

NFSG Letter of Intent : Entry # 3146**Name**

John Blong

Email

john.blong@wsu.edu

Department & College

Anthropology, CAS

Title/Rank

Assistant Professor

Employment Start Date

August

Type of Proposal (choose one)

Basic Research

Emphasis Area (choose one)

Social Sciences

Title of Proposal

The impact of climate change on prehistoric food systems

Brief description (one Word doc. page limit) of the proposed work

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The first objective of this project is to establish a long-term regional study using human coprolites (paleofeces) to examine the impact of climate change on hunter-gatherer subsistence in the terminal Pleistocene through middle Holocene Great Basin in western North America. With a diachronic perspective, this project will apply a novel suite of coprolite analytical methods to investigate subsistence strategies over millennia of climate change in the Great Basin. The Great Basin offers an important case study for investigating the impact of climate change on hunter-gatherer subsistence; however, there are ongoing debates about the nature of prehistoric diets, the extent to which hunter-gatherers maximized energy return versus nutrient diversity when foraging, and the impact of climate change on subsistence practices over time. Research has been limited by the lack of fine-grained dietary data. This project will address this through the study of dietary remains in coprolites from four Great Basin cave sites with terminal Pleistocene through middle Holocene occupations. Coprolites provide direct evidence for dietary decisions made over 1–2 days. I will use the resulting fine-grained dietary data to test predictions from diet breadth and linear programming models to investigate the factors motivating hunter-gatherer dietary choices over periods of climate change in the Great Basin.

The second objective is to develop a framework for collaborative, ethical coprolite research through engagement with Native communities. Coprolites are not considered to be human remains; however, recent success extracting ancient DNA from coprolites has raised ethical issues over how coprolite research should be approached by archaeologists. Moving forward, coprolite research should apply frameworks developed for ancient DNA research to promote ethical engagement with Native communities for all methods of coprolite analysis. I will engage descendent Native communities in the Great Basin to develop culturally respectful research collaborations. The third objective is to integrate multiproxy research and ethical engagement with education to train the next generation of coprolite researchers and provide outreach in archaeological science methods to Native and local communities. Many researchers today receive training in biomolecular methods but are not trained in time-tested macro and microscopic techniques. The proposed project will address this by training two PhD students to develop a holistic understanding of past human diets through macro and microscopic methods, biomolecular methods, and ethical engagement with Native communities. My long-term career goal is to advance the study of human diet through multiproxy, ethically engaged coprolite analysis that will transform the way we look at past diet and health.