

On a Possible Path to Remediating Florida's Eutrophied Fishing Lakes

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A number of Florida's lakes are eutrophied due to earlier wastewater inputs and current storm water runoff. Restoration efforts involve drawdown and muck removal. These efforts have often been derailed by lack of adjacent dry land on which to deposit the muck. While it is a problematic waste, the muck has energy potential. It is a blend of sand and rich hydrocarbon, essentially an immature version of peat. The potential to make gas from this material both to restore water quality in the lake and to produce useful energy is being explored. Green Liquids and Gas Technologies (GLGT), a Florida company, has developed an auger driven pyrolyzer gasifier (the Green Pyrolyzer Gasifier (GPG)) that can convert a diverse set of organic materials into liquid and gaseous fuels. The GPG has now been tested with wood chips, pine bark, pine needles, oak leaves, cogon grass, chicken waste, Gator litter (football game waste), Jacksonville wastewater treatment bio-solids (dried pelletized), military Meals Ready to Eat waste, old roof shingles, and blends thereof. These exploratory hot run tests gave encouraging gas outputs, interesting liquids, and good looking chars. Along with these experiments, an analytical semi-empirical model of pyrolysis was developed to estimate pyrolysis gaseous and liquid yields. The model predicts components from any solid fuel subjected to any high temperature for various residence times. The results of GPG tests with sun dried muck and their possible implications for restoring Florida's eutrophied lakes into excellent fishing lakes will be presented.

Keywords:

Lake restoration, muck, water quality, biomass energy