

# CWSF 2012 - Charlottetown, Prince Edward Island



## Hayley Whelan

### Wind Turbine Noise Stress and Immune Function

**Challenge:** Energy  
**Category:** Senior  
**Region:** Prince Edward Island  
**City:** Charlottetown, PE  
**School:** Charlottetown Rural H.S.  
**Abstract:** The noise associated with wind turbine operation was studied as a physical stressor on innate immune cell function. Human THP-1 monocytes were sensitized to frequencies from 100Hz to 500Hz, stimulated and evaluated on aspects of the immune response. Exposure to noise stress was identified to reduce numerous markers associated with differentiation, negatively impacting their ability to respond to a challenge.

#### Biography

I am a grade twelve student at Charlottetown Rural High School in Charlottetown, PEI and this is my first time competing at the Canada-Wide Science Fair. I have a passion for science, but am involved in many other activities. I play piano, as well as trumpet in concert band and jazz band. I love to sing and am a cast member in my school's production of "Annie". I am also passionate about the environment, which has led to my involvement in many groups such as Envirothon, Sierra Buddies and Model United Nations. This project was inspired by the new wind farm developments across PEI and I hope that its results will inspire further research in its field. In the future I plan on studying chemistry and am considering a career in science journalism.

#### Awards

#### Value

Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization	\$300
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
<b>Total</b>	<b>\$2 300</b>