

LINKING ESTUARINE RESEARCH TO LOCAL COMMUNITY HERITAGE & ENVIRONMENTAL VALUES: LESSONS FROM THE CHESAPEAKE BAY

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The Chesapeake Bay watershed has entered a period of great environmental and socioeconomic transformation. The Chesapeake Bay is the largest estuary in the United States, boasting a highly productive watershed with a complex ecosystem rich in plant vegetation, marine resources, and wildlife. The Bay resonates with cultural significance throughout the mid-Atlantic region, encompassing divergent environmental values and uses. Therefore, the Bay attracts a spectrum of resource users from strict preservationists to commercial fishermen, serving as a recreational outlet for residents and tourists, providing economic opportunity and livelihood, and representing a rich cultural history of traditional communities and outdoor activities. Over the last several decades, however, agricultural run-off, increased development, and other point and non-point sources of pollution have detrimentally affected arguably the most productive estuary in the world—thereby impacting the cultural and economic vibrancy of surrounding communities (Boesch and Greer 2003).

Although several state, federal, and non-profit organizations have established monitoring and research programs to evaluate the productivity and stability of the Bay's ecosystem services, insufficient attention has been paid to local community environmental uses and concerns. Understanding there was a disconnect between their reserve managers and the local communities, the Chesapeake Bay National Estuarine Research Reserve system (NERR-MD), a program within the Wildlife and Heritage Division of the Maryland Department of Natural Resources, contracted



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two applied anthropologists (authors) from the University of Maryland, College Park for a period of six months to conduct a socio-cultural assessment of the communities on Deal Island Peninsula, located on the Lower Eastern Shore of Maryland. The primary reason for utilizing applied anthropologists in this context was the need on behalf of the NERR-MD staff to understand the interests of local communities in the research and educational activities of the NERR-MD system.

One of the challenges in establishing a connection with a new community is gaining acceptance and trust. The Chesapeake Bay NERR-MD seeks to include the needs and participation of local communities in their various education and research programs. A difficulty lies in building a strong presence within the local communities. How can we stimulate participation from community residents, wary of outsider intervention but steeped in rich cultural and environmental history? How can we translate multiple values of nature into effective policy and action? Recent research has indicated that sustainable



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resource management strategies actively solicit the participation and collaboration of local, affected communities. (Schelhas, et al 2002).

Fortunately, Michael Paolisso, co-author of the socio-cultural assessment, has been living and working in the Deal Island Peninsula for approximately five years. His ongoing research with the Chesapeake Bay fisheries and watermen and farming communities provided a built-in network of key informants. Over that time, strong friendships and a lasting commitment to cultural preservation built the foundation for our professional relationship with community residents. Residents were eager to participate in an effort that involved a positive exploration of their values, lifestyles, and perceptions toward their cultural practices and their roles within the natural environment.

A fundamental issue confronting our work is sustaining continuous involvement from key stakeholders. The identification of environmental values and uses, involving key players in the affected communities, and mitigation for potential conflicts are essential to a

successful combined effort in resource management. In order to achieve these goals, a socio-cultural baseline assessment is needed to indicate relevant social, political, and economic factors in any environmental decision-making framework. Therefore, there has been a recent trend for estuarine reserves to incorporate community and socio-cultural needs and interests into their management strategies.

The specific socio-cultural context can be explored in rich detail through the inclusion of traditional knowledge and community collaboration. The residents, tourists, and scientists living and/or working on Deal Island Peninsula have

issues, specifically in developing outreach strategies to local communities, building programs that target local community needs and concerns, and establishing sustainable relationships between residents and estuarine scientists and resource managers. Human interaction and civilization cannot be thought of as being removed from nature. "Our ways of thinking about the natural world are powerfully shaped by our time, our place, and our culture...if we hope for an environmentalism capable of explaining why people use and abuse the earth as they do, then the nature we study must become less natural and more

Maryland components of the Chesapeake Bay National Estuarine Research Reserve System (NERRs).

Indeed, Monie Bay is representative of important estuarine processes, making the component an ideal natural laboratory; however, its cultural significance is less understood. There is an opportunity for Monie Bay to serve as a meeting ground between community scientific and educational interests and Chesapeake Bay NERR-MD research priorities. The creation of large protected areas is a fundamental strategy in biodiversity and watershed conservation, but their success often depends on effectively managing relationships between reserves and local communities. "Since the early 1980s, this trend in international conservation has been to manage this relationship through integrated conservation and development projects" (Schelhas, et al. 2002).

Our findings revealed resident attitudes and uses toward the natural environment, what educational and scientific interests would be most beneficial to their needs, and suggested approaches to integrate cultural heritage into reserve programming. We want to not only communicate to NERRs what specific scientific and educational priorities residents want from them as an organization, but how to establish a sustainable dialogue and relationship with the communities through this cultural-ecological knowledge we've uncovered. These findings and relationships with the community residents would hopefully establish a link between scientific and educational programming to community needs and concerns.

Through the use of anthropological methods such as participant observation, informal interviewing, and focus groups, we were able to identify and evaluate cultural beliefs and values held by various Monie Bay stakeholders to help determine culturally-appropriate ecological and community benefits from the component. Interviews with watermen, farmers, business-owners, educators, country agents, and students revealed dynamic relationships not only with the marsh but also amongst residents themselves. Throughout this paper,

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a historical understanding of the local economic, political, and social systems. The importance of such an inclusion not only addresses the needs of the target community, but also allows the community to take initiative in program development or corporate relationships. "By any name, its proponents argue that traditional ecological knowledge offers rich ecological insight, that it allows... other local communities to participate more effectively and equally in resource management—it confers numerous benefits from the narrowly technical and scientific to the broadly cultural and political" (Huntington, et al. 2002).

Applied anthropologists have taken an active role in capturing the human component of resource management is-

cultural" (Cronon 1996). NERR-MD wanted to be able to foster this relationship between one of their components, Monie Bay, and the communities surrounding these marshes.

The Monie Bay component is not only representative of a Chesapeake Bay natural resource, but also serves to preserve and reflect the rich web of cultural history and stewardship. The designation of Monie Bay in 1985 as part of the Chesapeake Bay NERR-MD by DNR and NOAA heralded the beginning of a sustained and combined effort in Maryland to preserve critical marshes through scientific and educational outreach efforts. Monie Bay, a tributary of Tangier Sound and located on the Deal Island Peninsula, is one of three

you will discover how residents situate Monie Bay through their attitudes and uses of the general, surrounding marsh; the positive attitude toward state protection over the marshland; the residents' willingness to work with scientists and reserve managers to learn more estuarine science; and the shared concern between farmers and watermen regarding the increased development in the marsh. The following sections will describe the Deal Island communities, their environmental uses and values, and scientific and educational priorities. Finally, the conclusion will explore future challenges and opportunities that remain to continue the work needed for integrating community values into reserve management.

The Deal Island Communities

We wouldn't have bought down here if we thought it was another Annapolis.

Wenona Resident

The Monie Bay component is situated among several rural communities on the lower Eastern Shore of Maryland in Somerset County. The rural communities surrounding the Monie Bay component that were used for this study include Princess Anne, Westover, St. Stephens, Mt. Vernon, Oriole, Dames Quarter, Venton, Deal Island, Chance, and Wenona. These communities embrace a timeless commitment to land, water, and family, forged through several generations of farming and commercial fishing subsistence practices. Some of the outstanding features of the Eastern Shore include family histories that can be traced back to the earliest settlement patterns in the United States, former booming commercial fishing and agricultural industries, and a deep sense of community and self-sufficiency.

Communities are defined by their surrounding environments, as well as by churches, families, and a historical sense of place. Within the past several years, the Eastern Shore has experienced a dramatic increase of population re-settlement, partly due to the relatively low cost of waterfront property. "Until recently, the Eastern Shore was so

isolated from the commercial and social mainstream of Maryland that residents usually thought of themselves as living in a land apart from the state" (Wennersten 1992). Great change, both socio-economic and environmental, looms in the near future as long term residents witness comparable transformations in nearby communities. "Everybody knows everybody," the "isolation," and the fact that "we're a different breed," are comments made by residents to suggest a quiet rural living where development and "city ways" are frowned upon.

Social activities are centered on religious institutions, family homes, and meeting centers. In fact, interviews were frequently conducted at local haunts and gathering places, such as Arby's General Store and aboard crabbing vessels. A sense of community, self-sufficiency, and hard work are values practiced by residents who remain content to be removed from a faster-paced way of living. "This is where I work... knowing everybody. [I'm] not impressed with other places—too commercial!" asserted a Deal Island waterman. This sense of independence is still present in communities on Deal Island Peninsula.

The commercial fishing industries, once in abundance, began a gradual decline after the 1930s due to low crab and oyster yields. Geographical isolation once again served the communities. However, with the paving of Deal Island Road, commerce, some relocation, and political activity accelerated and spilled into Salisbury and Princess Anne. Interestingly, social and economic activity typically remained on the Peninsula. However, these tight-knit communities where change occurs slowly are suddenly becoming transformed from working watermen and farming communities to a must-see for bird watching trips and high-priced waterfront property for urban dwellers.

Monie Bay as Nature

It wouldn't be Deal Island if there wasn't a marsh.

Deal Island resident

I love the marsh, the waters....

Chance resident



Chesapeake Waterman

Community residents were extremely elaborative on the subject of their daily interactions with nature. They quickly became engaged in showing us how the landscape has evolved over generations of use from both man-made practices and natural disturbances. We found that nature had become a cultural concept embedded into the minds of the local communities and reserve managers that reflect the values of use, recreation, and preservation. These salt marshes represent a natural landscape shared by all, from farmers to watermen to a wider range of other community residents. Recreational hunting, fishing, boating, and hiking are all activities that suggest a close tie with the marshes that surround their communities. "You can get close to nature," suggests a Dames Quarter resident. Visitors to the area also share in this landscape. Every season the Monie Bay area attracts several bird-watching tours and water enthusiasts. It is a "must stop" on bird-watching outings.

It may not be an understatement to assert that no other form of landscape that comprises the area of Monie Bay is so widely experienced and used. "I do enjoy the products that come from the marsh," exclaimed a Princess Anne farmer. Interestingly enough, however, it was difficult for residents to separate

the specific Monie Bay component with other marshland. Roughly half the respondents were not aware that Monie Bay was comprised of state-protected lands, much less managed by the NERR system. The one sign on the main road that designates Monie Bay as part of a national reserve system was overlooked

interaction by the state's allowance of recreational uses. As a new resident commented, "I'd like to show these things [the resources of nature] to our grandchildren [and] to be able to pass that on." Because the marsh is such a constant, shared presence on the peninsula, one resident remarked, "We take it

directly with fishing and farming, where watermen and farmers often claim that regulations make it difficult for them to make a living.

Scientific & Educational Interests

Yes, I believe in science...yet they [scientists] need to interact with these guys [residents] more.

Deal Island resident

“Communities are defined by their surrounding environments, as well as by churches, families, and a historical sense of place.”

due to tree obstruction. Often we had to preface our interviewing with a brief description of the NERR-MD program, as many residents were unfamiliar with the organization. We had to make the connection between NERR-MD and Monie Bay for the residents. This finding brought the realization that the communities hold a holistic perspective of the marsh; divergent uses and attitudes were subsumed under the umbrella of "the marshes."

The seemingly undisturbed quality of the marshes, at least to the non-scientific eye, coupled with their extensive presence, make them a natural symbol for community residents' views on ecology and natural resource management issues. Throughout the course of fieldwork, five cultural models residents held toward the marsh were identified: 1) Marsh as recreation; 2) Marsh as natural water filter; 3) Marsh as land buffer; 4) Marsh as protection against development; and 5) Marsh as cultural heritage.

Residents hold a multi-use perspective toward the marsh. All residents interviewed use the marsh in some recreational form, whether through fishing, exploring, hunting, or swimming. The marsh is implicitly understood as a natural "playground" of sorts where respecting and preserving its natural resources are essential for future use and enjoyment. Monie Bay continues this tradition of preservation and community

[the marsh] for granted because we've lived here." This daily interaction with the marsh contributes and reinforces the multitude of attitudes and uses of the marsh.

A surprising finding emerged when discussing the issue of state protection over local lands. Farmers, watermen, and business owners of the communities surrounding Monie Bay typically view government intervention with skepticism and trepidation. However, an outstanding similarity emerged as all stakeholder groups agreed that some level of state protection over lands was necessary for ecosystem sustainability and protection from development. Therefore, residents are open to some level of federal and state involvement. This was an obvious finding that needed to be communicated to NERRs because the reserve managers have often encountered resistance from residents toward state involvement. However, a caveat remains: In the case of farmers and watermen, they are willing to allow the state to manage the marsh because they do not directly rely on the marshes for their livelihood. Thus, an opportunity for sharing science and natural resource management approaches with watermen, farmers, and other residents in ways that are not directly threatening to their livelihood exists. This is a major advantage, compared to discussing management approaches and natural resource regulations that deal

Scientific research and state-sponsored educational programs have been largely absent from the Monie Bay component communities. This absence has not gone unnoticed by community residents. A Wenona resident echoed what we heard a number of times in interviews: "We would like to know this [scientific] information." Without exception, all those interviewed expressed an interest and would even welcome more collaboration and involvement with scientists and their work. However, this openness is not without some reservations, questions and concerns. A number of interviewees expressed concerns about the "agendas" of well-intentioned scientists. There is a hesitation on the part of residents to accept the findings on various scientific projects that often neglect community participation and input, as these results can lead to negative economic consequences such as further coastal and land regulations. Dissatisfaction and mistrust is frequently a result from this lack of involvement.

The residents of the Deal Island Peninsula take an active interest in their surrounding natural environment. This interest is, in fact, a necessity if one wants to live in an area where reliance upon natural resources is essential for economic livelihood of many community residents. Table 1 summarizes residents' scientific and educational priorities.

Despite the uneasy relationship between scientists and the resident groups, *a strong commitment to science remains*. A Mt. Vernon farmer put it quite succinctly: "Science is what promotes everything." In other words,

the farmers and watermen interviewed believe in science because it is important to the daily operation of their respective businesses. Science is what guides their technology and conservation practices such as incorporation methods for chicken manure, building ponds to control agricultural runoff practices, and trapping methods. One of the ways increased collaboration with the scientific community could contribute to the preservation of the marsh and farm land is through addressing these scientific research topics described in the table above. As stated before, residents' concerns arise over scientists' intentions when resource users are silenced and regulated without a more interactive and collaborative approach to coastal and land management.

As one young person commented, "I think it [communication] would be beneficial...the community is dying off...It [the community] needs to be preserved now." Scientific research is one way to open the eyes of tourists and new residents to the issues affecting the environment and the socio-economic nature of the peninsula. The information and research must be localized; for example, more locally site-specific issues pertaining to the needs of the communities must be conducted. "They [the scientists] might get something done," stated a long-term Chance resident. Scientific involvement can be inclusive of the communities' needs if direct collaboration is practiced and a genuine interest in the communities is present.

Conclusions

Our fieldwork within the communities of the Deal Island Peninsula uncovered a number of challenges and opportunities for continued engagement between scientists and residents. The marshes of Monie Bay capture both educational and cultural experiences shared by the residents of the Deal Island Peninsula. We were able to provide NERRs with a baseline assessment of community environmental values and uses of the marsh; scientific and educational priorities; and the need

Table 1

Resident Groups	Scientific Interests & Concerns
<i>Watermen</i>	water quality, salinity levels, and sources of pollution impact of development, evolution of technology, coastal erosion, increased collaboration with scientists
<i>Farmers</i>	water quality, ecosystem change, and coastal erosion sources of pollution, agriculture education in schools, effects of marshes on ecology of farmland, increased collaboration with scientists
<i>Other¹</i>	water quality, development and impact, the utilization of local knowledge in scientific research, various types of wildlife and their effect on the land and marsh

to incorporate cultural heritage into resource management.

Deal Island Peninsula is representative of an area where one of the few remaining open spaces and traditional natural-resource dependent communities is confronted with rapid development. Future studies can be centered on the issue of cultural preservation and the impact of development. Though these communities remain almost three hours from Annapolis and Washington, DC, new residents continue to move into the area. Cultural conflicts arise when long-term residents and "transplants" clash over quality of life issues, property values, and social organization. This is an issue that is dramatically affecting their cultural heritage.

Our research and fieldwork experience under the auspices of environmental anthropology has led us to some important conclusions and guidance that we believe to be helpful to continue this work on the Lower Eastern Shore. The local communities have a vested interest in preserving the marsh. Once we were able to tap into these cultural values that shaped the way residents perceived and interacted with the marsh and Monie Bay could we begin to more effectively collaborate with programs such as NERRs. Our concern is the future use of our findings and the evolving realities that face the residents—realities such as a changing environmental and social landscape.

There is a strong and wide-spread community interest in the health of the marsh and ecosystem processes. Through the integration of community cultural and heritage interests and needs into estuarine science, scientific and educational programs can be developed to target the needs of both communities and reserve managers. Informal talks and presentations, community ecological or heritage tourism, a visitor center or museum, and volunteerism are all specific projects community residents are willing to engage in and support with the broader scientific community and public.

Environmental values strongly affect the manner in which a society utilizes its natural environment for social and economic ends. Environmental anthropology explores how cultural values affect the uses and meanings attached to the environment. One of the primary objectives in soliciting cultural knowledge from a variety of stakeholders is to develop pattern of similarities and differences between this knowledge and unearth cultural models. The results would hopefully illuminate the best course of action for stimulating the communities to foster a relationship with Monie Bay that is mutually sustainable and worthwhile. The National Estuarine Research Reserve would want to select a program and possibly alter the environment that would most appropriately support and represent

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the Monie Bay region. “Understanding conflicting cultural models can improve dialogue among stakeholders and create policies and environmental solutions that benefit from a combination of lay and expert knowledge” (Feurt 2004). Utilizing knowledge from both perspectives will create a more adaptive, resource co-management policy. Socio-cultural assessments are studies that have the potential to unearth rich cultural and environmental knowledge. The biodiversity of Monie Bay draws both residents and visitors alike to the area. However, policy makers, biologists, anthropologists, and individuals juxtapose the meanings of nature and the human experience in unique ways. In conjunction with socio-cultural assessments, environmental anthropology can play an active participatory role in this collaboration of scientific methodologies.

By working in tandem with communities who surround reserves such as Monie Bay or who utilize natural resources, we are exposed to a greater cultural understanding about the balance between conservation and use. We will continue to work with the communities of Monie Bay to strengthen our understanding between their lives, nature, cultural heritage, and urban development. This cross-cultural knowledge can generate provocative conservation and program strategies that encompass the values of the community, the anthropologists, the conservation scientists, and the resource managers.

[Acknowledgements: The authors wish to acknowledge the support and guidance from the staff of the Chesapeake Bay National Estuarine Research Reserve in Maryland, in particular Bob Finton, Julie Bortz, and Andrea Hardy-Campo. In addition, we’d like to thank the residents of the Deal Island Peninsula for their time, effort, and collaboration on this project. Funding for this project was made possible through the Maryland Department of Natural Resources.]

Notes

“Other” refers to professionals working in Princess Anne or Salisbury, educators, business owners, young residents, long and short-term residents.

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