

BUILDING A CONSTITUENCY FOR APPLIED ENVIRONMENTAL ANTHROPOLOGY THROUGH RESEARCH

By Michael Paolisso and R. Shawn Maloney

Late in the summer of 1997, three fish kills in Maryland tributaries to the Chesapeake Bay, linked to toxic blooms of the marine microorganism *Pfiesteria piscicida*, prompted widespread public and scientific concern. *Pfiesteria* is a recently discovered dinoflagellate, which, under ecological conditions not fully understood, produces toxins that cause fish mortality and morbidity. Direct human exposure to these toxins can result in skin and eye irritation, gastroenteritis, fatigue and temporary memory and cognitive impairment.

The *Pfiesteria*-related fish kills received extensive newspaper and television coverage. In Maryland, Delaware and Virginia, the Chesapeake Bay is a treasured natural resource, and summertime for many is associated with eating blue crabs, fishing, and boating on the Bay. The presence of a mysterious and predator organism—two terms used to describe *Pfiesteria*—killing fish and making people sick was of great public concern. This was true even though the number of fish killed was comparatively small, the blooms localized and short-lived, and only a small number of individuals experienced any health effects. Still, throughout the region people stopped eating fish in general and stayed away from the Bay, resulting in an estimated loss of \$45 million dollars in revenue for the Maryland seafood and fishing industries.

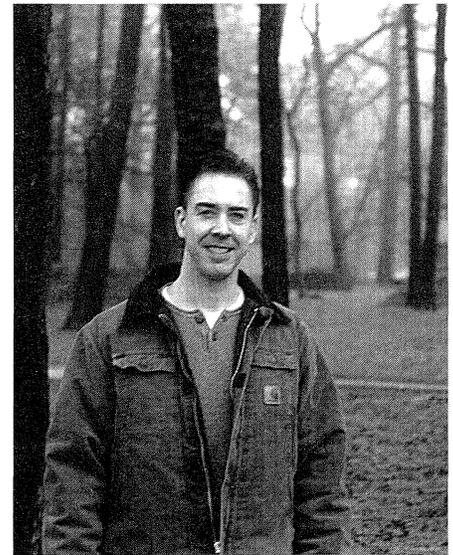
From a biological and public policy perspective, the public's reaction to the environmental and health consequences of *Pfiesteria* was exaggerated. A consensus emerged among scientists



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and policymakers that the "hysteria over *Pfiesteria*" was due to overzealous media coverage and the public's inability to understand the complex ecology of *Pfiesteria* and the Bay, resulting in an overestimation of the "real" environmental and health risks.

The widespread and rapid public response to *Pfiesteria* was of great interest to us as applied anthropologists. We felt that the media-coverage hypothesis for the public's heightened response to *Pfiesteria* was necessary but insufficient to explain the depth of individuals' concerns and the breadth of their behavioral responses. We felt that a systematic study of the cultural knowledge, beliefs and values underlying the public's response to *Pfiesteria* was not only warranted but fundamental to a complete understanding of *Pfiesteria*. Such a systematic study could also help improve dialogue on and communication of scientific and policy information on complex issues among the Bay's



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environmental stakeholder groups.

In the fall of 1997, we developed the Anthropology of *Pfiesteria* project, along with our colleague Erve Chambers. Fieldwork was undertaken on Maryland's Lower Eastern Shore during the summer of 1998, in the general area where the blooms had occurred. The project investigated the cultural knowledge used by farmers, watermen (a local term for fishermen who either crab, oyster, or fin fish) and environmental professionals to understand *Pfiesteria* and the environmental, economic and political changes that have occurred since the blooms. Officially, the Anthropology of *Pfiesteria* project was completed in December 1998. However, we continue to study cultural perceptions of *Pfiesteria* in the Cultural Models of Pollution and Environment project, our three-year follow up study that incorporates a broader range of environmental issues and stakeholder groups.

The central focus of our work to date has been to document how farmers, watermen and environmental professionals, in interpreting and understanding environmental problems and proposed solutions, use implicit, taken-for-granted cultural knowledge that can vary across these three stakeholder groups, and thus result in strong differences of opinion on what constitutes an environmental issue and what are the best approaches to address those issues. To assist us in identifying core cultural beliefs, values, perceptions and attitudes related to environmental issues, we have used approaches from cognitive anthropology that seek to identify the cultural schemas or models people use to help them understand events, interactions, or situations, such as environmental hazards or pollution.

We have recently published some of our findings on the cultural dimensions of *Pfiesteria* in *Human Organization* 2000, Vol. 59(2); 2001, Vol. 60(1) and *Culture and Agriculture* 1999, Vol. 21(3), and have also, through meetings, local publications, and on-going individual interviews and discussions, shared our findings with farmers, watermen and environmental professionals. A key message of these published findings is that there is a diversity of culturally based explanatory systems being used to interpret environmental and natural resource issues for the Bay. Some illustrative examples of these findings include how farmers consider themselves environmentalists based on their strong cultural ties to community and the protection of the land on which the livelihood of their families depends. To knowingly pollute the rivers and Bay with excess farm nutrients is considered by many farmers to be immoral, and inconsistent with their own values and self-perceptions as providers of food for society. Environmental professionals, many of whom are concerned about agricultural runoff and water pollution, hold strong beliefs in the importance of protecting ecosystems through regulations and legislation that mandates compliance with agricultural and fishing practices that, according to best management practices, will

protect water quality and fisheries. Central here is the belief that scientific study, policies and programs can solve environmental problems. Opposing this belief is the cultural position held by watermen and farmers that nature can take care of herself, that nature works in cycles, and that current agricultural and fishery problems should be seen as natural cycles until science has clearly proven otherwise, which they believe has not yet happened. The reader is

environmental values—they are all committed and concerned about the environment, and in the case of farmers and watermen, they are directly dependent on the environment. Thus, even while we continue our study of the cultural models of pollution and environment, we are making efforts to communicate the message that an applied anthropology, focused on the cultural dimensions of environmental problems, can help bring environmental

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encouraged to review the above referenced articles for many other examples of cultural perspectives on environmental problems for these three stakeholder groups.

A second key goal of our project has been to build a constituency in the Chesapeake Bay area for applied environmental anthropology. Our findings that cultural knowledge plays a key role in the interpretation and understanding of environmental issues is not new information to the groups with whom we work. What is new is the realization that these cultural differences (and similarities) can be systematically studied and have the potential to promote dialogue and collaboration among stakeholder groups. All three groups we are studying have strong

stakeholders together in a more participatory approach to environmental management of the Bay. Ultimately, the key applied problem we are attempting to solve is how to get environmental professionals, watermen and farmers to use our findings on cultural knowledge in order to work better together to address environmental issues.

A key challenge for long-term projects such as ours, where in-depth cultural research is on-going, is to build a constituency for anthropological contributions even when all the findings are not available. In the remainder of this paper, we discuss how our work is contributing to a growing recognition of the importance of anthropological work to addressing environmental issues, particularly among farmers, watermen

and environmental professionals. The lesson learned that we wish to share with the readers of *Practicing Anthropology* is that a significant amount of the acceptance and validation of our work as applied anthropologists has resulted from the way we do our work, and not directly, at least not yet, from substantive findings that we publish and share with the stakeholder groups with whom we work. At least initially, our actions have spoken louder than our words.

We now ask two related questions. First, what cultural beliefs or underlying models did stakeholder groups, particularly in the early phases of our work, use to understand our practice or implementation of applied environmental anthropology. And second, how did this underlying knowledge also function unwittingly to help build a constituency for our work?

Scientists and Environmental Professionals

An impressive array of scientists and environmental professionals, including phycologists (marine biologists), estuarine ecologists, agronomists, soil scientists and epidemiologists were called upon to study the causes and consequences of the *Pfiesteria* blooms in Maryland. Working with these scientists were science-trained environmental professionals who implement government and non-government programs to protect and manage the Bay's natural resources. These scientists and environmental professionals are a key constituency for us.

From the initial stages of our project, we have sought to integrate our anthropological perspectives with the perspectives and activities of these scientists and environmental professionals. Despite numerous meetings with marine and agricultural scientists, our participation in conferences on *Pfiesteria* and other Bay environmental issues, and our continued interviewing to keep current on the state of the science and environmental policies around *Pfiesteria*, we have not had great success in integrating a cultural analysis perspective with

existing bio-ecological and agricultural research. This failure, however, does not mean that we have not established ourselves as scientific colleagues. We are in regular correspondence with a wide range of scientists and environmental professionals, and regularly share our findings with them.

How do we explain the lack of interdisciplinary possibilities yet increased recognition of our work? Upon reflection, it appears to us that promoting interdisciplinary work was not consistent with the model of scientific research used by most members of this stakeholder group. As we repeatedly explained what we thought might be connections between our research and theirs, we sensed that they understood what we were doing, valued it, but did not see why such research needed to be integrated with their research.

If our scientist and environmental professional colleagues did not perceive the value of our work to their research, what was it that convinced them that our work was valuable? While the verbal message we provided on the contribution of applied anthropology certainly helped to demonstrate the contribution of our discipline, we also believe two other aspects of our research were significant in establishing our presence, in part because they were consistent with the cultural models of research for this stakeholder group.

First, the source of the funding for our project conveyed much implicit meaning to our research colleagues. In many meetings and interviews, as part of the introduction on the project, we mentioned that the National Science Foundation (NSF) and US Environmental Protection Agency (EPA) funded the project. In this introduction, we would often mention the SFAA and EPA cooperative agreement that was supporting the work of environmental anthropologists throughout the United States. While we were fully aware that mentioning our funding sources was part of an effort to legitimize us with our colleagues, we did not fully appreciate how important the status of the funding agency was. Our scientific

colleagues are very familiar with the competitive and peer review processes of proposals by these organizations. That our project had passed muster, with interdisciplinary panels, gave us a place at the research table. It was less important what we were doing per se, but that a scientific process that validated their research had also reviewed and approved ours.

Second, in addition to producing insightful substantive findings, the construct "cultural model" has also served us well in helping to establish rapport with scientists and environmental professionals. The construct of a "model" is central to the research paradigm of our colleagues. Our colleagues did understand that we were attempting to construct models, and although our models are not nearly as specified or predictive as say economic or ecosystem models, they do share underlying similarities in terms of their utility in capturing key relationships among cultural as well as biological variables. In the end, we appear to other scientists and environmental professionals as very scientific, which we suspect contrasts with any existing cultural understanding they have of anthropologists and anthropology.

Farmers and Watermen

While the scientific status of our funding and the use of a cultural model approach serve us well with scientists and environmental professionals, they do just the opposite with farmers and watermen. These characteristics of our project led farmers and watermen to associate us with "outsiders," and "government" and "regulation," key terms elicited during interviews. Both groups are suspicious of outside researchers, a situation made worse in the case of farmers by the recent passing of mandatory regulations aimed at improving water quality by reducing farm nutrient runoff into the Bay, which angered many farmers who already had been voluntarily participating in nutrient management programs. These new state regulations were in large part the result of research linking *Pfiesteria*

and high levels of aquatic nitrogen and phosphorous.

For both farmers and watermen, the thought of being part of a government sponsored research project was, to put it mildly, not very appealing. In our early conversations with members of these groups, we discovered that the more we described ourselves in terms that we had used with scientists, the more difficult it was to establish rapport. The more we tried to explain how our cultural focus was different than the interests of our biological scientist colleagues, the more we fit farmers' and watermen's existing perceptions of outside researchers.

Fortunately, our practice of anthropology again assisted us in communicating much about the project that was not at first possible to convey in conversation due to existing farmer and watermen cultural perceptions of researchers. Throughout our work we have employed a very broad ethnographic approach that, along with participant observation, emphasizes different types of interviewing methods. Open-ended interviewing with an emphasis on collecting a broad range of environmental and community information has been a core component of our approach, particularly during the early period of fieldwork.

Our open-ended interviewing has provided watermen and farmers an opportunity to explain how, from their perspective, environmental issues are also community issues. What has become a central focus of our research is how stakeholder cultural models of environment and pollution seamlessly include a wide range of issues related to, for example, lifestyle, morality, economics, and politics. For example, our attempts at identifying a cultural model of *Pfiesteria* have revealed the holistic viewpoint that farmers use to interpret and understand the natural, social and political factors that account for *Pfiesteria*. While farmers do not deny the presence of a microscopic organism and its possible links to water polluted from farm runoff, for farmers any understanding of *Pfiesteria* must include acceptance that nature operates

in ways that cannot be fully understood, even by scientists. Farmers, who have strong economic and community reasons for not polluting, see themselves as environmentalists who can ill afford to mistreat their land and water sources, which they feel contrasts them with urban-based environmentalists. Farmers also feel that farming is an honorable and moral profession, where hard work and the growing of food for others are valued. And finally, farmers widely believe that regulations to reduce nutrient runoff are driven more by politics of who controls the Bay's resources than by common sense on how to support farmers to farm without polluting.

Our interviews with farmers and watermen allowed them to talk about what they thought was important. Farmers and watermen responded broadly. Our follow-up questions pursued their topical interests and our resulting interview data included extensive information on specific

with the respect we showed for their knowledge and perceptions, was in the end not that different from the style of conversations they would have among themselves. This style of interaction with outsider researchers was a new experience for most farmers and watermen, who were accustomed to being asked questions, often predetermined and in survey format, by researchers about a limited range of farming and fishing issues. While farmers and watermen would never confuse us with someone from the area, implicitly our research strategies are culturally very appropriate in acknowledging and valuing a wide range of cultural and environmental knowledge held by them. Similar to the scientists and environmental professional stakeholder group, we doubt that farmers and watermen have fully understood how we believe our substantive findings can promote stakeholder dialogue, but we do feel they have

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aspects of farming, fishing, and community. We were in the position where traditional relationships framed resource users as not knowledgeable and scientists as experts. Our general ignorance on farming, harvesting seafood, and related community topics allowed for a switching of roles. It also helped that we clearly enjoyed our time with farmers and watermen.

Our interviewing protocol of allowing farmers and watermen to holistically cover a wide range of topics, coupled

accepted us as fieldworkers and are much more open to our visits and sharing information with us.

Future Practice and Constituency Building

Successful applied anthropology is often built on established rapport and communication as much as the quality of our substantive perspectives or findings. In our project, we have invested much time and effort in

refining our theoretical framework and methods, using the paradigms of our discipline as benchmarks for our progress. As anthropologists, we are very aware that our theories and methods must be compatible with the cultural and social realities of the communities we seek to understand.

As we continue our applied research and focus on a broader range of environmental and pollution issues, we find it useful to incorporate into our research design what we have learned about the communicative effects of our practice. We anticipate paying more attention to how the practice of applied anthropology

university researchers, in this case anthropologists, can be a valuable resource for integrating local environmental needs and knowledge with ongoing scientific research, in the hope that environmental policymaking will be based on knowledge that integrates local and scientific understanding.

“...one significant contribution of our work is the development of new perceptions among farmers and watermen that...anthropologists...can be a valuable resource for integrating local environmental needs and knowledge with ongoing scientific research, in the hope that environmental policymaking will be based on knowledge that integrates local and scientific understanding.”

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Because few individuals in our stakeholder groups explicitly understood a priori what a cultural analysis was, we have had to emphasize verbal explanations of the contributions of an applied environmental anthropology. This is both understandable and appropriate. However, we now better realize how our specific methods of anthropology also helped us communicate something about anthropology and ourselves. Our use of a cultural model approach, supported by well-respected and prestigious scientific funding sources, helped to legitimize us among scientists and policymakers as one of many research projects on *Pfiesteria* and now other environmental issues for the Bay. Ultimately, the legitimization and acceptance has not translated into interdisciplinary research, in part due to a scientific paradigm that rewards and reinforces disciplinary boundaries. Our use of open-ended interviews to capture holistic knowledge fits well with farmers' and watermen's models of appropriate social behavior. As a result, we have increased rapport with these stakeholder groups.

might relate to existing cultural models among stakeholders. Such attention can improve rapport building, promote acceptance and help lead to stakeholder groups becoming a constituency for an applied environmental anthropology.

To conclude, the practical and conceptual approaches of our project have conveyed culturally relevant information to scientists, farmers and watermen that has functioned to create an acceptance of our work. We are now beginning to see some public impacts of this increased rapport and understanding. For example, a number of local organizations (e.g., Farm Bureau, Delmarva Poultry Industry, the Center for AgEcology) that are assisting farmers in addressing environmental issues have sought our guidance on how to better incorporate the findings from our cultural analysis. Additionally, EPA has expressed interest in integrating the findings from our cultural model analysis into their guidelines for assessing environmental risk. Finally, one significant contribution of our work is the development of new perceptions among farmers and watermen that

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