

University of Toronto prize-winning technology reduces marine bio-fouling

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This nylon net shows accumulation built up after 12 weeks in Bay of Fund.
Credit: Nikhil Gunari

A University of Toronto (U of T) technology that provides a cost-effective and environmentally sound solution to the fishing industry's multi-billion-dollar bio-fouling problem has been recognized with a Clean50 Award.

Bio-fouling is the accumulation of microorganisms, plants, algae and animals on wetted surfaces, and it is a big problem for the fast-growing aquaculture or fish-farming industry. Fouling of cages and netting is costly to remove, detrimental to fish health and yield and can cause equipment failure. Further, current heavy metal-based technologies used to control bio-fouling are toxic to the marine environment once they enter the food chain.

But Gilbert Walker and his co-investigator Nikhil Gunari, both of U of T's Department of Chemistry, have developed a solution – a treatment known as Macroblock.

Macroblock combines both physical and biochemical approaches to controlling fouling, in a biodegradable format that protects the environment. The formulation was also designed to make it easily applied by aquaculturists.

Macroblock was tested in the Bay of Fundy on three 100-metre cage nets with 60,000 salmon in each. Fishing nets treated with Macroblock had significantly less accumulation. Not only did the treatment work as well as the toxic heavy-metal standard, the nets clean more easily, which should significantly reduce operational costs for fish farmers.



Significantly less accumulation is shown on a net treated with Macroblock after 12 weeks in Bay of Fundy. Credit: Nikhil Gunera

Walker and Gunari have co-founded Sylleta to commercialize the technology and hope to receive approval from Canada's Pest Management Regulatory Agency soon.

"Our green solutions for the [aquaculture industry](#) should help it to more safely and profitably meet the growing demand for fish protein," said Walker.

The Clean50 awards celebrate teams that have made the greatest contributions to sustainable development or clean capitalism in Canada in the past two years. They are awarded by Delta Management Group, a personnel search firm with a growing practice in "green collar" clean technology, corporate social responsibility and sustainability professionals.

Provided by University of Toronto

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