



# BULLETIN

Volume 19 (1 & 2) 1997

THE COASTAL SOCIETY

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## PRESIDENT'S MESSAGE FOR FIRST 1997 BULLETIN

**I**N THIS ISSUE of the Bulletin we report on two major events in addition to the other items of interest. The first is the very successful TCS 15 meeting in Seattle. TCS 15 was an outstanding example of the breadth and 'cutting edge' nature of TCS as an organization. The second is the results of our recent election of officers and members of the Board of Directors. Past President David Smith and his committee put together an excellent slate, one with a great deal of diversity in geography, types of professional background and activity, organizational affiliation, and skills to contribute to TCS. The construction of the slate also reflected the recently passed amendments to the bylaws of TCS which gave the

Board a clearer and more stable structure and process. The results of the election were in many cases very close; I attribute this to the high quality of the candidates and the difficulty of choosing among them.

The officers and Board which resulted from these elections are more geographically balanced than ever before. I believe the new members will add significantly to the energy, vitality and expertise of our leadership, and look forward to working with them. Please feel free to contact me or any of the officers or Board members at any time with your own ideas for the directions and activities of TCS.

## TCS NEWS

### New Members

Arnn, Matthew; NOAA/Office of Ocean & Coastal Resource Management, Silver Spring, MD

Arenovski, Andre; Marine Studies Consortium, Chestnut Hill, MA

Bacon, Robert H.; S. C. Sea Grant Consortium, Charleston, SC

Brown, Darrell; Environmental Protection Agency, Washington, DC

Bune, Leah; Duke University, Beaufort, NC

Carmen, Jennifer; Ketchikan Gateway Borough, Ketchikan, AK

Christerson, Neil K.; NOAA/Office of Ocean & Coastal Resource Management, Silver Spring, MD

Colton, Jenee; Duke University, Seattle, WA

Cosper, Caryn; Texas General Land Office, Austin, TX

Daniels, Jeanne; Maine Department of Natural Resources, Two Harbors, ME

Dunnigan, John; Atlantic States Marine Fisheries Commission, Washington, DC

Duval, Michelle A.; Duke University, Beaufort, NC

Espy, Leigh D.; NOAA/HAZMAT, Seattle, WA

Fox, Jim; Interagency Committee for Outdoor Recreation, Olympia, WA

Goldbeck, Steve; BCDC, San Francisco, CA

Gordon, Melissa, Louisiana State University, Baton Rouge, LA

Henderson, Michael; NOAA/National Ocean Service, Silver Spring, MD

Hillman, Helen; NOAA/HAZMAT, San Francisco, CA

# TCS BULLETIN

**T**HE TCS BULLETIN is published to provide information about coastal issues, events, and publications. Contributions are encouraged. Inquiries relating to the Society and the Bulletin should be addressed to the editors at: The Coastal Society, P.O. Box 25408, Alexandria, VA 22313-5408, telephone (703) 768-1599, or fax (703) 768-1598, or e-mail coastalsoc@aol.com.

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## TCS NEWS

Hubbard, William; U. S. Army Corps of Engineers,  
Waltham, MA

Hulsizer, Elsie; Seattle, WA

Hunt, Sara; Office of the Governor, Juneau, AK

Kadvany, John; Applied-Decision Analysis, Inc., Menlo  
Park, CA

Kerby, Erin; NOVA Southeastern University, Dania,  
FL

Kreag, Glenn M.; Minnesota Sea Grant Program,  
Duluth, MN

Lacey, Robin K.; Duke University, Durham, NC

Leschine, Tom; University of Washington, Seattle, WA

Lott, Joshua; NOAA/Office of Ocean & Coastal  
Resource Management, Silver Spring, MD

Main, Catherine; NOAA Coastal Services Center,  
Charleston, SC

McKinnie, David; NOAA/Office of  
Ocean & Coastal Resource  
Management, Silver Spring, MD

McCready, Robert; Center for  
Wetland Studies, La Paz, Mexico

Metzger, Patricia; Joint Center for  
Environmental & Urban Problems,  
Ft. Lauderdale, FL

Miller, Martin; Waterways Experiment Station,  
Vicksburg, MS

Moreno-Casasola, Patricia; Instituto de Ecologiz A. C.,  
Veracruz, Mexico

O'Donnell, Anne; NOAA Coastal Services Center,  
Charleston, SC

Olson, Elyse W.; San Diego, CA

Pickler, Kristopher; Duke University, Chapel Hill, NC

Ragland, Nancy; Duke University, Atlantic Beach, NC

Schmidt, Daphne Summers; City of Jacksonville  
Planning & Development Dept, Atlantic Beach, FL

Schick, Amy; Duke University, Durham, NC

Schreiber, Ramona; National Marine Fisheries Service,  
Silver Spring, MD

Sechrist, Jan; Williams-Mystic Maritime Studies  
Program, Mystic, CT

Soloman, Amy; Seattle, WA

Stephan, Dianne; Atlantic States Marine Fisheries  
Commission, Washington, DC

Stevens, Terrence; Padilla Bay National Estuarine  
Research Reserve, Mt. Vernon, WA

Sweeney, Caitlin; University of Washington,  
Seattle, WA

Wascom, Michael, Louisiana State  
University, Baton Rouge, LA

Widmann, Sabina; University of  
Washington, Seattle, WA

Walters, Angela; Ojai, CA



### 1996 Election Results

The ballots from the 1996 Election of Officers have been tabulated, and your Society is pleased to present to you the following officers.

#### Officers

Megan D. Bailiff of the Washington Sea Grant Program, has been chosen as President-Elect. Ms. Bailiff is Senior Program Associate with Washington Sea Grant, where she assists in the administration of a \$4 million biennial budget of competitive research awards; in addition, she is responsible for all federal,

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state, and university relations activities for the Washington Sea Grant Program. Ms. Bailiff has been an active member of TCS since 1992 and has served on the Board of Directors since 1994. Many of you are familiar with the Ms. Bailiff's work in organizing and chairing the 15th Biennial TCS Conference in Seattle in 1996.

Tina Bernd-Cohen, a long-time TCS activist, has been elected as Treasurer. Ms. Bernd-Cohen has 22 years of professional planning experience, including the past 10 years in which she has managed her own coastal planning consulting business. She specializes in coastal zone management, research, policy formulation, program development and evaluation, education, citizen outreach, land use and growth controls, comprehensive planning and state legislation. Ms. Bernd-Cohen has extensive experience in coastal issues, having been responsible for developing and administering the state coastal program for New Hampshire.

Laurie McGilvray has been selected as TCS Secretary. Ms. McGilvray, of NOAA's Office of Ocean & Coastal Resource Management (OCRM), is responsible for strategic planning and budget development for the Coastal Zone Management program, the National Estuarine Research Reserves, and the National Marine Sanctuary program. In addition, she works on special projects for the director of OCRM. Ms. McGilvray has extensive experience working with the federal coastal

zone management program, including 8 years as a Pacific Region expert and two and a half years as the North Atlantic regional manager.

### Board of Directors

In addition to these officer's seats, several TCS members were elected to the Board of Directors. The Board of Directors welcomes Jan Auyong and Mark Poirier to the Board. Dr. Auyong is the Assistant Director for Programs for Oregon Sea Grant, where her responsibilities include managing the research proposal review process and coordinating special projects. In addition, she is a graduate faculty member in the Marine Resources Management Program at Oregon State University. Mr. Poirier is an Associate Professor of Law at Seton Hall University School of Law in Newark, NH, where he teaches environmental law, administrative law, law of the coastal zone, and the takings doctrine. Mr. Poirier has extensive experience as an attorney, having practiced 12 years with the Washington, DC firm of Spiegel & McDiarmid.

In addition, Darrell Brown, Linda Maxon, and David Slade were elected to the Board of Directors for three-year terms. Mr. Brown, Chief of the Environmental Protection Agency's Coastal Management Branch, directs the National Estuary Program and has previous national and international experience in managing other protection programs including the control of marine debris, disposal of dredged material and other wastes at sea, and incineration of wastes at sea. Ms. Maxon is on the staff of the Assistant Administrator of the National Ocean Service (NOS) and is currently detailed to the National Ocean





Service's Hazardous Materials Response and Assessment division. Ms. Maxon has worked on policy and legislation at NOS headquarters; she also has worked as a marine education consultant in New Hampshire. David Slade is the Director of the Coastal States Organization, a group which represents the views of the Governors of the 35 Atlantic, Gulf of Mexico, Pacific, and Great Lakes states, territories and commonwealths. Mr. Slade has extensive legal experience, gained from almost 20 years of work with issues such as whaling, fisheries management, coastal zone management, and endangered species protection.

### **By-Laws**

On an equally important note, the TCS membership approved a couple of changes in the organization's bylaws in 1996. These changes address the terms of offices for the President-Elect and the Board of Directors. The By-Laws now provide for eight (8) Directors on the Board of Directors, each elected for a three year term. The change for the term of office for the eight members of the Board of Directors was to correct a discrepancy in the By-Laws of the organiza-

tion and to make the By-Laws internally consistent. Regarding the term of the President-Elect, the TCS membership approved changing the term of office for this position from one year to two years. This technical amendment will allow the Society to fill the President-Elect office at the same time as the new President is installed.

### **TCS 15 — Seeking Balance: Conflict, Resolution and Partnership**

#### **President's Summary**

TCS 15 was wonderful! In part due to the beautiful (sunny!) coastal setting of Seattle and record attendance, but primarily due to the excellent work of Megan Bailiff and her Steering Committee and their captivating, informative and entertaining program, we can truly say that this was one of our best meetings ever! For those of you who were not able to join us in Seattle, copies of the proceedings are available from either me or Judy Tucker, our administrative officer.

My purpose in this short essay, however, is to attempt

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to capture some of the substance, process and atmosphere of TCS 15. I will not attempt to summarize each activity, session or topic, but rather will address in my comments those threads of the meeting which wove together into persistent themes.

### Look to the Future: We Are Not Alone

The first of these themes, cast directly and forcefully before the attendees by our first plenary speaker, Jennifer Jarrett, had two principal components. Professionals and stakeholders in any public policy arena — such as coastal issues — tend to forget that their concerns and activities are part of a larger world, a world with trends and trajectories that may or may not appear of immediate concern in the everyday business of our own arena. Fear of the future; insecurities of the aging; urbanization; changes in racial and ethnic structure; population change and industrialization throughout the world; Ms. Jarrett reminded us that all of these forces in fact define our challenges on the coast, in ways that should make us re-examine our own professional cultural assumptions. In exploring such cultural challenges she used an intriguing example — that of an urbanite who comes to the coast, hops on a jet ski, and treats the water as a street! How insulting! Or is it? A simple example, set out in part in a humorous vein, but tickling out a point of extreme importance in all of our coastal policies; do we treat coastal waters like we treat coastal lands? Should a jet ski on the water be treated like a vehicle on the street? Should jet skis have

seat belts? Speed limits? Driver's licenses? Should their be 'zones', or even 'lanes' for jet skis as there are for terrestrial vehicles? Do people unacculturated to what we consider to be the proper ways of

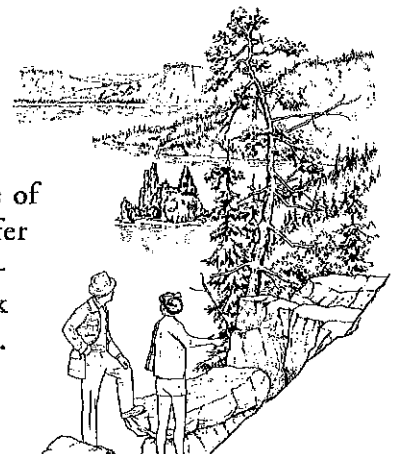


the coast have the 'right' to import their own culture and lifeways? Are such questions too trivial, inappropriate (or too complex?) for coastal policy professionals to consider?

The second part of this theme reminds us that we are not only part of larger circumstances and issues, but part of larger trends that require that we consider alternative 'futures' for governance of human behavior on the coast. We are quickly becoming connected, technologically, culturally and personally, to potential stakeholders worldwide; stakeholders in our coastal futures. Our plans and policies should look past our current 'options' and their relative impacts to these larger futures.

### Leadership

Time and time again throughout the meeting references were made to the need for leadership. I do not believe that these were references to administrative prowess; to advocacy for particular outcomes; or even to legislative sponsorship. I believe that the underlying connotation of these references was to two very different aspects of leadership. One is conceptual leadership, of the particular kind that allows the synthesis of competing ideologies into single, if multifaceted, clarity of concept. Can there, for example, be such a thing as 'environmentally responsible economic development'? What constitutes 'sustainability'? Who will articulate these concepts with the clarity necessary for concrete action? The second connotation of leadership is of the kind Eric Hoffer explicated in his modest, but seminal, book *The True Believer*. The most effective leaders have a bit of



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Machiavelli, a bit of Napoleon and a bit of Ghandi; this is leadership in the sociological sense, of being able to create a following towards a succinct goal — not necessarily political, military or spiritual, but social in the sense of a common behavioral goal. How do we find, or develop, such leadership?

### The Shared Perception of Fairness, Hope, Civility and Mutual Respect

In an audience that included every kind of coastal environmental professional — from scientists to administrators to legislators to advocates — it was striking to me how many times the concepts of fairness, hope, civility and mutual respect pervaded the conversation. Why is this surprising?



Because we so often allow environmental policy and management discussions to become adversarial, emotional and lacking in the above concepts. Passion is clearly a useful human phenomenon, as is effective advocacy and the ability to employ strategy and tactics in the pursuit of our various goals and objectives. Throughout the conference, however, I sensed a longing — sometimes born of weariness, sometimes of desperation, sometimes of righteousness — for intimacy in discourse and reasonableness in action. Perhaps this is what we mean when we refer to being 'professional'; not just technical training or the ability to mediate, communicate, facilitate or advocate, but to treat others, regardless of their beliefs or behaviors, with fairness, civility, and mutual respect. "Hope" is a bit different. Hope is the quality that allows humans to persevere with the belief that things can be more than just 'worked out', but can be better, building towards admirable goals and higher standards. I found myself wondering if such concepts were 'trainable'. How would we include them in a coastal management curriculum?

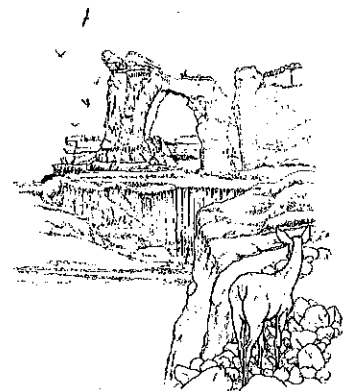
### The "Zone of Neutrality" Versus The Wicked Witch of the West

Several speakers reminded us that sometimes we have to take the gloves off and realize that the impartial analyst or the facilitator who can help us get along if only we understand each other are roles of specific, but limited, usefulness in the real world; one even noted that she had earned the reputation of "the Wicked



Witch of the West"! At the same time, we have to play the "wicked witch" with integrity — tough, even mean, but punching straightforward to win with perseverance, not chicanery. I drew one of the most strident reactions to my own comments at the meetings from the colleague of an environment professional, the latter of whom I had mildly admonished for billing a scientist as a "tracker" in an environmental education setting. I made my comment because I feel we have to be careful that we do not feel so strongly about our own goals and values that we slip into subtle rationalizations for actions that might come back to haunt us later. I apologize for singling out a particular individual for what was probably unjustified attention; the point, however, is an important one.

None of us live or work in a true "zone of neutrality", as much as we might try or like to believe that we do. We can, of course, strive for objectivity and even detachment. But if we do 'take the gloves off' — and here we may be back to leadership again — we must realize that leadership and advocacy can also be accomplished with style, grace and integrity.





## TCS NEWS

## The "Takings Thing"

TCS 15 continued a trend which began at TCS 14 in Charleston; an increasing number of legal professionals on the program! Besides giving us an increased opportunity for 'lawyer jokes', this trend reflects what is commonly perceived in the public mind to be an increasing societal problem — the trend towards litigiousness. Here I think we in TCS should stick to our guns, and refrain from the knee-jerk tendency to recoil from litigation and other things lawyerly. Our public policy system is in fact dependent on law and the courts to 'fill in the gaps' of legislative and administrative policy; to allow citizens and interest groups to challenge the basic premises and everyday implementation of our coastal environmental policies. It is only in this way that certain kinds of issues and problems can be clarified. The "takings thing" is a prime example. We in this country have allowed a gulf to develop between the ways in which we treat restrictions on the use of private property for environmental public purposes and the way we treat similar restrictions for other public purposes — schools, roads, power lines. In short, we have not traditionally compensated private individuals for 'takings' related to environmental public purposes. The



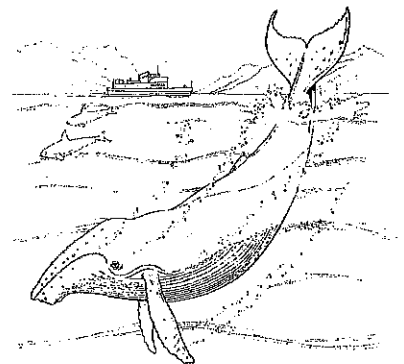
discussion of this phenomenon in the coastal domain was the subject of one of our plenary sessions, precisely because there are great changes in store, in fact in the works as we met in Seattle. The message in this plenary was a clear one: Do not expect this issue to



go unresolved, or to be solved apart from some of those 'larger trends' we heard about from Ms. Jarrett. Expect a 'rationalization' to occur which may not be totally to the liking of the prototypical "environmentalist", especially one who feels that 'environmental takings' should not be compensated because of a political judgment that the 'public' will not pay for it. It may just be that we will not have adequate environmental protection until the public is willing to pay, either through the public sector's authority to redistribute resources or through private sector initiatives of conservancy. The echo of the need for leadership resounds here as well; not just what fiscal arrangements we oppose, but which ones we are in favor of and, of course, which are socially feasible.

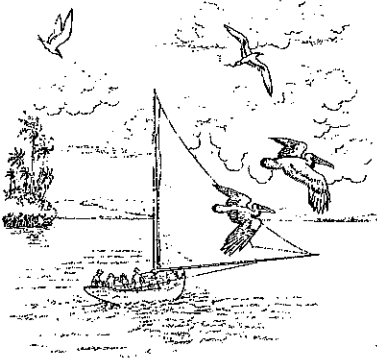
## Money, Power, Fear and Greed

Or, altruism, humility, courage and generosity? Money, power, fear and greed were cited by one speaker at the meetings as the factors that really drive the processes with which environmental policy and management must deal. Perhaps; some of the time; in many ways. My own experience is that I find altruism, humility, courage and generosity as often as these other factors in the everyday experience of environmental policy and management. Maybe it is the media, which clearly gravitates towards money, power, fear and greed; maybe it is because the least tractable, most difficult policy challenges seems to involve an inordinate amount of these factors; maybe it is because it is more catchy, more fun to ascribe opponents' motives to one of these factors. As we look around, us, however, at all of the stakeholders and interests in the everyday business of environmental planning and management, what do we really see, and in what mixes and combinations? This is the yin and yang of policy and management; neither set of factors dominate, and neither completely define the motives and intentions of the constituencies. It is up to us to draw out the balance in the equation.



## The New Generation

Several speakers reminded us that the Coastal Society, the Coastal Management Journal and the Sea Grant College program are all celebrating the end of their

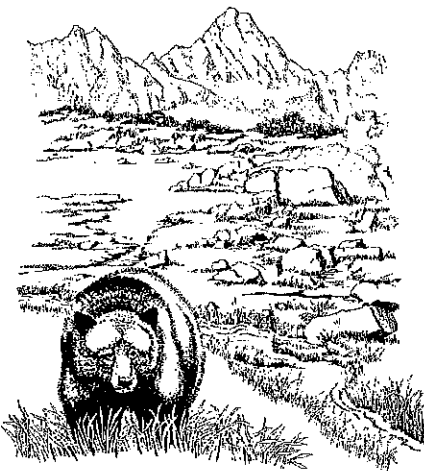


'first generation' (20-25 years). For those of us in the audience who grew up with these programs, this means that we should be in the position to anticipate the changing of the guard, the passing of the torch to the next generation.

For aging 'Baby Boomers', this is a chilling thought!

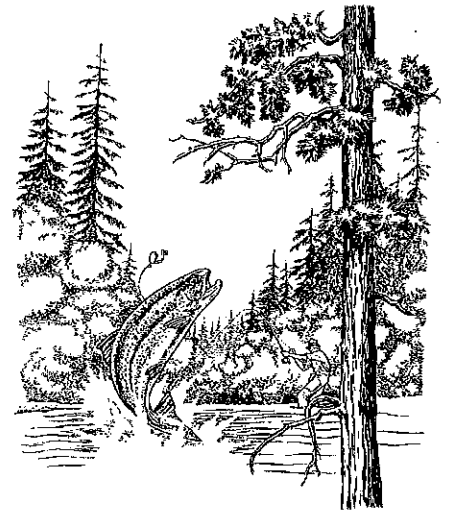
There are two ways to view such generational phenomena. The first is with sadness if not trepidation; with fear of being recorded as a failure or an irrelevance; with lack of confidence in the future generation born of a defensive ego or of a protective pride in our presumed accomplishments in the first generation. The second — and you will not be surprised to hear that this is my view — is with confidence in those with whom we have worked and who we have trained to carry on the progress we have made. I will not list those accomplishments and that progress here, but there has been much to celebrate; much to criticize; there is much to improve; and much yet to be invented. The generational transition will be gradual (working into 'retirement' is becoming more popular!), and in fact has already begun in

many significant ways — new officers and boards, new editorial staffs, and new Sea Grant Directors! Our task is to recognize that the generational change is in fact taking place, and to guide and nurture it.



## The Decade of Human Dimensions

In my inaugural President's message for this bulletin I stated my bias toward the character of environmental policy and management for the coasts and oceans. That bias was to consider all environmental policy-making a question of human values and human decisions. Margaret Davidson, in her comments on the 20th anniversary of The Coastal Society at the meetings, referred to the "decade of the human dimensions of global change". The theme of TCS 15, "Seeking Balance: Conflict, Resolution and Partnership", is also a statement of human dimensions. In this first generation of coastal policy and management, there has been some bias towards the "natural" — excluding humans; towards the "scientific" — excluding lay knowledge and belief; towards solutions from "government" — as opposed to the people. One of the messages of TCS 15 was that to make the second generation of coastal policy and management successful we must include people in the definition of "nature"; people's knowledge and beliefs in the corpus of data and information upon which we make decisions; and the people in on the ground level in our policy and decision-making. If that is the legacy of TCS 15, it is a good one.



Mike Orbach  
President, TCS

## CALENDAR

**BULLETIN BOARD****CALENDAR**

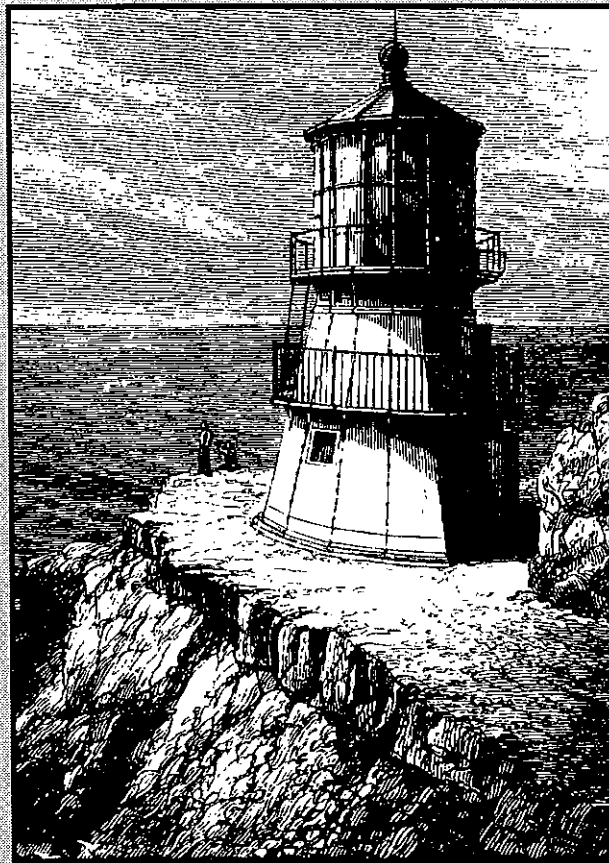
July 20-26, 1997:  
 "Coastal Zone '97:  
 Charting the Future  
 of Coastal Zone  
 Management," Boston,  
 MA. Contact: Martin C.  
 Miller, USAE Waterways  
 Experiment Station,  
 ATTN: CEWES-CR-O,  
 3909 Halls Ferry Road,  
 Vicksburg, MS  
 39180.

October 12-16, 1997:  
 "14th Biennial Estuarine  
 Research Federation  
 International Conference:  
 The State of our  
 Estuaries," Providence,  
 RI. Contact: Estuarine  
 Research Federation  
 (<http://cbl.cees.edu/erf/>)  
 or (410-586-0997).

November 6-8, 1997: "3rd Annual Conference on  
 Fisheries, Habitat, and Pollution," Charleston, SC.  
 Contact: Dan Grosse, TerraAqua Environmental  
 Science and Policy, LLC, 3754 Jenifer Street NW,  
 Washington, DC 20015, Phone: 202-244-4300, Fax:  
 202-244-4667, email: [dgrosse@access.digex.net](mailto:dgrosse@access.digex.net)

**PUBLICATION ANNOUNCEMENT**

Niels West of the University of Rhode Island's  
 Department of Marine Affairs has written a book  
 titled "Applied Statistics for Marine Affairs  
 Professionals." This is the first statistics text that  
 addresses the unique issues the Marine Affairs profes-  
 sional and student must confront. Since so many of  
 the problems faced by resource managers are interdis-  
 ciplinary, involving data and information from a host  
 of disciplines including both natural and social  
 sciences, this volume includes a selected number of  
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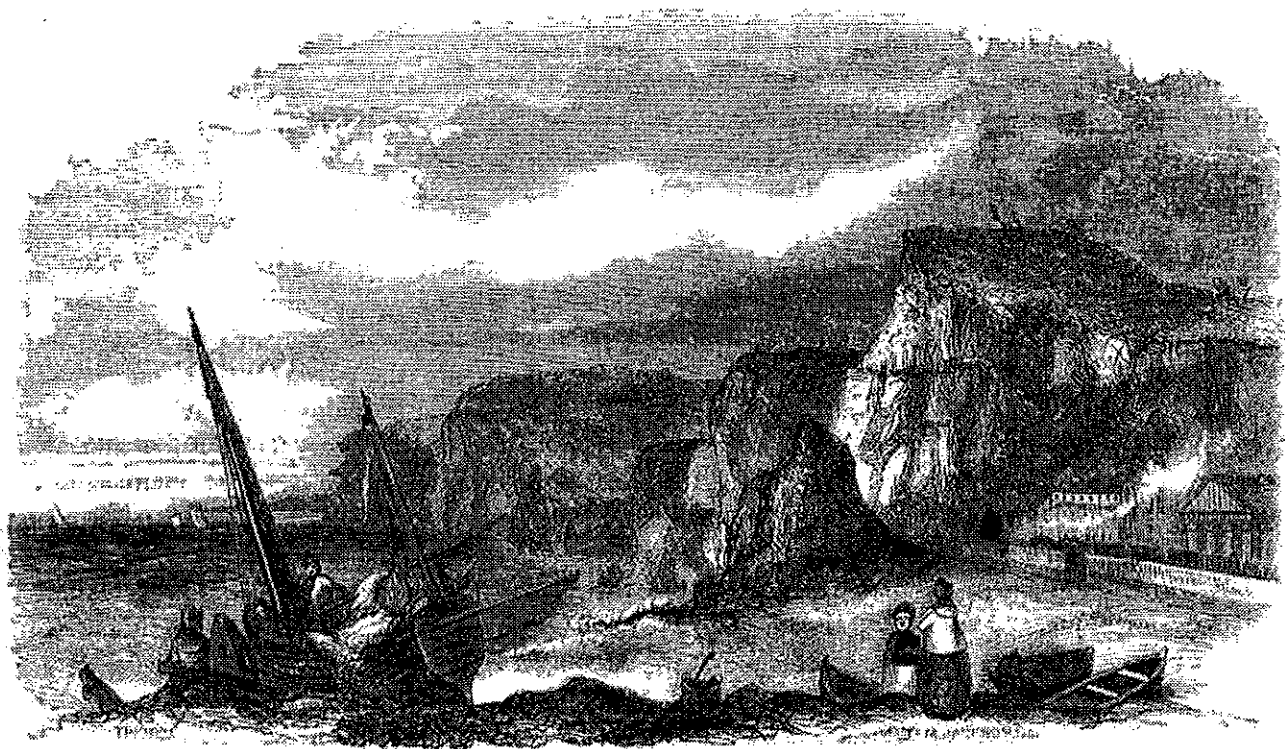
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## Using Public Surveys to Estimate the Total Economic Value of Natural Resources

### Editor's Note:

The following paper was delivered at The Coastal Society's 15th Biennial Meeting in Seattle. Due to an editorial error, this paper was omitted from the published proceedings. With apologies to the authors, it is presented here.

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### Summary

This paper discusses the findings of a contingent valuation survey that was designed to evaluate non-use values of the English coast to the English public. The study described coastal areas in terms of the physical characteristics which give them conservation value. The results of this study suggest that public preferences for, and perceptions of changes in coastal conservation qualities are multi-dimensional, and not fully consistent with scientific assessment of these qualities. Additionally, it may be difficult for people to express their preferences for the conservation value of the coast in monetary terms. Such problems are particularly acute when assessing public values for non-unique areas. These findings have important implications for policy decisions involving coastal resources.



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### I. PUBLIC POLICY AND ENVIRONMENTAL VALUATION

Cost-benefit analysis (CBA) is the practical application of the theory of welfare economics which states that the value of resources is based on the satisfaction, or bene-

fits, that humans derive from them. CBA is an integral component of project appraisals on both sides of the Atlantic. It is mandated for evaluating most national regulatory policies in the United States, and is applied to a wide array of public investment projects and regulatory decisions at national and state levels, including

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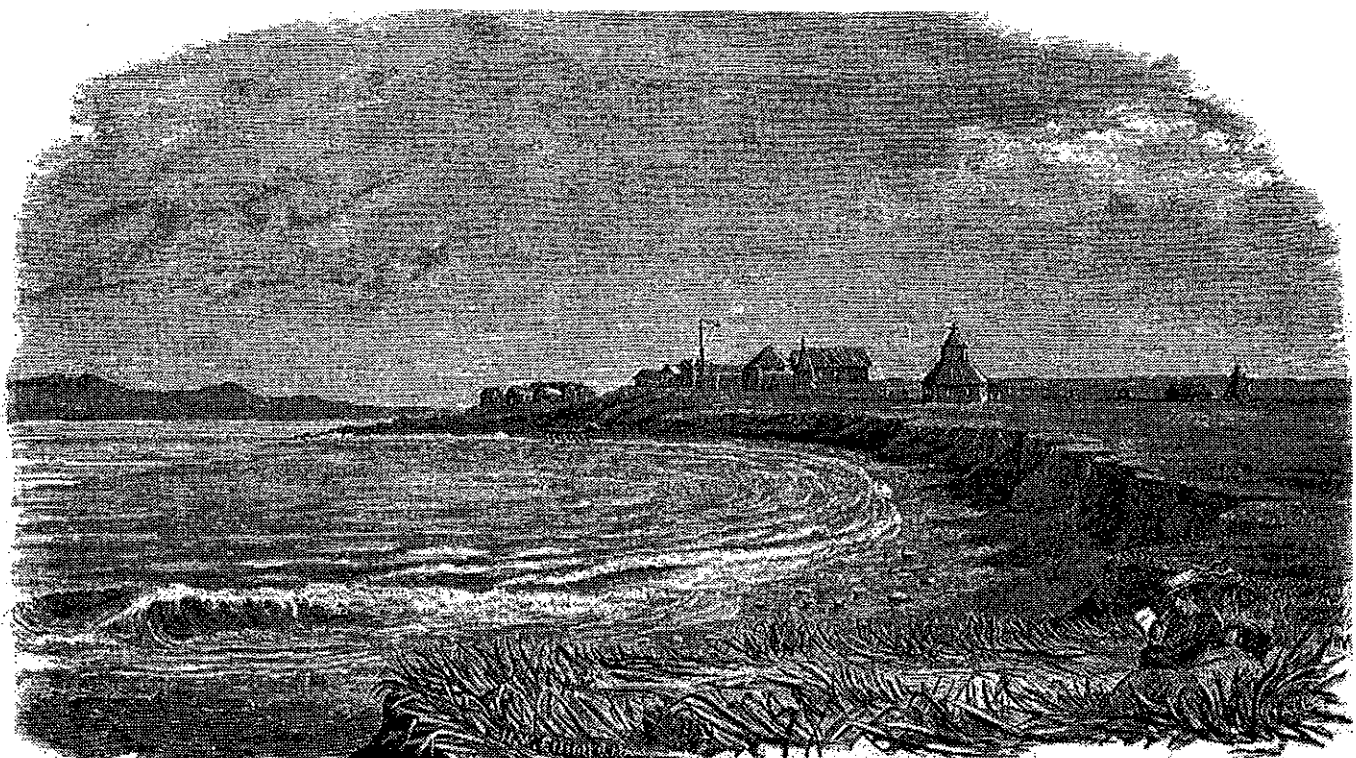
analyses of resource management policies, natural resource damage assessments, and environmental costing (1). In the U.K., cost-benefit analysis is applied to public policy proposals, and it is recommended that environmental costs and benefits be integrated into all formal project appraisals. (Pearce, Markandya & Barbier, 1989; HMSO, 1990).

Research into CBA has expanded the types of benefits that can be measured monetarily. Much of this research has focused on natural resources. Most environmental policy decisions, particularly those involving the coast, involve natural resources that are widely used by the public. Some of these resources are highly unique (e.g. the White Cliffs of Dover), but the vast majority are less distinctive and have, from the public's perspective, a large number of potential substitutes. Policy-makers therefore need a reliable, cost-effective method that is capable of measuring fully the public's total value for a wide range of natural resources and which can be used to integrate this full value assessment into a CBA framework.

## II. MEASURING THE VALUE OF COASTAL RESOURCES

### Components of total value

Part of the benefits people derive from the coast result from its use. The coast's commercial value can be measured by totalling income from activities such as shipping, commercial fishing and resource extraction. The recreational value of the coast can be estimated by looking at the amount of money people spend on coastal recreation or on travelling to coastal recreation sites. However, people may also value the coast even if they never intend to use or visit it. They may, for example, benefit from having the option to visit it in the future, the opportunity to preserve it for future generations, or simply knowing that it exists in an unthreatened condition. By definition, no activity exists that can serve as a basis for estimating these "non-use" values. Some uses of the coast—such as breathing clean sea breezes or viewing unobstructed vistas—are so passive that they are equally hard to measure. Consequently, non-use values for the coast (and other natural resources) are typically estimated by using surveys to ask people for their value. This technique is called the contingent valuation method (CVM) because an individual's value is



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expressed as a willingness to pay (WTP) for a change that is contingent on the hypothetical scenario created within the survey (2). An average WTP is calculated from the survey's findings, which is then multiplied by the total population to estimate society's value for the resource.

Because of theoretical problems involved with trying to separate use and non-use components from individuals' holistic value assessments, non-use values are estimated by applying the CVM to people who do not use a resource. This approach posed problems for our study as the vast majority of the English population lives within 70 miles of the coast. It is difficult to find an adult in England who has not visited some part of the British coast. Therefore, we needed to take additional steps in our attempts to estimate non-use values for coastal resources in Britain.

#### Using a conservationist framework to evaluate non-use values

In an effort to develop a rigorous and scientific framework for measuring non-use values for the coast, our research explored the hypothesis that such non-use values might be linked to the conservation quality of coastal resources. If this assumption proved to be valid, and if non-use and conservation values are directly related, it might be possible to develop a valuation model which uses levels of conservation quality (as assessed by scientific experts) to benchmark the public's non-use values of coastal assets.

Conservationists have developed a clearly defined and highly structured valuation framework to identify and evaluate the physical characteristics that give natural resources conservation value. Within this framework, conservationists have established a series of criteria that are widely accepted to be significant in determining the nature conservation value of a natural area. Across the range of coastal habitats, the criteria that are most important in creating coastal conservation value include size, diversity, bird populations, and freedom from disturbance (Ratcliffe, 1977).

This framework was adapted for use in our study. Consultation with environmental scientists identified the major landforms which characterize the British coast to be hard rock cliffs and headlands, soft earthy cliffs, sand and shingle spits and bars, sand dune systems, and estuaries. The key characteristics which give these landforms conservation value were determined to be diversity and rarity of habitats and species, ecological specialization, freedom from disturbance, size/lateral extent, and dynamism of geomorphological processes. The survey was designed to describe these characteristics to people in terms that pre-testing indicated were direct and readily-understood by non-scientists.

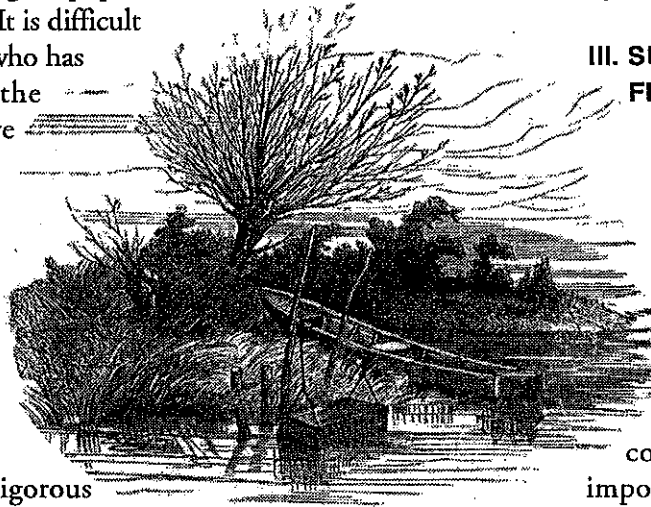
### III. SURVEY FINDINGS

Preliminary assessment of the results of our survey suggest that care be taken in interpreting its estimates of economic value. One area of concern is the relationship between scientific and public assessments of conservation value. This has

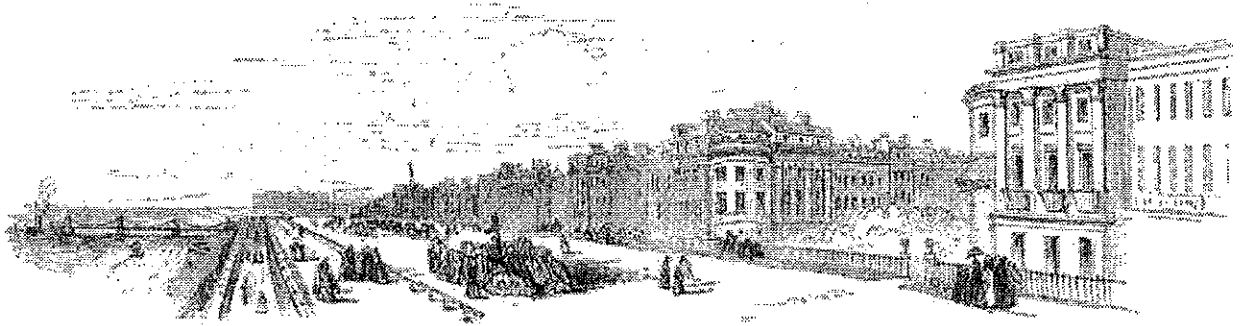
important implications for using levels of conservation quality to benchmark non-use values. Problems may also stem from how the public perceives and conceptualizes coastal conservation qualities and how they understand changes in these qualities. Another concern relates to using the CVM to generate meaningful estimates of the economic value of coastal conservation quality. Indeed, this concern may extend to a wider range of surveys which attempt to estimate the economic value of environmental quality, however such quality is defined.

#### Issues related to public perceptions of conservation value

Our survey explored individuals' value of coastal conservation levels by asking them how much they would be willing to pay for a program designed to prevent a loss of current levels of conservation quality in specified coastal areas. Respondents were told that, without the program, coastal areas would experience what scientists consider to be a "critical" level of loss, which was defined as a 75 percent loss of plant and animal species



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and populations and an irreversible loss of coastal habitats over a 30 year period.

This change was aggregated over a generational life span so as to be relevant for setting environmental policy, and large enough that people would notice the difference (3). The alternative of describing annual changes in conservation quality levels would address changes that were too small to be significant to respondents, and therefore, would not be valued. However, this accumulated change may have distanced respondents' perceptions of the loss described in the survey from their actual experiences with changes in conservation quality. Rather than face a sudden and dramatic change (e.g. a 75% loss of bird species), individuals would experience the loss of conservation value gradually. This potential conflict between respondents' perception of an immediate climactic change and their experience with gradual change may have distorted the estimated value of coastal conservation qualities (Gregory & MacGregor, 1990).



The different ways in which people process, and ultimately accept or reject, new and complex information also impacts the findings of this survey. Research from the field of cognitive psychology (e.g. Collins & Quillian, 1972; Rosch 1975) has shown that peoples' views of complex issues, such as the

natural environment, tend to be filtered through a relatively stable conceptual framework. This framework is based largely on personal experience and heuristics ('rules of thumb') which are used to interpret changing conditions. Problems arise when individuals are asked to consider a major change, the evaluation of which requires a fundamental shift in one's conceptual framework if the change is to be fully processed and understood (Gregory et al., 1992). When the described change is large and involves concepts that are unfamiliar or difficult to grasp (such as a 75% loss in the conservation quality of a coastal area), the chances increase that people will misunderstand or completely ignore the described change (Fischhoff & Furby, 1988).

For example, in our survey, several respondents rejected the idea that coastal erosion is beneficial from the conservationist standpoint of allowing natural coastal processes to continue. Twenty-two percent of the comments made by people who supported a coastal conservation program said that, without the program erosion would continue. Comments such as "The eroding will go on unless it has help. We'd lose the coastline as we know it," and "The coastline will just erode away and everything will be lost; it will alter our coastline. It won't be England anymore" indicate that recognizing the conservation benefits of allowing natural coastal processes to continue would require a major shift in some peoples' view of the world, and that they resisted this perceptual shift. This highlights a particular area where a divergence exists between scientific and public value assessments.



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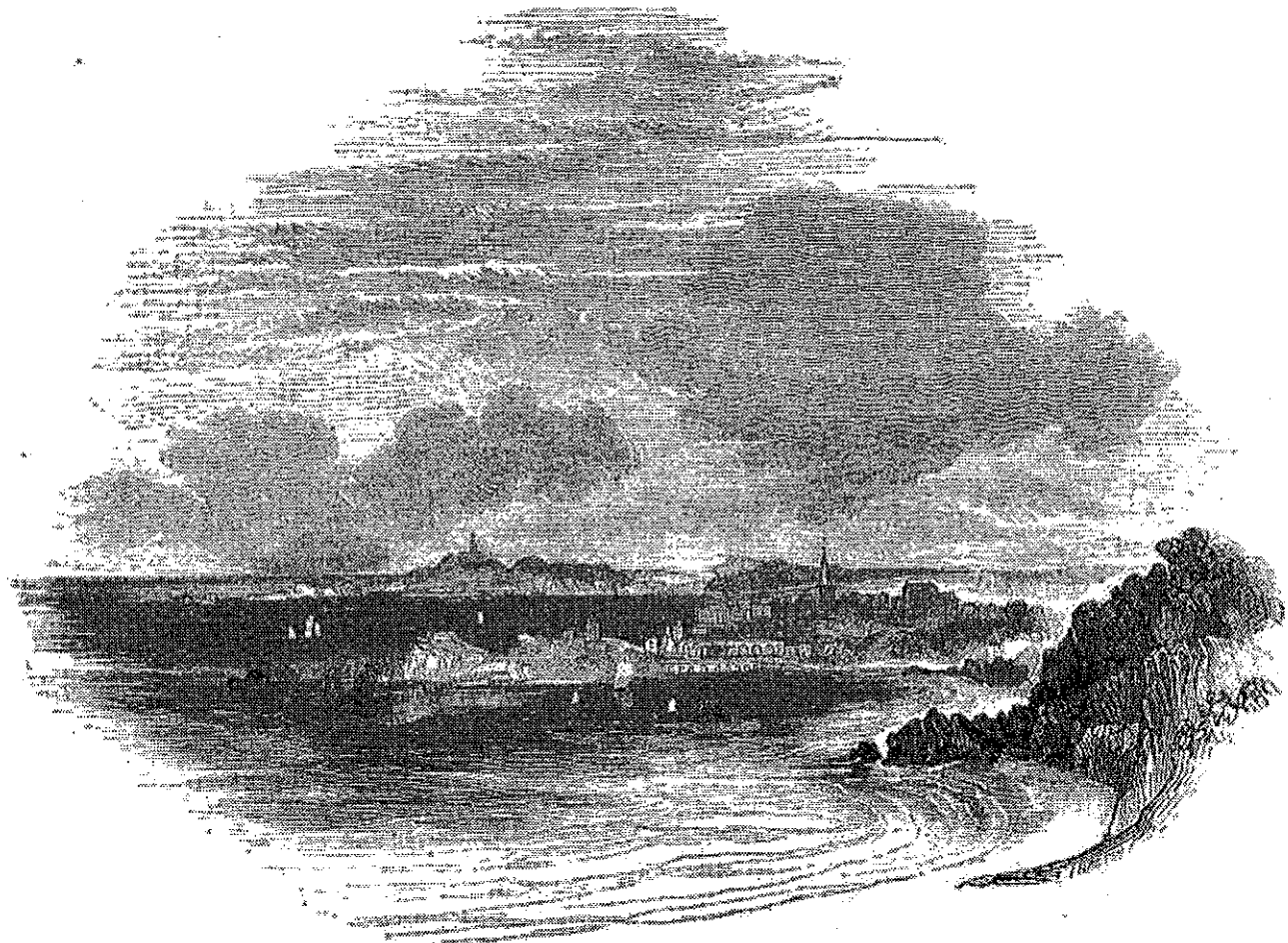
**Issues related to monetary expressions of environmental values**

Additional problems resulted from asking people to value a coastal conservation program with a single monetary expression. In part, this is because the potential changes associated with the program would not occur on a single dimension. Welfare economics assumes that exchanges occur in a static environment, where one factor (income or environmental quality) changes while everything else remains constant. However, in reality, several changes to the status quo might result from implementing a coastal conservation program in an area. Not only would taxes increase to pay for the program, but access to some coastal areas might be restricted, and some areas might be closed to recreational use and commercial development. Some people might also experience losses of property or income due to erosion.

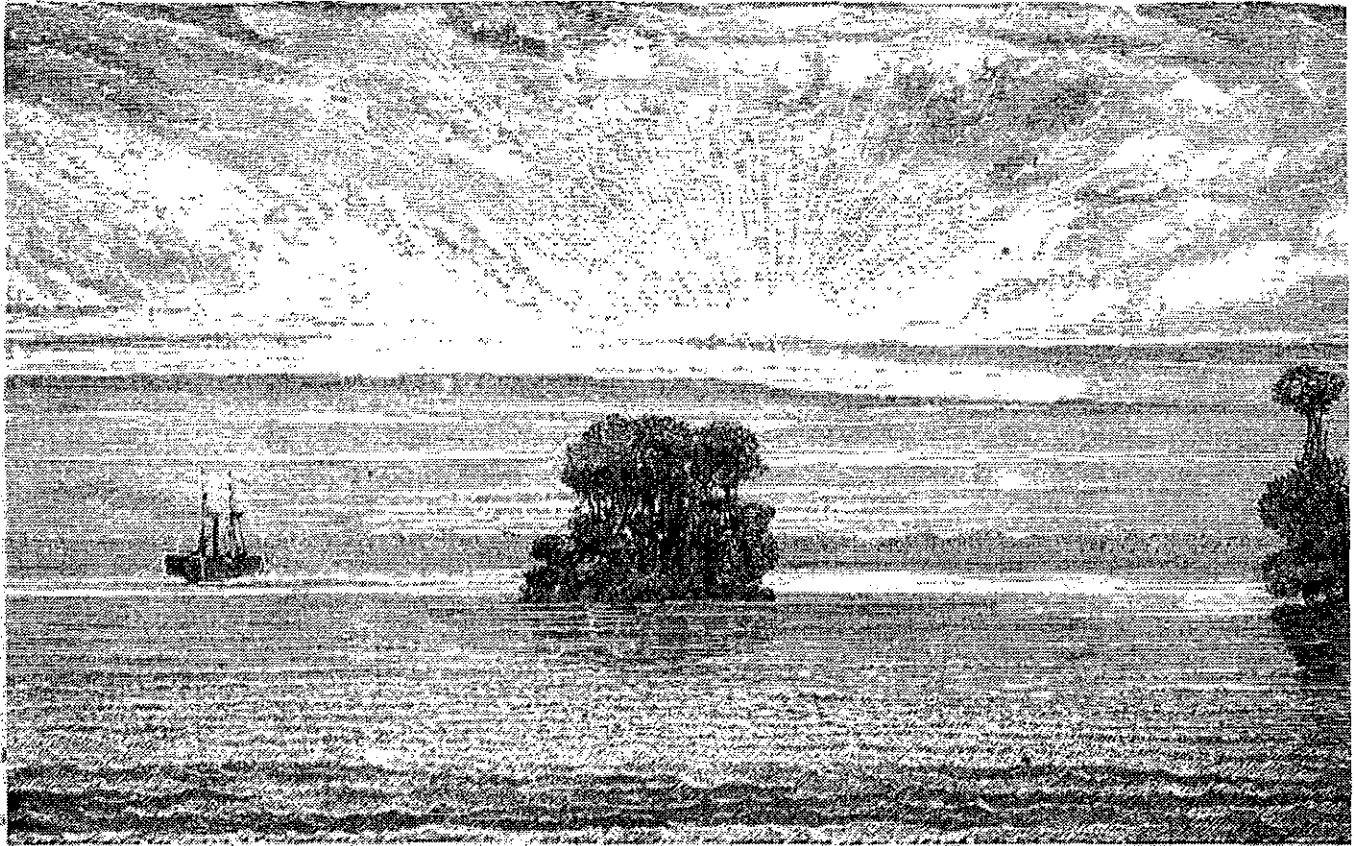
Just as people's preferences for an environmental change

depend on the context in which the change occurs, their preferences for different goods and their budgets for discretionary expenditures may also be subject to change (Gregory & MacGregor, 1990). In our study, stated WTP for coastal protection was affected by a number of considerations. Respondents' comments indicated that everything from highly publicized events affecting the coast (e.g. erosion of the Scarborough coast and oil spills), to government budget debates, to the time a paycheck was last received, to the bills that arrived in the daily post affected how much they stated they were willing to pay for a coastal conservation program.

Asking people to compare a vision of the world which they know and understand with one that is unknown and unfamiliar requires a conceptual leap that involves more than a change in the amount of taxes paid. The conservation quality of the coast is a complex good that most people typically do not think about in monetary



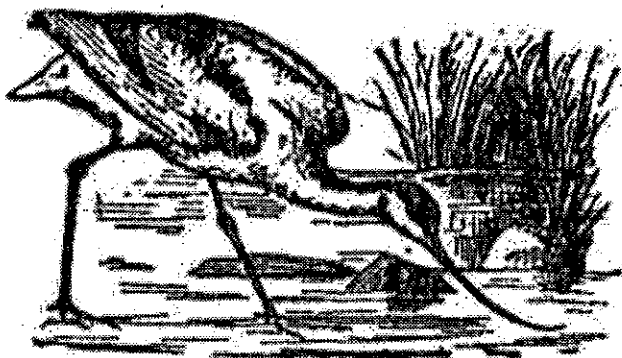
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terms. Our research supports the findings of other studies (Gregory & MacGregor, 1990; Gregory, et al., 1992, 1993) which suggest that asking people to express their value of environmental quality in a single monetary dimension may ignore important factors which influence their perceptions of value and requires that they engage in a task that exceeds their capabilities.

#### Value estimation through revealed preferences

The CVM is based on the assumption of welfare economics which states that people have well-formed pref-



erences for environmental goods and that these preferences can be readily retrieved and articulated in response to a valuation (WTP) question. While values may differ across people (because they have different preferences) or across situations (because some things are worth more than others), the singular goal of maximizing expected benefits is assumed to guide the process by which people form their preferences. However, March (1978) challenges this view and argues that "human beings have unstable, inconsistent, incompletely evoked, and imprecise goals at least in part because human abilities limit preference orderliness." If different people use different strategies or pursue different goals, or if the same person uses different strategies in different situations, this presents problems for the CVM (Schkade & Payne, 1993).

An alternative view states that people have well-defined values only for very familiar objects. Under this premise, when people are asked to value unfamiliar goods, they construct their responses when they are asked a valuation question, rather than retrieve a previously formed value (Slovic, Griffin & Tversky, 1990). Some researchers suggest that the construction of preferences may be common in CV studies, particularly in

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the case of non-use values for unfamiliar goods (Fischhoff & Furby, 1988; Gregory, et al., 1993). If responses to CV questions are constructed rather than revealed, they could be highly sensitive to the context and specific features of the valuation scenario that might influence the process of value construction (Schkade & Payne, 1993).

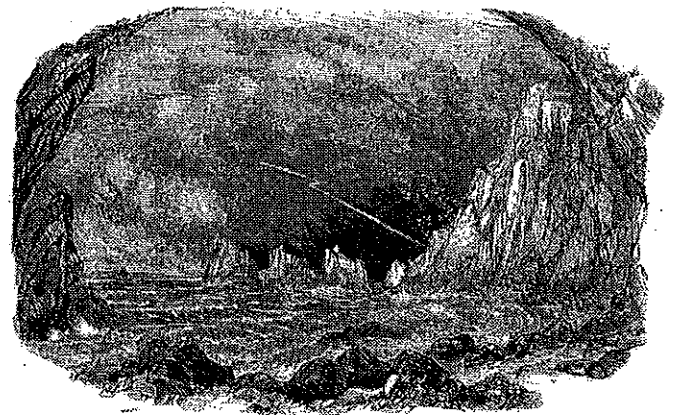
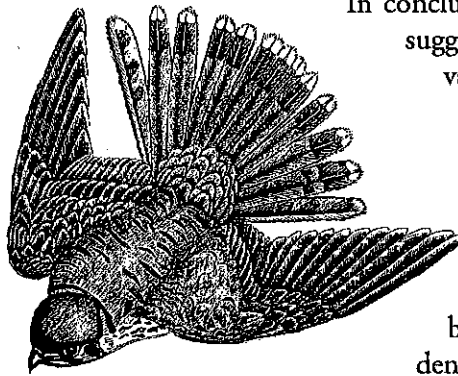
Responses relating to the WTP question in our survey support this theory of constructed values. A primary reason given by respondents for the amount they stated they were willing to pay for a coastal conservation program in a specific group of coastal sites was that "it seems like a reasonable amount of money to pay for this program in these areas." Additionally, people appear to have often based their valuations on specific information provided by the survey. In response to the question, "What was it about this group of sites that made you say you would spend [WTP amount offered] on a conservation program in them?" 30% of the comments people made directly referred to information (e.g. the size of bird populations, and the range of plant and animal species supported by the areas) that had just been given to them.

Values for conservation quality which respondents offered appear to have been partially based on information about quality levels provided in the survey. Information about current levels of conservation quality at coastal areas may have acted as a reference point from which people assessed the "critical" loss of conservation value. Half of the respondents in our sample received information describing coastal areas with a high level of conservation value. The other half was given information describing areas with a low level of conservation value. (Additional information about the conservation quality of the remaining coastline was provided to all respondents.) Regardless of the level of conservation quality described to them, respondents generally felt that losses of this level should be avoided. It may be, as Smith (1993) has suggested, that some people are valuing a "minimum carrying capacity" of the environment, rather than an avoided loss of conser-

vation quality. Or, it may be that, because of the complexity of the good, respondents' stated values for coastal conservation qualities were constructed during the CVM process. This conclusion is supported by the findings of other CV studies which have found that WTP values can change dramatically during the CV process, depending on the information that is provided about complex environmental assets (Hanley & Munro, 1994; Hanley et al., 1994).

In conclusion, our CV study offers three suggestions about integrating conservation values into economic value assessments which are used to evaluate public policy. The first is that the public does value the conservation quality of the coast, and we would argue, natural resources in general. This is based on nearly 74% of respondents supporting additional taxes to pay for a coastal conservation program.

However, public perceptions of conservation quality are not always consistent with those of environmental scientists. As Green & Tunstall (1991) discovered, while there is a reasonable degree of congruence between scientific and public perceptions of ecological value, what the public values as a desirable environment may not coincide with the ecologically preferable management strategy for that habitat (e.g. naturally occurring erosion). Finally, it is difficult to translate peoples' values for the conservation quality of the coast into monetary values. Because of the complex nature of environmental quality (measured here through conservation quality characteristics), the different dimensions through which people interpret losses of this quality,





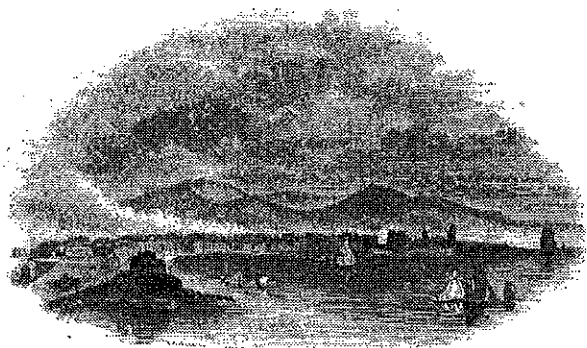
and conceptual problems people have in thinking of environmental quality in monetary terms, caution must be taken in interpreting the results of CV surveys which express the public's value of environmental quality as a uni-dimensional monetary estimate.

### Conclusion

There is a clear need to consider the environmental value of a wide range and variety of natural resources in the formation of public policy. Because the vast majori-

ty of our natural resource stock consists of non-unique resources which are widely used by the public, this policy need is particularly acute when assessing the value of these types of resources. However, it is questionable that the public is well-suited to appraise such value. Rather, rational policy decisions should include elements of expert analysis and public values. Therefore, it is important to understand the differences in value systems between the public and experts before a framework synthesizing these values can be developed.

The real question in integrating environmental values into public policy is how well do the methods that we use to estimate the social value of environmental resources relate to the ways in which people—scientists and lay-persons alike—perceive and value these assets? Our study has suggested that human preferences for assets such as environmental quality are multi-dimensional and difficult to assess monetarily. Furthermore, it may be that focusing attention on the exploration of people's preferences to estimate the social value of environmental assets obscures a more reliable indicator of





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this value—the choices that people actually make when they trade-off environmental quality for other goods.

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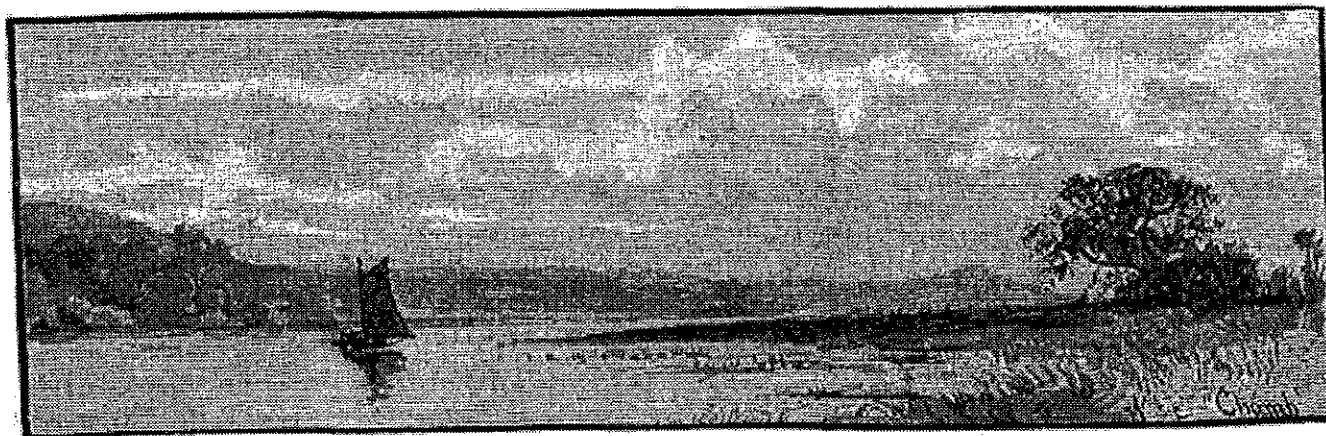
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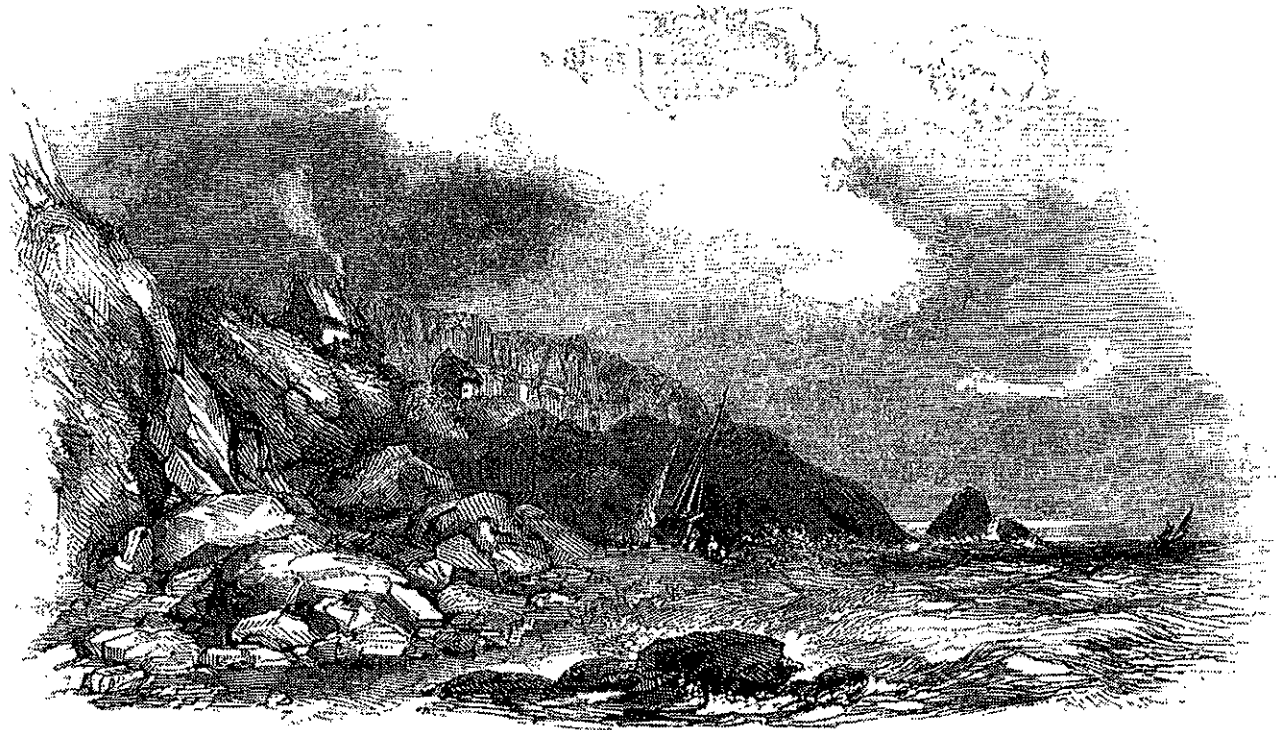


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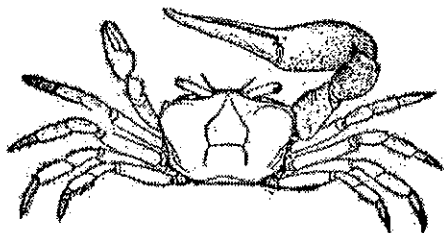
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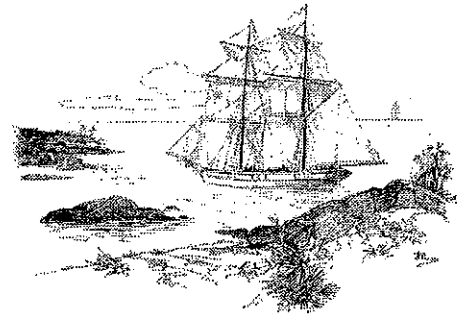
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### Endnotes

(1) Early this year, the Clinton administration confirmed its commitment to CBA by issuing guidelines for regulatory review (Executive Order 12866) which included protocols for analyzing the costs and benefits of federal regulatory proposals. These protocols included the evaluation of non-use benefits.

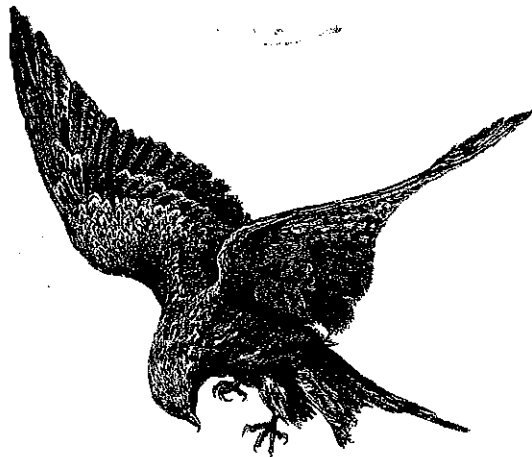
(2) The CV scenario contains detailed information describing a resource, its current condition, a hypothetical improvement or degradation in its quality, and a way in which the respondent would pay for the improvement (or avoided degradation). A typical "willingness to pay" (WTP) question in a CV survey asks a respondent to determine the change in his or her income, that will, when coupled with the change in the level of the environmental good, leave their utility (i.e. benefit) level unchanged (Mitchell and Carson, 1989).



(3) Our study described a irreversible loss in coastal conservation quality that would occur over the span of a human generation because this is the timeframe which This Common Inheritance (HMSO, 1990) suggests to be appropriate for evaluating environmental sustainability. English Nature, in turn, has suggested that the theory of environmental sustainability be operationalized by "identifying elements of the natural environment whose loss would be serious, or which would be irreplaceable, or which would be too difficult or expensive to replace in human timescales" (English Nature, 1992).

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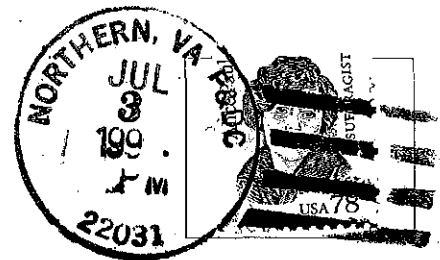
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