

Climate Change Education in Pacific Northwest Classrooms: Making it Real

Creating opportunities for teachers to gain insight into climate science

P. Troy White¹, Kattlyn Wolf¹, Jodi Johnson-Maynard², and Jonathan Velez³

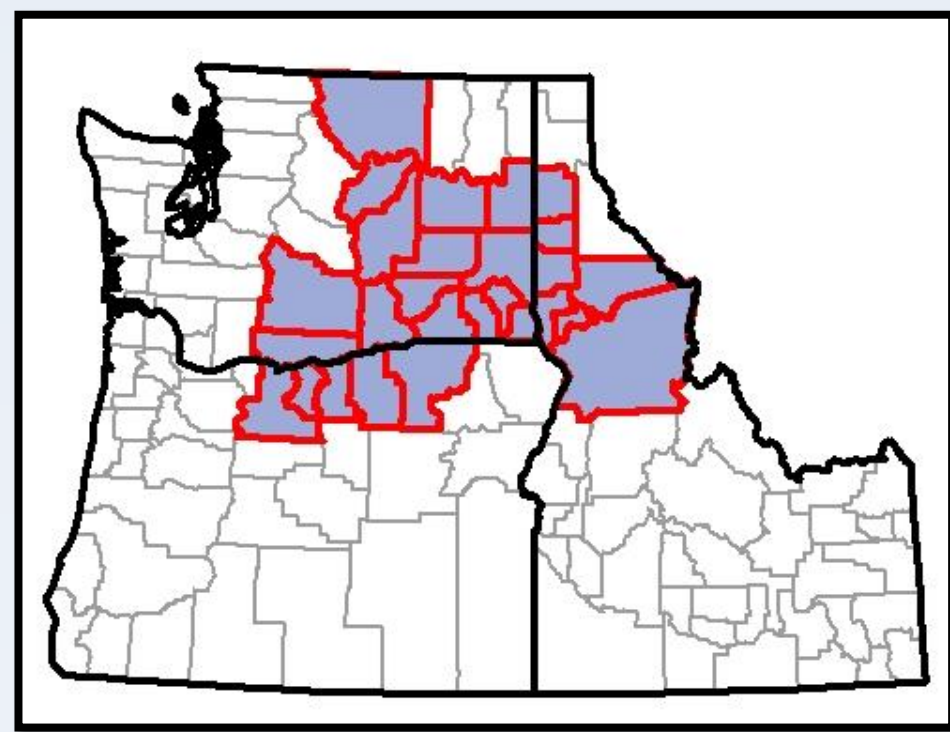
¹University of Idaho Agricultural Education and 4-H Youth Development, ²University of Idaho Plant, Soil, and Entomological Sciences, ³Oregon State University Agricultural Education and General Agriculture,

Project Director: Sanford Eigenbrode, University of Idaho

Introduction:

Integration of climate change science into K-12 curricula will require the creation of new, more integrative materials and professional development opportunities for teachers. Results of a 2011 survey of teachers in the Inland Pacific Northwest (IPNW) found science and agriculture teachers were the most receptive to teaching climate change (CC). Teachers were most receptive to a two to three day in-service or web based professional development. Teachers also expressed that they wanted the science and not opinions, they wanted to decide for themselves.

Our goal: Make complex climate science real and relevant to teachers in the IPNW by providing them with science-based curriculum and professional development on CC and agriculture.



Teachers from within the Regional Approaches to Climate Change (REACCH) study area were recruited for a 2.5-day long professional development workshop. Recruitment efforts were aimed at both science and agriculture teachers from each state involved in the REACCH project.

Methodology:

Host a three-day agricultural based climate science workshop

The workshop was designed to:

- Provide curriculum resources, science equipment and content area experts directly to regional teachers
- Demonstrate ways to use agriculture as a context to discuss CC
- Provide teachers with the resources and background necessary for them to effectively utilize agriculture-based CC curriculum
- Facilitate future interaction between teachers and researchers for further curriculum development and assessment purposes
- Teachers pilot-tested three



As part of the workshop, teachers created soil monoliths, conducted experiments on the greenhouse effect, respiration by seeds, modeling soil erosion under varying conditions, using web-based computer models, and the examination of soil horizons with soil sampling from different horizons.

Results from a pre/post-workshop surveys and post-teaching interviews indicate:

- Students were **not being exposed to CC** in their other classes
- Teachers reported they **did not receive negative feedback** from their stakeholders (principals, school boards, parents)
- Teachers found **students** (and their parents) **often had real world observations** they could build upon
- Farmers reported as conservative by the teacher in their district liked the focus on adaptation
- **Students enjoyed and learned** from hands-on science
- Students expressed a **genuine interest in CC**
- A curriculum **focused on standards** with resources for meeting those standards **save teachers time**
- Comments from participants after teaching the units:

“I guess I just sort of, hunkered up under that bush thinking that, I don’t have to consider [climate change], because it’s a political thing, and not a whole bunch of scientific stuff going with it.”

“[The workshop] was open, to the point of well do you even think there is global warming?”

“I changed a lot of [my] opinions about [climate change]”

Conclusions:

- Effective K-12 CC education should focus on the science of climate change.
- Embedding CC in a context of agriculture made it more relevant in both urban and rural schools
- Teachers were more open to CC discussion focused on facts and adaptation practices

Impacts:

Improved awareness of the complexities of climate change in public schools, teachers given the equipment to conduct hands-on climate science activities in their classrooms, students given the opportunity to learn about climate science

Local—Hands-on—Real



Modeled after the Regional Approaches to Climate Change (REACCH) project, the curriculum is designed to provide science-based information on agriculture and climate science. The curriculum is also hands-on, placed based and integrative. **Specific topics covered in the 2013 workshop included Soils, modeling, and ecological cycles.**