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Muddy Waters: Sand Mining the Endangered San Jacinto River

By Wendee Holtcamp

On a cloudless day, I flew in a Cessna Skyhawk over the San Jacinto River to witness the devastation being caused by sand mining. Bearing northwest from Lake Houston toward Lake Conroe, what should be a heavily forested watershed was instead acres upon acres of brown gaping pits, many filled with muddy water. Bulldozers, cranes and dumptrucks actively worked, hauling away the fine sugar sand. At many sites, steady streams of muddy water flowed into the river, which is illegal without a permit. At one site, we couldn't see the river for the pit: the sand mine had apparently shifted the entire river course.



"Sand pits from the air are 10 times worse than what they look like on the ground," says Dennis Johnston, Harris County Precinct 4 Administrator. "They totally dominate the landscape along the San Jacinto River. It looks like nuclear war was practiced in this theatre. The silt drainage they were pumping into the river was so obvious that it looked like cream running into a fresh poured cup of tea."

The fine sediment clogs fish gills, smothers eggs and larvae, kills freshwater mussels and other aquatic life. Layers of sediment settle to the bottom, destroying the natural riffle-run-pool underwater geography that aquatic animals need.

Because of sand mining, the San Jacinto was named one of 10 most endangered rivers in 2006 by American Rivers. Sand and gravel mining – including the production of its main product, concrete – contributes an estimated \$19.6 billion to the Texas economy annually. (For comparison, wildlife watching contributes \$1.3 billion, and total tourism \$44 billion). Sand mining may have a role in Texas, but does it belong on the San Jacinto? The river provides the city its drinking water via Lake Houston, and the upstream forested reaches of the watershed help protect Houston from downstream flooding.

The historic San Jacinto saw the birth of Texas when Sam Houston defeated Mexican General Santa Anna in the Texas Revolutionary War in 1836 along its banks. The river saw an overnight tent city spring up in Humble when two men discovered oil gurgling from its banks –which started the company Exxon. For many centuries before, Akokisa Indians camped along her banks, in later years trading with Cabeza de Vaca and other explorers. Ecologically, the river forms the western edge of the 'Big Thicket', a forest ecoregion unique enough to be dubbed a U.N. Biosphere Reserve due to its extremely high biodiversity.

Instead of being protected and revered, the historic river is being rapidly degraded. Yet, American Rivers selected the San Jacinto as an endangered river not only because of damage being caused but also because viable solutions exist if local leaders – including the Texas legislature and U.S. Congress – act quickly.

Sand mining is not a regulated industry in Texas, unlike most other states. In other words, the industry has no regulations to follow, no permits to apply for, and no reclamation to complete once finished. The typical Texas operation will clear land adjacent to a river, gouge out the sandy soil in deep pits, and haul it away in dumptrucks. Along the San Jacinto, the riversides cleared are bottomland hardwood forest – highly valuable habitat for wildlife and migratory birds. The approximately 20,000 acres of historic Big

Thicket forest between Spring Creek and the San Jacinto River – where sand mines eat away at the edges – is the last roadless wilderness anywhere near Houston. When enough sand has been removed, companies abandon the sites, leaving behind empty pits that fill with rainwater. Because topsoil has been removed, nothing grows naturally.

Environmental regulations kick in only if a sand mine “fills” in wetlands, which requires a federal Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers (USACE), or if they discharge sediment into a waterway, which would require a permit from TCEQ. A legally operating sand mine should have an earthen levee that prevents sediment from discharging into the water.

The photo and video evidence we gathered in our flyovers show several mines where muddy water is pouring offsite, causing turbidity in the San Jacinto River. According to TPWD, the bottomland hardwood forests next to the San Jacinto are “adjacent” wetlands, but the Galveston District of the USACE only requires a permit if a mine fills in a wetland, but not if they excavate. “The USACE is not requiring permits for the sand pits even though it appears that if the Clean Water Act laws were closely adhered to, such should be required,” says TPWD’s Andy Sipocz, who reviewed permits for many years. “There are many cases where the mine tailings –the silts and clays that are washed out of the sand – are deposited on site.” In other cases, the tailings flow off site into the river.

According to Melissa Samet, Senior Director of Water Resources with American Rivers, “Excavation of wetlands is in fact covered by the Clean Water Act as interpreted by case law,” says Samet. “The state should be forcing the Corps to require permits for these activities – the state can then have a role through the Clean Water Act 401 water quality certification process.”



In 2004, the Texas Commission on Environmental Quality (TCEQ) initiated a statewide survey of sand and gravel mining, the Clear Streams Initiative, spurred by Wal-mart heiress Alice Walton’s concern over sand and gravel mining on the Brazos River. The Initiative found 47% of Texas sand and gravel mines had some form of violation - the worst record of all mining industries in the state - and levied \$3 million in fines. However, a few months later, TCEQ reduced the sum total of fines to \$30,000. For an industry that contributes \$19.6 billion direct and indirect gain to the Texas economy - \$4 billion from quarrying alone plus an additional \$20 billion coming from the transportation industry, the primary use of

sand and concrete- the initial fines should have been inconsequential.

The Clear Streams Initiative report explains the effects of muddying the waters, “Sediment-laden storm water runoff ... is discharged, often untreated, directly into state water bodies. This runoff can result in impact to fish, wildlife, and aquatic habitats, loss in aesthetic value, threats to the public health relating to drinking water supplies and recreational waterways.” The report then reports, “Currently there are no such impairments in Texas,” and concludes, “...the waterways in the State of Texas are not significantly impacted by mining activities.”

One might expect to see some runoff after heavy rains, but during our flyover on a cloudless day, we see many examples of silty water flowing into the river. These form point source pollution – violating Clean Water Act laws. Jeff Taylor of the City of Houston presented at the Region H Water Planning Group meeting in May 2006 that taste and odor problems in Lake Houston were so severe in December of 2005 they had to temporarily switch back to groundwater. Excess sediment carries nutrients and encourages blooms of cyanobacteria, the main taste culprit. Wes Johnson, spokesperson for the City of Houston Public Works and Engineering, the department in charge of drinking water, denies a link to sand mining. “We don’t have any issue with sand mining. To our knowledge it doesn’t have any effect on turbidity in Lake Houston.” However water treatment at the northeast water treatment plant cost \$600 per Million Gallons versus \$200/MG at the southeast and eastern water treatment plants that are not on Lake Houston, according to Taylor’s presentation.

Muddy waters not only reduce water quality and harm the river ecosystem, they also reduce the quantity of water available in Lake Houston, and flip costs onto taxpayers. According to a TPWD letter to TCEQ, and based on data from the Texas Water Development Board (TWDB), Lake Houston has filled in and lost 15% capacity by 1994, and possibly up to 20%. Taxpayers will ultimately pay for dredging the lake or other public works projects that will provide water alternatives – costly new reservoirs and conveyance channels are on the books.

The daily operation of Texas sand and gravel companies does not seem to follow national norms. The National Stone, Sand and Gravel Association (NSSGA) mission states that wise environmental stewardship is good business, encouraging members to strive for excellence in environmental affairs and implement landscaping and wildlife habitat development. None of the Harris County companies reviewed by TCEQ were members.

The Texas Mining and Reclamation Association (which incorporates all mining, not just sand/gravel) mission statement encourages “balance between mineral production, environmental protection, economic strength and public welfare.” Steve Smith, TMRA Director, initially said in an interview that TMRA publicly supported the Texas Senate Bill SB1354 – a pilot program that requires companies to reclaim land along the John Graves Scenic River section of the Brazos, and that, “We’d support the concept regardless of where it is.” However, after speaking with the handful of sand and gravel TMRA member companies, Smith recanted his statements, saying TMRA support would have to be decided “on a case by case basis” and that the pilot program needs to be tested over a period of time and that the law was not intended to be used statewide. The law sets out a twenty-year pilot program – through 2025. Texas Aggregates and Concrete Association - which has no environmental statement in its mission - publicly opposed the legislation. The bill passed unanimously through the Texas House, had only one dissenting vote in the Senate, and was signed into law by Governor Perry in June 2005.

“The San Jacinto has endured some pretty horrendous assaults over the years,” says TPWDs Rollin McCrae. “It was apparently a beautiful, shallow, sandy bottom stream running through dense woods for most of its history, but its proximity to the explosive growth of Houston made that sand a prize commodity.” That same proximity to Houston means that deforestation and muddying the water harms the citizens who need environmental protections on the river to ensure their health and safety. Sustainable solutions exist for the San Jacinto River: Stay tuned for Part II in the July issue.

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