

# CWSF 2011 - Toronto, Ontario



## Zach Elgood

### Potential Production of CH<sub>3</sub>CL in an Instream Denitrifying Woodchip Bioreactor

**Challenge:** Environment

**Category:** Senior

**Region:** Waterloo-Wellington

**City:** New Hamburg, ON

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

**Abstract:** Potential side effects of bioreactors used for nitrate removal include production of greenhouse gases and methyl mercury. Degradation of bioreactor materials by white-rot could also result in production of methyl chloride, known to deplete ozone. Microbial and chemical analysis determined that neither white-rot fungi nor methyl chloride were present in the bioreactor studied. It is unlikely this type of bioreactor contributes to ozone depletion.

#### Biography

Zach Elgood is a 17 year old, grade 11, 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, the school musical 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 and an award at the CWSF. In his spare time, he enjoys reading and writing, traveling, karate, nature walks. Last summer, Zach was selected as a participant for the 2010 QCSYS at the Institute for Quantum Computing. In the future, Zach wishes to pursue a job in theoretical physics.

#### Awards

#### Value

Excellence Award - Senior - Bronze Medal Sponsor: Youth Science Canada	\$300
The University of Western Ontario Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Western Ontario	\$1 000
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
<b>Total</b>	<b>\$2 300</b>