

A BIO-REGIONAL APPROACH TO THE CHESAPEAKE BAY: THE ROLE OF CITIZEN AND GOVERNMENT INVOLVEMENT IN A WATERSHED-BASED PROGRAM

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Abstract

A bioregion is a geographic area that contains one or more ecosystems, such as a watershed, that is independent of political or jurisdictional boundaries. But it is also a natural and cultural region with which people share a common identity characterized by a strong sense of place. While not formally established as a “bioregional program,” the effort to protect the Chesapeake Bay and its watershed is evolving into an excellent example how citizens can work with their federal, state and local governments for mutual benefit on a major coastal sea. Since 1983 the Chesapeake Bay, the largest estuary in the United States, has been protected by a formal state-federal agreement which has addressed critical issues through major governmental initiatives. We present three examples of organizations and programs that illustrate an evolving citizen-based, bioregional approach to the environmental safeguarding of the Chesapeake Bay and its watershed: the Coastal and Watershed Resources Advisory Committee (CWRAC), the Rural Communities Leadership Program, and the Chester RiverKeeper. CWRAC is an advisory committee with wide ranging representation and citizen participation. It has the opportunity to gather and disseminate the latest coastal information among its members. The committee has demonstrated the ability to develop a citizen-based coastal perspective that is regularly presented to government decision-makers. The Rural Communities Leadership Program addresses emerging issues in land use, sustainability of resource-based economies, and the vitality of villages and towns on the Delmarva Peninsula, a region that includes a portion of the Chesapeake Bay watershed. The region is characterized by a working landscape based on farming, forestry, and fisheries, a rich cultural heritage, and a strong relationship to healthy terrestrial and aquatic environments – all threatened by poorly planned community development. The Program promotes the emergence of leaders who can assist their local communities define their futures, sustain their resource-based economies, and preserve local and regional environmental quality. The Chester Riverkeeper’s parent organization, the Chester River Association, was founded in the belief that citizens have a unique role to play in managing bioregions. The Riverkeeper is a professional staff member who serves as a full-time advocate for the Chester River, a Chesapeake Bay tributary, encouraging citizens to make lifestyle choices that benefit the watershed, providing oversight of government programs, and promoting a holistic perspective on environmental problems. In this paper we show that the evolving bioregional approach, which increasingly ignores political boundaries in favor of complete ecosystems, emphasizes local community involvement, and takes advantage of the “passion of sense of place” by communities and citizens alike, is becoming instrumental in advancing and sustaining the goals and activities of the larger Chesapeake Bay Program.

1. Introduction

The Chesapeake Bay Program (Internet access at <http://www.chesapeakebay.net>) is a voluntary agreement between the U.S. Federal Government (represented by the U.S. Environmental Protection Agency, USEPA), the District of Columbia (Washington, DC), and the states of Maryland, Virginia, and Pennsylvania. The original *Chesapeake Bay Agreement of 1983* has been revised and expanded several times, the most recent being *Chesapeake 2000* signed in June of that year. The program has evolved to encompass the entire 166,400 km² watershed as a single coastal ecosystem.

Such a comprehensive program has generated high expectations about the restoration of Chesapeake Bay water quality and the conservation its economically valuable living resources. However, public opinion is becoming highly critical about a perceived lack of progress and two recent books have given voice to this perception. The update of *Turning the Tide* by the widely read columnist and author Tom Horton (2003) is an in-depth study of the state of the Bay and its management problems. *Chesapeake Bay Blues* by political scientist Howard Ernst (2003) concludes that the lack of progress in Bay restoration is due to the lack of political will. Both books provide thorough summaries of the principal indicators: extensive algal blooms, low-oxygen/anoxic bottom water, lack of significant recovery of submerged aquatic vegetation following disappearance from more than 90% of its former 240,000 hectare habitat, collapse of the oyster industry, and historic lows in the abundance of blue crabs. No one argues that there has been no progress at all. Restoration of striped bass to a viable sport and commercial fishery is considered a great success story in resource conservation. The Chesapeake Bay Program has also very nearly met its goal of reducing by 40% the controllable loads of the nutrients nitrogen and phosphorus from the watershed (Blankenship 2001). The latter is largely the result of wastewater treatment plant upgrades for nitrogen removal and adoption of a basin-wide ban on phosphate detergents. Even so the Chesapeake as a whole does not appear to be responding in any significant way to more than 20 years of intensive environmental management.

Chesapeake 2000, which predates both books, is an ambitious attempt to enhance the success of the Chesapeake Bay Program by making nearly 100 separate commitments to achieve water quality improvements to levels that will restore vital habitat for the Bay's living resources. Policy makers are adopting new nutrient load reduction goals that exceed in magnitude those already achieved (Alliance for the Chesapeake Bay 2003). They are also addressing changing land use on the watershed by attempting to reduce the rate of "harmful sprawl," restrain the spread of impervious surfaces, and promote the planting of riparian buffers along more than 3,200 linear km of tributary streams and river. But point-source control of nutrient pollution through wastewater treatment improvement to the limits of current technology will account for only one-third of the targeted load reductions (Chesapeake Bay Foundation 2003). It is clear that significant inroads will need to be made in the control of pollution from non-point sources such as farmland, impervious surfaces, and the atmosphere (Bell 2003). Many of these sources are the result of how humans behave – socially, economically, and culturally – on the watershed.

Although voluntary in nature, enforcement of agreed-upon commitments under the Chesapeake Bay Program rests on the prerogative and the authority of the signatory states. It is therefore, a government-implemented, “top-down” approach to environmental management. Both Horton (2003) and Ernst (2003) recommend strengthening this approach through additional regulation, possibly administered by a new watershed-wide commission that would, in effect, supersede the authorities of the various states. We suggest that any “top-down” approach alone is insufficient to generate a successful, sustainable management effort. We believe that the behavior-based causes of non-point pollution are best addressed in a “bottom-up” fashion by the watershed’s citizens and their communities. We present the concept of bioregionalism as a context for a “bottom-up” approach to environmental policy and provide three examples of this approach from an increasingly bioregional perspective.

2. Bioregionalism and the Delmarva Peninsula

A functional definition of bioregion is a geographic area that contains one or more ecosystems, such as a watershed, that is independent of political and jurisdictional boundaries (Flores, 2003). From this perspective, the Chesapeake Bay watershed can be viewed as a single bioregion. We can draw the boundaries of 6 states and Washington DC on a map of this watershed. But a bioregional view sees these as part of a larger whole, an ecosystem in which the parts are interconnected and interdependent (Thayer 2003). It is also possible to view this bioregion as a nest of several smaller bioregions based in part on local tributary watersheds or other geographic features.

This functional definition fails to identify other aspects of bioregions. The most important is that a bioregion is strongly community-based and depends on shared citizen experiences loosely called “sense of place.” This is the collective perception that the citizens share about their community, including such elements as history, culture, and environment (Kellert 1997, Flores 1999). Edward McMahon of The Conservation Fund (personal communication) defined sense of place as, “What makes your home town different from my home town.” A bioregional point of view is thus both a perspective and a passion. The Chesapeake Bay’s sense of place is well symbolized by the boats that were designed to harvest oysters from the bay’s shallow waters, most notably one of the world’s last sailing workboats, the Chesapeake Bay skipjack.

The Delmarva Peninsula is a bioregion that includes portions of the Chesapeake Bay and Coastal Bays watersheds in the states of Delaware, Maryland (where it is called the “Eastern Shore”), and Virginia. It is a region that is home to 1.2 million people, a working landscape where land use is more than 50% agriculture, described by a U.S. Congressman Wayne Gilchrest (personal communication) as “A place where land and water meet, a region carpeted by farms and forests, buttoned with villages and towns.” Unfortunately, forces beyond Delmarva are working against the vitality of the region. Chesapeake Bay fisheries are declining. Global markets have driven grain prices down and reduced farm profitability. Young people are leaving for better-paying jobs elsewhere. Traditional family farms are decreasing in number (Gardner et al. 2002). But perhaps the greatest immediate threat to Delmarva, as it is to rural communities across the U.S., is land consumption catalyzed by

uncontrolled development: urban sprawl. Farmers operating at the edge of profitability are tempted by offers of millions of dollars to sell their land to developers. But sprawl does not pay for the infrastructure of roads, schools, and services needed to support it. It places severe stress on community budgets, leading to a cycle of more development to increase the tax base. Sprawl brings with it impervious surfaces of roads, parking lots, and rooftops that contribute to the non-point pollution load of Chesapeake Bay (Boesch and Greer 2003). Worse, with erosion of the land comes the erosion of Delmarva's sense of place. At the EMECS 1993 conference in Baltimore, Maryland, Sagoff (1997) considered this loss: "What may worry us most is the prospect of becoming strangers in our own land . . . of being no more at home here than anywhere."

We consider now three examples from the Chesapeake watershed and Delmarva Peninsula that can be interpreted from a bioregional perspective. Our purpose is to show how a "bottom-up" bioregional approach can compliment the "top-down" Chesapeake Bay Program and advance that effort toward its goals.

3. Citizens Water Resources Advisory Committee

The Citizens Water Resources Advisory Committee (CWRAC; Internet access via <http://www.dnr.state.md.us>) was established in 1976 by the State of Maryland to ensure the state's varied interests would be reflected in its Coastal Program as developed under the Federal Coastal Zone Management Act of 1972. Its members are citizens representing businesses, civic and conservation groups, and local government agencies.

CWAC has an official responsibility to advise the Secretary of Natural Resources, the state's other secretaries sitting on the Governor's Chesapeake Bay Cabinet, and the Maryland Coastal Program concerning legislation and policies that affect public preferences and perspectives about the coastal environment. It does so through regular meetings and special forums that provide an opportunity for extended dialogue with experts and laypersons alike about the latest coastal issues.

While convened in a "top down" manner, CWRAC represents an effort on the part of Maryland state agencies to incorporate grassroots-level community concerns into the advancement of environmental policy. Its watershed-based perspective is at times bioregional although the political boundaries of the state prevent that perspective from being fully realized across the entire Chesapeake basin. Even so, CWRAC has served as a forum for providing important local community input into broader governmental programs. For example, CWRAC sponsored a comprehensive issue forum on climate change in Maryland; this resulted in a sea level rise response strategy for the state (Johnson 2000) that specifically addresses the future welfare of its tidewater and coastal communities. CWRAC also provided important assistance to the Governor's office by reviewing in detail the *Chesapeake 2000* agreement from local community and business interest points of view.

Most recently, CWRAC co-sponsored a major regional forum on the beneficial use of dredge material. A significant outcome has been the state's decision to allow the use of

dredge spoil to restore the nearly vanished Poplar Island to its original 1,000-acre footprint. Over the 16-year lifetime of the project, the restoration will consume approximately 25 million m³ of spoil from the shipping channel that enables Baltimore Harbor to function as one of the Atlantic Seaboard's major commercial ports (U.S. Army Corps of Engineers 2002). The Poplar Island project, which is also restoring lost habitat for breeding and migratory water birds, has received a prestigious Coastal America Award for its partnership with other agencies, organizations, and environmental groups that are assisting with the endeavor.

CWRAC illustrates the potential significance of incorporating "bottom-up" citizen participation into "top-down" government programs. We believe that local citizen support is necessary for the long-term sustainability of such programs. In addition to being a means of incorporating such support, CWRAC-sponsored forums provide a valuable educational service in preparing citizens to listen, understand, and participate.

4. Rural Communities Leadership

Rural Communities Leadership is a program initiated in winter 2003 by the Center for the Environment and Society at Washington College with support of the W.K. Kellogg Foundation (project Internet access via <http://ces.washcoll.edu>). The project is attempting to help the communities of the Delmarva Peninsula view themselves as part of a bioregion, and to take better advantage of that perspective in confronting the forces that threaten the working landscapes that constitute their agriculture- and resource-based economies, their vitality, and their sense of place.

Rural Communities Leadership has convened a Program Council composed of community leaders, agency personnel, and academicians from across the peninsula to review working landscapes issues from a bioregional perspective. It is also offering a new course, "Sustainable Community Development," that is taken by both Washington College undergraduates and continuing education adults who want to learn more about these issues no matter where their "home town" might be. Members of the Program Council agree with others (Richardson 2000) that leadership at the community level is the key factor in developing an effective grassroots program. They find that leaders mobilize people and function as the interface between local programs and top-down government policies.

As an example of what rural community leadership can accomplish, consider the town of Vienna, population 350, located on the Nanticoke River, a Chesapeake Bay tributary on Maryland's Eastern Shore. Vienna's leader is its Mayor, Dr. Russell Brinsfield, who is also a University of Maryland Professor and local farmer. He became concerned that Vienna would soon start losing its agricultural working landscape and its sense of place to sprawl. Under Brinsfield's leadership, Vienna teamed with The Conservation Fund, county government, and a several local NGOs to consider how the town might best take advantage of its regional location in the heart of Delmarva on the wildlife-rich Nanticoke watershed.

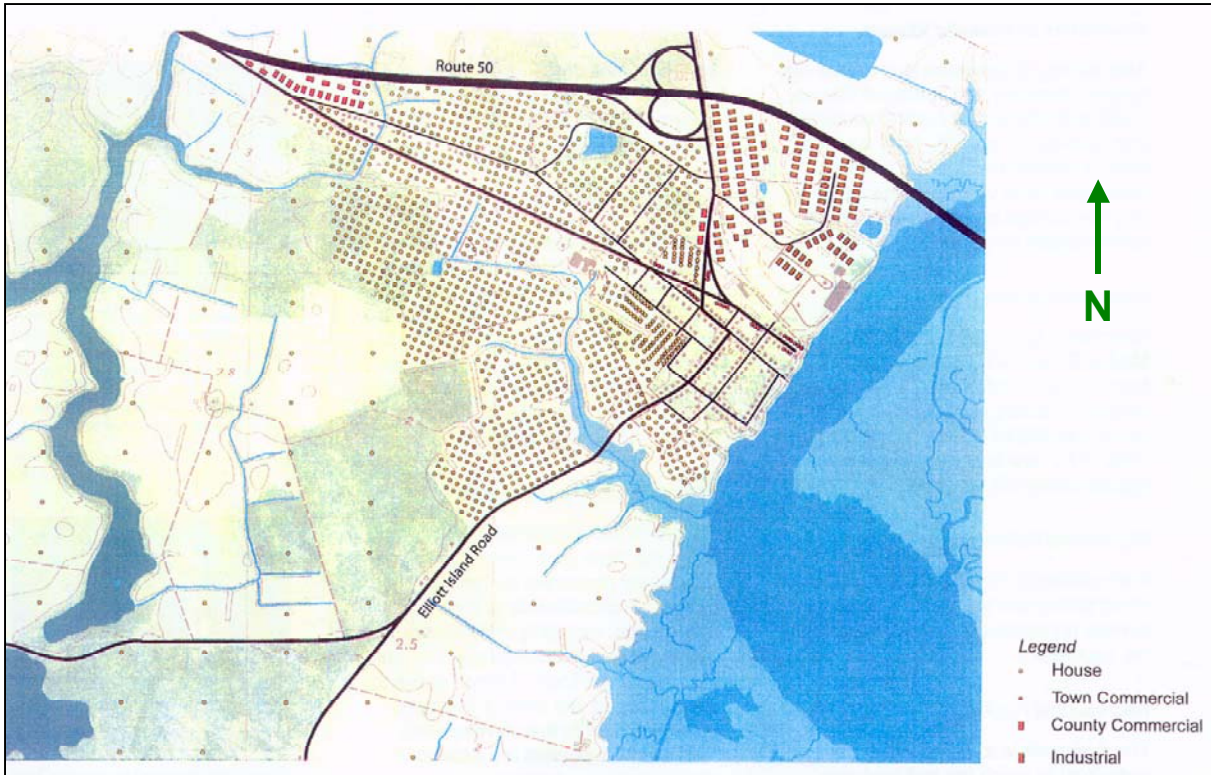


Fig. 1. “Build out” scenario for town of Vienna, Maryland, showing the locations of structures if the town were fully developed according to existing zoning regulations (from Conservation Fund 2003).

The partners used geographic information system (GIS) methods to construct scenarios that produced alternative visions for the future of Vienna (Conservation Fund 2003). One vision (*Fig. 1*) shows how Vienna would look if it were to build out according to current zoning regulations. Citizens were appalled at the amount of pavement and the construction of schools and services that would be required if this scenario were realized. The scenario also shows loss of the working landscape as the surrounding farmland succumbs to homes built on 2-hectare lots.

Vienna’s citizens finally agreed on a more bioregional vision (*Fig. 2*). In this scenario, development is clustered within the historic town limits around a town green. Homes are connected by some roads and an extensive network of walking and bicycle trails. Farmland surrounding the town is preserved and productive. Ecotourism takes advantage of the town’s waterfront location and proximity to extensive preserved Nanticoke River marshland. The town has hired a developer to design a comprehensive plan based on this community vision rather than on priorities set by maximum profitability.

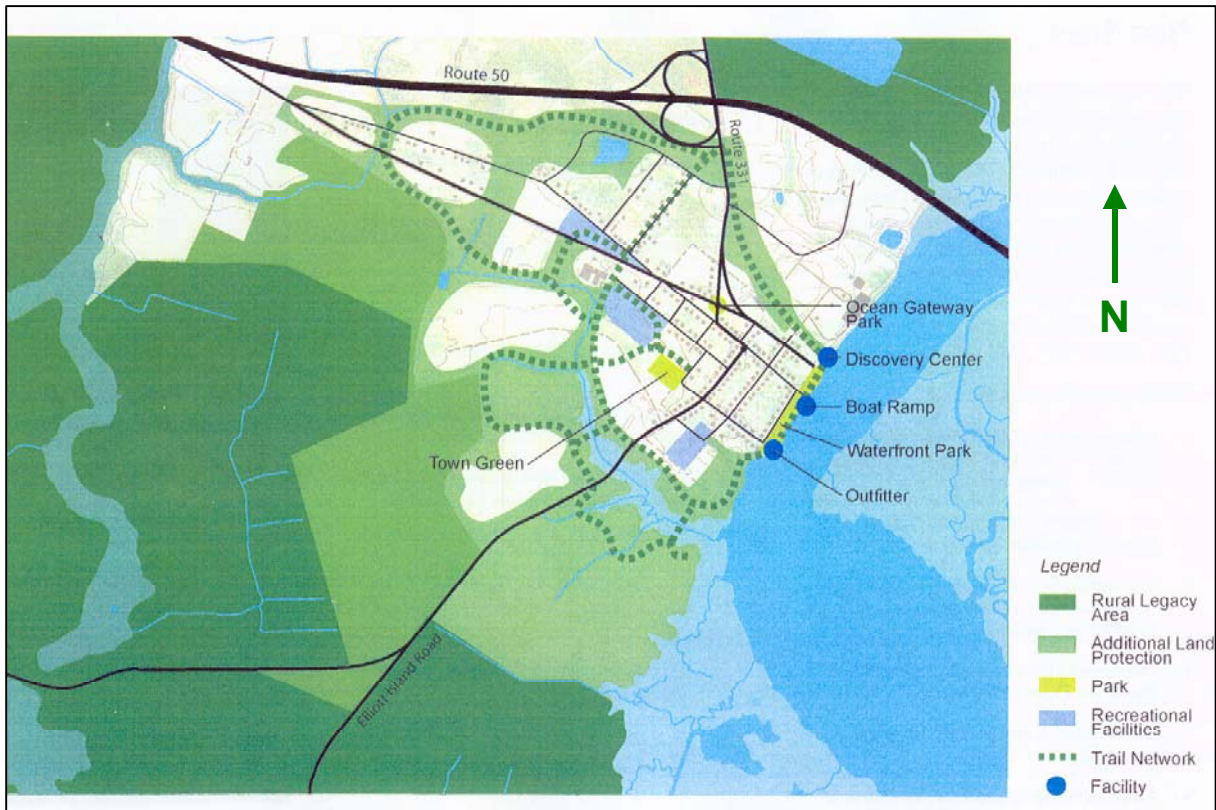


Fig. 2. “Green infrastructure” scenario for town of Vienna, Maryland, showing the vision that clusters development near a town green and maximizes retention of open space and a surrounding working landscape (from Conservation Fund 2003).

In realizing this vision for its own sustainable future, Vienna is also contributing to the goals of the Chesapeake Bay Program’s *Chesapeake 2000*: reduced non-point pollution through fewer impervious surfaces and less atmospheric deposition of chemicals derived from automobile exhaust, preservation of landscape open space, and increased green infrastructure to provide wildlife habitat and retard sediment runoff. It is a bioregional, grassroots effort that compliments “top-down” government policy without the need of additional laws and regulations.

5. Chester RiverKeeper

The Chester River is a Chesapeake Bay tributary located on the northern Delmarva Peninsula. The working landscape of its 1,000 km² watershed is 70% agricultural. Dr. Eileen McLellan was appointed to the position of Chester RiverKeeper in 2002 by the Chester River Association (<http://www.chesterriverassociation.org>), one of the oldest local NGO on the Chesapeake watershed. As with the larger, government-implemented Chesapeake Bay Program, this local NGO has become concerned that water quality on the Chester is not improving despite its voluntary efforts to reduce pollution. Sanctioned by the National Waterkeeper Alliance, the Chester RiverKeeper’s job is to serve as a local advocate for the Chester River, restore its water quality, and sustain the agriculture- and resource-based economy of the region (McLellan 2003).

Shortly after her appointment, McLellan learned that the USEPA, as the lead Federal agency for the Chesapeake Bay Program, had identified the lower Chester River as an oxygen-poor “dead zone” that would not respond to pollution control measures. She organized a public information meeting and successfully rallied citizens, farmers, and schoolchildren to the river’s cause, convincing the “top down” policy makers that their decision was based on insufficient data. As a result of the grassroots effort, the USEPA has reclassified the lower Chester River so as to encourage the adoption of pollution abatement measures by the citizens and communities on the watershed. In addition, the Maryland Department of Natural Resources has set up continuous and semi-continuous water quality monitoring stations on the Chester. The data from these can be observed in near-real time through the new “Eyes on the Bay” web site at <http://www.eyesonthebay.net>.

In the 24 years of its existence the Chester River Association had never been able to bring significant numbers of concerned citizens, businesspeople, farmers, and school children together over any environmental issue. The Chester RiverKeeper’s bioregional approach has engendered a renewed feeling of community on the watershed. This grassroots effort, firmly grounded in the region’s sense of place, is now helping to advance the goals of the Chesapeake Bay Program in a manner that “top-down” attempts to classify the river were unable to implement. Her most recent endeavor on November 1, 2003, was to have citizens occupy stations on the watershed to take simultaneous water samples for analysis and pictures for display. This “watershed snapshot” was originally planned for 50 persons at a similar number of stations. The actual turnout was nearly 150 volunteers at 75 stations. McLellan (2003) strongly believes that the profitability of agriculture and the vitality of community are linked to the ecology of the Chester River and she is deeply engaged in conveying this message at the grassroots level.

6. A Bioregional Approach to Coastal Seas Policy

Table 1 summarizes the principal differences between “top-down” and “bottom-up” government-implemented approaches to environmental policy. The fundamental difference is that the former is government-based and implemented, while citizens acting on behalf of their communities implement the latter.

Table 1

| “Top-down” | “Bottom-up” |
|-------------------------|----------------------|
| Government-based | Community-based |
| Policy-centered | Place-centered |
| Political factors | Behavioral factors |
| Education to promote | Education to engage |
| Agency leaders | Citizen leaders |
| Sustained by regulation | Sustained by culture |

The government-based approach relies on the strength of policy itself rather than what may be a less well-defined, but no less real, community sense of place. “Top-down” policy is sensitive to political factors and, as Ernst (2003) has observed, may fail for lack of political will. The “bottom-up approach” is sensitive to how people behave;

it may also fail for want of behavioral change, but minor changes toward desired behavior (such as driving fewer average miles per day or reducing nitrogen runoff from a farm field by

a few per cent) have the potential of being multiplied by factors of thousands to millions across a watershed. Government-based environmental education often has an agenda to implement comprehensive policy rather than to engage citizens to take better care of their local community. The leaders of government-based programs are elected officials or agency personnel. Leadership from community-based programs is developed within the communities themselves (Richardson 2000). Finally, “top-down” programs are sustained by regulation and require enforcement. Community-based programs are sustained by culture and sense of place. We believe the latter is a far more effective means of ensuring sustainability.

A bioregional approach to coastal seas policy is not incompatible with “top-down” governmental effort. Governments are important catalysts, significant sources of program funding, and perhaps the only entities capable of multi-jurisdictional agreements that transcend political boundaries that often get in the way of bioregional thinking (Flores, 1999). Even so, there is growing evidence that “top-down” approaches without grassroots participation are incapable of sustained progress in restoring the world’s coastal seas and conserving their irreplaceable living resources. We are heartened by the increasing number of presentations at EMECS conferences that use environmental education to engender citizen understanding and encourage citizen participation in coastal seas programs (Ducrotoy 2003, Sarkar and Bhattacharya 2003). The bioregional perspective gives a promising context for such initiatives. Communities that develop the local leadership to help themselves can become local, vital, and sustainable factors for saving our coastal seas.

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