

The Cooperative Institute for
Coastal and Estuarine Environmental Technology (CICEET)

Collaborative Research Planning for a Special Funding Opportunity to be Released as
Part of its July, 2007 Request for Proposals

"Restoring Habitat to Address Erosion at Sheltered Shorelines"
Phase I Report

The goal of Phase 1 was to build on the National Research Council (NRC) document, "*Mitigating Shore Erosion along Sheltered Coasts.*" Using three separate web conferences, CICEET obtained feedback from 37 different people representing various relevant sectors. We asked participants to identify which of the five NRC findings were most important as well as which of the corresponding recommendations were most critical. We also provided opportunity for discussion about specific bottlenecks and opportunities related to the challenges and goals discussed in the NRC report.

This report is divided into the following sections:

- Information on the Web Conference Participants
- Summation of Findings
 - o Question 1 – Did the Study Capture the Most Important Findings?
 - o Question 2 – Do the Findings Need to be Modified?
 - o Question 3 – What are the Two Most Critical Findings?
 - o Question 4 – What are the Two Most Critical Recommendations?
- Our Plan for Phase 2
- Appendix of Resources

Note: Participants may recall that we also asked two additional questions: 5) What is the Critical Sequence of Actions to be Taken?, and 6) Do These Findings Also Apply to Open Coasts? The answers to the former question were extremely varied and were not easily summarized. With regard to applying the findings to open coasts, the message we received was that the NRC report was specific to sheltered shorelines. Although the analytical process may be similar when talking about open coasts, it is really two completely different situations.

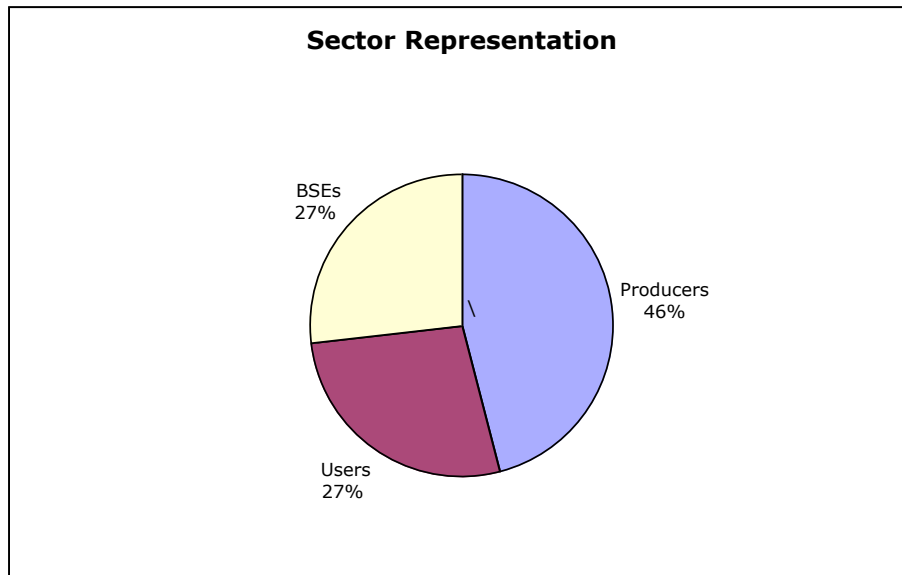
Information on the Web Conference Participants

The 37 participants were distributed throughout the United States. In the adjacent figure, each black dot represents one of the web conference participants.



The web conferences involved representatives from three different sectors we have categorized as "Producer," "User" and "Boundary Spanning Entity or (BSE)." By "Producer," we mean a person who primarily derives their income by the production of new knowledge or technology. By "User," we mean a person who primarily derives their income by managing natural resources, or providing services related to resource management. ("User" also denotes the general citizenry.) By "Boundary Spanning Entity," we mean a person who primarily derives their income by acting as a bridge between producers and users. We recognize that the distinctions between these categories are often blurred.

The chart below gives an overview of the sector representation. Of the 37 participants, 17 were producers, 10 were users, and 10 were BSEs.



Below is a list of the participants for each of the three calls.

Call 1

<u>Name</u>	<u>Sector*</u>	<u>Organization</u>	<u>State</u>
Paul Anderson	Producer	Maine Sea Grant	ME
Juliana Barrett	BSE	Connecticut NEMO	CT
David Burdick	Producer	Univ. New Hampshire	NH
Carolyn Currin	Producer	NOAA Cstl Habitat Fisheries Research	NC
Rebecca Haney	User	Massachusetts Coastal Zone Mgmt	MA
John Iliff	BSE	NOAA Restoration Center	FL
Beth Lambert*	User	New Hampshire Dept. Env. Services	NH
Vic Klemas*	Producer	University of Delaware	DE
Evamaria Koch	Producer	Univ. Maryland – Horn Point Lab	MD
Pam Rubinoff	BSE	U. Rhode Island, Coastal Res. Center	RI
Bethney Ward	BSE	NOAA Coastal Services Center	SC
Rochelle Sturtevant	BSE	NOAA Great Lakes Env. Res. Lab	MI
Lee Weishar	Producer	Woods Hole Group	MA
Adam Whelcel	BSE	Nature Conservancy, CT Chapter	CT
Warren Veazey	User	Seament Shoreline Mgmt Systems	VA

Call 2

<u>Name</u>	<u>Sector</u>	<u>Organization</u>	<u>State</u>
Elly Best	Producer	US ACE Eng Research Dev. Center	MS
Robert Brumbaugh	BSE	Nature Conservancy	RI
George Crozier	Producer	Dauphin Island Marine Lab	AL
Igor Linkov	Producer	Intertox, Inc.	MA
Christopher Madden	User	South Fl Water Mgmt District	FL
LaDonn Swann	Producer	MS/AL Sea Grant	MS
Doug Thompson	User	FL Dept. of Environmental Protection	FL
Don Uzarski	Producer	Grand Valley State University	MI

Call 3

<u>Name</u>	<u>Sector</u>	<u>Organization</u>	<u>State</u>
Tom Ballastero	Producer	University of New Hampshire	NH
Mike Beanan	User	South Laguna Civic Association	CA
Mike Bilecki	User	Fire Island National Seashore	RI
Betsy Blair	Producer	Hudson River NERR	NY
Laura Brophy	Producer	Green Point Consulting	OR
Sarah Carr	BSE	NatureServe	VA
Steve Goldbeck	BSE	SF Bay Cons. & Dev. Commission	CA
Correigh Greene	Producer	Northwest Fisheries Science Center	WA
Ray Konisky	User	Nature Conservancy – NH Chapter	NH
Doug Myers	User	Puget Sound Action Team	WA
Gillian O’Doherty	BSE	NOAA Restoration Center	CA
Martha Sutula	Producer	Southern CA Cstl Water Research Proj.	CA
Kathy Taylor	User	WA Department of Ecology	WA
Zhaoqing Yang	Producer	Battelle—Pacific Northwest Labs	WA

*corresponded through e-mail only

Although the calls were intended to be categorized according to region, this was difficult to manage due to scheduling conflicts. Therefore, in the results reported below we will not attempt to identify differences in regional perspectives. However, we do acknowledge that opinions and contexts change significantly from region to region, and our research planning process will take that into account.

Summation of Findings

Question 1: Did the Study Capture the Most Important Findings?

Twenty-two respondents felt that the NRC document did capture the most important findings; eight answered in the negative.

Question 2: Do the NRC Findings Need to be Modified?

Several modifications of the NRC “findings” were suggested by multiple participants. As a reminder, the findings were expressed as problems. This is in contrast to the recommendations, which were expressed as suggested action items.

The most common findings modifications or additions are listed in the text box below, in order of the number of respondents who supported the addition.

Climate Change Impacts

Respondents felt that potential changes in sea level and storm frequency magnitude, due to global climate change, need to be integrated more explicitly into the report findings.

Improve Permitting/Regulations

Many respondents pointed to the challenge of a permitting system that often discourages non-structural erosion control approaches. In addition, the permitting system does not help with regard to choosing between habitat impacts (e.g., adding "living shoreline" but losing subtidal bottom habitat.) This is often confusing for homeowners and contractors, who lack clear guidance as to what is preferred for a given region.

The Economy, Stupid

Respondents felt that the importance of economic drivers for erosion control policies needed to be more clearly stated. This includes better integration with FEMA policies and insurance practices.

What About Biodiversity?

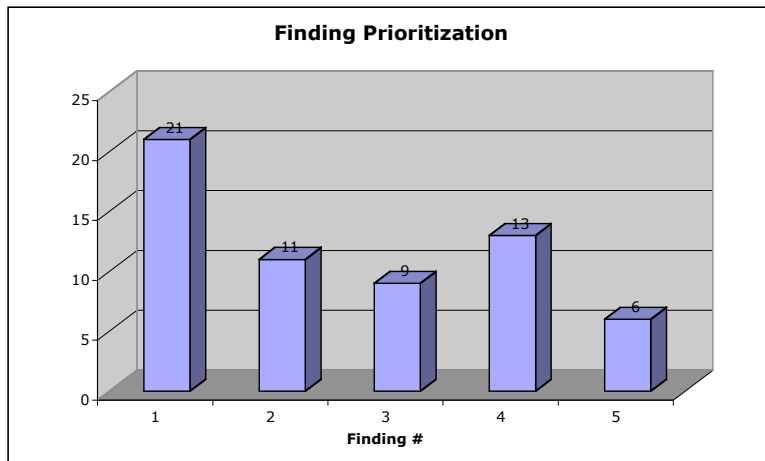
Several participants suggested that information on how different erosion control practices affect biodiversity is especially lacking, and was not emphasized in the report.

Decision Makers Need Information on Implications, Not Just Options

The NRC report stresses that decision makers need to know more about the options available to them with regard to erosion control. Respondents felt that additional language should emphasize the impacts (ecological, economic) of their choices on regional resiliency and water quality.

Question 3: What are the Two Most Critical Findings?

Participants were asked to rate the two most critical of the five findings presented in the report. Below are the tallies for how many times a finding appeared in someone's "Top 2" list. A concise paraphrasing of the finding can be found to the right.



Finding 1 – Scope and accessibility of info on causes of erosion insufficient for optimal resource management.

Finding 2 – Decision makers need to be more aware of options and impacts of different erosion control measures.

Finding 3 – Cumulative effects of hardening many small parcels are not well understood.

Finding 4 – Permitting and regulations do not encourage ecologically beneficial practices in an efficient manner.

Finding 5 – Regional shoreline management plans should be adapted as part of CSMA legislation.

Note that, for each call, additional findings were added and voted upon. But in each case, these additional findings did not receive many votes.

Question 4: What Are the Two Most Critical Recommendations?

We asked participants to address which recommendations were most critical for their highest priority finding. Therefore, for this report, we will concentrate on recommendations that apply, at least in part, to Finding 1, which received the most points in the prioritization exercise.

The complete text of Finding 1 as well as the recommendations are shown below.

Finding 1: In most areas, the scope and accessibility of information regarding the causes of erosion at specific sites and the overall patterns of erosion, accretion, and inundation in the broader region (estuary, lagoon, littoral cell) is insufficient to support the development of an integrated plan for managing shore erosion.

Recommendations: Federal agencies (e.g., USACE, EPA, USGS, and NOAA), state agencies, and coastal counties and communities should support targeted studies of sheltered coast dynamics to provide an informed basis for selecting erosion mitigation options that consider the characteristics of the broader coastal system rather than simply addressing immediate problems at individual sites. These studies should:

- a. Identify trade offs in ecosystem services associated with various mitigation measures,
- b. Quantify the costs and benefits of non-structural erosion control techniques,
- c. Document system-wide process and hazard information, including mapping of erosion zones and rates. This information needs to be presented in non-technical formats such as summary maps that can be readily understood by decision makers,
- d. Develop models to predict the evolution of coastal features under various scenarios.

In the three web conferences, recommendation "a" received the highest priority, occurring 14 times. Recommendations "b," "c," and "d" occurred 10, 9 and 6 times, respectively. Many participants suggested that "a" and "b" should be bundled together. In addition, many participants included the caveat that "a" and "b" could not be done if "c" hadn't already been done sufficiently. This perspective was echoed in all three calls with participants noting that some geographical regions had the minimum threshold of information to begin "a" and "b," while others did not.

Participants were given the chance to add or modify recommendations; several themes emerged and are represented below.

Need "Dynamic" Involvement of Local Stakeholders

Many participants noted the need to go beyond the "usual" concepts of outreach and involvement, and called for increased involvement of a variety of stakeholders (homeowners, contractors, etc.) in both the research planning and information dissemination stages.

Dealing with Risk, Valuation, Uncertainty

In all three calls, participants discussed the need to employ a guiding approach for making choices about the future in the face of conflicting information and perspectives. The majority of participants favored "risk-based" analyses that would incorporate ecological and economic factors in a "trade-off" basis that weighted uncertainties versus identified community objectives. A minority of participants recommended using dollar amounts to "value" ecosystem services. Regardless of the approach, all agreed that the system needed to be endorsed (rather than thrust upon) stakeholders.

Upstream, Downstream

Related to the above issue, many participants requested that CICEET stress the importance of considering upstream sources and downstream implications when evaluating choices.

Demonstration/Pilot Projects

Demonstration projects were seen as an effective way to gain valuable information on many aspects of the issue: from regulatory to technical bottlenecks. In that context, participants noted that there are existing projects that have not been monitored adequately; any new projects must be monitored in order to have maximum value.

Indexing Erosion

Several participants reminded CICEET of the importance of coming up with an index or scale for erosional processes, to facilitate transfer of lessons learned from one system to another.

CICEET'S Plan for Phase 2

In Phase 2, CICEET will further examine specific recommendations from Phase 1. In particular, we will investigate technical and non-technical bottlenecks for effectively delivering and using any knowledge or tools developed to address these specific recommendations.

Based on your input, we are targeting Finding 1, recommendations "a" and "b." (See previous page to review these findings and recommendations.) As part of this process we will also establish whether "c" (documentation of system-wide erosion zones and rates, etc.) has taken place. Through these discussions we hope to learn something about the bottlenecks that keep this documentation from occurring at optimal rates as well.

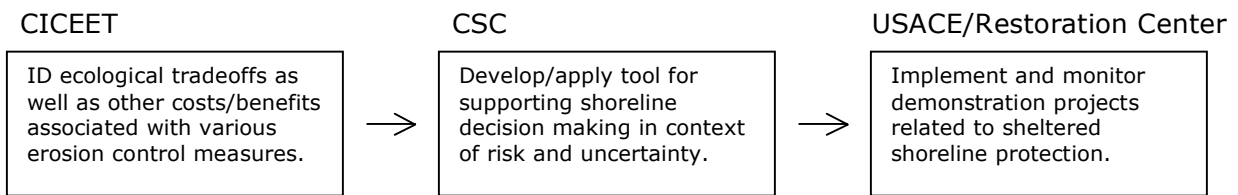
We will use four web conferences to obtain input on the challenges and opportunities related to recommendations "a" and "b." The objectives of these discussions will be to discern:

- What already exists but is not being used effectively enough?
- What needs to be developed that doesn't already exist?
- What factors (e.g., cost, reliability) need to be taken into consideration to maximize the applicability of any new knowledge or tools?

CICEET will use four web conferences during the month of May to obtain information on these topics. Each web conference will involve various stakeholders all connected to the same political and ecological context (e.g., a section of Chesapeake Bay; Puget Sound; San Francisco Bay). We will peg each call to a specific area in order to better understand the level of conflict and agreement around a common system. The specific areas will be chosen by CICEET staff based, in part, on the input we received during the April web conferences.

Note, however, that the funding opportunity will not be restricted to any particular region. We are simply using four specific systems as a sub-sample to better understand both the technical and non-technical issues that may arise.

CICEET has discussed this process with potential partners within NOAA (e.g., the Restoration Center; Coastal Services Center) as well as with the Army Corp of Engineers. It is our hope that other resources will be brought to bear so that CICEET efforts will connect synergistically with other endeavors. The flow chart below illustrates, for example, how CICEET, CSC, the Restoration Center and USACE could contribute to this issue.



CICEET will contact some of you regarding participation in Phase 2. Some participants expressed an interest in obtaining ppt slides used in the web conferences that took place in April. Please contact Cory Riley if you are still interested in these slides.

Should you have any questions at all, please don't hesitate to contact either Kalle Matso (kalle.matso@unh.edu; 603-862-3508) or Cory Riley (cory.riley@noaa.gov; 603-862-2813).

Note: An "Appendix of Resources" is included on the final page of this document. This appendix is a short list of helpful resources and examples related to shoreline erosion control measures.

Appendix of Resources

- Source: Doug Myers, Puget Sound Action Team
Subject: Guidance and criteria for the Estuarine and Salmon Recovery Program funding program. Relevant to the issue of incorporating issues related to erosion control (and sea level rise) into restoration programs.
Url: <http://www.pugetsoundnearshore.org/esrp.htm>
- Source: Doug Myers, Puget Sound Action Team
Subject: Report on evaluation of various alternative shoreline protection approaches.
Url: http://www.psat.wa.gov/Programs/shorelines/FinalPSAT9_15_06withphotos.pdf
- Source: Adam Whelchel, The Nature Conservancy, CT Chapter
Subject: Examples of tools used to address cumulative impacts in coastal states.
Url: http://coastalmanagement.noaa.gov/issues/special_examples.html
- Source: Gillian O'Doherty, The NOAA Restoration Center
Subject: Funding opportunity related to living shorelines.
Url: http://www.nmfs.noaa.gov/habitat/restoration/projects_programs/crp/partners/nfwf.html#Isi