

Title: Using a value-based approach to inform environmental management decision-making aimed to meet the water insecurity needs of two tribal communities

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Water is central among indigenous cultures that depend on healthy ecosystems for their well-being. The value systems of indigenous peoples links their past to their present, determines what is significant to them and guides their sustainable practices as first stewards. In the present, numerous pressures are threatening their water security, thereby threatening their cultural, spiritual, physical, and economic health. For example, in some communities infrastructural limitations, contaminated drinking and surface water, extreme weather events and other factors challenge their accessibility to safe water.

Using case studies our research consisted of two Parts. In Part 1, we examined the opportunities and barriers experienced by two tribes when applying for the Environmental Protection Agency's Treatment in the Same Manner as a State (TAS), and the challenges faced when implementing water quality standards (WQS). For this part we conducted in-depth interviews with natural resource employees. In Part 2, we aimed to understand the cultural values expressed by two tribes in order to develop a means-ends network, value trees and performance measures. To understand the values, we held focus group interviews with tribal community members, then utilized a structured decision-making approach to organize culturally driven objectives and actions to meet water insecurity needs.

Our research ranked the most demanding challenges experienced by these tribes when seeking to develop WQS under a federal framework. Furthermore, we learned about tribal values that can inform decision-making, and also issues that hinder water security. Values were used to develop a means-ends network, objectives hierarchies and subsequent performance measures for achieving water security. Understanding values allows us to inform environmental policies as to attain healthier communities. Lastly, this value-based approach may aid the incorporation of indigenous value systems into environmental management for tribes.