

NORTHWEST CLIMATE ADAPTATION SCIENCE CENTER 2018-19 RESEARCH FELLOWSHIP PROGRAM

The Northwest Climate Adaptation Science Center's Research Fellowship Program enables graduate students and postdocs from a variety of scientific backgrounds to co-produce actionable science in collaboration with regional natural resource managers and decision-makers.

We are excited to announce our 2018-2019 Fellows who represent each of our five consortium universities spanning three states (WA, ID, MT) within the Northwest. These individuals were selected through a competitive process to conduct research that aligns with the NW CASC science priorities and that demonstrates actionable science principles.

MEET OUR FELLOWS

Aquatic Resources



Ashley Bagley, University of Washington

[How can Floodplain Restoration Enhance Streamflow and Salmon Habitat in the Stillaguamish River?](#)

Ashley's research will build upon existing knowledge and priorities from the Stillaguamish Tribe and Snohomish County to identify where floodplain restoration would provide the greatest increase in salmonid habitat through the creation of groundwater-surface water interactions.

Faculty Advisor: Cleo Woelfle-Erskine

Partners: Stillaguamish Tribe of Indians; Stillaguamish Watership Council



Elizabeth Elmstrom, University of Washington

[Understanding the Impact of Climate Change on Nitrogen Sources and Water Quality in Rivers of Western Washington](#)

Elizabeth's research seeks to understand how projected climate conditions will affect riverine and coastal ecosystem health. This work will determine current sources of nitrogen in Puget Sound watersheds and project how hydroclimate changes will translate to water quality.

Faculty Advisor: Gordon Holtgrieve

Partner: WA Department of Ecology



Megan Russell, Western Washington University

[How do Increasing Temperature and Ocean Acidification Impact Pacific Herring Larvae in both Thriving and Dwindling Populations?](#)

Megan's research aims to test how increasing temperature and ocean acidification affect Pacific herring eggs, embryos and larvae from both thriving and dwindling populations.

Faculty Advisor: Brady Olson

Partner: WA Department of Fish and Wildlife



Jeffrey Strait, University of Montana

[How does Interbreeding between Non-native Rainbow Trout and Native Westslope Cutthroat Trout Affect Seasonal Growth Rates and Survival in Three Different Streams in Northwestern Montana?](#)

Jeffrey's research seeks to understand how climate change will affect native westslope cutthroat trout, a species that is experiencing hybridization with rainbow trout after historic stocking of rainbow trout in Northwest rivers. His research will look at how changing water temperature and streamflow interact with rainbow trout hybridization to affect individual performance traits.

Faculty Advisors: Lisa Eby and Gordon Luikart

Partners: Glacier National Park; MT Department of Fish, Wildlife and Parks; US Geological Survey Northern Rocky Mountain Research Station

 **At-Risk Species & Habitats**



Robert Emmet, University of Washington

[Detecting Population Changes in Wolverines and Other Snow-Loving Carnivores in the Cascades Using Wildlife Cameras](#)

Robert's research will explore how the population of wolverines recolonizing Washington's Cascade Mountains will change under climate change, considering the species' reliance on snow cover. This project will use power analysis and a multiscale model of species distribution to develop possible camera-based monitoring survey designs. It will also include recommendations for adapting the survey designs to monitor other carnivore species in the Cascades.

Faculty Advisor: Beth Gardner

Partners: US Forest Service; WA Department of Fish and Wildlife; Woodland Park Zoo

 **Forest Ecosystems**



Alex Pane, University of Washington

[Is Climate Warming Altering the Severity and Frequency of Forest Insect Outbreaks in the Northwest?](#)

Alex's research will look at the effect of climate change on the historic frequency of forest insect outbreaks in the Northwest. His research will look to identify local to regional processes that enable repeated insect outbreaks to occur within forest ecosystems.

Faculty Advisor: Patrick Tobin

Partners: Seattle Public Utilities; US Forest Service; WA Department of Natural Resources



Katherine Swensen, Washington State University

[Understanding how Increasing Wildfires Under Climate Change Affect Tree Regrowth and Water Availability in Forests](#)

Katherine's project will assess the effect of wildfire history (frequency and time since burn) on soil-plant-water interactions for forested hillslopes. This work will provide a better understanding of the relationships among shifting wildfire patterns, plant water availability, water availability for down-gradient ecosystems and tree seedling vulnerability during the growing season.

Faculty Advisor: Kevan Moffett
Partner: US Forest Service



Shrubland Ecosystems



Cara Applestein, Boise State University

[How will a Changing Climate Affect the Landscape-scale Competition between Perennial Grass, Exotic Annual Grass and Sagebrush after Fire?](#)

Cara's research will quantify how variability in temperature and precipitation influences the landscape-scale interactions among sagebrush, exotic annual grass and perennial bunchgrass after fire, and will project changes anticipated under future climate scenarios.

Faculty Advisor: Matthew Germino
Partners: Army National Guard; Bureau of Land Management



Human Dimensions



Caitlin Littlefield, University of Montana

[Where should we Invest in Forest Climate Adaptation? Incorporating Public Attitudes and Ecological Priorities to Inform Management of Washington's Forested Parks](#)

Caitlin's project will use remote-sensing observations to map forested areas on Washington's public lands at the greatest risk of enduring transitions under climate change. This project will also involve work with land managers to develop plausible options for managing these transitions and use focus groups to evaluate public stakeholder attitudes towards these management options.

Faculty Advisor: Solomon Dobrowski
Partners: Seattle Parks & Recreation; WA State Parks



Laura Nelson, University of Washington

[Understanding Climate Change Impacts on the Nutrition and Cultural Benefits of the Makah Tribe's Traditional Seafood Species](#)

Laura's research will examine how climate change may impact the nutritional and cultural benefits of fish and shellfish species used by the Makah Tribe for subsistence purposes.

Faculty Advisor: Philip Levin
Partner: Makah Tribe

