

Sea Grant Project
Fall 2007 Focus Groups & Spring 2008 Surveys
Comparative Analysis

Center for Research and Evaluation

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A Note About This Report:

This report is divided into three sections. The first section provides an overview of the Coastal Property Owners (CPO's) responses from the focus group and the survey, while the second section provides the same for the Town Officials. The final section of the report (Analysis of focus group and survey responses) attempts to synthesize the results of the surveys and focus groups. Please note that the survey and focus groups did not measure exactly the same issues, therefore; not all sections of this report have parallel responses. Also, this report does not contain the same level of detail as either of two earlier reports written specifically about the focus group and survey results. Please refer to these original reports for the complete tables, figures and raw data collected as part of this evaluation.

Section 1: Coastal Property Owners Focus Groups & Survey

Focus Group Overview

In September, October, and November 2007, the Center for Research and Evaluation conducted a series of three focus groups with coastal property owners, local town officials, emergency management personnel, and other waterfront users. Three of these groups were exclusively for coastal property owners, another two were a mixture of coastal property owners, town officials, emergency management personnel, and other beach users, and the final group consisted exclusively of town officials. The purpose of the coastal property owners groups was to better understand their:

- experiences with coastal erosion, sea level rise, and increasing storm surges
- experiences with different methods of protecting their properties and shorelines from erosion or damage
- experiences with state and federal agencies in the permitting process or after damage had occurred to their properties
- attitudes towards climate change, and their perceived level of threat from the accompanying sea level rise
- beliefs about the role of government and private individuals in addressing these challenges

- receptiveness towards differing sources of information on the topic of climate change
- attitudes towards different kinds of media for information

The mixed sessions & town officials session focused on these same issues, plus participants’

- ability to achieve workable solutions in their towns that meet the needs of different constituencies
- ability to work with other towns and agencies
- experiences enforcing various codes and regulations

Survey Overview:

In the spring of 2008, the Maine Sea Grant program surveyed CPO’s and town officials in eleven Maine communities as well as the municipal staff and officials. For the CPO survey, a total of 6,967 questionnaires were sent to homeowners in 11 selected towns. A sample of residents east of Route 1 was invited to participate in the survey if they owned, as opposed to rented, the property. Five hundred forty-eight homeowners responded to the survey resulting in an overall response rate of 7.9%. The response rate by town varied from 4.7% to 9.4%.

Participant Background: CPO’s:

Focus Groups:

There were three focus group sessions conducted with CPO’s. The first session included 10 individuals (8 women, 2 men) while the second session included 2 women and 5 men, and the third had 2 women and 7 men. The participants broadly represented the geography of these towns, with individuals from all three sections of the state, owning property with beachfront, rocky bluffs, sedimentary bluffs, and tidal river frontage. These participants also represented different kinds of property owners – from commercial to private, and from newly arrived to long-term residents.

Surveys:

More than half of the respondents were male (58.4%), owned their property more than ten years (55.3%) and/or had a household income above \$75,000 (59.8%). Half of the

respondents (49.4%) indicated they held a graduate degree, while nearly three-quarters (72.9%) were over the age of 50. One-third of respondents (32.6%) indicated that their property was located on water. More than half of the respondents (59.2%) also indicated they plan on owning this property for more than 20 years or pass it down to a family member. Nearly two-thirds (62.7%) indicated that the property in question was their primary residence. One-quarter of respondents (25.7%) indicated their property was “beachfront”, while many respondents stated their property was adjacent to a marsh or tidal inlet or cove.

Sea Level Rise and Climate Change:

Focus Group Responses:

In general, while a few individuals had read extensively on the topic, most participants reported they had relatively little knowledge of the issues surrounding climate change and sea level rise. While participants in all three groups commented on the change in sea level, all participants seemed unsure how they might logically react to these changes. All groups agreed that both sea level and storm surges were reaching higher and higher levels than they remembered in the past. More than one participant wondered if it was primarily due to increased sea level, land subsidence, or both. Despite a keen awareness that storm surges were more severe, and tides seemed to be higher, these groups were at a loss as to what they could really do about these issues – although several participants talked about specific measures they had taken to counter these erosional forces.

Survey Responses:

Respondents were asked to indicate on a four-point scale (1 = “Strongly agree”, 2 = “Agree”, 3 = “Disagree”, and 4 = “Strongly disagree”) their level of agreement with seven statements (shown in table 1 below) regarding climate change and variability.

Table 1

Level of Concern or Importance Placed on Specific Items related to Climate Change

	Strongly agree		Agree		Disagree		Strongly disagree		No opinion	
	n	%	n	%	n	%	n	%	n	%
I am concerned about reported changes and variability in the Earth's climate.	279	51.5%	187	34.5%	31	5.7%	34	6.3%	11	2.0%
I am concerned about how changes in the Earth's climate might affect the Maine coast during this century.	267	49.1%	200	36.8%	35	6.4%	31	5.7%	11	2.0%
It's important for governments to take immediate steps to reduce the apparent causes of global climate change.	310	57.2%	147	27.1%	30	5.5%	41	7.6%	14	2.6%
It's important for individuals to take immediate steps to reduce the apparent causes of global climate change.	303	56.1%	171	31.7%	26	4.8%	30	5.6%	10	1.9%
It's important for governments to prepare for the effects of climate change that are predicted to occur in Maine.	242	45.0%	206	38.3%	31	5.8%	39	7.2%	20	3.7%
It's important for individuals to prepare for the effects of climate change that are predicted to occur in Maine.	249	46.4%	217	40.4%	29	5.4%	24	4.5%	18	3.4%
I consider myself well-informed about the expected effects of global climate change in Maine.	100	18.6%	245	45.6%	141	26.3%	21	3.9%	30	5.6%

Respondents were also given the option of indicating they had “No opinion” for each of the statements. An overwhelming majority of respondents either *agreed* or *strongly agreed* with all seven statements. Property owners felt most strongly that the government and individuals should take immediate steps to “reduce the apparent causes” of global climate change. A large majority of property owners also *agreed* or *strongly agreed* that there is a need to for the governments (83.3%) and individuals (86.8%) to “prepare for the effects” of climate change

Coastal Erosion:

Focus Group Responses Actions Taken to Limit Erosion:

In all three groups, individuals expressed their concern for protecting their properties.

Several of the participants described the steps they had taken to protect their shoreline and/or the structures on their properties. These measures included:

Changes to shoreline to try to limit erosion:

- Rip rap
- Buried tree trunks in soil
- Planted beach grass
- Reinforced embankment
- Replenished dune
- Built / rebuilt seawall
- Trenching
- Planting trees
- Revert to natural growth
- Diverted upland runoff

Changes to Structures:

- Owner:
 - Sunk piers into soil
 - Used 2 X 10 front walls
 - Installed blowout walls in rear of house
 - Anchored roof and porch using hurricane ties
 - Used hurricane rated shingles
 - Relocated all utilities to 12 feet above average high water mark
 - Elevated house 12 feet above grade
 - Created blowout panels to allow wind to travel under house
- Owner moved house back from water, elevated and reinforced structure

Survey: Actions Taken and Perceptions of Effectiveness of Community Actions

Respondents were asked to indicate if ten specific actions/measures had been taken in their town to prevent or lessen damage due to natural forces. Further, they were asked to indicate if the action *should be taken* or if they *didn't know*. Note: since respondents were not given the

option of indicating that the measure should not be taken, we are unsure how many respondents would have selected that choice. The ten actions included: new seawalls built, existing seawalls made stronger, dunes replanted with beach grass, homes elevated above flood level, buildings moved further back from the water, beaches replenished with sand from elsewhere, stronger shore-land zoning passed, realtors required to disclose information about natural forces, town creates a plan for dealing with coastal natural forces, and vacant waterfront properties purchased by conservation organizations to prevent new construction.

One-fifth or fewer of the respondents indicated the action had already been taken for each of the ten actions. The actions receiving the fewest number of respondents indicating they had been taken already were: “Vacant waterfront properties purchased by conservation organizations to prevent new construction” (5.9%), “Realtors required to disclose information about natural forces” (6.4%), and “Buildings moved further back from the water” (6.8%). Roughly two-thirds felt that realtors should be required to disclose information (65.1%) and the town should create a plan for dealing with coastal natural forces (64.5%). Participants were least knowledgeable about whether or not beaches were replenished with sand from elsewhere with 61.5% indicating they did not know.

For each of these actions/measures, respondents were asked to rate how effective it would be using a five-point scale. This scale ranged from 1 = “Not effective at all” to 5 = “Very effective”. Additionally, participants could indicate “Don’t know”. Nearly one quarter of respondents (24.2%) felt that replenishing beaches with sand from elsewhere would not be effective at all in preventing or lessening damage due to natural forces. An additional one quarter of respondents (24.4%) indicated they did not know if replenishing the sand would be an effective strategy or not. The action receiving the highest percentage of respondents indicating it

was “very effective” was *buildings moved further back from the water* at 28.6%. This percentage is based on all respondents – even those who indicated they did not know.

Survey: Actions Taken and Perceptions of Effectiveness of Personal Actions

Shoreline property owners were asked if they had taken certain steps in protecting their property. Nearly two-thirds (63.6%) indicated they had already become familiar with floodplain maps and other information that describes their property. Less than 10% indicated they had already supported stronger shore-land zoning, but 65.5% indicated they would be willing to do so. Less than 10% indicated they had relocated existing structures, and an additional 62.3% stated they would not be willing to do.

After respondents were asked if they had taken specific actions to protect the shoreline and/or structures, they were asked to indicate the barriers preventing them from doing so. Given a list of five possible barriers and the option of “other”, participants were asked to check all that applied. Only respondents who felt that at least one action was applicable to them and who had not already taken that action were allowed to respond. The “cost is too high” barrier had the highest percentage of respondents (29.1%), followed closely by “do not have the information I need...” at 27.4%. Of the 27 responses provided for “other”, nine eluded to laws or zoning issues.

With laws and rules being listed as one of the possible barriers to taking action, respondents were asked how well they understood the rules and regulations pertaining to their property. With a five-point scale, ranging from 1 = “Don’t understand” to 5 = “Strong understanding”, and an option of “Don’t know” provided, half of the respondents (50.6%) indicated they had more than a “basic understanding”.

Participants were asked to indicate, on a five-point scale, how likely they would be motivated to take action against damage due to natural resources if four different scenarios were available or occurred. Nearly one half (47.9%) indicated it was “very likely” they would be motivated to take action if a grant was available to them. Almost the same percentage of respondents (48.8%) indicated it was “not likely at all” they would be motivated to take action if a low-interest loan was available to them. Mean scores were computed with lower scores indicating lower motivation, and conversely, higher scores indicating greater motivation. “A low-interest loan” received a mean score of 2.1, while “If my neighbors did similar things” received a 2.6. The greatest motivators were “a grant” (M = 3.5) and “If my town led an effort to do something” (M = 3.0.)

Changes to the Shore & Observed Erosion:

Focus Group Responses:

- Several owners noted rocks that were previously visible at high tide were now almost completely covered.
- Several individuals reported seeing large sections of the embankment slide into the ocean. One participant saw his neighbor’s entire lot slide into the ocean.
- Several participants reported the erosion of a substantial portion of the frontal dunes in both York and Camp Ellis
- Two participants reported seeing “several” houses lost into the ocean at Camp Ellis
- All participants witnessed what they considered to be higher tides and higher storm surges

Survey: Changes to the shoreline & tides

Participants were asked to provide their views on how problematic coastal erosion, sea-level rise, flooding, and increased high tides are at the waterfront or shoreline closest to them. If a respondent indicated that they did not feel there was currently a problem in a specific area, they were asked to indicate if they felt it would be a problem within 10 years.

Over one-third of respondents (35.9%) indicated coastal erosion was either a significant or a very significant problem. Roughly one-quarter felt that sea-level rise (25.7%), flooding (26.7%) and/or increased high tide (27.3%) were either a significant or very significant problem. Of those indicating these areas were not currently a problem, approximately one-quarter felt they would be a problem within the next 10 years.

Evaluating Risks

Survey Results:

Shoreline property owners were asked if they had evaluated risks such as flooding, erosion and sea-level rise before buying their property and if the source of information was accurate. Over half of the respondents (60.3%) indicated they had evaluated the risks. A very large majority (95.3%) indicated the information they received was accurate. When examining property owners who had their homes less than 3 years, all nine respondents (100%) indicated they had evaluated these risks.

Property owners were then asked to identify the source of information used when evaluating these risks. Given a list of nine options, they were allowed to check all that applied. Respondents were most likely (40.4%) to receive their information from their town office. They were also asked to indicate any other source of information: the most common source was personal knowledge of the area/ property.

When asked what they would do if their property was severely damaged due to natural forces, over three-quarters (78.9%) indicated they would rebuild. Instead of choosing one of the strategies listed, 19 respondents indicated an “other” option with many stating they were unsure of what they would do. *Evaluating risks was not specifically discussed in the focus group sessions.

Communication between CPO's and Public Agencies / Government:

Focus Group Responses:

This issue was discussed for longer and in more detail than any of the other concerns addressed in these focus groups, but was not specifically addressed by the survey. In general, CPO's were frustrated in their dealings with local, state and federal agencies. In several cases, owners received differing (and conflicting) instructions from different agencies. They also were unsure of the exact chain of command when dealing with these groups. For one resident, it was unclear what authority the town had versus the DEP versus the Army Corps of Engineers. For another participant, an issue brought before the same agency was decided in two different ways. A significant majority of the participants expressed an unfavorable view of Maine DEP, FEMA, and the Army Corps of Engineers. The attitudes of CPO's towards local officials were more mixed. In some cases, individuals expressed camaraderie with local officials while others were simply frustrated. The following are a sample of the issues raised by owners with respect to communication.

- For one resident, the town's sea wall is in disrepair. In turn, this threatened the person's home. Attempts to get a response from the town have not been answered. This owner reports they are now faced with the dilemma of illegally constructing a structure to protect their home, or be threatened with the destruction of their property in a future severe weather event
- Another resident is a member of a local planning commission whose mission is to create and implement a beach management plan. This individual remains frustrated because there is no representation from one of the local towns to this group
- Several owners reported an arduous process to get permits from DEP to make changes to their property. One such example was shared in the previous section where the owner had planted vegetation, only to be told that it couldn't be covered up with more sand. Had this person done nothing, the deposition of the sand would have been permitted
- Another owner reported it was far easier to complete whatever work was required and then file for the permits after the fact.
- One owner was allowed to complete a project by the town, and was then denied approval by the state DEP

- Another owner reported petitioning the local government to enact the recommendations of the Maine Geologic Survey to slow the rate of erosion. These petitions had not been successful.
- Another owner talked about the installation of a wheelchair ramp right through the middle of a dune. They commented “they [DEP] lose a lot of credibility when they tell you that you can’t move some stuff. They tell us that we have to protect the dune, and yet when they put a handicap ramp right through the middle of the dune, the first storm already damaged it, the next storm will get rid of the dune because they cut a hole right in the middle of it.”

Personal property rights

Focus Group Responses:

Another area of significant discussion during focus group sessions was on the topic of personal property rights. Members of these groups felt almost universally that the state and federal government were usurping their rights as property owners. Although owners understood the rules and regulations, they did not agree with the restrictiveness of these limitations. Owners also shared a common sentiment that they were bearing a disproportional amount of the tax burden, yet were not allowed to protect that highly valued, highly taxed property. This topic was not specifically addressed by the survey.

Educational Preferences:

Focus Group Responses:

Participants reported a variety of sources of information about sea level rise, climate change, mitigation strategies, construction techniques, and other issues related to their waterfront properties. These participants received a good deal of their information from the Internet. Several stated they would “Google” terms they were interested in. Others got most of their information from television. To a lesser degree they got information from the newspaper. Only a few participants sought out information in scientific journals or through official government

channels. Age did not appear to be associated with the mode of communication sought by participants, however; it was clear they used a number of channels to gather information.

When asked what sources of information they trusted most and least, the participants gave differing responses, but the group suggested they were wary of most sources of information. They specifically mentioned being unsure of the data from the University of Maine. When questioned further, they did not distrust the University of Maine, but several participants felt Joe Kelly had an “agenda” and that his conclusions were not entirely unbiased. Others mentioned the Department of Environmental Protection, Maine Geologic Survey, and Army Corps of Engineers as also having an “agenda.” When pressed what this agenda might be, these participants felt the state and federal agencies were pushing a policy of abandonment (in other words, let erosion happen unchecked and force people to abandon their properties.)

One group spoke very favorably of the Sea Grant, and the Beaches conference:

“I have to say, this we’ve got into when we first bought the beach cottage in ’99 and I’ve learned an awful lot through their UMaine speakers that they had come in.”

Survey Responses

All respondents, regardless of whether or not their property had a shoreline, were asked to indicate the source of information they trusted the most. Given a list of seven resources, and an “other” category, respondents were asked to choose two. Not quite half of the respondents (46.3%) indicated colleges/universities as a most trusted resource, followed closely by environmental organizations (43.8%). Many of the respondents who chose “other” indicated they did not trust anyone on this subject. The complete list of options for information is shown in Table 2 (below).

Table 2

Indicate the two sources of information about coastal erosion, sea-level rise, flooding, and high tides that you trust the most

	n	%
Colleges/universities	242	46.3%
State agencies	131	25.0%
Environmental organizations	229	43.8%
Federal agencies	90	17.2%
Local officials	92	17.6%
Property owner's associations	58	11.1%
Maine Sea Grant/Cooperative Extension	135	25.8%
Other	39	7.4%

24 respondents did not answer this item

Given a list of six methods for receiving information, the largest percentage of respondents (50.3%) preferred newspapers. Many who indicated an “other” preference, stated they preferred the public radio.

Focus Groups: Conclusions and Recommendations:

The individuals who participated in these focus groups showed a high level of awareness of the issues related to climate changes, sea level rise, and how it impacts Maine’s coastline through erosional forces. Many of the participants had read extensively on the topic, and several of them could cite authorities on these topics from memory. Clearly, the participants in these groups were highly informed about many aspects of these issues. Despite their extensive background knowledge, participants were not in agreement about the severity of climate change, the kinds of strategies that should be used to protect the shoreline from damage, or about the boundary between individual rights and government authority.

At least part of the disagreement between parties stems from a lack of common information on these topics. For example, town managers cited the work of Joe Kelly while some CPO's denounced his work as "politically motivated." For Sea Grant, the unique challenge will be to develop materials that appeal to both audiences, and have a degree of credibility that most stakeholders will find acceptable. Participants consistently requested materials that were:

- evidenced-based (with citations to the source)
- clearly written in non-technical language
- offered practical and reasonable strategies
- gave links to authorities on different topics
- gave information that was linked to certain geographies (beach, salt marsh, sedimentary cliffs, river outlets, etc.) not "one size fits all"
- available in some different formats: online (through websites and e-newsletters), in paper newsletter format, and at the beaches conference

When Sea Grant develops these educational materials they might consider the strategies used by CPO's in these focus groups. Their attempts to protect their shoreline and structures might be instructive to others. In some cases, these protective measures were successful, in others, not. Educational materials might also use case studies to relate the experiences of many different types of coastal landowners. CPO's considering protective construction on their property might respond better to hearing about the experiences of their neighbors than from an "expert" from away. This was clearly the case for individuals in these focus groups where the participants regularly asked one another how well different things had worked for them.

Another strategy may be to conduct community meetings with CPO's and local officials to discuss changes they have seen in their communities. Many participants felt the simple act of coming together to discuss these issues was productive in its own right. Repeating this process of meeting (not focus groups) might serve as a way to disseminate materials, find enthusiastic landowners, and build a bank of community contacts for further educational dissemination.

Several participants commented on the value of discussing the topic freely and without feeling that a particular political agenda was being espoused.

A third strategy could be to identify communities who have engaged in some future planning. By taking the best of these ideas, Sea Grant could offer a list of real world strategies for other communities to consider. For example, participants in these groups mentioned new codes, development approvals that anticipated erosion, community plans that included climate change as a variable, as well as specific strategies such as beach nourishment, sea grass planting, and infrastructure relocation. By highlighting the most successful of these communities' strategies – other towns along the Maine coast may benefit. Not unlike the strategy for CPO's, sharing ideas across communities may build greater buy in than if the information was presented and published by “experts.”

A fourth strategy may be to develop a communication with state and federal agencies that describes the perceptions of CPO's about their agencies. This information may assist these agencies in improving their public relationships. Increased responsiveness by regulatory agencies may also increase the public's willingness to implement effective strategies on their own properties. Given the predominantly negative perception of these focus group members of these agencies, this might be a priority for Sea Grant to initiate this conversation.

Finally, Sea Grant personnel may also want to consider contacting the members of these focus groups as potential resources. In many cases, these individuals were deeply interested in these issues – and quite a few had substantial education and experience. Their knowledge and passion could be a valuable asset for this project.

CPO Survey Results Summary

With the response rate for the coastal property owners being lower than one would have hoped for at 7.9%, it is important to note that many of the survey recipients simply may not have viewed themselves as “coastal property owners” and disregarded the survey. The property owners who did respond appear to fit the demographics one would associate with coastal property owners. More than half of the respondents had a household income above \$75,000 (59.8%) and/or owned their property more than ten years (55.3%). Half of the respondents (49.4%) indicated they held a graduate degree, while nearly three-quarters (72.9%) were over the age of 50.

A very large majority of property owners were concerned about the reported changes and variability in the Earth’s climate. They felt that the government and individuals should take immediate steps to reduce the apparent causes of global climate change. They also felt that the government and individuals should prepare for the effects of climate change that are predicted to occur. Nearly one-third indicated though that they were not “well-informed” about the expected effects of global climate change in Maine.

Of coastal erosion, sea-level rise, flooding and increased high tides, respondents viewed coastal erosion as the most problematic for shorelines closest to them. When looking at the subset of respondents who had shoreline or waterfront property, one-third indicated natural forces had affected their property adversely. Erosion appeared to be the most common cause of damage to their personal property.

Almost two-thirds of property owners felt the town should create a plan to deal with coastal natural forces. When asked what measures they had already taken to protect their property, the highest percentage stated they had already become familiar with floodplain maps and other information that describes their property. Over 60% indicated they would not be willing to move

their structures further away from the shore. A low interest loan did not appear to be a motivator to take action against damage for many of the respondents. Conversely, nearly half of the respondents indicated they would be very motivated if a grant was available to them. Over two-thirds indicated they would rebuild on their property with storm resistant strategies if their property was severely damaged due to natural forces. Many others simply stated they did not know what they would do.

Nearly half of the coastal property owners indicated they trusted the information colleges/universities supplied about coastal erosion, sea-level rise, flooding and high tides. They also trusted information provided by environmental organizations. About half preferred to receive their information through newspapers.

Section 2: Town Officials Focus Groups & Survey

Focus Groups: Town Officials / Mixed Groups Overview:

The town officials groups, while primarily representative of local officials, also included property owners and other waterfront users. Only town official group 2 was comprised entirely of local officials. As a result of this diverse membership, the following results reflect a variety of perspectives.

Town officials talked extensively about problem solving – from addressing issues with irate property owners to developing a plan to move infrastructure out of harms way. These individuals discussed the issues of climate change and sea level rise with a focus on how they will act in response to these challenges. These participants identified many current and future challenges they face including zoning, building rule changes, eminent domain, public relations, and infrastructure planning. A common theme for town officials was the need for good information about a wide range of topics. The following details the most significant needs for information (both for themselves and members of their communities) expressed by town officials.

Information needed by Town Officials:

Erosion mitigation issues:

- strategies for getting funding for beach restoration / conservation
- information about the relative impact of different strategies for local town officials
 - dredging
 - barrier construction
 - beach grass / vegetation planting
- strategies to address the differences in how local governments handle problems versus the ways the state and federal agencies handle these same issues
- strategies to educate homeowners and builders as to what kinds of construction are likely to be effective and resilient and what kinds are likely to fail

Climate change issues:

- clear and convincing evidence about the impact of climate change on these issues that address some of the current critics of the concept of global warming

Planning issues:

- information about ways to address issues where houses and other structures (including infrastructure) are in areas prone to flooding and erosion
- strategies to get local officials to start thinking in a “big picture” that is – to make sure they are thinking beyond the one year timeframe
- addressing the need for building codes that are based on the future demands on a property, not just the current demands
- suggestions for a common set of elevation maps to do local planning – some municipalities are using the 100-year flood plain maps, which can be highly inaccurate.
- information to help towns better plan their infrastructure to meet the changing environment of the future
- strategies to deal with rampant development – Wells had over 400 cottages go into a single development
- more information about the need for emergency evacuation routes and emergency preparedness

Town management issues:

- how to strike a balance between individual property rights and the need to plan for the future in a way that is sustainable
- inability of local governments to purchase land for the fair market value
- how to address equity issues in towns where some properties (by virtue of their location near the shore are worth much more than inland properties, as a result the coastal owners are paying a far greater share of the taxes than those living further from the water.)
- strategies to get people (the townspeople) to take the future challenges of sea level rise seriously

- ways to deal with property owners who are primarily interested in the value of their place as well as the investment potential of it, and those people not wanting to see that investment infringed upon because of local, state or federal regulations.
- how to build trust between residents and local officials (state officials too)
- how to get a read on the local values and how to work on shifting those values to place a higher priority on things like a better environment
- helping residents to understand that the coast of Maine is not a fixed thing – that it is constantly shifting and changing
- ways to discuss that taxes paid by homeowners do not equal services they receive

Information needed by Property Owners:

- a single clearinghouse for information about:
 - building codes & regulations
 - beach nourishment / protection strategies
 - projected changes in the coastline over time
 - most and least effective strategies for controlling erosion
- streamline the process of gathering information for homeowners
- streamline the process of applying for permits so that a homeowner or contractor can do “one stop shopping”

Suggestions for Sea Grant Materials

- provide information about the economic impact of Maine’s beaches as a strategy to influence lawmakers, as well as others
- Suggestions for who should be communicated with
 - realtors
 - developers
 - builders / contractors
 - city managers
 - planning board / board of appeals
 - conservation commissions

- focus on young people (children)
- develop materials that are credible and pragmatic

Survey: Town Officials Overview:

For the town officials survey, 236 surveys were sent to public officials in 11 selected towns. Elected and appointed municipal officials, municipal staff and county officials, who had the potential to be involved with climate change, were invited to participate in a survey. Fifty-five public officials responded to the survey resulting in an overall return rate of 23.3%. Return rate by town varied greatly from 42.9% (York) to 5.3% (Kennebunk).

Demographics

Eighty percent of the respondents were male, while nearly 70% were over the age of 50. Three-quarters held either a bachelors, masters or doctorate degree. Slightly more than half (52.7%) indicated they had been in their current position for less than six years. One fifth of the respondents indicated they were planning board members for their town.

Perceived Level of Importance and Concern

Respondents were asked to indicate on a four-point scale (1 = “Strongly disagree”, 2 = “Disagree”, 3 = “Agree”, and 4 = “Strongly agree”) their level of agreement with five statements regarding climate change and variability. Respondents were also given the option of indicating they had “No opinion” for each of the statements. An overwhelming majority of respondents either *agreed* or *strongly agreed* with all five statements. Public officials indicated they were more knowledgeable about the “reported changes and variability in the earth’s climate” than about the “expected effects of global climate change in Maine.” Respondents felt most strongly that immediate steps need to taken to “reduce the apparent causes” of global climate change.

A mean score was computed for each of the five statements with the *no opinion* option removed. The higher the mean score, the more in agreement respondents were with the

statement. There were virtually no differences in mean scores between the five statements will all receiving a score between 3.1 and 3.3.

Responsibility of Responding or Adapting to Climate Change

Public officials were asked to provide their level of agreement with 11 statements (shown in Table 3 below) in the context of their job and the responsibility of responding or adapting to climate change effects at the coast of Maine.

Table 3

	Level of agreement as it relates to your job and the responsibility of responding or adapting to climate change effects at the Maine coast.									
	Strongly disagree		Disagree		Agree		Strongly agree		No opinion	
	n	%	n	%	n	%	n	%	n	%
I already have a full load of activities and can't add another.	2	3.6%	22	40.0%	20	36.4%	9	16.4%	2	3.6%
I don't have enough information about how climate change may affect my work (such as the resources, areas, or community infrastructure within my responsibility).	5	9.1%	13	23.6%	26	47.3%	9	16.4%	2	3.6%
I know of no authoritative sources for climate information in Maine.	2	3.8%	19	35.8%	23	43.4%	6	11.3%	3	5.7%
I don't believe climate change requires action from me in the next year or two.	7	13.2%	31	58.5%	11	20.8%	4	7.5%	0	.0%
I'm not hearing any urgency about local climate change effects from those who influence or assign my work.	1	1.9%	21	38.9%	15	27.8%	13	24.1%	4	7.4%
No other coastal community like mine anywhere in the United States is addressing climate change in a significant way.	5	9.3%	24	44.4%	3	5.6%	0	.0%	22	40.7%
I'd be willing to take action in my work if I had compelling information about anticipated risks in the future.	1	1.8%	2	3.6%	34	61.8%	12	21.8%	6	10.9%
I'd be willing to take action in my work if there were adequate funding available to do so.	1	1.9%	4	7.4%	29	53.7%	15	27.8%	5	9.3%
I think climate change is more important for the next generation of decision-makers.	9	16.4%	32	58.2%	7	12.7%	5	9.1%	2	3.6%
Opinions on how to successfully address climate change impacts on my municipality will be greater in the future than now.	4	7.5%	14	26.4%	20	37.7%	10	18.9%	5	9.4%
I'm ready to be out in front of this issue and prepared to devote time and resources.	1	2.0%	11	21.6%	25	49.0%	3	5.9%	11	21.6%

Again, respondents were provided a four-point scale, ranging from *strongly disagree* to *strongly agree*, and an opportunity to indicate they had *no opinion*. The majority (63.7%) of municipal officials do not feel they have enough information about how climate change may affect their work. An even larger percentage (83.6%) of respondents indicated they would be willing to take

action in their work if they had compelling information about anticipated risks in the future. Eighty-two percent indicated they would be willing to take action if there was adequate funding. Two-fifths of the respondents indicated they had *no opinion* on whether or not other coastal communities were addressing climate change in a significant way. These respondents also indicated that the issue of climate change needs to be addressed *now* as opposed to *later*. Three-quarters of respondents *disagreed* or *strongly disagreed* with the notion that climate change is more important for the next generation of decision makers. Additionally, 71.7% of respondents stated a need to take action within the next year or two.

Again, a mean score was computed for each of the eleven statements with the *no opinion* option removed. The higher the mean score, the more in agreement respondents were with the statement. Of those offering an opinion, respondents were more likely to disagree with the statement “No other coastal community like mine anywhere in the United States is addressing climate change in a significant way” ($M = 1.9$) than any of the other statements.

General, Informational and Training Needs

Respondents were provided with five areas of potential assistance and asked to indicate on a four-point scale (1 = “No need”, 2 = “Slight need”, 3 = “Moderate need”, and 4 = “High need”) their level of need **during the next two years** for each of them. Respondents were also given the option *not applicable* for each of the statements. More than 80% of all respondents indicated there was either a *moderate* or *high* need in all five areas. Two respondents provided a written response under the *other* option. One respondent indicated a high need for “peer reviewed science vs. scare tactics”, while the other respondent indicated a high need for “reliable data and response/action and sources of information.”

Respondents were asked to rate how important it is for them, in the performance of their present municipal job, to have information on 13 specific topics/issues related to climate change. Respondents were provided with a four-point scale (1 = “Not at all important”, 2 = “Slightly important”, 3 = “Moderately important”, and 4 = “Very important”) as well as the opportunity to indicate “Do not know.” For three of the topics provided, at least half of the respondents felt it was *very important* for them to receive information or training on that particular topic. Those three included: effects of sea-level rise on shoreline armoring (56.4%), sea-level rise predictions (50.9%) and effects on community infrastructure (50.9%). One respondent provided his/her own topic: The respondent indicated it was very important to receive information on “upland marginal habitat”.

Using the same scale that was provided for *informational* needs, respondents rated the importance of two specific *training* needs. Respondents rated the need for training on “recommended course(s) of action to adapt to the effects of sea-level rise” of higher importance than training on how to “develop and conduct a community vulnerability analysis.”

Resources for Obtaining Information about Climate Change

Municipal officials were given a list of 14 potential resources for information about climate change and an additional list of 7 scientific and technical resources for information. Respondents were asked to indicate how frequently they use each of these resources. Respondents were also provided an option to indicate they *did not have access* to a specific resource. The non-scientific resource respondents used most frequently was “newspapers” followed closely by “TV news”. As for scientific and technical information, respondents indicated they were most likely to use the “National Weather Service” or the “National Oceanic

and Atmospheric Administration” as sources of information. Respondents are much more likely to get information from non-technical sources than technical sources.

Mean scores were computed with “do not have access” and “do not use” collapsed into one category. Mean scores across both non-scientific and scientific sources ranged from 1.6 to 3.2 with higher scores denoting more frequent use. “Newspapers” were used most frequently (M = 3.2), while respondents used “University of Maine” (M = 1.6), “Cooperative Extension/Sea Grant” (M = 1.6) and “Private Consultants” (M = 1.6) least often.

After being asked to indicate the sources currently used to obtain information about climate change, respondents were asked to identify how they would **prefer** to receive such information. Given a list of eight specific training formats, respondents were asked to rate the likelihood of use on a four-point scale: 1 = “Would not use”, 2 = “Might use”, 3 = “Likely to use”, and 4 = “Would definitely use”. Of the eight choices supplied, respondents’ preference for receiving information was to have *printed materials mailed* to them. Over four-fifths (86.8%) indicated they were “likely to” or would “definitely” use printed material mailed to them. Conversely, the method least preferred was being provided with *customized training*. Nearly one-quarter (22.0%) indicated they “would not” use customized training.

Town Officials Survey Summary:

With an overall return rate of 23% for the public official survey, the rate varied greatly among the 11 towns. Of those responding, 80% were male, had at least a Bachelor’s degree (70%), and had been in their current job for less than six years (52.6%). One-fifth of the respondents indicated they were planning board members.

The information gathered from the public official survey falls within three separate categories: 1) respondents’ level of concern and responsibility regarding climate change, 2)

respondents' knowledge of the subject, and 3) resources used and needed to gain information. It was clear that the respondents were very concerned about the issue of climate change and its effects. Seventy-two percent of respondents indicated that climate change will require action from them in the next year or two. The majority of respondents (85.4%) felt that the *causes* of climate change are issues that need to be dealt with immediately. Additionally, nearly 90% of municipal officials indicated their municipalities need to prepare for the *effects* of changes in the earth's climate that are predicted to occur.

Not only were the public officials concerned about climate change and its effects, they also felt a responsibility to take action. Even though approximately half of the respondents indicated they already have a full load at work and can't add another activity, over four-fifths of respondents indicated they would be willing to take action in their work if they had compelling information about anticipated risks (83.6%) and if there was adequate funding (81.5%).

Municipal officials indicated there is a need for information and/or training surrounding the issues involved with climate change. More than 80% of all respondents indicated there is either a moderate or high need within the next two years for: information to better understand or predict the effects of climate change on coastal communities (88.8%); assistance with assessing the vulnerable of their own municipality (87.0%); planning assistance to adapt to the anticipated effects of climate change (81.5%); funding to assess vulnerability, develop adaptation plans or to implement adaptation measures (83.4%); and credible informational materials to provide to the public (90.5%). When asked to indicate the level of importance for gaining information or training surrounding specific topics, over half of the respondents indicated it was *very important* in the areas of: effects of sea-level rise on shoreline armoring (56.4%), sea-level rise predictions (50.9%) and effects on community infrastructure (50.9%).

Respondents were much more likely to receive information about climate change from non-scientific/technical sources than they were from scientific/technical ones. The most frequently used source of non-scientific/technical information for municipal officials was the newspaper followed closely by TV news. As for scientific/technical sources, respondents indicated they most frequently used the National Weather Service or the National Oceanic and Atmospheric Administration. When asked how they would prefer to receive information, the majority (86.8%) indicated they were “likely to” or would “definitely” use printed material mailed to them.

Section 3: Analysis of similarities and differences between Focus Group and Survey results

Focus Groups: CPO and Town Official Results

For the focus groups there was broad agreement between CPO's and town officials on the most significant challenges faced by Maine coastal communities with respect to sea level rise and the resultant erosion / damage. As noted in previous sections of this report, both groups talked extensively about damage due to erosion, mitigation strategies, issues related to property rights, and the need for better government action in response to coastal storms. There were some differences in their perceptions of the importance of human impact on the environment, the need to plan for the future, and the specific needs of the community versus the needs of the individual. In short, both groups expressed concern for most of the same issues, but their opinions about what the right solutions are differed substantially in three areas: government response (and non-action), property rights, and future planning.

Governmental response & Property rights:

For many CPO focus group participants, government agencies (particularly at the federal and state levels) were seen as barriers to protecting their properties. A number of participants talked about the restrictions on building protective structures like sea walls and rip rap along the shoreline. Others expressed frustration with the substantial setbacks required from the shore and wetland areas. Three CPO's remarked:

So your asking have we seen changes, well you've heard some here, we've all seen changes and some of it is warming, but I don't think we are causing it, that's my personal belief. History has shown climates have gone up and down over years. Rising of the sea levels and everything, yes we have seen that, but the objection here is that we cannot protect our properties. As this happens someone else is saying that you have to move away from your property. I think that should be a decision up to the property owner, when they're going to leave and when they're not going to be investing anymore of their emotional and physical resources to build it.

By the same token, it's [state regulations] the same thing that prevents them from uh, doing protections as far as the homes down on Seaside Avenue. Where the road was washed out and right is where those homes were taken out. The road was washed out in front of those homes and it is preventing them from taking any measures to protect their property. Which is the real issue at heart. I mean you and everybody else ought to have a right to protect your property. And in this case the state seems to be subverting that. I have a real issue with that.

Once again it just needs to be a system that works more proactively, and simple, it is much too complicated and part of it is politics because there is a movement, there is a large contingency of people who feel that they should retreat from the water and so they want to stop some of these permits, some of this proactive work that people are trying to do so that people will be devastated and will move back from the beach and I find a lot of it political, to have political views that people shouldn't be living near the water, so therefore, they slow everything down.

Consider the contrast of the statements above to ones made by town officials in the same community:

Those in the frontal dunes are the easiest to manage. You can only maintain them. You cannot add to them, you cannot tear down and rebuild. And slowly, slowly we had to move back and could not rebuild in the frontal dune areas. And I've had a lot of people come with their houses that they wanted to add on to them. You cannot add on to them. Those will be resolved.

I mean I would also say I know that you're being taxed out of your minds, but there is also a cost to the public to just allowing unmitigated development along the beach from and I don't know who's picking up the tab for all the Camp Ellis stuff, but whether it's the federal government or the city of Saco or somebody else, I mean somebody's picking it up, and its us.

One town official saw the perspective of the property owners:

...I think the public purpose of some of these regulations is valid, we'd like to think that there is science behind some of these regulations at least there should be, and if there isn't then somebody should sue the state and claim that it's a taking or something and I think that people have tried and they haven't succeeded so I think it's the confusing nature of them and the number of the agencies that are involved, there are local agencies there are state agencies, I mean anytime that somebody wants to do something on a dune on the coast, they are faced with just multiple permits, and I would never say that the purpose of those permits is not a good one because I think there probably is but there certainly could be made better coordinated and I think there is this frustration level down

there that sort of feeds into this sort of problem that a lot of coastal property owners have...

The concerns of some property owners that government officials would like to see them moved away from the shore may be at least partially true. Not all town officials agreed with the sentiment expressed in the last statement, but most did. Not all CPO's felt they should have more latitude from government to protect their properties, but the majority did. This issue represents the greatest difference in perspective between these two groups. For Sea Grant, this issue presents an especially difficult challenge because some (and perhaps many) property owners do not agree with state policies and regulations – which town officials are expected to enforce.

One final set of comments about property rights illustrates the crux of this issue from two perspectives. The first quote from a property owner wanting to use whatever methods possible to protect his property, and the second (a non-CPO) seeing these strategies as harmful to others rights and futile in the long run:

As a beach front property owner I mean I have been there for over 30 years and I've seen the ocean rising, so I mean we are losing our privacy, but we chose to live there so we have to accept it, but I also realize that in 100 years from now my property will probably be under water and I accept the fact that I won't be here, my children might not be able to appreciate it either, but what myself and a lot of my neighbors say [is] look let us at least try to protect our property during our lifetime rather than jumping through all these loops to try and get something done and I think a lot of us feel that way, give us a chance to protect our property during our lifetime recognizing the fact that 100 years from now it won't be there.

I hear what you're saying, and I have a great deal of sympathy for that but as you armor your properties you impact the properties that are not armored and they wash away and when they wash away then your property is that much more in danger of being impacted by the next storm, I agree you should be able to protect, many of the folks down on Drakes Island rebuilt their walls and put rocks in front of the walls to hold the walls up and as the water and the weight of those rocks are put there you keep washing away the marsh areas that are not impacted towards the whole river and so forth. You can't win in this game you really can't, you'd be better off asking the state to recess or figure out how

to put an assessment so that some of that money goes back into trying to re-nourish the beach or something its almost like a tax so that that money goes back into re nourishing and enhancing the property instead of to the towns.

Future Planning:

A related issue was future planning – a topic town officials discussed at length, but CPO’s only talked about in an indirect way (as it would impact their property rights). Future planning includes planning for the future needs of communities like zoning, infrastructure replacement and planning, evacuation and emergency services. One town official brought up a past development to demonstrate the need for more thoughtful development planning with respect to rising sea level.

We were doing major study of a 200-acre basin, and that actually was created because a railroad was allowed to build along the shoreline through Old Orchard, and has cut off a lot of the outlets to the ocean. And over a period of years, you can look at the area maps and see that the wetland area has greatly increased due to restrictions from two small of outlets in Scarborough outlets being blocked off by the railroad. And by the rising waters, the water table is now coming out under houses. So houses that really shouldn’t have been built in the last 20 years have been allowed. [We] [h]ad to pump under the basements on a seasonal basis when the water table came up. And now they find that it’s year round pumping. We hired ____ to do a \$90,000 study of the 200 acre basin and to try to discern what could be done, if they could go in and replace a gate that was no longer there controlling the inflow of the outflow, but the amount of freshwater that’s coming off of the hillside into the basin, and the amount of water that can come in through the force of the tide into these small inlets, but it can’t through gravity go out as quickly and over the time it becomes extremely wet. And we looked at 6.2 million dollars to jut re-locate the houses. We can’t do that. So and they’re looking at permanent pumping system...

Another official talked about the need to examine roadways and the sewers beneath in response to erosion in another community:

There’s local service infrastructure, like what it takes just to serve these houses that are out of the flood plain. In York, we’ve got Long Sands Beach and the main sewer line that feeds the entire town runs along Long Sands Beach. If that goes in a storm, we’ve got no choice. We got the put the pipe up or it’s going to be gross. There’s a road back in here, Ridge Road, that’s out of the flood plain and we need to move, probably the

major transportation route and the major sewer connector and probably whatever else is there, back away from the ocean. So if this [road along long sands] breaches, we can keep pieces of it to keep the access, but it doesn't have to be a thoroughfare anymore. So I think that we can look at it from a point of view, if you can shift some of the function away from it, and still maintain access for the property owners to protect the property rights, maybe leave the breaches in it, so you've got some service roads in it to alleviate some of the pressure.

A third official commented on the need to plan for the future, but having to deal with competing interests:

I'm _____, town manager in _____. I think we're always dealing with the struggle between trying to be close to the ocean and the ocean is changing. There's the erosion, the loss of the beach, the loss of the dunes as the water and the sea level increases, it tends to increase more inland, and at the same time, people who own property, ocean front, or ocean influenced property is extremely valuable, so it represents a considerable investment. Maybe not at the time they bought the property, but it represents an investment that they have at present. So there's the pull and tug to try to do things that are counter to natural forces to try to stop that water from rising and then it gets into sea walls are doing riprap along the shore line to stop it from eroding, which then can have some detrimental effects in different ways. But the public expects that the town government to do what it can and to try to protect the property or once the property has been damaged or has been made to put at risk that things are done to try to minimize that risk. To try to either bring that property back or from keeping it from happening again and even though, I know _____ has spoken already, he talked about some of the erosion at Higgins Beach. That was before I went to _____ where there were some buildings and properties that disappears. We have four beaches in town. Each one is unique and different, and each one experiences the rise and fall of the sea in a different way. But it still appears over time water is going to continue to encroach on houses that are close to the water and they are going to suffer damage or they are going to have problems and right now... we did not experience any major problems as a result of the Patriot's Day storm other than some minor erosion and some flooding, some street flooding. But it's only a matter of time before something else happens. We're doing a drainage project, it gets complicated because it's hard sometimes to create a storm water drainage to work when it has to empty out into the river or into the ocean and you have rising sea level or rising water, that then water backs up into the storm drainage system and it just seems like we're constantly trying to balance things out and at the same time we're not looking to face really the future of what is really going to happen in ten or fifteen years and what we should do today knowing that is going to happen. There's really this bizarre kind of not think about the future, only live in the moment and try to preserve what we can that exists today.

Contrast this with the CPO statement (also shown above):

As a beach front property owner I mean I have been there for over 30 years and I've seen the ocean rising, so I mean we are losing our privacy but we chose to live there so we have to accept it, but I also realize that in 100 years from now my property will probably be under water and I except the fact that I wont be here, my children might not be able to appreciate it either but what myself and a lot of my neighbors say look let us at least try to protect our property during our lifetime rather than jumping through all these loops to try and get something done and I think a lot of us feel that way, give us a chance to protect our property during our lifetime recognizing the fact that 100 years from now it wont be there.

The need to conduct future planning that anticipates changes over the short term (10-15 years) is complicated by issues property owners (such as the one above) have raised over their rights as landowners. Longer term planning is even more of a tough sell as described by this town manager:

As we look at cause of sea level rising. We often see coastal erosion property damage, injured parties, we forget and we don't look at the future of these things. I'm not going to offer and say I have a solution to those, but what I have been doing, is looking at issues around sustainability and what have we done in regard to the political arena to influence people's thinking about what it takes to live on our planet. And that's a far bigger issue than what we're dealing with the loss of property and flooding, although it may be absolutely critical for individuals for society it's a far bigger issue. Not just this society, although we certainly have a huge impact on the planet. But what we do in this country of course affects the coastal zone all over the world. And we don't get it. We hear about your problem but we don't get what's happening in other parts of the world. Places where folks live right at sea level, one inch above sea level. And that climate is critical. So one of the things that we've done and I've been involved in, is a major effort to try and educate folks and think about sustainability and what it takes to reduce our carbon footprint, what it takes to think about the mineral resources that we have and how we use them. And one of those that we're dealing with in _____ of course is water. We're dealing with water in a big way and I think Mr. _____'s been the first planner in town and having a first planning board that's been amenable to looking at water in a comprehensive way and what happens to the water shed and how we think about water and water sheds. And we haven't gone quite far enough with that I'm still thinking sub-surface water is really critical. And we're dealing with surface waters. But of course water is water, it's everywhere. So one of the things I hope comes out of this issue will be a sense of the big picture and how we then act as a culture to address that rather than simply think of it as a shoreline issue.

(Note: this comment is surrounded in the transcript by several other important points about future planning the reader may be interested in reviewing.)

Focus group and survey data: Analysis of similarities and differences

Coastal Property Owners

The preceding portions of this report show the patterns of responses for both focus group participants and survey respondents. In general, these results show a high level of agreement between respondents from each methodology.

The demographic representation of CPO's in the focus groups was consistent with that of the CPO survey. Both had similar representation of men and women, and both groups were made up predominantly of persons over the age of 50. The majority of respondents in both groups had lived on (or planned to live on) their property for 20 years or more. In other words, neither group seemed to have purchased their property for the purpose of a short-term investment. In the case of the focus groups, detailed demographic information such as income and level of education was not directly collected for privacy reasons, so a direct comparison between these groups on these characteristics is not possible.

When asked to comment on the importance of climate change and sea level rise, the majority of respondents on both the survey and in the focus groups indicated it was an important topic, however; most participants in the focus groups and respondents of the survey did not feel they had substantial knowledge of the topic. Both groups indicated it was important for state and federal agencies as well as individuals to take action on these issues to prepare for the future.

One significant point of *disagreement* between survey respondents as a whole and focus group members was on the degree of impact different erosional forces was having. Participants in the focus groups were very concerned about the damage they saw as a result of higher tides, stronger storm surges, and other erosion occurring on their properties. Survey respondents indicated a much lower level of concern. This is likely due to the fact that only a third of survey

responses came from individuals who were on the water, and of these, only 25% (approximately 8% of the total sample) had beachfront property – the most susceptible to these destructive forces.

Another point of agreement between survey respondents and focus group participants is on the types of corrective actions they would be willing to take to combat coastal erosion and future property damage. Both groups generally supported the idea of restoring vegetation, and natural dunes, but were generally unwilling to move structures or relocate to another location to address these issues. Both groups also cited cost and feasibility as the major barriers to implementing these strategies. Focus group participants elaborated in several cases to describe the governmental hurdles involved with engineering solutions to these problems.

Participants were asked to comment on how they evaluated the risks inherent in a coastal property. While the majority of focus group and survey respondents did evaluate risks, it is important to note that many of these individuals have owned their properties for a significant length of time. For those few owners in the focus groups and on the survey who had owned their property for three years or less, all of them had considered the risks involved with owning shorefront property. The extremely small number of respondents to this question limits the usefulness of this finding. Finally, both groups of respondents were also similarly inclined to rebuild their properties if seriously damaged in a storm.

Focus group respondents also focused on two areas not addressed by the survey – property rights and communication with town, state, and federal officials. Most CPO's had positive comments about their town officials, but generally negative comments about state and federal officials in charge of permitting, disaster response, and land use regulation. Tied to this

was a serious discussion of property rights and a general consensus that as CPO's they were subjected to many infringements on their property rights not common to inland property owners.

When asked to comment on what sources of information they were most likely to use, both survey and focus group respondents preferred non-technical printed resources such as the newspaper. A significant number also relied on the television and the internet as sources of information, however; focus group participants commented that it was difficult to determine the authenticity and objectiveness of these sources. Both groups consistently ranked colleges and universities as the most trusted sources of information. While property owners groups were ranked among the most important sources of information for focus group members, this was not true for survey respondents – this may again reflect the differing patterns of property ownership between survey respondents and focus group participants.

Public / Town Officials

The demographic makeup of town officials was similar for both focus group and survey participants. In general, these individuals were white, male, and over the age of 40. The representation of towns for both groups was similar, however; the survey had significantly differing response rates among the several towns represented. Similarly, the focus groups had a varying membership from the towns represented in this project.

When asked to comment about their personal knowledge of sea level rise and climate change, survey respondents indicated similar levels of knowledge as participants of the focus groups. Additionally, both groups saw climate change, sea level rise, and coastal erosion as significant issues demanding action on the part of local, state, and federal governments. In addition, both groups of respondents saw themselves as being responsible to take action, but neither group felt they had the resources or knowledge to apply this information to their jobs.

When asked to identify what areas they needed the most assistance with, both groups of public officials indicated a significant need for more educational materials, specific information about disaster and growth planning, and information about how sea level rise and climate change might impact their communities.

Town officials from both groups indicated all potential impacts of climate change (sea level rise, storm surges, etc.) to be significant challenges to coastal communities during the next decade. This sentiment is in keeping with that of CPO's participating in the focus group, but not with the overall ratings of CPO survey respondents. This further suggests a difference in the perceived impact of these problems by individuals who do not directly deal with coastal erosion.

When asked to comment on what sources of information they most often used, public officials in both the focus groups and on the survey most commonly used newspapers and television for their information. While public officials were more likely to use other sources of information such as technical journals, government documents, and agency websites they still relied heavily on the non-technical information described above. When asked what method of communication they preferred (and would use), both groups indicated they would like to have information mailed directly to them.

These points of agreement are many, and the points of disagreement are difficult to interpret with certainty due to the differences in representation of shoreline versus non-shoreline property owners in survey respondents. Both survey and focus group respondents had strong feeling about the importance of climate change, and each group indicated it was important for state and federal agencies to address these issues. Both groups also identified state and federal agencies as being among those they trusted the *least*, while universities were ranked among those sources of information they trusted the most. The majority of respondents, both property owners and town officials tended to get their information from non-technical sources.

In sum, all respondents to the focus groups and the survey were in general agreement about the importance of climate change and the need for all levels of government to take immediate action. The conclusions and recommendations put forward in the earlier focus group and survey reports are further strengthened by these synthesized results. Sea Grant officials should carefully review the findings of these detailed evaluation reports when considering any future planning activities.