

Tuesday, May 16, 2006

Guadalajara Hacienda Restaurant • 9799 Katy Freeway
(south side of Katy Freeway between Bunker Hill and Gessner)
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: \$25 Preregistered members; \$30 non-members & walk-ups

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Environmental and Engineering Group Dinner Meeting

by **Geoffrey P. Saunders**
Lower Colorado River Authority
Austin, Texas

Impacts of Sand and Gravel Mining on Physical Habitat of the Colorado River and Tributaries, Central Texas

The Colorado River of Texas is an important water resource in the Coastal Plains and Gulf Coast regions. The river is a source of water for municipal and agricultural use and provides habitat for game fish and protected species. Increasing water demand is requiring optimal management of the resource.

Almost all anthropogenic impacts on the Colorado River are regulated and monitored. One exception is sand and gravel mining in the floodplain. Frequently, unregulated gravel pits are developed on the bank of the river, making mining operations susceptible to flooding but also making the river vulnerable to environmental impact.

Possible impacts of riparian sand and gravel mining include channel instability, erosion and deposition, effects on aquatic habitat and riparian ecology, and even property boundary changes. Aquatic habitat needed to support game fish and protected species may be degraded by changes in flow velocity, channel depth and substrate material. Excessive turbidity caused by suspended sediment can reduce light penetration in the water column, thus affecting aquatic plant growth. Riparian ecology, including the habitat of terrestrial plants and animals, is directly impacted. These effects and others can be characterized by performing physical habitat assessments in affected reaches.

This paper documents impacts of sand and gravel mining on physical habitat at specific locations on the Colorado River and the Pedernales River in Central Texas. ■

Biographical Sketch

Geoff Saunders is a geohydrologist with over 27 years of experience in the public and private sectors as a consulting geologist,

environmental coordinator and senior hydrologist. Saunders is currently the River Operations Center Supervisor for the Lower Colorado River Authority (LCRA) in Austin, Texas. His team is responsible for managing six reservoirs with total capacity of over two million acre-feet of water, by evaluating real-time data from over 200 streamflow, precipitation and lake level gauges.

After receiving a bachelor's degree in hydrogeology from Northern Arizona University in 1976, Saunders worked for eight years on environmental and operational plans for surface and underground coal mines in Colorado. He moved to Texas in 1985 to do similar work at lignite mines, including dewatering and depressurization projects, while performing graduate studies in hydrogeology at the University of Texas at San Antonio. Saunders spent 3 years as a geologist for a national consulting firm, performing environmental assessments, production well and piezometer installation, groundwater pumping tests and hydrogeologic investigations. He joined the LCRA in 1991 as an environmental coordinator, and then became a senior hydrologist in the River Management department.

Saunders is certified as a Ground Water Professional by the Association of Ground Water Scientists and Engineers, registered as a Professional Geologist by the Virginia Board of Geology and licensed as a Professional Geologist by the Texas Board of Professional Geoscientists. He has attended and given presentations at Gulf Coast Association of Geological Societies meetings.

