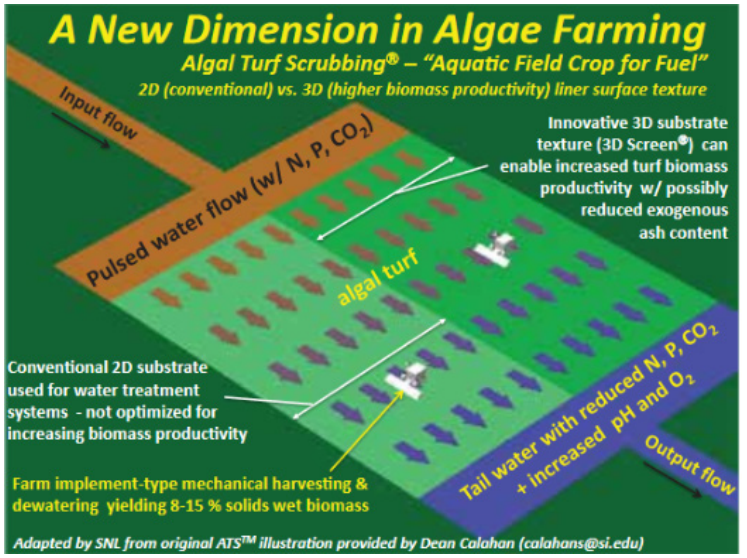
TURF ALGAE SYSTEM

Patent Pending
SD# 15307
Technology Readiness Level: 5
Key Elements Demonstrated in Relevant Environments

A comprehensive solution to address surface water contamination, eutrophication, and harmful algae blooms resulting from nutrient pollution that also yields a high-quality and more reliable biomass feedstock



Nitrogen and phosphorus within surface water systems lead to algal blooms and eutrophication. Algal blooms can create harmful toxins within bodies of water, with extreme algae blooms leading to adverse water quality situations. While water treatment systems facilitate several processes to remove nutrient pollution, there is demand for more integrated, cost-effective solutions.

Sandia researchers have developed a comprehensive solution to address surface water contamination, eutrophication, and harmful algae blooms resulting from nutrient pollution that also yields a high-quality biomass feedstock. The Turf Algae System uses attached algae cultivation within a downward sloping flow-way. Nutrient-rich water is sent through the system, stimulating filamentous algae growth. As the algae grows, nutrients such as nitrogen (N) and phosphorus (P), as well as total suspended solids (TSS), biological oxygen demand (BOD), and trace metals, are removed, improving the surface water quality. The resulting biomass can be removed using a variety of existing methods to serve as a feedstock to power nearby facilities. Turf Algae is relevant for both electrical power plants and water resource recovery facilities. This technology reduces total costs, improves environmental conditions, and can provide additional regulatory and social benefits where water resources are shared with industrial, municipal, and recreational users.

TECHNICAL BENEFITS

- Improvement in water quality: increased oxygen content, higher pH, reduced TSS and BOD
- Harmful algae bloom prevention and control
- Production of biomass and major N/P nutrient recovery
- Environmentally-friendly, low cost system

INDUSTRIES & APPLICATIONS

- Power plants
- Water resource recovery facilities
- Agricultural run-off
- Residential ponds and lakes

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