



## Christopher Kelley



*BS, Environmental Geological Sciences (Central Washington University)*

*MS, Geology (Washington State University)*

*PhD Student in Geology (Washington State University)*

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The NSPIRE IGERT Program is a multidisciplinary student doctoral training program designed to create a new generation of scientists with broad and rigorous training in nitrogen cycling who seamlessly integrate nitrogen cycle science for effective communication with public policy makers.

### **Research title: Identifying sources and rates of nitrous oxide emissions from dryland agriculture systems in the Pacific Northwest**

Chris's research will focus on nitrous oxide emissions from dryland agricultural systems in the Pacific Northwest, addressing these questions: 1) What are the rates of nitrous oxide emissions from typically cultivated fields, and how does spatial variability influence estimates of these rates? 2) What are the dominant processes generating nitrous oxide (e.g. nitrification and/ or denitrification); and 3) what hydrologic, management, and biochemical parameters control the relative importance of these processes? This research will use new stable isotope techniques to identify sources of nitrous oxide production and combinations of gas flux measurement methods to determine rates of nitrous oxide emission at field scales. His research will be used to gain a better understanding of the impact of dryland agricultural systems on green house gas emissions and the relationship of these emissions to other N loss pathways.

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