

# Culture, Cognition and Environment

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# What is culture?



**Caribou COFFEE™**

**CULTURE**

WE ARE HERE TO SHARE	OUR CORE VALUES	WE ASPIRE TO BE
An Extraordinary Experience that Feeds the Soul	 Our Commitment to our Guests <ul style="list-style-type: none"><li>• Quality</li><li>• Innovation</li><li>• Career Fair</li></ul>	The Community First 1 Love
	 Our Commitment to our Community <ul style="list-style-type: none"><li>• Fair</li><li>• Respectful</li><li>• Responsible</li></ul>	
	 Our Commitment to our Team Members <ul style="list-style-type: none"><li>• Listen</li><li>• Develop</li><li>• Recognize</li></ul>	
	 Delivered with our Unique Personality <ul style="list-style-type: none"><li>• Fun</li><li>• Passionate</li><li>• Authentic</li></ul>	



# Culture Defined

- Culture: the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations
- Culture: the customary beliefs, social forms, and material traits of a racial, religious, or social group
- Culture: the characteristic features of everyday existence (as diversions or a way of life) shared by people in a place or time
- Culture: the set of shared attitudes, values, goals, and practices that characterizes an institution or organization
- Culture: the set of values, conventions, or social practices associated with a particular field, activity, or societal characteristic

# Culture and Nature



# A Cognitive Approach to Culture

- “A society’s culture consists of whatever one has to know or believe in order to operate in a manner acceptable to its members, and do so in any role that they accept for any one of themselves.”  
(Goodenough 1957:167)
- Places culture squarely within knowledge and belief systems but without saying what kinds of knowledge or their application
- Requires discovery procedures to identify domains, their content, organization, and underlying features
- Interested in how cognitive knowledge is shared (not just individual mental knowledge) and shaped by social, political, economic and environmental factors
- Redefines cultural group: if we share this culture then we recognize that we belong to the same group;

# Five Cognitive Anthropological Approaches (applied to Environment)

**Taxonomies:** rules or principals that explain knowledge organization (e.g., ethno-biology and ethno-ecology)

**Cultural Domains:** a more-or-less bounded universe of content or meaning; domains have core and some boundaries, though this gets messy as domains become more complex

**Prototypes:** use of a focal representative, a prototype, to define a category and to identify other members of the category according to the degree of similarity to the prototype

**Cultural Models:** “...presupposed, taken-for-granted models of the world that are widely shared by the members of a society and that play an enormous role in their understanding of the world and their behavior in it.” (Quinn and Holland 1987)

**Cultural Consensus:** A quantitative approach that assumes if individuals have similar views and understanding, they share an underlying system of cultural knowledge.

# Cultural Domain Analysis: Harmful Algae as Cultural Organism

- *Pfiesteria*: “hysteria,” household word, “make sense”
- People or groups must be using cultural knowledge to understand *Pfiesteria*
- *Pfiesteria* became part of our environmental action and politics
- Created debates about reducing farm nutrient runoff
- Farmers and Environmentalists

# Farmer and Environmental Professional Views on Pfiesteria: Really that Different?

- **Key terms to identify broad parameters of cultural domain of *Pfiesteria* (Table 1)**

Chicken houses   Environmentalists   Fish kills  
Development   Farmers   Government  
Economic impact   Human health   Manure  
Media   Nutrients   Politics  
Pollution   Poultry industry   Regulations  
Research   Sewage   Water quality  
Watermen

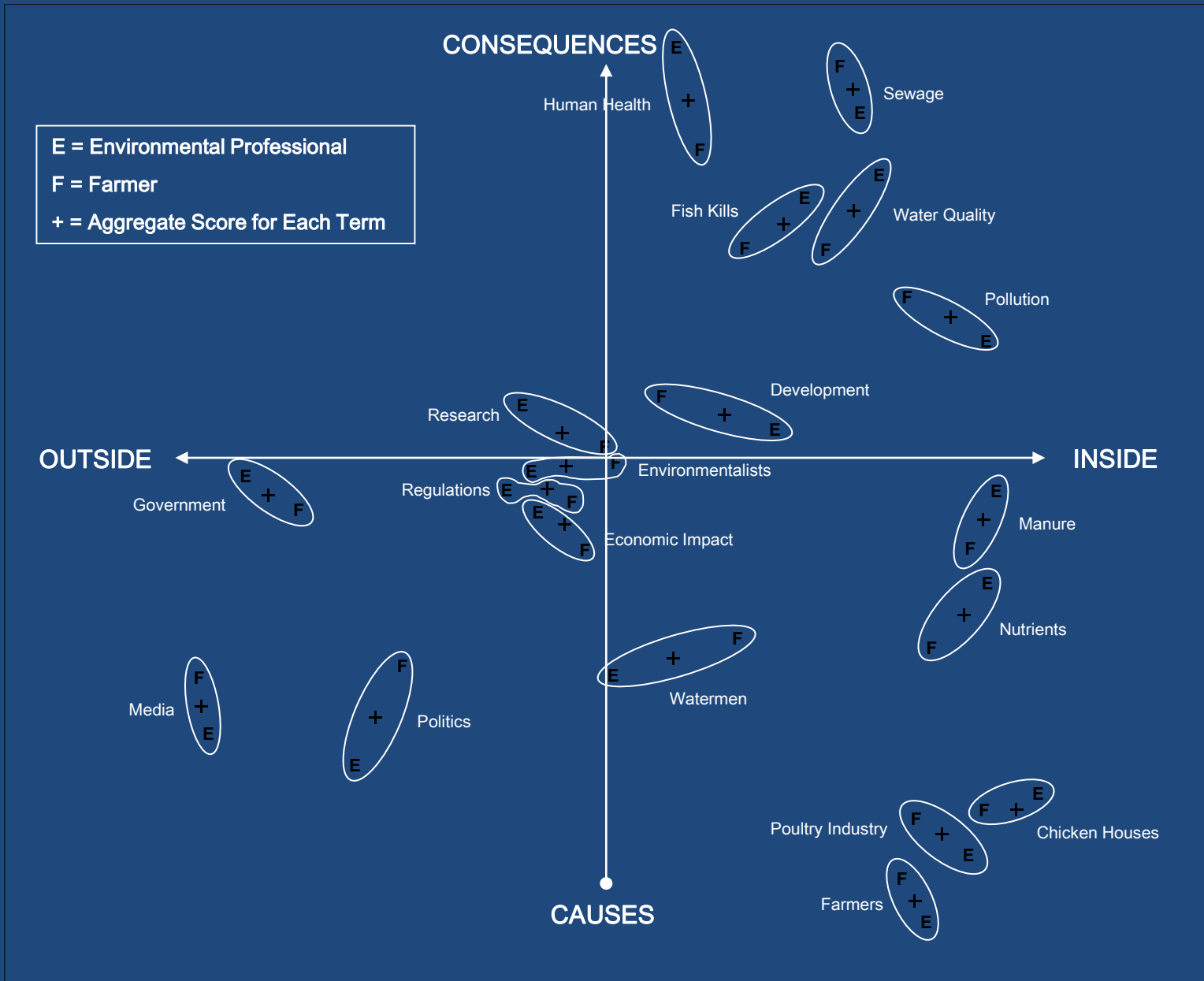


# Farmer and Environmental Professional Views on Pfiesteria: Really that Different? (con' t)

- **Triadic Comparison**

Sewage	Media	Research
Farmers	Nutrients	Government
Farmers	Sewage	Poultry Industry
Human Health	Water Quality	Government
Chicken Houses	Manure	Poultry Industry

# Figure 1: Correspondence Analysis of Environmental Professional and Farmer Terms Linked to *Pfiesteria*



# Culture as Shared Cognition: Cultural Model

- Culture: “whatever it is one has to know or believe to operate in a manner acceptable to its members”
- Cultural models are presupposed, taken-for-granted understandings of the world that are shared by a community (local or multi-sited);
- Comprised of inter-connected schemas or cognitive templates;
- In new or uncertain (environmental) situations, reasoning draws heavily on cultural models.



# Cultural Model Methodology

- Semi-Structured Interviews (Quinn 2005) to simulate natural discourse, transcribed;
- Computer Assisted Qualitative Data Analysis (Atlas.ti) to code and analyze theory propositions/statements to identify underlying tacit/implicit knowledge and values;
- Logical framework to an ethnographic framework to a cognitive framework through three-step team coding
  - Deductive codes from logical framework/semi-structured interview
  - Team pile sort deductive codes and label piles to create ethnographic codes and then a second round of coding
  - Network the codes based on an environmental event or problem and then answer the question: “what implicit/tacit knowledge underlies the statements and codes?”

# Farmer Cultural Model of Land Conservation (Paolisso et al. 2013)

Figure 1: Farmer Cultural Model of Land Conservation



# Culture as Distributed Knowledge

- Many ethnographies essentialize culture by ignoring within-group variation.
- Culture can be seen as a distribution of shared individual cognitions and representations.
- Goal: to understand factors that account for this distribution. Some of distribution driven by human universals but some driven by context.
- Culture is an emerging phenomenon of shared cognition that evolves out of individual interactions with both social and physical environments.

# Cultural Consensus Theory: Measuring Distributed Knowledge

- Describes and measures the extent to which cultural knowledge and values are shared
- Assumes that correspondence between the answers of any two respondents is a function of the extent to which each is correlated with some truth or underlying knowledge;
- Analytic procedures to estimate the culturally correct answers and informant correspondence to the group answers (answer key and curve)
- The theory/model assumes that there is only a single factor solution....a single knowledge system (e.g., map)
- Finding of cultural consensus does not mean universal agreement, but suggests one underlying knowledge system and degrees of expertise
- Consensus produces estimates of cultural competence in terms of modeled (environmental knowledge), which in turn can be correlated with social, political and economic data

# Cultural and Socio-Economic Assessment of Oyster Restoration Alternatives (Paolisso and Dery 2010)

- Alternative 1: No Action Continue Maryland's and Virginia's present Oyster Restoration and Repletion Programs
- Alternative 2: Expand, Improve, and Accelerate Native Oyster Restoration Program
- Alternative 3: Implement Temporary Harvest Moratorium
- Alternative 4: Establish and/or Expand Aquaculture with Native Oyster
- Alternative 5: Establish and/or Expand Aquaculture: with Triploid Nonnative
- Alternative 6: Introduce and Propagate an Alternative Oyster Species (Other than *C. ariakensis*) or an Alternative Strain of *C. ariakensis*
- Alternative 7: Introduction of Diploid *Crassostrea ariakensis* And Discontinuation of *Crassostrea virginica* Restoration Programs
- Alternative 8: Combination of Alternatives



# Assessment Methods

- Literature Review
  - Including published and unpublished information regarding socio-economic impacts of non-native introductions, harvest moratoriums, etc. and a review of biological, ecological, political, and economic issues surrounding oyster restoration
- Open-ended Key Informant Interviews
  - Interviews are conducted with skilled professionals from each of the stakeholder groups
- Participant Observation Fieldwork
  - Conducted in settings such as coastal towns, restaurants and docks in both Maryland and Virginia
- Survey Questionnaires
  - Surveys to target populations
- Various Forms of Data Analyses
  - Qualitative Data Analyses, Cultural Models Analysis, Frequency Analyses, Consensus Analysis



# Survey Questions (22 Consensus Questions)

Restoration with native oysters could work given more time and the use of new approaches.

7	6	5	4	3	2	1
No Idea	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree

Managed oyster sanctuaries and reserves should be a larger part of the oyster fishery in the future.

7	6	5	4	3	2	1
No Idea	Strongly Agree	Agree	Somewhat Agree	Somewhat Disagree	Disagree	Strongly Disagree

## Cultural Consensus Model Results: One Underlying Knowledge System

	N	1 <sup>st</sup> Stakeholder Group Factor Loading		Eigen value Ratio	
		Mean	S.D	1 <sup>st</sup> to 2 <sup>nd</sup>	2 <sup>nd</sup> to 3 <sup>rd</sup>
<b>Combined</b>	645	.70	.16	6.09	1.76
<b>Watermen</b>	377	.72	.16	10.11	1.18
<b>Growers</b>	29	.73	.10	3.85	3.16
<b>Processors &amp; Shippers</b>	39	.76	.14	9.56	1.12
<b>Scientists</b>	30	.74	.16	4.64	2.68
<b>Environmentalists</b>	43	.77	.14	6.05	2.33
<b>Recreational Users</b>	151	.73	.09	5.49	1.78
<b>Restaurant Owners</b>	16	.75	.20	7.09	1.48

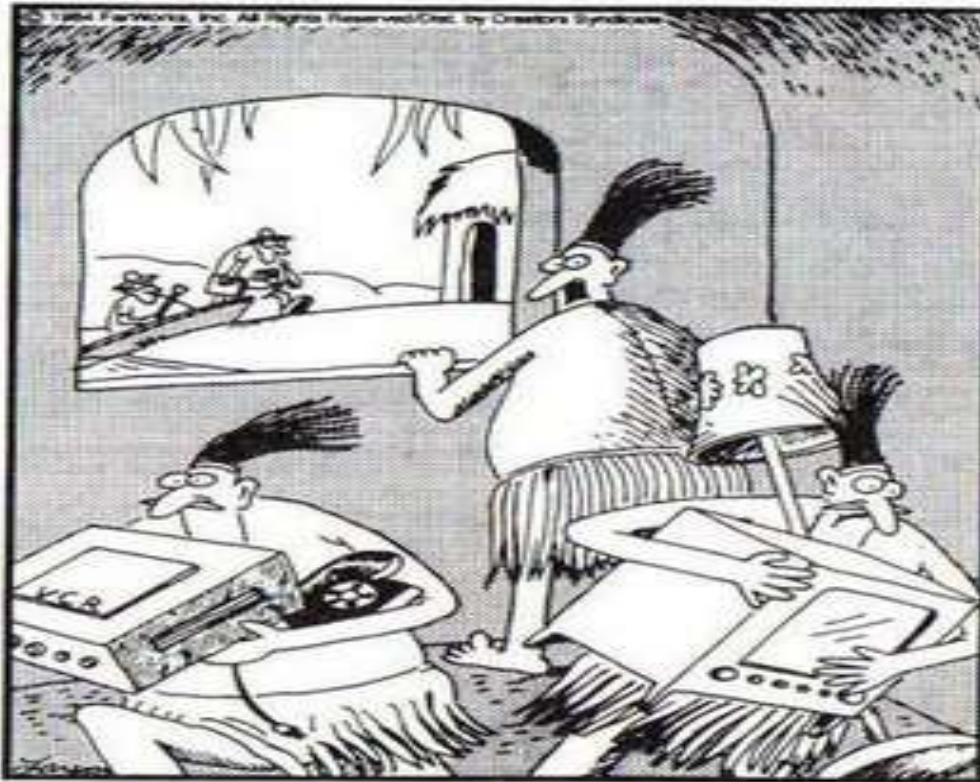
Cultural Consensus Questions	Stakeholder Consensus Model Answers		
	Watermen	Scientists	Environmentalists
Do you think we should introduce a non-native oyster into the Chesapeake Bay right now?	YES	NO	NO
Should there be time limits placed on how much science is completed before a decision is made?	YES	NO	NO
Do you think meeting oyster restoration goals is more important than distinguishing between native oysters and non-native oysters?	YES	NO	NO
Does successful oyster restoration need to include consideration of seafood market factors (e.g. demand, prices, etc.)?	YES	NO	YES

# Why link Culture, Cognition and Environment?

- Sharpens and refines our understanding of the interactions between people and environment
- Produces very good ethnographic insights on human and environment dynamics
- Elicits core and emotive knowledge and values about the environment
- Accommodates multi-sited and inter-group relationships
- Knowledge includes social, economic, political and environmental factors
- Articulates well with trans-disciplinary socio-ecological research (e.g. vulnerability, resilience, adaptation)

# Thanks!

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