

# CHESAPEAKE AND COASTAL SERVICE INNOVATIVE TECHNOLOGY FUND



A sample of oil from the Manta Biofuel reactor. Photo credit : Manta Biofuel



Larry Hogan, Governor  
Boyd K. Rutherford, Lt. Governor  
Jeannie Haddaway-Riccio, Secretary

## Background

The understanding and knowledge of the Bay restoration effort itself continues to evolve, as does the value of specific non point source best management practices for ensuring its protection. At the 2007 Chesapeake Bay Program Executive Council Meeting, the State of Maryland and the Environmental Protection Agency (EPA) agreed to promote investments in technologies that could accelerate Bay restoration efforts. The Innovative Technology Fund was created in partnership with the University of Maryland and with funding from the Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund and the Environmental Protection Agency (EPA).

## Goals of the Fund

Though the Innovative Technology Fund, the State is taking a leading role in financing the advancement of knowledge in the areas that most impact restoration programs, processes, and policies. The goals of the Innovative Technology Fund are to reduce nitrogen, phosphorus and sediment from any non-point source sector; support the development of successful Maryland businesses while creating and retaining green jobs in Maryland; and to ensure the State is always on the cusp of the most cost-effective and efficient technologies.

## Importance to Maryland

The Chesapeake Bay Total Maximum Daily Load (TMDL) provides the blue print for restoring the Bay. However, the strategies to achieve the TMDL are based on the best scientific information, technologies, and practices available at the time. Perhaps the only thing we know for certain is that we do not know everything that will be necessary to restore and protect the Bay. The efficiency and cost effectiveness of the restoration effort requires flexibility and innovation. Therefore, it is inefficient to approach the TMDL and the restoration effort itself as prescriptive. Developing new technologies, industries, and implementation processes will be critical for the restoration effort, and through the Innovative Technology Fund, the State plays a leading role in advancing innovation.

## Funding Spotlight

### Purpose:

Accelerating Chesapeake Bay restoration through the development of new technologies.

### Source of Funding:

Maryland's Chesapeake and Atlantic Coastal Bays Trust Fund and the Environmental Protection Agency's Chesapeake Bay Implementation Grant.

### Available Funds:

\$1 Million total per year with \$500,000 for grants and \$500,000 for investments

### Eligible For:

Maryland based companies and students, faculty and staff from the University of Maryland System.

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Program Contact: **Sarah Lane**  
Chesapeake and Coastal Service  
Maryland Department of Natural Resources  
Email: sarah.lane@maryland.gov  
Phone #: 410-260-8788

## Impact by the Numbers *(since 2007)*



**\$6.1 Million**

invested

+



**\$6.6 Million**

in private match

=

**\$12.7 Million**



**63**

Projects funded



**19**

Jobs created



**70**

Jobs retained in Maryland



**41**

New technologies created



**32**

Maryland-based companies supported

“The Department of Natural Resource’s investment demonstrates credible endorsement for job creation and economic development through environmental entrepreneurship”.

– Michael Furbish, Furbish Company

## Implementation Spotlight: HY-TEK Bio Strain #1

While the main focus of the Innovative Technology Fund is to reduce non-point source nutrients and sediment, one particular project also resulted in the ability to mitigate carbon dioxide, nitrogen oxide, and sulfur dioxide from flue gas, creating a more environmentally friendly source of energy. With an initial \$100,000 grant, HY-TEK Bio worked with Dr. Chen from the University of Maryland Center for Environmental Science to isolate a native single strain of algae, now called HY-TEK Bio Strain #1. This strain can grow rapidly in high concentrations of carbon dioxide and under wide ranges of pH, as well as withstand wide temperature variations, allowing the algae to consume the carbon dioxide in flue gas. HY-TEK Bio’s technology also reduces nitrogen and phosphorous from the waste water effluent used as the basis for the growth media in their scrubber system.



The principle investigator with IMET, Dr. Feng Chen, for the HYTEK Bio project holding a beaker of HTB1. Photo credit : Cheryl Nemazie

The Department of Natural Resources provided additional grants to help HY-TEK Bio start its demonstration-scale project at Baltimore’s Back River Waste Water Treatment Plant to mitigate carbon dioxide and other greenhouse gas emissions from a 4MW methane-fired power plant attached to the wastewater treatment plant. These grants allowed the company to secure grants from other public/private partnerships and to expand its role at the Back River Waste Water Treatment Plant.