Climate Planning with Multiple Knowledge Systems:
The Case of Tribal Adaptation Plans

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INTRODUCTION

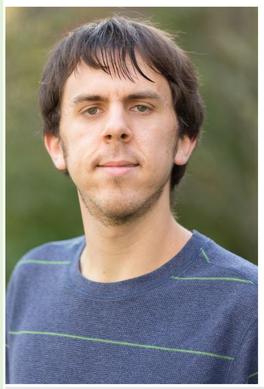
Indigenous tribes are among the most vulnerable populations in terms of facing the impacts of climate change, and are also among the least prepared to do so (Vinyeta and Lynn 2013). Planning efforts at the state and local level have up until recently ignored tribal concerns for the most part, and as such the understanding of how to effectively work with indigenous knowledge systems for climate planning purposes is still developing. An understanding of effective methodologies for incorporation traditional knowledge (experience acquired over thousands of year of direct human contact with the environment [Berkes 1993]) into these plans as well as the different variables that affect the incorporation of these plans' multiple knowledge systems (including interaction among Western systems of knowledge) is necessary in order that present and tribal climate planning efforts can be improved and expanded upon.

OBJECTIVES

This study is undertaken to show the variance among tribal climate plans and what causes this variance. The end goal is to show the variables that cause the content among these plans to differ, and show how barriers to incorporating multiple systems of knowledge (including traditional knowledge) might be overcome in a variety of settings. In addition, this study is meant to uncover the elements that allow a tribe to instigate its own climate plan. This in turn will help to fuel future tribal climate planning efforts by showing the best institutional design and process for the formation of such plans. These efforts sustain the ecological health, economic sustainability, and social wellbeing of the tribes in light of the upcoming and current impacts of climate change.

METHODS

- Code and cluster the currently published 28 tribal climate plans according to who instigated them (the tribe itself, a nearby University, or a non-University Boundary Organization)
- Code the 28 tribal climate plans according to a pre-designed rubric
- Compare the variance among these plans based on the three clusters of instigating parties
- Interview selected participants of plans from each cluster to triangulate information, recode plans as necessary



Bio-sketch

Miles Gordon is a Master's Student in the Environmental Studies program at Ohio University's Voinovich School of Leadership and Public Affairs. He previously received his Bachelor's in Political Science from the University of Oregon. His research currently focuses on climate adaptation planning for indigenous tribes in the United States. His broader interests include climate resilience, knowledge co-production processes, and collaborative environmental governance.

PRELIMINARY RESULTS

Plan type and Content

TRIBE	Baseline				Types of resources discussed						Types of hazards discussed					
	Instigator(s) of Plan	Type of Plan	Number of Pages	Climate in which plan t	Agricultural (Y/N)	Forest (Y/N)	Water (Y/N)	Energy (Y/N)	Cultural (Y/N)	Infrastructural (Y/N)	Flooding (Y/N)	Tornadoes (Y/N)	Wildfire (Y/N)	Drought (Y/N)	Ice Storms (Y/N)
Nez Perce (OR/WA)			58												
Akewesasne (NY)			63												
Swinomish (WA)			144												
Nondalton (AK)			42												
Kivalina (AK)			70												
Atqasuk (AK)			44												
Red Lake Chippewa (MN)			72												
Levelock (AK)			42												
Navajo (AZ)			212												

Legend of Color Codes

Instigator Of Plan: Boundary Organization | Tribe | University

Type of Plan: Adaptation Plan | Vulnerability Assessment

Climates: Forest | Desert | Tundra | Continental | Subtropical

Yes or No Questions: N | Y

1-3 scale: 1 2 3

1-5 scale: 1 2 3 4 5 5

Boundary Organization-any organization that works between tribes and governments, or between systems of knowledge (in this case)

Knowledge System-A way of knowing and thinking through what we know(e.g. science, traditional knowledge, discipline-specific knowledge, sector-specific knowledge, etc.)

Three types of instigating parties: the tribe, a university, and a non-university boundary organization such as a consulting firm, tribal mediating authority (e.g. the Alaska Native Tribal Health Consortium), or some other body.

Tribal community representation scale:
1=no mention or one "tribal representative"
2=two individuals
3=three individuals
4=four individuals
5=Five or more (max 12)

Stakeholder input scale:
1=None
2=1 or 2 public meetings
3=Regular meetings throughout the process

Multi-sectoral representation scale:
1=no mention
2=two sectors
3=three sectors
4=four sectors
5=5 or more sectors (max 8)

Representation and Process

TRIBE	REPRESENTATION: Types of sectors represented									Types of gov. organizations represented						PROCESS: Process Outline			Input Levels				
	Multi-sectoral contribution (1-5)	Water (Y/N)	Planning (Y/N)	Agricultural (Y/N)	Public Health (Y/N)	Energy (Y/N)	Natural Resources (Y/N)	Cultural Resources (Y/N)	Economic Development (Y/N)	Tribal government (Y/N)	County Government (Y/N)	City government (Y/N)	State government (Y/N)	Federal government (Y/N)	Mediating Authority (Y/N)	Is the process outlined? (Y/N)	To what extent (1-3)	Was there a "process"? (Y/N)	Level of Stakeholder Input (1-3)	How often did authors meet? (1-3)	Attendance (1-3)	Tribal community representation? (Y/N)	How much? (1-5)
Nez Perce (OR/WA)																							
Akewesasne (NY)																							
Swinomish (WA)																							
Nondalton (AK)																							
Kivalina (AK)																							
Atqasuk (AK)																							
Red Lake Chippewa (MN)																							
Levelock (AK)																							
Navajo (AZ)																							

Traditional Knowledge Usage and Specificity of Content

Tribe	RADITIONAL KNOWLEDGE USAG: Source?				Where it is used in the document?			SPECIFICITY OF RISK/ACTIONS: Robustness of Plan							Specificity of description of problems						Specificity of description of solutions					
	Use of Traditional Knowledge? (Y/N)	Tribal Elders (Y/N)	Community members (Y/N)	Tribal governmental authorities (Y/N)	Background (Y/N)	Problem description (Y/N)	Solution set (Y/N)	Lays out a course of action? (Y/N)	Does it allow for uncertainty? (Y/N)	Discusses tradeoffs of actions? (Y/N)	Does it quantitatively talk about risk? (Y/N)	Does it give dates for actions? (Y/N)	How far in the future does it map out? (1-3)	Multi-sectoral in discussion of actions? (1-5)	Does it outline responsibilities? (Y/N)	Speicity (1-3)	*Types of Knowledge Used*	Traditional? (Y/N)	Scientific? (Y/N)	Discipline-specific? (Y/N)	Multi-sectoral? (1-5)	Specificity (1-3)	*Types of Knowledge Used*	Traditional? (Y/N)	Scientific? (Y/N)	Discipline-specific? (Y/N)	Multi-sectoral (1-5)?
Nez Perce (OR/WA)																										
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Navajo (AZ)																										

Process outline ranked 1-3 Meetings and attendance ranked 1-3
Future actions scale:
1=Immediately or 1 year
2=2-4 years
3=5 or more years

Specificity of content scale (modified from Babcock 2013):.
1=Qualitative analysis only
2=Basic quantitative analysis
3=In-depth quantitative analysis and modeling

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ANALYSIS

- Eight plans coded: three tribal, four boundary organization instigated, one university instigated
- In general, tribe-instigated plans rank higher for use of traditional knowledge (with exception of Nez Perce)
- Boundary organization and tribe-instigated plans rank higher for community input than the University-instigated plan
- University plan has highest for number of sectors represented, ranks lowest for traditional knowledge usage

NEXT STEPS

- Code the rest of the plans by early Fall 2017
- Interview relevant participants from each cluster of plans by mid-Fall 2017
- Recode plans based on new information, make conclusions by Spring 2017

Kivalina Alaska Native Community, aerial view.

Nez Perce Climate Planning meeting, 2016

References

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- Vinyeta, K., & Lynn, K. (2013). Exploring the role of traditional ecological knowledge in climate change initiatives. Gen. Tech. Rep. PNW-GTR-879. Portland, OR: US Department of Agriculture, Forest Service, Pacific Northwest Research Station.

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