

# CWSF 2010 - Peterborough, Ontario



## Zach Elgood

### Methane Production and Removal in a Denitrifying Streambed

**Division:** Health Sciences

**Category:** Intermediate

**Region:** Waterloo-Wellington

**City:** New Hamburg, ON

**School:** Cameron Heights C.I.

**Abstract:** Denitrifying bioreactors are efficient methods of removing surface water nitrate in agricultural areas. Possible side effects include greenhouse gas production. This study demonstrates a method for limiting methane emissions (up to 73%) from a stream-bed bioreactor. Additional research is required to optimize reactor design and determine the microbial processes occurring. Increasing usage of bioreactors requires technologies to minimize greenhouse gas emissions.

#### Biography

Zach Elgood is a 16 year old, grade 10, student attending Cameron Heights Colligate Institute. He is enrolled in the International Baccalaureate program and enjoys all types of scientific inquiry, while also having a passion for ancient history. He participates in a variety of school activities, including debate, math and science clubs, DECA (a business club) and a variety of music ensembles. In 2007 and 2008, he attended the Canada Wide Science and Engineering Fair, where he won awards in physical and environmental science. In 2009, Zach was a member of Team Canada at the International Science and Engineering Fair where he was awarded a third place grand award in Environmental Management. Most recently, he was awarded a gold medal at ISWEEP 2010. In his spare time, he enjoys reading and writing, traveling, karate, nature walks and the trampoline.

#### Awards

#### Value

The University of Western Ontario Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Western Ontario	\$1 000
Bronze Medal - Earth & Environmental Sciences - Intermediate Sponsor: Suncor Energy Inc.	\$300
<b>Total</b>	<b>\$1 300</b>