process, which is based on consensus desired future conditions (DFCs) of aquifers and technically defensible estimates of managed available groundwater (MAG) use that achieve the DFCs. The DFC/MAG process reinforces and extends the groundwater basin-oriented DSS for the Barton Springs aquifer.

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[General Information for this Meeting](#)

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