**Public Trust Report**

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**Wisconsin Farmers and Towns Turned Upside Down by Frac Sand Mining for Oil and Gas Development: Are Michigan’s Vast Dunes and Sand Reserves Next?**

“*Cease being intimidated by the argument that a right action is impossible because it does not yield maximum profits, or that a wrong action is to be condoned because it pays*.”
― Aldo Leopold, *A Sand County Almanac*

In the same state where Ecologist Aldo Leopold wrote his timeless classic ‘A Sand County Almanac,’ yet another Public Trust concern related to fracking has shown up in the form of frac-sand mining.  Used as a proppant to hold open fissures created during the fracking process, sand is an essential element to the overall fracking process.  Ideal frac sands have a combination of grain size, shape (round), strength to resist crushing pressure, purity and chemical inertness.  Although sand is found throughout the Great Lakes Basin, including Michigan having the largest number of freshwater sand dunes in the world, ideal sands, as determined by the American Petroleum Institute, are derived from the St. Peter and Jordan formations in Minnesota, Missouri, Wisconsin and Illinois, the Oil Creek formation in Oklahoma, and the Hickory and Riley sandstones in Texas.  Of particular interest to the Great Lakes region is the sand from sandstone formations along the Mississippi River between Minnesota and Wisconsin.

As the natural gas fracking industry has ramped up in the United States over the past several years, so too have frac sand mining operations. In order to break the deep rock formations more than a mile below the earth, drillers use large volumes of pressurized mixtures of water, chemicals and sand to crack the rock and allow the oil or gas to escape.

Unlike the mineral leases used in fracking, frac-sand mining companies often buy up entire tracts of land in sandy regions of Wisconsin and Minnesota to scrape away vegetation and soil to remove mountains of sand and truck them to refineries for sale to the fracking industry. The industry has proven to be quite lucrative, fracking an average well in the Marcellus Shale region alone uses about 7 million pounds of sand, worth an estimated $175,000.[[1]](#footnote-1)   Furthermore, the industry shows no signs of slowing down in the region, as Gary Kolstad, CEO of Carbo Ceramics (the US’s largest proppant producer) recently stated, “We believe 2012 will be a challenging year, primarily due to the continued transition underway by the industry to relocate equipment, services and supplies into the liquid rich basins of North America.”[[2]](#footnote-2)

Aside from tearing up farm land and leveling the landscape, other negative externalities exist which bear a direct impact on the Public Trust.  The process has raised fears of health problems from land, air, and groundwater pollution which could include cancer and silicosis, a potentially fatal lung disease.[[3]](#footnote-3) Impacts on wildlife and recreation, and threats to the local and regional watershed as a result of frac-sand mining can prove to be disastrous.  A recent spill in Burnett County in western Wisconsin helps to illustrate these principles and their practical implications:

On April 22, 2012 a hiker in the area reported seeing cream coffee colored water in a tributary which flows into the St Croix River.  The hiker notified the department of natural resources who four days later took a helicopter to the area and traced the contaminated water back to a frac-sand mine owned by the Tiller Corporation near the Minnesota border. It turns out that a sand washing pit liner had ruptured and spilled an unknown amount of sand and sediment directly into a tributary of the St Croix River.  Even though there were no chemicals or flocculants being used in the sand washing pit of the frac sand mine, the Department of Natural Resources is currently set to take up the penalty phase against operators of the mine.

River tributaries, such as the one affected in the St. Croix River case, not only feed the river with spring water, but also provide a complex ecosystem of microorganisms and smaller vertebrates as well as a providing a habitat to many younger fish species.  These species were either buried by the sludge or pushed into the river due to the increase in turbidity.  Further, all other land dwelling animals which rely on the tributary for hydration, habitat and prey were also inherently affected by the spill.

Recreation will also inherently suffer.  Not only are the species in the tributary displaced or destroyed and thus not available for fishing or other recreational purposes, but the river body is also negatively affected.  As the overall water quality in the river is diminished due to the influx of sand and sediment from the tributary, fewer fish will be present and fishing will thus suffer. The entire watershed can also be affected.

Frac-sand mining can affect the watershed in a multitude of ways.  As shown from the accident in Burnett County, the sand and sediment can spill directly into a tributary which can flow into a river or lake affecting the watershed locally or even regionally.  If the sand can spill sideways from a pond into a river, there is no guarantee that the sand cannot also flow downward, potentially negatively affecting groundwater supplies. While sand in our groundwater is probably not a serious risk, the silica particles that the sand carries with it can pose a serious health risk to end users.[[4]](#footnote-4) A spill is not necessarily even required.  As anyone caught in a wind driven sandstorm has undoubtedly noticed, the light weight of the sand allows wind to determine the eventual resting place of many small particles.
This raises an important question: If there is already sand and sediment in rivers and groundwater why is a little bit more really something to be concerned about?  And, if a rational answer can be attributed to this question, what can the public do to stop this $319 million dollar industry (in 2009, but expected to have doubled by 2010) which derives three-fourths of its products from the Midwest?[[5]](#footnote-5)

The answers to both of these questions can be summed up in the application of the age old right of American citizens to government protections of navigable waters under the Public Trust Doctrine.  Broadly stated, the Public Trust Doctrine ensures American citizens protection by the government of the rights to use and access all navigable waters and their submerged soils for navigation, recreation and fishing.  It is true that a single four day spill into a small tributary may not materially impinge any of these rights directly, but courts have recognized that such smaller dangers must be addressed to prevent many small problems from becoming one very large problem.  As an example of this approach, the Michigan Supreme Court rejected a developer’s argument that filling a few lots was *de minimis* in relation to the whole of Lake St. Clair and the Great Lakes, and ruled “application of the de minimis doctrine . . . may involve making it equally so elsewhere.  In total consequence, the state’s trust interests . . . public rights could be affected to an extent . . . considerably more than a trifling matter.”[[6]](#footnote-6)  Closer to home for Wisconsinites, a similar ruling was handed down by the Wisconsin Supreme Court, noting the rationale that, “Our navigable waters are a precious natural heritage, once gone, they disappear forever.”[[7]](#footnote-7) This, in effect, places the burden of proof on the frac-sand miners to show that there are no cumulative negative effects on the public trust (something that may be difficult given the fact that 6 spills have occurred in the 12 months preceding the Burnett County spill).

So how can we prevent these cumulative impacts moving forward and ensure the protections of our invaluable public trust resources?  The first place to look is to the protections afforded by the doctrine itself.  Inherent in the language of the doctrine is a governmental duty to account for protection of public trust waters and uses.  This means that if a given practice poses a threat to the future of public trust waters, their aquatic resources, or public uses, the government at the very least has a duty to take account of these threats and act accordingly.  The landmark public trust case, *Illinois Central*, held that a proposed use or transfer of public trust waters be for a primarily public purpose.[[8]](#footnote-8) This is where the real problems with Wisconsin frac-sand mining emerge: private industry, private purpose, but a holistically public problem.  A senior Wisconsin DNR official this winter said he didn't see the need for any new regulations covering silica, a major fracking sand component, even though the number of frac-sand mines has exploded in recent years to 60+[[9]](#footnote-9).  This same DNR recently compared the DNR’s role to that of a ‘chamber of commerce’ promoting the idea that businesses it 'regulates' should be "self-regulators."[[10]](#footnote-10)

This kind of delegation simply should not happen if the public trust in Wisconsin’s rivers and creeks are taken into account. The public trust doctrine ensures that people’s basic rights to navigable waters must be preserved. Under the State Constitution, the Wisconsin government holds the navigable waters and the beds underlying those waters in trust for the public, and this public trust duty requires the state not only to promote navigation but also to protect and preserve its waters for fishing, hunting, recreation, and scenic beauty[[11]](#footnote-11). In a recent case, the Wisconsin Supreme Court ruled that a withdrawal of groundwater that would lower the level of a nearby lake must consider and assure that the public trust in the lake will not be harmed.[[12]](#footnote-12) Is mining frac sands any different, if there is a direct or cumulative harm to a lake or stream?

As the North Dakota Supreme Court noted, the duty to account for protection of public trust waters includes a duty to evaluate and establish a long term water plan to ensure no impairment of water resources under the state’s public trust responsibility.[[13]](#footnote-13) Effectively protecting public trust waters is a state’s responsibility to its citizens, not something that the government can pass to corporations who promise a few jobs and a boost in tax revenue in exchange for desecrating local ecosystems.

Wisconsinites can hold their governing agencies responsible before a few sand spills forever taint the states invaluable navigable waters. In the meantime, citizens and communities may want to seek a temporary moratorium, either locally or in state legislature, to further investigate and study the potential ill-effects of frac sand mining, a tactic many communities have already taken advantage of.[[14]](#footnote-14) If that fails, then landowners, farmers, citizens and communities should demand that the state starts considering and accounting for impacts to prevent them before they occur. After all, it’s a matter of public trust. We must urge Wisconsinites to take action before the term ‘Sand County Almanac’ takes on a whole new meaning.

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2. ###  Thomas, Mark. "CARBO Ceramics Inc. Announces First Quarter 2012 Earnings." *The Wall Street Journal*, April 26, 2012. <http://online.wsj.com/article/PR-CO-20120426-904937.html>

 [↑](#footnote-ref-2)
3. Hissom, Doug. "Sand Mining Coming to a Town Near You." *Baltimore Post-Examiner*, May 13, 2012. http://baltimorepostexaminer.com/sand-mining-coming-to-a-town-near-you/2012/05/13 [↑](#footnote-ref-3)
4. "Silica, Crystalline." *United States Department of Labor Occupational Safety & Health Administration*. http://www.osha.gov/dsg/topics/silicacrystalline/index.html (accessed May 31, 2012).

 [↑](#footnote-ref-4)
5. "'Frac Sand' Mining Rush In Midwest Spurred By Natural Gas Fracking Boom." *The Huffington Post,* January 6, 2012. http://www.huffingtonpost.com/2012/01/05/frac-sand-mining-midwest\_n\_1186892.html [↑](#footnote-ref-5)
6. Michigan v Broedell, 112 N.W.2d 517, 518-519 (Mich. 1965). [↑](#footnote-ref-6)
7. Hixon v Pub. Serv. Comm’n., 146 N.W2d 577 (Wis. 1966) [↑](#footnote-ref-7)
8. Illinois Central R.R. Co. v. Illinois, 146 U.S. 387 (1892) [↑](#footnote-ref-8)
9. Rowen, James. "Frac Sand Mine Self-regulation Fail; Senior DNR 'Enforcers' Can tsk-tsk Again." *JSOnline*, May 19, 2012. http://www.jsonline.com/blogs/purple-wisconsin/152148795.html”. [↑](#footnote-ref-9)
10. *Id.* [↑](#footnote-ref-10)
11. Lake Beulah Management Dist. v. State Dept. of Natural Resources (2011) 799 N.W.2d 73, 335 Wis.2d 47. [↑](#footnote-ref-11)
12. *Id.* [↑](#footnote-ref-12)
13. Kelly v Oceanside Partners, 140 P.3d 985 (Haw. 2006) [↑](#footnote-ref-13)
14. Cantarow, Ellen. "Farmers' Sand-frac Nightmare." *Salon*. May 21, 2012 http://www.salon.com/writer/ellen\_cantarow/ [↑](#footnote-ref-14)