

Sea Grant Project
September, October, & November Focus Groups

Final Report

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A note about this report:

This report is divided into several sections. The first sections (Introduction & Purpose through Analysis Design describe the genesis of this evaluation project as well as the rationale applied in the design and analysis for these data. The next two sections, overview of Coastal Property Owners (CPO's) focus groups & overview of town officials mixed focus groups, serve to frame the discussions with participants and to provide the reader with the contextual framework of these sessions. The final portions of the report (Analysis of Focus Group Data, Conclusions, and Recommendations) attempt to categorize participants' responses and offer a list issues for the Sea Grant to consider for future program materials. In addition to the recommendations in this report, Sea Grant personnel should carefully review the full transcripts – as they have the expertise and content knowledge to understand the significance of many comments.

Introduction & Purpose:

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 each 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

Design of focus group sessions and questions: Issues and considerations

This process was divided into three sections: 1) selection of appropriate sample 2) adoption of qualitative interview strategy and 3) selection of appropriate questions and prompts.

Sample selection:

The potential sample for the focus groups included coastal property owners from Elliot to Eastport, far too broad a group to practically sample from. Instead, Sea Grant personnel identified three communities that best represented their target audience. Two of the communities were from the southern coast of Maine and had substantial beach frontage along their coastline. The third community was from mid-coast Maine and had a history of substantial erosion. Once identified, Sea Grant personnel contacted town officials in these communities and requested their assistance in this project. All towns agreed to participate in the participant selection process, and several community leaders agreed to take part in the focus group sessions.

Town officials identified community members who owned coastal property and gave these names to Sea Grant personnel. Sea Grant contacted these individuals, and those who agreed were invited to participate. As a result of this process, there may be significant limitations in the ability of this group to represent all coastal property owners in Maine. Despite these issues, the information gleaned from these sessions may be very valuable, especially if the large scale survey results support the conclusions from these focus groups.

Adoption of qualitative strategies:

For this project, methodology was the first consideration. In practical terms, while individual interviews might have led to deeper understandings of the contextual circumstances of an individual stakeholder, they were not possible due to time and financial constraints. The focus group method emerged as the only viable way to collect extended narrative data from a broad range of constituents about participants' perceptions of sea level rise and climate change, and the resultant impacts on property and safety.

The focus group method also has significant benefits, including the ability to gather information about a program, evaluation, and for better understanding feelings and perceptions of participants. (Parker & Tritter, 2006) This methodology also has the appeal of being more cost effective than one on one interviews. There are special characteristics of the focus group that make it different than the interview including the opportunity to capture group dynamics, participant interactions, and participant generated discussions. (Berg, 2001) Unfortunately, these same opportunities present significant challenges.

The focus group is a collection of individuals with some common interest, experience or purpose. The questions are usually posed by a moderator, who may be more or less directive in the way they conduct the session. In a more directive session, the moderator asks each question which is in turn answered by the participants. This method, referred to as a *group interview*, differs from a “true” focus group session (Quible, 1998; Berg, 2001; Parker & Tritter, 2006).

Designing an approach and protocol:

The focus group approach and protocol were designed to address issues identified by Sea Grant personnel and CRE staff. These issues included:

- threats from sea level rise
- mitigation and protection techniques for structures
- erosion mitigation techniques for coastal landforms
- attitudes towards government’s role in regulating coastal construction
- personal behaviors related to erosion control
- attitudes towards differing mediums of information
- experience with damage caused by coastal storms

The protocol (see [Appendix A](#)) for the focus groups was divided into four sections: 1) background and participant information 2) experiences with coastal erosion / damage 3) attitudes towards governmental regulations and agencies 4) attitudes and beliefs about the appropriate future planning for coastal areas.

The moderator protocol provided sufficient structure to keep the conversation on topic, but was also designed to allow for some flexibility in the patterns responses. This approach reflects the suggestions by qualitative education research textbook authors (e.g. Berg (2001)) as well as marketing analysts (e.g. Quible (1998)) to keep the conversation on track without stifling it. Despite the considerable flexibility built into the protocols

designed for the Sea Grant project, the actual sessions were not nearly as linear or logical in flow as the intended order!

Analysis design:

Many of the codes for analysis of the focus group data were determined in part long before switching the tape recorder to the “on” position. The goals of the Sea Grant program, demanded a number of topics be coded for relevance in the transcript data. The most significant of these were participants’ attitudes towards:

1. sea level rise
2. policies impacting coastal construction
3. educational materials
4. personal experiences with coastal erosion, sea level rise, and storm damage

Since the initial analysis of the transcripts (as well as the planned structure of the focus groups themselves) focused on these elements, it is not surprising that a significant amount number of passages were coded to these topics – or nodes as they are referred to in NVIVO, a text analysis software tool. The results for this initial analysis are included in later sections. The themes that emerged during the analysis (and re-analysis) of the data, were even more interesting. During these sessions, participants talked about much more than the Sea Grant’s planned discussion. They talked about barriers to communication, the need for a single clearinghouse for information for property owners and town officials, the desire to take care of their properties and their communities, as well as several other unanticipated issues. As a result, the researcher initially identified over 20 emergent themes. Many of these themes had overlap, by topic and subject. For example, “property rights” emerged as an important theme, however; this overlapped with “communication”, “future planning”, “regulations”, and “rebuilding.” There are many such cases of thematic overlap in codes, and in the data. Rather than attempt to

code passages into an exclusive theme (such as property rights) passages could be coded as belonging to several themes simultaneously. This is the reason that the coding across all themes often exceeds 100% of the transcripts.

After identifying major themes, the passages were re-coded at least 5 times to search for text belonging to codes not identified on a previous reading. Also, as the researcher developed a more complete understanding of the transcripts as a whole. Through repeated readings, sections were sometimes recoded from one node to another. Ideally, these passages should have been coded by a second researcher and coded using the final list of codes (with an accompanying explanation of the meaning for each code.) This step was not possible for this project due to budget and time constraints. Because the end application of these analyses will be primarily for the improvement of the educational materials used by the Sea Grant project, this limitation is acceptable. A single reader would provide insufficient reliability and validity for research purposes.

Participant Background: CPO Sessions:

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.

CPO focus groups 1, 2, & 3: Overview

Using the protocol described above, the moderator began the session asking participants for introductions, then began to query the participants for reactions to specific issues. In their introductions, members described their properties, the type of structures that were on it, how long they had lived there and what kinds of changes they had experienced on their properties – specifically damage caused by storms. The moderator asked for this specific set of information to ascertain what kinds of probes and follow up questions might be most appropriate.

Across the first set of meetings, property owners focused on six major themes:

- 1) **Attitudes** towards sea-level rise and climate change
- 2) **Personal behaviors** of property owners including: shoreline protection strategies, construction siting, vegetation control / management, and construction methods.
- 3) **Changes** to the shoreline over time, including significant erosion
- 4) **Communication** with DEP, Army Corps of Engineers, Maine Geologic Survey, local officials, and the Federal Emergency Management Agency
- 5) **Private property rights** and the limits of those rights
- 6) **Educational preferences** of property owners including the type of information they liked to receive, where they preferred to get this information, and which sources of information they trusted most

Sea Level Rise and Climate Change:

In general, participants 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.

Personal Behaviors of Property Owners:

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:

- Placing rip rap following the Patriot's day storm. This suggestion was followed by the comment: "you have to get the really big boulders. Those are the ones that work."
- Owner had cut large tree trunks and embedded them in the bank to control erosion (this was eventually washed away in a large storm, but the owner felt the measure was "successful" until this large weather event.)
- Owner had planted beach grass following the Patriot's day storm. This was successful, however; when this owner then tried to add sand to the beach a few months later, the application was denied by the DEP because it would cover the beach grass the owner had just planted.
- Owner had done a major reconstruction on the embankment of his property. This included the placement of rip rap, reinforcing soils, interlocking blocks, landscaping fabrics, trenches, and other strategies.
- Owner had sand trucked in to replenish front dune
- Owner had built seawall, or had increased height of seawall
- Owner had extensively trenched and drained embankment
- Owner had planted trees along embankment
- Owner had allowed lawn to revert to wild growth
- Owner had diverted upland runoff to minimize erosion from major rainfalls

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

Other changes to shoreline / structures reported by participants that *other owners* engaged in:

- Filling in shoreline erosion using fill from construction excavation
- Cutting trees that blocked view of water. When that owner was informed by the DEP that they would be billed 50\$ for each tree, they made arrangements to have the remainder of the trees cut down and paid the fine.
- Cutting embankment to permit walkways and stairways

Changes to the shoreline & tides

- Several owners noted rocks that were previously visible at high tide were not 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

Communication between CPO's and Public Agencies / Government:

This issue was discussed for longer and in more detail than any of the other concerns addressed in these focus groups. 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 a 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 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

Another area of significant discussion was personal property rights. Members of these groups felt almost universally that their rights as property owners were being usurped by the state and federal government. 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. Below are several of the issues shared by members of these groups:

- One owner reported the taking of a neighbor's property by the town when the land was eroded to the point that a structure was no longer viable on that lot. This person attempted to seek compensation from the town for the taking of that property, and was only paid 10,000 for the lot several years later.
- Another owner commented "75% of the taxes in the town of Wells are collected east of Route 1. That's less than a quarter of the land area in the town, and when you consider most of it is protected salt marsh, it's less than 10% of the land."
- One owner said: "First off, I don't think they are obligated to buy out anybody, nor to contribute to anybody's repair of private property. But the other part of it, if a state or federal program, structure, or regulation or rule, hinders or contributes to the destruction of your private property then they should reimburse you for that, or if your house goes out to sea and they didn't allow you to protect it then they should be liable for the market value of that house."

Educational Preferences:

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 queried further, several participants felt Joe Kelly had an “agenda” and that his conclusions were not entirely unbiased. Others mentioned the DEP, MGS, and Army Corps 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 um speakers that they had come in.”

In sum, participants did not have a single favored source of information, and they did not universally trust the information provided by local, state or federal agencies.

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 to do 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 builder 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 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

Town officials and other members of these sessions were far more focused on the pragmatic, problem-based issues than were the CPO groups. In the next section, this difference in perspective, as well as several others will be discussed.

DRAFT

Analysis of results: planned and emergent themes – threats to validity

Following the transcription and initial review of transcripts, the researcher entered the focus group data into NVIVO, a text analysis software application. This computer program allows the user to import a number of text documents and then “code” them according to user-defined themes. Each section of text is flagged by the researcher and assigned one or more codes. For Sea Grant, the protocol helped provide a number of the preliminary codes for analysis. In addition to these planned categories of information, many other “emergent” themes were identified in the data. Emergent themes are those important, but unanticipated elements of a conversation that “emerge” upon repeated analysis of the data. One concern about emergent themes lies with the ability of the researcher to “discover” information in the data. For example, if the researcher has pre-existing beliefs about the attitudes of coastal property owners to climate change, that researcher may “see” additional meaning in comments about this topic that another individual would not identify in the data. As a result, emergent themes should be carefully reviewed to ensure they are genuinely reflected in the statements of the participants. Qualitative researchers must also address these threats to validity by providing information about any beliefs or assertions they may have about the data – or people – they are working with.

In this case, the researcher directing this project was purposely brought in because he was from outside Sea Grant. He had no pre-existing relationships with any of the participants, and vested interest in the outcome of the conversation. While he states he has no assumptions about these participants’ attitudes and beliefs, the reader must decide if the words of the participants reflect his conclusions.

To this end, programs like NVIVO are especially useful because they allow the user to examine of all sections of the primary document (transcripts in this case) that are coded on a particular subject (node). Using this “coding report” a reviewer may examine the data for her or himself to determine the veracity of the researcher’s findings. For Sea Grant, the researcher identified a total of 20 themes (or codes) to describe the data. These 20 themes were then combined into eight major themes: *damage, strategies, government/agencies, property rights, human impact, needs, planning for the future, and information sources*. These themes differ somewhat from the themes discussed in the review of CPO and town official transcripts in sections above. Those sections serve as an overview to the focus group sessions, while the analyses attempted to consolidate more universal themes across all six sessions.

The major themes reflect the combination of several related minor themes. For example, the theme *damage* incorporates all participants’ comments related to: *storm damage, storm surges, erosion, and sea level*. A complete list of major and minor theme appears in table 1 (below).

Table 1: Major and minor themes

Major theme	Minor theme(s)
Damage	Storm damage, storm surges, erosion, sea level, economic impact
Strategies	Mitigation strategies, rebuilding
Government / Agency	Town government, state government, regulations, nonaction
Property ownership	Property rights, understand risks and consequences
Impact	Climate change, human activity
Needs	Stakeholder issues, needs
Future planning	Planning for the future
Information sources	Information sources

Note: The numbers in Table 2 (below) represent the total amount of references and text coded for a given theme. For example, *advice to Sea Grant* had six different portions of text in the town officials 1 focus group, and represented approximately 5% of the total text for that group. Because there are different amounts of text in each session, these percentages do not exactly reflect the total amount of comments for any given theme. For example, the 5% coverage in the town officials 1 group represents 5% of 16,819 words – or about 840 words. For comparison, erosion was 7.89% of the town officials 3 discussion. The total length of that transcript was 8,730 words, therefore erosion was discussed for approximately 688 words. As a result, the percentages as reported across groups is not a precise measure, but instead shows differences in the relative importance of the individual themes for different stakeholders.

Table 2: Major and minor themes – percent of documents coded by session:

Nodes	Town Officials 1		Town Officials 2		Town Officials 3		CPO 1		CPO 2		CPO 3	
	References	Coverage	References	Coverage	References	Coverage	References	Coverage	References	Coverage	References	Coverage
Advice to Sea Grant	6	5.04	1	15.64								
climate change			2	1.94	8	13.93	5	5.5	2	0.97	7	4.95
Economic Impact	1	0.93	4	5.47			1	0.78				
Erosion	8	11.1	11	11.55	4	7.89	6	7.26	9	9.7	21	21.35
Human Activity			2	3.91	4	5.7	2	4.9	3	4.43	3	1.87
Information Sources	6	4.51	5	5.5	4	12.94	2	8.49	12	12.2	13	4.76
Mitigation Strategies	23	23.58	7	14.48	5	7.18	10	9.56	9	16.18	12	16.32
Needs			3	5.44								
Non-Action	1	1.24	4	5.77	1	2.11	4	7.15	10	12.79	4	2.34
Planning for Future			22	62.77	19	31.12						
Property rights	19	18.69	14	24.89	2	4.68	10	20.16	8	12.94		
Rebuilding	1	0.73	3	3.44			6	10.86	2	2.24	1	5.22
Regulations	13	13.29	2	4.63	4	6.01	4	6.83	12	15.68	7	5.34
Sea level	3	2.01	3	4.27	2	3.1	1	1.07	1	0.3	1	0.56
Stakeholder Issues			3	6.24	1	1.21						
State Govt.	1	0.93	1	0.89					5	5.22	2	1.71
Storm Surges	2	3.77					3	1.8	1	0.12		
Storm Damage	8	9.18	6	5.51	1	1.98	6	7.7	1	1.63	1	0.8
Town Govt.	1	0.77	13	22.24	1	1.21	1	3.87	1	1.29	4	3.17
Understand Risk Consequences	7	6.07	8	15.49	1	1.34	6	6.83	4	5.63	3	4.21

Note: Table 3 shows the differences in relative importance of themes across groups. These differences were calculated by summing the total percent of documents coded from table 2 (above) and comparing the amount of coding for CPO's and Town officials. The same caveat applies to the numbers reported in this table – that is, they are a rough estimate of time spent.

Table 3: Major themes: differences by group membership

Major Theme	All groups	CPO	Town Off	Difference	Group spending more time
Damage	112.65	52.29	60.36	-8.07	Town Officials
Strategies	109.79	60.38	49.41	10.97	CPO's
Govt. / Agencies	124.48	65.39	59.09	6.3	CPO's
Understand Risk	120.93	49.77	71.16	-21.39	Town Officials
Human Impact	48.1	22.62	25.48	-2.86	Town Officials
Needs	12.89	0	12.89	-12.89	Town Officials
Future Planning	93.89	0	93.89	-93.89	Town Officials
Information Sources	48.4	25.45	22.95	2.5	CPO's

While the two groups discussed many of the same issues, there were some clear differences in perspectives. Although there were differences in the amount of time spent by each group, these differences do not help to explain the shared (as well as the unique) perspectives of these stakeholders on important issues. Also, these differences do not indicate the quality of the comments offered by participants. Sea Grant personnel may want to reflect on the differences in time spent by CPO's and town officials and explore further analyses of these results, but carefully reading the transcripts of each group will likely yield a more accurate understanding of the whole picture.

Analysis of results: Similarities and differences between CPO and town official 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 seen in the 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 respondents, 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 is 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. [Reference](#)

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. [Reference](#)

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 it's us. [Reference](#)

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... [Reference](#)

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 hoops 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. ([Reference](#))

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 just 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 to 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. ([Reference](#))

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. ([Reference](#))

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

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.

Appendix A: Moderator's protocol focus groups

Outline for focus groups:

Coastal Property Owners / Town Officials:

Facilitator opening:

Statement of meeting purpose: (something similar to the following:)

“We are meeting together today to help the people at the Maine Sea Grant Program better understand how coastal property owners feel about issues of climate change, sea level rise and coastal erosion. They are also interested in learning about your ideas for addressing these challenges.”

Informing of tape recording:

“I’ll be tape recording our conversation today so that I will be accurate when I relay our conversation to the Maine Sea Grant people. I will never identify you by name (unless you request me to) and the tapes will be destroyed once the project is complete. Also, before I show this to anyone else, I’ll be sending you your sections of the transcript once I’ve completed them if you want me to. That way, you will be able to tell me about any corrections, changes or deletions you want made to your contributions.”

Ice Breaker / Introduction:

“Before we go any further, I’m interested to know a little bit about each of you. Tell us where you are from and what kind of coastal property you own.” [prompt them as to types if needed]

Participants take turns discussing their properties...

Identifying Impacts

“Tell me about times that flooding and / or erosion have impacted you or your neighbors”

-- *Participants respond*

Describe the types of physical changes you’ve seen along your section of the of waterfront.

“Did any of those events surprise you? If so, how?”

So you have told me about some events, what do you think are the causes for these issues?

Identifying Behaviors in Response to Those Issues

“So when these events [will be listed by example for each of the participants] happened, how did you [or your neighbors] handle it?

Do you think this is going to get better or worse? Why?

“What other actions have you or your neighbors taken?”

Did some of you (your neighbors) employ different building methods when you (they) repaired the damage? What do you think will be the effect of these changes?

What do people understand to be their risk? Are the improvements going to help you withstand a future storm? How do you know that?

Who do you think is responsible for their property when it's gone?
What information supports your opinions on this?

Insert Photo Sequence 1 of houses before/after damage/after rebuilding/after repeated damage

Tell me what you think about these photo sequences?

What should happen in this case? (Should they rebuild, or not?) Is there anything that they might do differently?

Who should pay for these changes / reconstruction?

What is the fairness of the current law that requires you to remove any part of a property that is touched by high tide for 6 or more months of the year?

What should be the exceptions for rebuilding structures that are damaged 50% or more?

Participant Knowledge and Information Preferences:

“How do you receive your information on climate change now?” (e.g. newspaper, television, Internet, etc.)

“What specific sources do you trust the most? The least?” WHY?

“Where do you wish you could get your information? What would make that better than the information you get now?”

“What format would make the information the most effective for you?”

“If you have a specific question about climate change, sea level rise and coastal erosion, and how it impacts your property, who would you contact?”

Insert Photo Sequence 2 showing the high tide mark along specific sections of the Maine coast (in target community) using specific sea-level rise estimates:

If this happens, what should your community do?

If this were you property (perhaps it will be) that will be inundated, what should be done?
What can be done?

Follow up sequence:

If you knew there was going to be events in the next 30 years that would significantly damage your waterfront property what would you do starting today?

If you knew there would be a storm that would significantly damage your property in the next 30 years...what would you do now to make your property safer?

What about 20 years, 10 years, 5 years?

What is the property owners responsibility for making their property and community more resilient to coastal erosion, flooding and climate change:

What should the Federal government do to protect coastal property?

The State government?

Local Government?

You?

Afterwards:

- Solicit participants to offer names for advisory boards
- Record questions and concerns from participants

DRAFT

Appendix B: Edited minutes from CPO focus groups:

CPO focus group 1:

B: Okay you've all introduced yourselves once, but in order for me to remember who you are, and also for me to know where you are and what kind of a place you've got, and I don't mean what kind of house you live in I'm not interested in how many square feet, but you know does your house sit down really low and close, is it up on a coastal bluff, do you have commercial property, do you own a restaurant I mean those kinds of things. So I'm interested in just kind of going right around the table so that I've got a little bit of an idea of who's from exactly where and what kind of place you've got and I don't know, G: would you start.

G:: Sure I have a house and its very close to the shore, its an open stretch of the ocean so that I can see up and down the coast quite some distance,

B: And about how far back does your place uh...

G: Are you talking about the house itself?

B: Yeah like the dwellings and so forth.

G: Well the better one to answer that is no longer here and uh he was an architect so its I don't know, I did know the elevation, I can't tell you that exactly. We had done quite a bit of work in the year 2000. The original part of the house was built in 1974 and then we added on to it and winterized it and made it year round house, in 2000.

B: Thank you.

G: My house was built in 1937, we moved in 1938. It's on the ocean, it's not a very high rise, it's on the edge of Lobster Cove and it's a story and a half cape. It's built on cement pillars, and it's a year round house.

B: Do you know about how far it sits back?

G: I would say probably 75 feet from the high tide marking, but its not like we are right there, it's not huge for us.

B: I see, so it's down pretty close to the sea level right now?

G: Yes.

G: Um, _____ and I live on a piece of property in _____ Point that was given to us by his parents who live next door and the property has been in the family for many generations and I will defer to him to tell you

G: Okay I'm _____, um I think I can tell you about the properties -- together they are approximately 700 ft of shore front property, which some of it is on the _____ River and some of it on my folks wraps around to Spruce Creek area and it's really very diverse. We live on a kind of a block that's about 30ft high, and my folks live down lower in a more sandy area and as it wraps around _____ Creek it is suffering quite a lot of erosion in that area. So our house is relatively new and my parent's house is back in the late 1600's early 1700's.

B: Wow, well thank you.

G: And both the houses are quite close to the water, like 50 ft.

B: Okay, I have a feeling we'll be coming back to you.

G: I'm a little further up _____ Creek, and my house sits on a pretty steep property and I'm about 150 ft up from the waters edge at the main side. I also happened to have the old train tussled bed, comes jutting out of my property, so

it's like a false rocky pier, with old jumbling down train trestles. Sorry if I hit anyone's boat on the way out, but it's not my problem ha-ha. So it's pretty much just a rock ledge with a bare scratch of grass on it.

B: Do you know what your elevation is, where your buildings are?

G: I would say, it's got to be at least 30-35 ft up to the base of the foundation, which is really just a ledge there is no basement. It's pretty high up.

G: I'm _____, and I live in _____, I live in _____ Cove and we have about 100 ft on the water, were up quite high, I'm very happy for that ha-ha, we're probably 80 ft from the waters edge, but the water doesn't usually get that high except on Patriots day this year, and I have another piece of property that I'm going to be building on and selling that's also in _____ and that's also 100 ft on the water, which sets really low compared to me, and this particular house, the house that's there right now was put on posts but I'm going to be putting a foundation in with drains and all of that and that's about it, and that's probably about 40ft not even that, 30ft from the waters edge.

B: 30 ft from the waters edge, where that house is?

G: Yes, at the highest point ever you know high tide.

B: Right and like its elevation, do you know like how many feet vertically above sea level it is?

G: Um, I think its 100 ft from the high water mark, does that help you?

B: Yup, alright good, thanks.

G: _____ from _____. I have a small cottage, I actually live on _____ so there is a small street between me and the sea wall and the ocean, and at the back of the house about 100ft behind me is the salt water marsh nestled in between the two. There is a sea wall on the other side of the road and I put up a sea wall in front of my house to help protect it.

B: Well that's good, this is giving me just a little picture of the kinds of places that you guys have, and each other a picture of your places too if you don't know already.

G: Um I work for a company that owns several ocean or beach front properties. One of them is at _____, which is where I'm based most of the time. _____ is built on granite rock, and then off to the side either of the dunes start because the land slopes down and you can tell where the granite ends. Um most of our ocean front buildings are 25-30 ft above the beach because they are built on a significant sea wall.

G: And we also own a hotel that's on _____ beach, the _____ Resort, which it sits on the foundation that is probably only 12-15 ft above the beach, not really a sea wall there, its more of a foundation that acts as a sea wall because of the way its built but it's more of a steel reinforcement.

B: Now does that building come right in contact with the water?

G: It can during a storm. All of our properties can.

B: Well I guess so, were going to come back to the Patriots storm in a little while.

G: We also have one in _____ right on the beach, and that one is an elevated property, it sits behind the dune in _____ and so it's fairly well protected. It is build on pile-ons so it's a little more elevated than our other 2 properties, so there fore it doesn't get nearly as wet.

G: _____ Town of _____, I own property on _____ rd. I'm just going to give the one house that I have there now. I have about a 100 ft breakwater wall, cement wall protecting the house, elevation about 12 ft. and its one of the properties that was hit by a hurricane in 54' and we had to build a whole wall because it got washed over at that time.

That's one of the properties and the next property that my son owns is about the same, well only 8ft above high water but his wall is down only 4 ft from ours is so it survived the Patriots day storm.

B: No damage?

G: No. But it did come up over you know splashed over, but we don't have to have flood insurance because the porch is 105 ft from high water.

B: So you're outside of the flood plain? We will come back to that in a little bit too.

G: I'm _____ and I live on _____ Island in _____ and we have a ½ acre strip through the Island, it fronts out onto _____ Cove and backs out onto _____ Creek. It's a little piece of heaven. Our house is closer to the water than would now be allowed. It was built 35 years ago, and um it's probably only about 30 ft back from the high water mark. And its probably the first floor has never been endangered by water, is probably 20 ft high I think maybe.

G: Mine is a 135 ft of ocean front and it varies. There are those huge rocks that act as a barrier and then there are the smaller rocks, but it is protection.

B: Tell me about some times that you have experienced either flooding and or erosion on your property, and that could be damage to the house or just damage to the property itself and to the actual shore line, either at your place or folks that you know or live right around here.

G: In 1978 our house had a horrific high tide just before the blizzard of 78' we were living in MA. But came up after when we could get out of our MA house. We were picking seaweed out of the pine trees. It undermined the whole front banking and we went to the core of engineers and got the permission to put some rocks in the from which are still there. Although the water came right up over that and in through my garden and into the lawn at the Patriots day storm um there was no major damage.

G: I can go back to the hurricane I think it was Carol I think in 54' the property we had a 2 car garage and it washed it all out all there was were a couple of corners hanging and you could go in the garage and walk right down to the beach. This was before the sea wall was put up because we had some help from the government they maybe game us 2500\$ to go to a 100000\$ wall now, and I moved the garage back away from there so it wont happen again, I do have a small garage, these walls that they built they are supposed to withstand that so lets keep our fingers crossed. But you could see over the past years and I think we've had at least 4 ½ more feet of water because the old pier, you can see where the old pile ons are still sitting. They have made the elevation between 4-5 ft higher opposite the tides coming in.

B: When did they do that?

G: Um they built it in 55' there was a hurricane in 54' they built it in 55' and they also the new Warf that went in about 5 years ago they kept that elevation up there too. There still is water that will come up over and they built some of the walls to come up over the front wall and the back wall, slam the back but hold it till the tide will go back in.

G: I have a question for the people, my house sits on a ledge too though its pretty solid but I'm wondering if anyone observed different variety of the waters in this April storm then they have before with the direction of the wind and the water?

G: I did.

G: Did you?

G: I never had water in my yard before and I've probably had 15ft of waves crashing in my yard and I had pretty substantial rocks retaining everything and I lost a good chunk of rocks in that storm, and I had a lot of erosion occurred that's occurred even since.

G: How about for the mothers day storm the year before?

G: Fine.

G: Oh okay because that one did come from the different direction.

G: And so much so that the little cottage that we had around the corner that you would have thought would have been in danger in the last storm wasn't even touched.

G: Yeah well the mothers day storm hit inland more than it hit, because we didn't have anything from the mothers day storm.

G: And it was from the rivers and things too.

G: I think the tides are much higher, do you all see that?

G: Oh absolutely.

B: I see a lot of people nodding, is everyone kind of feeling an agreement about that?

G: I brought some pictures.

B: Oh great! This is excellent. We don't want anyone to see these!

G: These were taken since the 1938 storm and at that time it went around the house no damage at all, and after that we really didn't have much damage this is the way the lawn looked up until 1991, and this is the ocean in the bad storm, and we get a little of all of them. Then in 1991 we had that no name storm, and it came right up to the back door because the house is on 6ft deep cement posts there's no basement so it didn't do anything to the house, if there had been a basement it would have but the back porch the foundation nothing...

B: Did it wash right out underneath?

G: It washed out in the next tide.

G: And this is what happened in the no name storm, we got permission too just to show you, and we get no protection for that we had to take care of that ourselves, and I've had to take care of it twice since so its been built and rebuilt this third time now, and you even have to buy the rocks, the rocks were taken from way up Maine somewhere and brought in and they are huge they are big, and this is what we usually get so this is our regular storm, we just get a lot of these small rocks and I get my grandsons to get out there and start throwing rocks. Now those happen, not every storm but they happen and I had to have some built up after this storm this year not a huge amount, but what happened was the ocean was so ferocious it came up and hauled those rocks out this way onto the shore so I had to have them come in and go down, I thought they were going to tip over that great big equipment, they were down on the shore and haul those rocks back up again. So it's a problem, an expensive problem. We never needed anything. There were no rocks there and the water just came up to it.

B: Were these taken from the same advantage point? (Pictures)

G: Yes.

B: It looks like it's come back some.

G: I know it has.

G: Here is the way the ocean comes up to the north of me, now this is the edge of my property and that's bare there's no property there, and that's the ocean I think that might have been the last storm.

B: I never leave my house, I never have until the mother's day storm, the police come and right at the end of my house is a barren area, the police and it's like that come across, so there's always a police car at the end of my driveway and they won't let any cars come any further because they can't cross _____ Beach up beyond there. So I always feel safe because I've got a police car out there. I know the tide is going to come in and the tide is going to go out, so I just stay there, I have a lot of glass on the back of the house and I've always worried about that, but the panes have never been broke. So for me it's the erosion, that's my hard part.

B: That's really interesting thank you.

G: Well I thought I've been on that property long enough 60 years so that I pretty much know what it's going to do, it surprises me a little.

B: So if I could kind of redraw us a little bit here, it's a great anecdote for us to pick up and keep going, does anyone else have kind of another story to tell about changes or things that they have seen happen that have caused some concern or alarm around their place or their neighbors' place?

G: I brought some pictures that a neighbor took, as I said we live actually on the marsh and there is a drive that goes between us and the seawall and there are rocks placed in front of the seawall, the storms having the waves come over that seawall so we built seawalls to protect our backyards. Last year we went to the board of selectmen and the newspaper people came in and there were several articles throughout the summer about our concerns the seawalls eroding to the point that its no longer going to protect our properties and you know they are telling us unless its destroyed beyond 50 % you can't rebuild so of course we are very concerned about that issue. They're not doing our part but were doing our part building our own little seawalls but we can't do anything to the town seawall. Well not only that took the newspaper man down at low tide you can look at the rocks up against the sea wall and see daylight under the road, and you see a truck coming through there and you know worse case scenario a school bus could actually cave in. Well during the storm, it actually the are that we did talk about did sink, it was washed away and you couldn't really see it that well but it's about 4ft. So that's our concern as the seawall is eroding chipping away they have all the little cones all over you know so people don't step into the holes that have been created by the recent storm and they also have concrete blocks, I guess they have the road closed for some time, so that's been our concern, the seawall issue in the year 2000 I have letters where the selectmen said "yes they're going to come in and rebuild this wall." That's not happened, it's still eroding and chipping away and falling apart before our very eyes and we have no recourse, nothing. You know a lot of the people that are owners of the beach do not live there. So as far as the selectmen are concerned well they aren't voters we don't have to worry about them you know that kind of thing, but we generate probably more taxes in Maine than any other parts. They keep forgetting that, if they lose us they're losing a lot of income plus the access to a lot of beautiful beaches that we have. Any way those are my concerns.

B: Okay, great.

G: We have a different kind of wall concern, um in colonial times our property was a bustling part of the village and there were several walls, roads that were built the one down to the water, one went to what was the oldest ships chandlery in the state of Maine and another one went to um piers which we still have, the rip rap and so forth remaining on our property. So the walls that are the closest to the water are collapsing, and every time we have a higher tide the ones that are closest down lose a few more boulders off. Last year I had a company that was recommended to me as being the company to kind of deal with as kind of an environmental problem in our area, come over and look at the walls and they told me that I might have a lot of difficulty getting permission to repair the wall because would think that we were trying to increase the size of our property, and I was just stuck, you know it's a new concept to me that people would think that especially when the property's been in the family for a long time. So we haven't addressed trying to fix those walls and I don't think there is any recourse at all for people in _____ to have any help from the town on things like that.

G: The other issue that I thought that they on their side over there is, on the _____ Creek side is they have a sandy area over there and now its gradually cutting into that area, and there's trees that are starting to collapse and fall into the water.

G: Actually they've lost quite a lot, they've probably lost about 8 or 10 ft of land we have prints that have showed us pictures from 1950's.

G: And they don't know what it's from. It's from the increasing high tides, it's just all the time, you can see it, we see it out there on those rocks. I remember when I was a little kid it used to hardly every cover the rocks, and now it's virtually every tide now comes up and covers those rocks that are out there in front of us, there's a little peak of rocks that are just virtually covers them all the time.

G: When did you start seeing the changes in the level of the tide?

G: Oh it's been increasing, since I can remember it's just been constantly increasing.

G: But I think in the past 5 or 6 years.

G: Since that 1991-92, because we never had a wall till then.

G: It is costing 3 times, having to rebuild it.

B: Yeah, what about bigger company's?

G: Um, well we try to stay on top of it, we try to rebuild them before. It's an issue I have most of my walls pre engineered, so that if there is storm, there is actually a law in the state that they can't prevent you from fixing your sea wall so, yes there is, especially if its damaged or in imminent danger, like its going to collapse at any moment. Which is just a judgment call on your part, you and the town manager can make the assessment that it needs to be repaired immediately and you can go in and fix it without permits without anything, um you just go in and fix it. I have most of my walls pre engineered so that if something did happen, I've had a contractor ready an engineer ready just to go in and fix them and get them back up, both short term meaning a 6 hour repair because you need to give what 6 hours in between tides. Then more a long term repair plan.

G: What about building new ones?

G: You can't build new ones. You can repair ones that are there, To get a permit to do it, um I just did a repair on a sea wall, there was less than 50 % of my sea wall so I did not need a permit to do it, and I have a huge numbers of feet of sea wall, so its less than 50% of that particular sea wall so I didn't need a permit but I just let the DEP know so that if somebody's walking along the beach and says did you know that this is going on um they were aware of what we did. We submitted the plans and everything to them, they can not deny you if it's a repair of less than 50% of your sea wall, a sea wall can be rocks or concrete.

G: Originally I got the permit from the state and then and from the town and now I don't have to have a permit from the state I just go down to the town...

G: When you originally got the permit that law that says that you can repair it anyway, wasn't in place yet, that when in to place, so which is why you had to go through the whole permitting process when that law found place in I think '91 or '92 right in that time frame. But most of what I see is a wall is actually a fairly, it causes quite a bit of erosion because the waves smash up against it and then just dive down underneath it. The best defense we have found for erosion whether it's in front of rocks or a sea wall is sand.

um what have other folks done?

G: We have a large vegetation area between us, you know as much as there are just bushes and quite a few trees that are between us and the water, were very careful to keep that maintained, I've tried planting some things in there like _____ that wouldn't hold, but we have really sturdy vegetation.

B: Yeah, has that made a difference?

G: Um I'm sure it helps with the erosion, because it's you know a granite ledge and its downhill so that the trees and the bushes and the ground cover kind of hold all the soil.

G: One of the interesting things that I've noticed is that, we live on a ledge and as the water gets higher and the splash over gets higher the water gets into the ledge, and it freezes and when it freezes it breaks the ledge. So that's what's happening along a lot of the coast is that breaking of the ledge and of course there's no way of stopping that.

B: Water will get all things.

G: Salt water freezes?

G: Oh absolutely. It will freeze at 28 degrees.

G: I haven't noticed that, any freezing under my property.

B: So, alright maybe it's time to turn a corner because were well into our hour and were not anywhere near done. Do you think this is going to get better or worse?

(Whole group: Worse)

B: I mean I didn't ask you and I meant to, how long have you been living right on the water? It doesn't have to be right in the place that you're living now, I know you said since '38.

G: And before that I lived in the area, so well I'm kind of old, I would say probably 80 years.

G: Well we have lived on or near the water our whole lives.

G: One thing that ____ hasn't mentioned and, her folks had beach cottages in New Hampshire, so it's close by and she is has seen a lot of effects on the same issue.

G: Exactly. I stood in the sun porch of one of these lovely old turn of the century cottages, with the waves breaking during Hurricane Carol. That was pretty exciting, stupid too!

G: Those cottages were built on the primary dunes and so there were three of them and as the waves would break up in, and they had at that time only a very low wooden seawall, the water would run down the dune part that was the drive way and into the marshes behind us. Very precarious place to be.

G: I think one reason why I didn't notice it earlier, there's a seawall structure to my left on that piece of land that's not build-able, and the town put that there. And that made the water come in and come towards me. And that's one thing I was hesitant to say.

G: That's what I've always felt caused it to come in our direction. Because it didn't used to come in our direction before that wall was there, that wall was very high.

G: And I've always thought that was what did it.

G: Oh but I think your probably right.

G: Well I think, that's what I've tried to tell them. I know it does.

G: Because all of the jetties that have been down on the cape changed the way the sand is transported and as the currents changed seasonally the sand transportation changes.

G: What they did, they put in a cul-de-sac, there was a river up behind and when they put in a cul-de-sac over in that area where the drain is to change the flow of the river down there.

G: I know a lot of my neighbors feel that over the decades, that every time they dredge at _____ in the harbor there, that there's a repercussion to the beach Have you noticed that over the years?

G: Well most of the sand from _____ ends up in the harbor, and then when you take it out, what I've found is that the sand redistributes itself, the sand never stays still. Our southern properties become more protected and our northern properties become more protected until the sand once again gets into Wells harbor. Whenever you affect the flow of water, there are going to be effects outside of that. And to get the state to admit that what they have done is actually wrong is very difficult and because they've got lawsuits and etc. it's an ego thing.

G: Did you study this in your background?

G: I study it everyday. Well, I read a lot of scientific journals on it and um I talk to a lot of people. And we have 2 or 3 geologists that we hire. I don't have a degree in it, my degree is management and psych.

B: Well alright, these houses are not from around here, as you can tell. And I purposely selected things that were not from around here. Does everyone have 3 different photos? I went and did a lot of background reading myself on this topic when I was contacted about doing this, and I found it really interesting. This is a very fascinating topic, this idea of sea level rise, coastal erosion, changes. So these are all obviously before and after pictures of places and you can guess that these are major events, hurricanes, um most of these pictures came from, I think North Carolina. You can kind of see this incredible devastation. Now there are very exposed places, although there are some places in Maine that are as exposed as this. Originally I was going to ask you about this, in 2 separate steps. I was going to say tell me about this and look at these, but in looking at these, and also thinking about things that you have seen around your communities, what do you think people understand to be their risk of having a place right on the ocean?

G: In talking to a lot of beachfront property owners I think most people understand their risks quite strongly. And very clearly understand their risks and their financial decision to take that risk.

G: Uh well that's not true. I mean a lot of people like us have had the property for generations and you know you really get a feeling right now that there is no sense of urgency from other people except the other people that live on the shore, certainly not from out federal government. The threat just keeps on coming. I figure though that maybe the navy yard would go first right? Ha- ha.

G: It's pretty low yeah!

G: The floods in the navy yard, maybe they'll do something about it.

G: Do they ever have floods in the navy yard?

G: I'm sure it comes up around the piers. But their piers are pretty high.

G: The piers are high and it actually is a pretty high elevation, there are some lower points but they tend to be the wetlands.

G: I recognize that these pictures are from the Outer Banks, and my comment is not really related to the outer banks but, our son is a graduate of Maine Maritime and for his first job he worked for a couple of years for a company which did beach restoration. So they went out and they did dredging and they blew the sand in and they went back and in New Jersey year after year they go down the coast and replenish the same beaches over and over. We as taxpayers pay for this. And there are lots of people that have ocean front properties that expect that this is going to happen so I think that they think the government is always going to be there to put the beach back, to rebuild the wall. And in New Jersey it seems to happen over and over I have a sister who lives in Spring Lake which is one of the old resort communities in the southern part of the state. And the people in the company that he worked, where it was a joke, every time there was a storm, well we will be back here and well be back there.

G: It's the same in Delaware as well.

G: People have been saying that forever. Like about Katrina, they say why build up there if it's going to happen again.

B: To build or not to build, where is the dividing line for you individually the dividing line between something that's reasonable and something that's unreasonable? So I brought these pictures because I thought, in some cases you know like some of these Outer Banks houses, this is unreasonable. And so I brought this picture because I thought that this was really something that everyone could look at and say well why would you build another house there?

G: Because you can.

B: Because you can. Where is the line? And what information would you use to make a decision or what would you tell someone else about trying to make a decision between, you know it makes sense to try to rebuild the place or build a place, what makes sense to build there, and what doesn't make sense. And that's what I'm kind of building towards. What do people think about that?

G: Well if you look at this you can clearly see that this is not solid land that should be...

G: But we have the same issue here on solid land being cracked open by the frost. Now there's a certain amount of maintaining that which you've inherited or that which was there vs. putting a new thing in. And one would hope that despite the hideous mess of the DEP and the army corps of engineers, they have a little bit of thinking going into in when they say don't do that and don't build that up there, because time will tell that would have been a bad idea so there is a certain amount of protecting the interest of the land but also protecting the interest of you whereas you may think its perfectly fine to put that stone wall and throw down a pebbly beach, there's a reason why we don't allow it, because one your pebbly beach is going to be gone and two it did no good because right next door now everything eroded because the water came around that wall. So that higher purpose thing, goes along with the physics and the financials to a certain extent, but if you've inherited something or have something that has withstood 4-500 years some homes, it makes perfect sense to assume you can keep doing that, but to see it change so rapidly, especially in the past 10-15 years you have to start to change those assumptions.

G: ... They considered the ocean front waste, they all built inland.

G: Yeah but then if you look over in Newcastle I mean, there hunkered together but they are right on the shore.

B: Other thoughts.

G: I don't know the history of the Outer Banks well enough to know perhaps fishing cottages seasonally.

G: I think there were and now its consolidation where people have brought up several things and built the mcmansion type things, which is why you see these big drama. But it is a matter of code and what's allowable and certain people will do things because they are allowable even though they can't get it insured they probably couldn't get it financed traditionally you know they know that they are going outside the norm and the recommended thing when they do these developments, but what I see on some of these pictures, especially the one with new house, is that the one part of land that didn't get brushed away was the part that had plants, it had trees and bushes. So these other people had cleared out and built these beautiful green spots of lawn, and yet their houses and their lawns are gone, but this one house that had that nice vegetated buffer is still there.

B: That's an interesting observation, I didn't even notice that.

G: And in fact there is no evidence even of dune grass or anything like that.

G: My next door neighbor, she rebuilt her backhouse, four years ago, she had to put it on pilings that's the new wall.

B: That was the new wall? Okay.

G: I think the reason why the situation beside me is the way it is, is because the politics, the man that owns that piece of property is probably one of _____ highest tax payers.

B: That matters doesn't it?

G: It does, absolutely.

G: You get to pick your zones right.

B: Well alright, let me change the question a little bit here. Are there exceptions where folks ought to be allowed to rebuild if the property is damaged 50% or more? And they are within that 100 ft. setback.

G: Well like we were discussing our situation with the sea wall, we don't have any control over that sea wall, and I think that, that should be some kind of an exception when we don't have that kind of control. And the town does, and they let it go and then we get destroyed. I think that we should have some recourse there.

G: Well the sand dune rules actually state that if your cottage is damaged more than 50%, if it hasn't been rebuilt, if it's not up to the current flood standards, when it was damaged, you can rebuild.

B: Okay.

G: And so they have to give you a permit but you have to build it to flood standards put it up on pilings, and build you know the breakaway walls and everything else, and so that's your second chance.

G: Could you say that again?

G: If your home or business is damaged more than 50% by a tide and you're in the frontal dune, because the 50% only applies to the frontal dune, it doesn't apply to anything beyond the frontal dune, if your building that was damaged hadn't been brought up to current flood standards, which is the breakaway walls and the pilings then you're allowed to rebuild, but you have to bring it up to flood standards and current lot restrictions.

G: So if your home is up to standards and more than 50% gets destroyed, too bad for you.

G: As long as you're in the frontal dune.

B: And that's usually what, a 100 ft setback?

G: No it's whatever MGS has determined

G: We are not a dune, we go with 100 ft setback and general is what is considered out shore land overlay.

G: And that doesn't apply to us either because you know with the ocean in front and the seawall behind us it really sucks.

B: Yeah. I'm getting a good education.

G: But its hard to say, with your question which was if someone is within that 100ft zone or the frontal dune whatever that is, and gets destroyed, and its more than 50% should they be able to rebuild? Its hard to say categorically, no they should not rebuild because that's a bad thing to have, when for 100 years its been there presumably the environment is adjusted, and yes mother nature could probably do better to have it back or you financially are silly for thinking you should build in it again, its hard to say across the board, you should not have the right to do the thing that your family has done for generations. Just because environment financials, we all bear the insurance risk etc. I mean we have a home in Florida that we are having trouble insuring, because the company that I'm with up here is pulling out, that company it was under down there is pulling out, and so now it's almost to a point where it's more than our taxes. So its very hard to insure because this is a state, and by the way its at an elevation of 350ft and has never once, ever had a hurricane, so were suffering for the fact that the rest of the state is doing it but here we are up in the only mountain in Florida, and yet we can't get insured. So that's the same thing where my house does sit very proud of the water and I'm not within the splashing zone, and yet my risk according to an insurance company because I have this zip code is the same as yours, so I will start to have to pay higher premiums, or maybe risk not getting insured. So it does become somewhat of an issue for categorically saying no don't build there, because we all can't afford it.

G: I've been advised by an insurance person who knows quite a bit of insurance rules, and he's told me never to change my insurance from the company I'm in now, because nobody else will take me, and to stay with them even though I have never had a claim.

B: My sister and I were having coffee before this meeting and talking and she was saying, and she works at York Hospital, anyways so she was talking about a lot of folks she knew in the community, saying that they were having a very difficult time getting any kind of insurance.

G: So that's where that shore land decision start to affect the non shore land, homeowners so.

G: And that goes back to finances.

G: And then if you try to get a mortgage off it or something there not going to do it because it's uninsured so you can't finance with it or against it.

G: If you have a mortgage and I don't, you'd have to have flood insurance, the bank requires it don't they?

G: If you're in the flood plain, yes.

B: This is interesting, this has not gone exactly the way I expected it to, it's been good but I'm trying to think on how I'm going to get you this next place here. Coming back to this risk question, and lets say that your place is completely damaged, and you have insurance and your allowed to rebuild and the 50% rule doesn't apply, and then you rebuild and then you can't get insurance, well say, I mean that's happened certainly in a lot of coastal communities where you know who was it, Allstate that just said they were dropping Louisiana completely or was it Florida I don't remember. Farmers dropped Florida I mean, it is happening more and more, where insurance companies are just saying, you know what we'll just write off our business in this entire area, we won't have any contracts there. So imagine in that situation. Is it reasonable to think that folks should assume that risk on themselves, when they're in a 100 year flood plain, or maybe even a 500 year flood plain, but yet they still can't get insurance. Not unlike your story about your house in Florida.

G: We'll expect the government to somehow step in and help.

B: Well I mean that's one of the things I wanted to ask about tonight is,

G: I think that's a risk that each individual has to assume for themselves, I don't think I would take it.

G: So if your insurance company came to you and said I'm sorry were no longer doing homes of your type, either in that town or the state, would you be inclined to stay there without insurance?

G: I'd stay there, but I've never had a claim with them and it's been insured with the same company since it was built.

G: Well this is kind of funny, what's happening is a new thing I mean the rise of the water is relatively new. 50 years ago we didn't address this, um you know I think it's with the warming of the water, just that itself causes the water to expand. Okay so this is all relatively new, and I think the people to be fair that have existing homes should, be offered to be covered by insurance and be paid for that insurance one time but not be allowed to go over it again.

G: If the same house gets wiped out twice.

B: So your saying, build, rebuild once.

G: You only get one disbursement, if you use it to rebuild that's fine, but if you use it to cut and run...

G: That would have to depend on when the house had been originally built. Someone can't just come in and build a place and collect

G: That's what I said.

G: Especially since now you can't build in these areas.

B: Well okay, so I'm kind of flying by the seat of my pants now, let's say the house has been there for 400 years, or 100 years or 50 years for that matter. And we have some kind of metrological event that causes the compliments of a full moon, highest annual tide, and major storm surge, all that patriots day storm right? And the house is wiped out, and the person's paid for their loss, do they rebuild?

G: Who were they paid by?

B: Their insurance company.

G: Alright because I don't feel this is the government's responsibility, yeah no I'm not suggesting that.

G: There isn't a responsibility for this, who is responsible for causing the demise of your house?

G: Well who is responsible for building the house there in the first place?

G: If your house has been there 400 years?

G: Yes well been there that long, but people are building today.

G: Well people that are building today that's another issue.

G: I think if the house has been there forever and it gets wiped out, they should be able to build again. And hopefully they build seawalls, and do things that would protect them.

G: But their not going to get paid again for their loss.

G: No it's a gamble.

B: Okay let me shift gears again, how do you get your information about climate change? Where do you get it, I mean do you seek it out, do you sort of get it, where does it come from?

G: Well it certainly doesn't come from the federal government.

G: It's just a theory (ha- ha.)

G: A couple years ago wasn't it at _____ Academy, they had Cameron Lake come from UNH? Right, and did a presentation on the climate change.

G: Yeah there have been some good things that have come through _____ association. Our son and his woman, work for the Coastal program in _____ bay, and the woman that he's now living with has just moved here from the west coast where she worked for save the bay in San Francisco, so they have a lot of current knowledge, they go to you know things around the country and gather information and since were interested in that we get some knowledge that way too.

B: What sources do you trust the most?

G: I like to watch PBS, but even then.

B: Other folks, what do you trust the most?

G: The studies that come out of the universities are pretty reliable, and a lot of them are backed up with satellite pictures and images of what's going on.

B: What are some of the least um lacking sources of information?

G: The federal government.

G: Army Core of Engineers.

G: And what's his name, Al Gore, I sometimes wonder about him too.

G: Well that's the hard part though because with all the university report? I'm not going to read all of them, so I'm waiting for the news blurb, or somebody else who's read three of them to synthesize them for me or something. You know there's that think global, act local so until there's some act local aspect to it, it's really hard for me to connect to that think global thing other than that miniature byline at all.

B: That's a perfect segue, what would be the format that would work well to get information about climate change, sea level rise, coastal erosion, shore line property changes, modifications that could be done in a way that was really consumable for you?

G: Clear English, nice plain spoken.

G: And the visuals.

G: And unbiased.

G: I think it's too soon yet, to get to say we know what's going to happen. Well try and find out.

G: But if there are things you can do...

B: What would the format be? How would it get delivered to you? What would work well for you and people you know?

G: Several different geologist journals on sand dunes and land movement on, because I've gotten to a point where I don't trust the university of Maine professors at all, and so I've read a geologist that have worked for us at different times on different things, and we've become a member of the American Shore Association, it's a national organization, um there's a lot of journals that I read through that, plus um talking to people who do a lot of restoration work and they seem to know a lot about the currents and the tides every area of the coast is so different, even along the Maine coast, you know what's happening in one area is entirely different than what's happening in another.

G: Your right, because these people believe in what their talking about, their not trying to make a name for themselves, or trying to put their university on the forefront, there working every day.

G: So the consensus is, we don't really know what the truth is.

G: honestly I don't feel I know what the truth is, I'm just trying to figure it out.

G: I think we each have a piece of the truth right here just based on our observations of where we live, we can believe what we see.

G: But you can see the changes that are happening in our own backyard.

B: would it be worth while then, to have a little series of video snippets that where you talk with coastal owners and they show things that have maybe happened that have been deleterious to their property, or things that have been beneficial based on you know the way they've set up sea walls or vegetation barriers not to forget that. I mean is that a format where you see real people about there place, here it is this is what we did, this is what happened I don't know.

G: But what works for one area, won't necessarily work...

B: Right but you could talk with folks on beach property, and bluff property.

G: That becomes a thing where I don't have erosion in my particular yard its not, I mean I have a higher tide that's about all I can see. So it's not an issue for me, but if there's something I can do like stop my storm water and make sure its doing these things before it gets in there. So if there's things I can do on my property shore land or otherwise, to help then that would be great to know, that's again taking this big broad issue in giving me a local thing I can do.

G: How do we all learn about our health? How can we improve our health and prevent bad things from happening? News letters I do read, and if those come from people who come from many different areas, and if we have a lot of different people coming together and opinions and thoughts, putting out a newsletter that went out I would certainly read it.

G: And Aerial photography is a great tool.

G: So are the projected changes, but you know who knows what model was used and what the parameters are but to see that the house I almost bought right there on Drakes Island is high and dry, oh that was good.

B: This is only just a tad off the extent of water saturation in the patriot's day storm on Drake Island. It is very close to it, it's a little higher than that. This is why I brought it. So looking at this thing here, this isn't a big imagination, this is actually fairly close portrayal of what happened that day.

G: Most of Drakes Island did not get wet like this.

B: This doesn't reflect a very large sea level rise this is not a worse case scenario of flooding in this area, this is kind of a middle of the road projection depending on whether you believe it or not but this is the middle of the range. So it's not out of the possibility. I brought it not to talk about the veracity of the document but rather to use it as a prop for this question. If you knew that your property was going to be damaged and I mean significantly damaged, in the next 30 years, what would you do?

G: Sell it. (Ha-ha.)

G: I think that some people as a result of the Patriots Day storm have sold, because there are a lot of signs up now.

B: How about the next 10 years? You knew that something really substantial was going to happen in the next 10 years.

G: I would probably sell, I would try to move away.

B: You would just move?

G: As a property owner on the beach we expect that something major could happen at any point, we put money aside every single year, were ready for it, financially ready for it at any time and when that day comes if everything is wiped out then we will make that decision but the benefit of living right there.

G: I think I'd do the same thing with private property, I hadn't though of it myself but listening to you I think now I will.

G: I had hundreds of calls after the Patriots Day storm of people offering to help us, and a lot of people just showed up. With trucks, with plow trucks to make sure it was all cleared out.

G: Now were some of them from out of town, or were they mostly local?

G: Mostly local.

B: What should the federal government do differently?

G: What are they doing in the first place?

G: I know when we did our breakwater walls I think we had to go to Portland savings bank to get a big loan, but we did get like 25 hundred dollars from the government, big deal. But you know we had to go through the state call up engineers go through the DEP, and the town, and they wouldn't let you build anymore than you had but you had to put back what was there.

G: The government tends to be very reactive rather than proactive, and so if they could switch their gears and help property owners become proactive to protect their property before anything happened and allow permits for things to let people protect themselves before there was devastation, and it is very difficult to get permits ahead of time, much easier after the fact because there was one permit I'd been working on for 4 years, and after the Patriots storm I wasn't damaged at that particular building, after the Patriots day storm it went sailing through, because they were approving everything at that point, they were just putting a yes stamp, and it was easier to get a permit afterwards, but had they been active we would have had it all done ahead of time. And so rather than be reactive they should be more proactive.

B: It's an interesting point.

G: When you ask a question, would I rebuild? We have to consider that I'm not going to be the only one that's going to have damage in my house, its going to be hundreds of people. And I know people down in Florida that it took 2 years to rebuild a small house, and the people were all living in trailers...

G: And another thing about FEMA, there's a class action suit there, so what's supposed to be private between us and FEMA, is now going to go into the newspapers, so everybody has received a letter that no longer is from 40 years ago are our issues private, there going to be...

G: ...all the stealing, and you know the contractors coming in and taking advantage of older people in Florida or anywhere that are still waiting, so I don't know I really don't know what the government can do.

B: And are you talking about the federal government, or the federal, state, local?

G: Mostly the federal government, I think the local government has more pressure on them, but their hands are tied too because they're waiting for the fed's to act, so it sort of backs up.

G: I think 2 years down the line going to Florida there are still houses that have got tarps on them, they haven't even finished them.

B: Where would the authority be best placed?

G: Once again it just needs to be a system that works more proactively, and simple, it is much to 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.

G: And yet we pay more taxes, were supporting the state for the most part.

G: At the state level anyway most people in Augusta haven't really been down here in the summer because they have been told to avoid it because it's so busy, but they don't have any idea really how many people are down here in talking to a lot of legislators in Augusta.

G: Would these concerns have any impact throughout the area?

G: Yes, we've got a couple privately that we pay as well as SOS Maine which is a property organization, who we just keep on the payroll year round to work in Augusta. At the federal level there are several organizations with lobbyist but it really needs to be more at a state organized contingency, it's really hard for our individual property owner or an individual organization even to lobby at the federal level and you need a state contingency.

B: Well we've gone way over our time, but this has been a great conversation really great and I really appreciate it and appreciate the candor and the straight forward way that you all approached the discussion, and one final question, are there any of you that would be interested in participating as part of the advisory for the Maine Sea Grant folks and their work in trying to do this communication about what can you do proactively, that is exactly what they're doing, that is their intention? And I'm really here to collect information about that, what people were doing now, what you perceived as being a problem, what you thought about to be done. So now here's your chance, are there any of you who would be interested in being part of the advisory panel and developing these materials, communications to property owners across from Eliot to Eastport, but focus really on the southern portions of the state.

END OF TAPE.

CPO focus group 2:

G: So we knew that when we bought the property that beach erosion was of course a main concern in this area, and obviously rights to be able to walk the beach at high tide all the way down to the jetty. And we all know what's there now, and it's not possible. So my husband and I really did a lot of research including consulting Maine Geologic and what they knew about beach erosion and how much we were going to lose and you know we had the surveys from before, we had a lot of information from FEMA and we did our best to build a structure that would stand one of these patriot day storms if in fact if we were closer than we are now. So uh I'm quite interested in the education part of it, what's going on, and I think that this will probably be a good start to educating other people. Particularly those that are in trouble. Erosion.

G: My name is ____ I live in ____ just around the corner, I'm not on the front line, but we get a lot of water during the storms and uh we first came up here 6 years ago and bought a summer place, and then we decided to live up here 5 years ago and bought a house, we've been here about 5 years now year round. We knew what we were getting into, we found a house, and uh we did it willingly, maybe we were taking a risk, I don't know again were not on the front line, but I'm not so naive to think that waters not going to damage my place

G: Um I'm _____ I live in ____ Beach just across the river, on the other side. I grew up there so that was in the early 50's when my parents lived there, I moved out of state but my husband and I have been back for 11 years now, um and we live across the street from the water so were not threatened by the storms as other people might be

B: Now where you are is that an area of accretion or erosion?

G: Depends on what section of the beach. The end that I am uh there has been accretion, but I can remember back I mean with the beach has, the configuration has changed from when I was an adolescent to what it is now, and uh there are some sections further down that are quite vulnerable in fact in the uh, I don't remember now if it was the... who's study it was, I have it at home, but there was some a couple of areas there that were um in the top 5 with a couple of spots from Camp Ellis that you know we had some spots too that were quite vulnerable and they did have difficulties with the storms and we you know, I've lived through a couple of the dredgings of the Saco River, and there was certainly interest in Hills Beach for what will happen with the sand that comes out of the dredging if and when Saco goes down the road with the plan that the Army has proposed.

B: Is that this modified 26a that's out here?

G: That's the one that is preferred locally.

B: One of the protections is around 35 million?

G: 26.

G: It was uh, they were, the current option has uh two breakwaters, and number 37 had four. And the problem was is the north most piece of breakwater that they wanted to put in, the footings weren't there for it, and they are going to

actually have to create something to support it. So it will end up costing almost 10 million dollars but itself, so they chucked it off.

G: Going back to breakwater for just a minute and I maybe off track with where you want to go, but the Hills Beach breakwater is um really falling into the sand, and I don't know as far as the dynamics of the water, if that's just a factor of the need for dredging to get the river level down, but um

G: The south side breakwater you're talking about right?

G: What I would call the Hills Beach breakwater.

G: Yea there are two pieces. There is one that sits on the Saco side of the river and there is a piece that sits on the Biddeford side of the river, and the one you're talking about is the shorter one on the Biddeford side.

G: But gradually the sand is rising at a high tide the water covers the breakwater and years ago it wasn't that way, at high tide you were on the rocks and the water level was lower.

G: _____, I'm from _____ a resident of _____, essentially I live in a condominium which is twelve hundred feet from the high water mark. I have the advantage to be close to the water but not the damage that comes from it. A few years ago it must be 7,8,9 years ago well we moved in, I bought the place in '88 but we didn't move till '90 but I retired. Shortly after that '93 or 4 something like that we had a _____ management committee which spent a better part of the 18 months studying the beach. And recommending to the town the fact that _____ was a summer property with over 50% year round residence now. And I've always called it a town residential area with a hundred billion gallon attractive nuisance at one end. And that's the basic problem. It starts with the water and some is traffic. People want to get down there and there's no parking and it's a pain in the neck. But our beaches have gone. The old timers tell me that the beach was much bigger than it is now but in almost 20 years that I've been there I've seen the uh, sea walls completely undercut, and four feet of sand against it. There is a ship that wrecked in 1897 and its wreck is up and down, but there's another piece on the shore that I've only seen once, where there's none. Where the sand is covered it, they keep saying sand is going away but it seems to come back. We worry somewhat about it. We've got people that are keeping track of the levels and we look and half the people have the old deeds that give you ownership down to the low water mark and half of them have deeds and bound deeds that go to wherever the property is. And all that is almost secondary to the fact that we would like to put a gate up at the end of the road, because it's mostly our biggest problem, traffic. My daughter liked it so much that she bought a place. It's about the same distance from the water line but it's up on top of a Hill. So were invested in the place.

B: Thanks.

G: I'm _____ from _____, I live down at the beach at the mouth of the _____ River. I was brought up on the property, and I'm multi generation on the property. This lady here, mentioned about the sand moving around, one of the best things happened to our beach a couple years ago when they did a maintenance dredge, from what we call the government wharf, a couple hundred yards inside of the mouth of the river, was basically beach sand. So when they dredged from that point out to the breakwater, they came back around and uh dumped it as close to on the beach as they could, given the tide. And that made a tremendous difference in the last few years. So anytime that they're going to talk about dredging you'll definitely want to start getting involved in those conversations instead of going out 3 or 4 miles to a dumping ground go right out to the beach. It's made a lot of difference. I've seen a lot of difference over the years that I've lived there and contributed to a lot of things, it's the geological plates changing, melting, or the orientation of the breakwater that we've built over the years there. So looking forward to seeing what everybody has to say here.

G: Were on the _____ shore committee, we're not paid or anything like that. We're responsible for understanding what's going on around here, and uh making recommendations to the city.

G: My reason for asking that was one of the preliminary papers that was handed out there, interested in what our concerns were, and uh. Yea I'm very much concerned when hurricanes come up the coast and we have nor'easters and what have you, uh but my greatest concern is the ability to protect our property and our homes, and the ability to

rebuild them. And it seems that every time there's an organization put together to vent of preventing us from doing that and they want us to retreat further inland. So it's going to be interesting to see what's going to be the outcome of this group is.

G: My name is _____, uh I live on _____ which is the extension of the _____ I live about 200 ft from the water. I was born and raised here in _____, I have moved away but I am now back. I live in my mother and father in law's home. But my father learned that I could crawl building a cottage on the street that used to be extended from here, just behind us, the next street over. Uh and that cottage would be adjacent from here that way. So I have seen this first hand. Your comments about walking on the beach and stuff, yea I remember lots of that too, and it has changed dramatically over time. I'm very concerned about the area. I have been working in the city of _____ on the shore line committee with _____ and with a number of other people for more than 10 years. Trying to get the Army corps to address this issue. The problem here we have managed to prove is the responsibility of the core in that the jetty is a major contributor to the erosion that we see. Certainly I concur with your observations, the uh south side of the jetty does need some attention, it was not directly studied, or monitored or assessed as part of the cores review on what went on in this area. However there were elements that were considered in the plans that were chosen, certainly one of the things that we had talked about was the removal of the jetty and its entirety. That was deemed as not a good idea. As well as shortening the Jetty.

G: On the camp Ellis side?

G: The North side. Uh as well as shortening the jetty and some of those other um options, because for this side of the river, the jetty blocks the flow of sand, and it prevents the beach from being rebuilt. Um there has been quite a bit of accretion on the South side of the river, on the different side. There are still areas that need um some attention because there is still erosion in those areas and it has been uh it has been pointed out by Maine DEP, and the core. So they are both aware of it uh its assessment, its severity uh I don't recall exactly what they, how they lodged it in the priority on things, but it was noted. I'm very concerned as you are as the rights of the individuals and the land owners on the water. Right now it seems um, that the only thing that the state is concerned about is making some very rigid regulations that um, are very restrictive, and don't allow an individual to protect the property. And I've seen an instance of that recently, we have several areas here where the erosion is active. And where homes are threatened on an annual basis. And as a mater of fact last year we lost 2 homes. And there were 4 others damaged in that process, and they were allowed to rebuild. But the 2 that went down they can't rebuild. So there is no restitution for those people, they are out.

G: Has the department of environmental protection denied them an application?

G: I don't know that they have but...

G: Because the town of Saco has allowed it.

G: I understand but the beach regulation or the points that I'm looking at, at this point the dune regulations excuse me, and the dune regulations are the ones that are in the final analysis going to govern when they get approved?

B: And that's the regulation that stipulates that if your house is on the frontal dune its more than 50% damaged it can't be rebuilt?

G: And that's right it's not happening. By the same token, it's 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.

G: I do too. I'm one of those homes, that your talking about, where the dune was damaged I submitted a permit by rule to the DEP to build a sand dune, on the eastern side of Surf street, where the dune has been. They rejected the permit by rule because I was putting sand on top of vegetation and replanting the sand. And they did decide that we could put in a regular DP? Permit for 392 dollars, which was going to be the cost of my sand believe it or not. And they have 120 days then to rule on that permit and it is a very um discouraging thing when your trying to actually put a sand dune in,

not a sea wall but put a sand dune in, with vegetation that is some of the best protection that you can have. And they are making it very difficult.

G: Well I have another instance to lay on the table in this situation. Just recently the Maine DEP sent a letter to um FEMA, now we have an issue here in Saco where we have several areas that are exposed like yours, And right here at _____, where coming in you came right along the beach, that area washes out and is the infrastructure, city infrastructure in that area as well as the homes are threatened on every storm during the winter. The city regularly takes the sand out of the road and puts it back on the beach, and the area right along _____, right down in front of _____'s house and in that area regularly is impassable with 2 or 3 feet of water at high tide, and it remains that over that tidal period. And they see it on an ongoing basis, the city comes down, they put some drainage in, they remove the sand, they put it back on the beach. Yet, there isn't any mechanism, the city has gone to the core of engineering a number of times, and under the request of FEMA, to put in temp measures that would allow them to uh cut down on their insurance claims. But one of the things that they wanted to do was put in copper sheathing, it is like sheets of metal that are bent for structural shape they interlock, and they can be used as some sort of a barrier. And it can be put in very easily, it can be removed very easily, with the machinery they have. They just vibrate it into place and it just goes right in. Especially as far as sand is concerned, it can be done relatively easily and quickly and cheaply. We now have jersey barriers if you noticed on the corner. That was an allowed temporary measure.

G: How many years now? (Ha-ha)

G: I understand.

B: You mean right up here on this corner?

G: No, down here, when you came in. When you go out your going to go out, on Eastern Ave, down here on _____'s, and your going to hang a right, and your going to go up and you'll have a sea wall that protects the road, at that point, you'll go down and your going to make a right hand turn and then you make a 90 deg. Turn and you'll notice that there are jersey barriers there. Well during the storms those get all rearranged, and they wind up all over the place. In the middle of the road or what have you. And it represents a safety hazard from our prospective. Certainly I mean the public vehicles, ambulances fire trucks and stuff, they will not come down here over those periods of high tide, where and you know where there is water there. Because it is a concern for damage to the vehicles. Um about the only thing that does come in and out is they've got a 966 loader which has tires about as tall as me. And that's the only thing that goes in and out. That and maybe plow trucks. But that's about it.

B: Now was that prior to the Patriot's day storm? I came here earlier today and I walked this section, I walked all these neighborhoods and to just kind of familiarize myself. That section of road, was that passable before this last spring? Was that a throughway?

G: Well Uh how far back are we going? Because remember, when you go down here there used to be a dummy railroad, dummy because it didn't turn around but the tracks came down right around Eastern Ave, someplace in that order. But it used to go from here. It used to run right along Surf Street. It used to come all the way to the street where I live, and now there's probably 3 streets that are gone. And there used to be homes, a three lane wide, grass, some grass, then there used to be the railroad bed and there used to be some more grass, and then there used to be the beach. So were talking right in, yup it used to come right in down here. And there used to be a train station right down here where the parking lot is. And that was around 1900.

B: And there were other streets on the other side of this as well, or not?

G: Uh no there were not streets on the other side of that, but very often your back at the second or so street, we've lost about 400ft. of beach here. Since they built the jetty.

B: That's a lot of 400 ft to lose.

G: If you want I have an Aerial view that shows the city lots that are under water.

B: Yeah I've seen that map.

G: Ok. We've lost 38 properties down here.

G: You said that the Maine DEP sent a letter to FEMA?

G: Oh I'm sorry I never finished that.

G: When did they do that and what was the outcome?

G: Um it was done, FEMA requested that they use copper sheathing to put on the turn down here. And actually appropriated some money to do it. I mean they showed up with the check, and as a matter of fact they did that a couple of years ago. But the city of Saco was not going to be able to do that. Simple reason the DEP would not allow them to do it. Okay, now Maine DEP wrote a letter back, to FEMA that says, well hey lets take a look at the following. They uh they offer putting in some new type of fabric that you, big long tubes that you fill up with sand and stuff. And you use that on the beach. And you build it up in the back and it allows you to build uh some sort of barrier so you have some protection. Well they sent that letter, subsequent to that I've heard, via the grapevine, and I have not verified it with the source. But they consider that structure and it's not going to be allowed either.

B: Is that what's referred to as a geotube?

G: Yes exactly.

G: Now I thought that they had a week ago, everything was in place for that.

G: Well if that's the case then, that's terrific. But I have not heard that.

G: It was the last I heard just about a week ago, that.

G: If that's correct than that's terrific because they want to put that down by your place.

G: Yes.

G: So that would be perfect at protection for you, and that is sorely needed at this point. What you'll find down there is a heavy amount of skepticism.

B: Well I'm listening and I'm, the thing I was asked to focus on is and this is difficult to do in talking I think in this community, where we have a man made structure out here, that has had such an enormous impact on what's going on. Um but what they asked me to focus on were the issues around, global climate change and sea level rise, contributing even beyond the impact of this structure here. And when I talked with the folks down in York, there not dealing with the same structure, there is no structure to say oh well that is the reason. Um and they talked about seeing changes in tides, and with things that are kind of fixed structures, some of the rocks that were setting off, that were really bedrock outcrops and seeing changes in where, how often those things were gone, under high tide. And so I don't know if you've seen changes or you've had neighbors who have kind of seen changes in areas that have been less effected by this particular structure, um and maybe goes beyond just this piece. This is one whole set of issues in this community. It's been pretty interesting reading, to read about it I never knew anything about it before this project. Have any of you seen or experienced things that you think have changed over time or your neighbors have believed have changed over time, in terms of the severity of storms, the high tide mark, the amount of water.

G: It's hard to separate that from the loss of beach. Because the beach is a barrier, its protection and it has been for many years, and when that's gone you know, whether the water has risen higher or not due to you know global warming um you're going to get damage. And it hasn't I mean as much as I know about global warming it hasn't gone up that much to make a big difference. Of course it's a big problem but um as far as, well not having been here that long _____'s been here long time and maybe he's seen something.

G: No I think you're pretty well uh, as far as this is concerned. The damage that were seeing from storms and stuff because of the jetty and the erosion issues, so far outweigh anything else, and it is very difficult to make any of those

types of observations. However I have recently been down through the Kennebunk and Ogunquit area and the beaches there have changed dramatically. Yea they are sand starved and scoured very much. And I remember the beaches in York, um a lot less rocky. Very much rocky these days and with very small stretches of hard, uh the real fine grain sand. And I remember them being um certainly the outcrop up, between the outcropping of rocks have basically framed the beach, that used to be all of that hard grey sand, and it used to go, the tide used to go way out. And the tide still goes way out, I never saw the cobble that exists on that beach, the size of the picture in larger, you never say any of that. And it wasn't even small still before, it was all that very fine sand. Just as hard as the table at low tide. I don't know that I've noticed that so much here, but through here and old orchard I've noticed that there's been a pretty dramatic change as far as sand. But that's probably because of the export that has taken place from here.

B: Pine Point and where else has kind of gotten all of this sand it's all migrated to that direction.

G: Well from the course study it's the point where the beach transitions from um erosion to accretion, is just a little bit past the good Shepard.

G: Yeah to give you kind of a reference I do the beach monitoring. Here at Ferry Beach and we um basically are maybe measuring 60 meters before we get to the low part. They measured 200 meters at Pine Point, that's why they get the low water. So your talking from the dune edge, 3 meters back from the dune edge, to the water were dealing with 60 meters and there dealing with 200 that's how much beach they have of ours.

G: Oh it's been, there's more than 100 ft of sand, and they have a problem with the river there, trying to keep it open. Yea and they have a problem there with the river keeping it open because it's just choked with sand.

G: Brian you asked to focus on the climate change and the sea level rising and what have you, and I saw that in the preliminary papers that were sent out to us, and that's why I was interested in credentials and some of the participants here because you know I'm not really qualified to comment or object to some of the people talking about, were causing the climate change and everything, because I'm sort of a person who did the arts and crafts out of the University, but I did take some courses over in the engineering dept. and geology. And I'm sort of interested in that. And some of the programs I've seen on discovery channel and the history channel and everything has told me that the planet earth is a work in progress, the geological plates are changing all the time. The reason I'm mentioning that is because I was asked to participate in another large group, gosh it much have been about ten years ago, and a lot of us property owners were brought together and some of the state people and some of the university people came down and their initial mission was to try to blame us property owners, for causing all the erosion that was taking place. Fortunately there were some pretty intelligent people there that uh spoke well. At that point in time, it showed that it wasn't the property owners that caused it. So now I see its tide rise and sea level rise and climate changing is causing all of these issues here. 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 is 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.

B: No and I appreciate your candor and you know what's interesting is, the group last night, I've got all these different things that [Sea Grant] wanted us to discuss but it doesn't work quite like that because everyone had their own story to bring to this conversation, their own experience and their own perspectives and that might or might not fit together with what Sea Grant folks wanted me to talk about. Again, I think their focus is, they're interested in your ideas and your attitudes about these topics. And at a systemic level and of course looking across all of the southern coast, from Rockland all the way down the Maine coast, there's a lot of it that's eroding, anywhere from half a meter to possibly as much as several meters a year, depending on the year.

G: You're talking more horizontal erosion than vertical?

B: Right, right.

G: So understand that there are two beaches north of Portland, Popham and Sand Beach...

B: But there's not just one kind of erosion along the coast. Like for example in Rockland, when I talk with that group, they're going to have a different set of concerns than the people in this room. There the issue is there is sedimentary overlay that goes up, and forms what looks like really solid land, but they are undercut, and some of those are actually eroding from anywhere to a half a meter to anywhere from 5 meters a year depending on where you are. They had several houses drop into the ocean in Rockland, and they were flabbergasted that it happened. So they're interested in lots of different stories to help them understand where people are at, at different places around the state I think. And what they think could be done, and maybe that's what we should turn to. What could be done?

G: Before we go there, I would like to add one more thing to what's going on if we're going to sort of put our pet peeves on the table. My concern is that the state as an organization is one who is more concerned with stopping things, then they are with helping their citizens. And we've had 2 instances of it right here this evening. The take away from the story that I had, was that the state didn't offer any solutions, they simply said no you can't do that. Have they offered you any solutions? Any paths that you could take?

G: Well yes, but in a more expensive permit? I guess I would consider it.

G: That doesn't sound very helpful.

G: Well you know what was interesting; the sand dune rules were being discussed and changed at the time I was getting a building permit to build the house. And they subsequently after they gave us that initial permit, came out with the rules were under now. When I had the DEP guy down I submitted two pictures, (shows pictures) this was the dune that got hit in the storm, and his little note on it says "to put sand on this dune doesn't comply with the statutes"

G: Well yeah you've got a problem because its beach erosion.

G: But this one is from the side that was eroded from the ocean side and I can put grass on this side because there is no grass there now. So then I showed them, this was Patriots day storm, the same place. These two are the same. This was after the storm and this was a few weeks ago. Now he says oh well if you had this dune we would have allowed this by permit of rule you can put your sand there. But do you realize that this is the kind of frustrating thing that a homeowner and I said why do you think there's grass there now. I said we went out and planted it.

G: They 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 that the first storm has already damaged it, the next storm will get rid of the dune because they cut a hole in the middle of it. And well we don't know about that. I mean you can't even get them to defend it.

G: My concern is what I've been seeing over the last few years, on the federal level and on the local level, is there is all this to do about global warming. And this is a preemptive strike to limit the liability. And the heck with anybody that's in the way. If you're in that interface, they're going to hang you out to dry. Recently, and they have dropped back and tried to go through and change all the B zones, this was a FEMA thing, if you looked at the changes for the B zones, for you to be out of the B1 zone which was a possible flood zone, you would have had to be...did you see the church on the way in? There used to be a church right down by the stop signs, the four way stop at rt. 9, there's a little bridge where the marsh comes through well you would have to go to the other side of that to be outside of the B zone. Clearly that is a move on the part of the government to say; oh we don't want to deal with it. They don't want the liability then we don't want to deal with it. Global warming is going to come and it's all going to flood, let's go away. And I see the same thing happening with the sand dune regulations oh lets make it tough. Alright, we have that attitude that exists here within the city of Saco. The mayor, not 10 years ago when we were starting to put the grass roots activity together that actually supports the organization that actually got at the problem, he said uh just buy it out and let it go out to sea. Buy out seems to be a way they think they can deal with this problem. And all it does it postponed the eventuality. So if they came in a bought all the properties and everybody you know moved out, then they just let this place erode, till it got to the bridge. And then Oh my god, guess what we got the same problem and all we bought was 25 50 100 years.

G: First off I don't think they are obligated to buy out anybody, nor to contribute to anybody's repairing of their private property. But and the other part of it, if a federal or state programs structure, or regulation or rule, hinders or contributes to the destruction of your private property then they should reimburse you for that, or as he said earlier if

that if it goes out to sea and they didn't allow you to protect it then they should be liable for the market value of that house.

G: Not many of these houses that went up down here get any reimbursement from FEMA. They are second homes, they don't count.

G: But that doesn't make any difference, that's property and if they prevented you from protecting it and it went out to sea... I wanted to ask Brian you said you wanted to focus on something and the climate change, and sea rising. And you said what could be done about... what?

B: Well, what I wanted to ask you was what things have you done already to try to protect your properties? And then the follow up...

G: You mean legally?

G: Were not as far apart as you think. Uh when I say sea walls I think of hard structures like these rocks out here. That's not a solution. All that does is push the erosion down the beach, and that's exactly the problem were seeing here in Camp Ellis. That's exactly why there's a problem at Surf Street, is because they've built and extended the stone to the point where the erosion has simply moved down the beach. If we let it continue, if we just put more stone on it, the erosion will continue down the beach. This area is sand starved. There is no sand here for it to erode, but in the summer season the erosion rate that's been approximated at better than 3 ft. a year. So putting in a stone structure is not going to get there from here, but there's got to be a way to mitigate the erosion that were talking about without putting in a firm structure. One of the ways that they're talking bout these days are these geotubes, and I don't think they've given it a fair shake. They have worked in other places. I'm sorry.

G: No its just, several years ago I went to a lecture at camp Ellis, it was a couple of professors, who that's all the do is they study patterns on the beaches of erosion and accretion and they gave examples of why some sea walls do more damage in the long term then benefit, but they talked about several states that have regular replenishment programs. And I don't know why the state might not consider something like that. Rather than waiting till you have a crisis, why could they not consider a program where they regularly replenish the beaches, to try to keep the beaches healthy and in good shape. And I think another point I wanted to make about Hills Beach I mean were a peninsula, and I know at the Patriots day storm I had one neighbor down the road that said she was literally and island because there was water on both sides of her property across the road, because its quite narrow in some places, and I don't know if that could easily happen on Mile stretch rd. down at _____ rocks too, assuming that water levels continue to rise over the next decade. And I can see a few places at Hills Beach where that could happen, and then how would we accommodate those individuals.

B: This is just a little sponge activity.

G: To be quite honest, nothing is going to save us from sea rising, I mean were all of what, 4 ft. above seal level?

G: I'm 12 at my house and I can see over the porches.

G: We'll be coming to your hill.

G: I'm on the only hill.

G: But if the sea level rises there is no structure that is going to protect, and that brings to mind whether, and I think _____ brought this up earlier, their using global warming as a diversionary measure.

G: You know what's really happening here at camp Ellis, is the erosion at the jetty, yes global warming is a problem, but let's not forget what's going on down here and elsewhere just because global warming is a few 100 years in the future or whatever they are predicting.

B: Well you know and I got to be honest that's really not my impression from this group of folks. Um they wanted to talk about how to organize property owners better. How to encourage them to adopt any practices that were demonstrated

to slow down the rates of erosion, to and remember that the folks sitting in this room, you may or not may be typical property owners. You may have the same level of investment of being concerned about these things. Or you may have less, but more likely you probably have higher level of investment in thinking about this and wanting to do something about it. Which is why they wanted to talk to you. And get your ideas your thoughts, um, because they're objective is to then try to appeal to the entire body of coastal property owners, and work to develop maybe more organizations like the one that you've got going here at camp Ellis, which is what Save our shores. To you know bring folks together, talk about the instance down in York Harbor is another good example where the community and the organization came together and really worked to put the beach together after this last springs uh, major storm. Drakes Island has had some success as well, and they have worked together. Drakes Island is another place like camp Ellis, its enormously threatened by any great changes in sea level, and just storm surge height or um, any other meteorological events that fall outside of our normal pattern.

G: Doing something similar to that here, won't work unfortunately because the erosion is going to continue, with waves...

G: Well I have to say that you know we started from scratch, on the piece of property where we are, in 2003, and in looking at the erosion problems Maine Geologic thought we were losing about a foot and a half a year at the most. But they were wrong because the last 7 years has been a lot more than that. What we did was we went to FEMA and the Coastal Construction management manual that they had, we had in the library here in Saco, and I copied the thing, and we started looking at all of the mitigation types of construction that we could use knowing that um the storms were getting worse. And the waves could in fact hit the house at some point. The cost of construction was a great deal more than us just putting in the same number of square feet. We put in an elevated plan and we built on piers that are concealed, the main floor is up 5 feet about ground level.. We bought you know, and of the 5 contractors that I even contacted to do this foundation only got 2 that even responded. One of them was busy doing a big church in Saco, and the other one does state work, comes from Augusta could read the prints, and actually put in this kind of a structure, he works for the state doing elevated garages and things like that. That's what I had to put in to build the house on. They designed, it went through a structural engineer who designed 2X8, front walls, 2X6 side walls. We had to get special Simpson earthquake proof, structures to put around the garage doors to hold the second floor. We did breakaway walls in the front, in the sides. We have these huge Simpson tie downs on every pier. All of the porch roofs are held down with cables through the columns tied to the foundation so that the uplift won't pull them off. You know hurricane shingles that are supposed to withstand 110 mile an hour winds. We reinforced the big bay windows in the living room, with 1 inch steel rod behind them floor to ceiling so they wouldn't fall in the wind. But it's not inexpensive, I'd say it adds a tremendous cost to the house and the average person isn't really going to spend this unless they wanted to protect it. We did it because we wanted to live here another 30 years, and after that if its destroyed my daughter loses it. But we've got probably 200,000 in the construction, and FEMA doesn't cover it in terms of flood insurance, what your going to lose. You're going to lose decks, stairways, shingles. They don't cover that stuff. So you know you've got to construct with your eyes open and you know for us it meant a great cost in construction, but we didn't have any damage in the patriots day storm with 60 mile an hour sustained winds.

G: You know what we had damage to was the beach, and the erosion, and the water coming down surf street. The town responded with bringing sand in and sand bags, and they put sand bags down in front of the property and built it up. I had built up on my side of the road which is back dune, and planted sea grass 3 years ago and that kept the water off the property.

G: What we have done on our property to protect the erosion and some of the buildings, um before there were so many other people around to help protect ourselves, from ourselves. Is that we have not built any land barriers, we've done some tiling, some wooden sea walls, we've changed some wooden sea walls to cement. Over many decades from the 50's or early 60's to recent. And we have also built some buildings further back away from the sand dunes, and the secondary sand dunes, and not voluntary put them up there on the sand dunes when we could have done that. But recently things that we've tried to do and have met objections to is, we wanted to raise the wooden wall and the cement wall, and over on one other part of the property were not using currently but when and if we do it would be nice to put some sort of protective barrier near, but were prevented from doing that. Protecting our house as the storms do increase...

B: By Maine DEP?

G: Yes. Can't do it, the walls are already there, we just want to go up, we don't want to move out towards Boone Island, just put it right there, can't do it. Not even an inch or two. And I object to that.

G: The way the dune regulation is, the material is there is all your allowed. And that's how its written.

G: And we have found that I'm not familiar with this area its in the news a lot but not specifically where you all are, but this area is protected because of the Jersey barriers your talking about and apparently your area is not protected. And so naturally the force of the waves, are going to be blunted here, but your going to be very vulnerable several streets back, and if she was allowed to put a barrier in front of her house she would be equally protected here.

G: Well not really, I watch a lot of storms from my front window and as I take the view and look south, I'm looking down Surf Street and 2 years ago maybe 3 we didn't have the section of rock that we've got now between Fairhaven and Beacon, and those storms used to barrel in, they'd hit the rocks, the big wave hits the rock it goes this way, the next wave comes in they meet they go up 30-40 feet, come over, the wind takes em over the rocks over the road into the houses. Now I'm watching the Patriots day where the rocks have extended one block further toward me, and the biggest damage is at that sea wall, because the impact of the wave coming and hitting the sea wall and backing off it and hitting the next one, did tremendous damage. We lost a couple of houses and the foundations of a couple. Next to me in the block, had a dune that got eroded away but the sand was still there. Those waves come in, and they come in and they hit that sand and die then they roll back down. It does not create that tremendous backlash in force and up and over, and the street gets eroded because all the water that is forced up and over then has to drain backwards to the ocean and it undermines the street, underneath the tar. And so your going to find your solution is more sand, and higher dunes with vegetation.

G: Well that's what these professors were saying. They gave many examples and have photos where people would build sea walls but it actually caused more erosion.

G: Something really positive would be to educate the people in the state legislature who would be effective if a beach nourishment program from the state point of view, it would help certainly all of the beaches, and you know what were dealing with in southern Maine, I don't know what's going to happen.

G: I would take what you said and take it another step further. The problem that I see, and my experience with this problem is probably 50 years. It's taken more than 50 years to get the federal government to admit that they caused a problem, and that whole problem is one were dealing with in one were working with, its not the point of comment. The point is, is the attitude was, if I let you stew long enough you won't be able to keep it going. I mean and going and going, and I'm not telling anybody around here anything new when I say we've been working on this problem for 50 years. You can find anybody who walks around the streets here, and you can say what do you think is going to happen with this project they're talking about building the breakwaters, out here in front of Camp Ellis. And they say, I'll be dead before it happens.

G: Yea no one believes it.

G: And they're young, they're not old. The problem is permutated on the state level, and its echoed on the federal level, and that is they don't want to help you. They're there to put the rules up and force the rules, don't ask me to help you, I don't want to help you. You're on your own. And it's a concerted effort. There are actually people who seem to think that endorsing a conservative or a conservation position, is one that is somehow a little more know worthy in these green times. But when you take a look at what we had to do to prove to the core of engineers that it was their problem, or their Jetty that was causing the erosion problem it took more than 50 years and more than 6 million dollars. What chance do we have when you look at global warming which has an indeterminate a cause, an indeterminate an effect.

G: And covered up.

G: Covered up um, its not correlated, multiple causes, uh you got no chance. Anymore than they could do something about different problems, acid rain in the states coming from the super power generators in Illinois and Ohio. They don't do anything, they don't even talk about it.

G: So the army corps is not going to change to orientation of the jetties coming out of the Saco River.

G: No.

G: because we're interested in watching... because we felt that our jetty orientation from when the first put it in and then when they enlarged them, has contributed to the eroding and pushing of the sand further out to sea.

G: It's the cause here.

G: So we were hoping that they were going to redo your breakwaters down here.

G: They're not going to redo it. What they're going to do, the proposal that's on the table is they are going built a 500ft spur off the existing jetty in about 22 hundred feet so its going to stick out this way, in this orientation, with the jetty sits this way and curves like this, so they're going to put 500 feet this way...

G: With the current right here?

G: No the current comes this way.

G: Which is one of the things that, we went for years and years where they came down here and they would look at it. And you can endorse what I have to say, you can go down there this time of year and look at it and its just gorgeous and its wonderful and everything is just great. You come down here in a storm and it's still nice. Come back in the middle of a Nor'easter in the middle of winter and it's a whole different place.

G: Or just watch your normal tide currents going in and out.

G: But they don't...

G: They modeled it in a lab in Louisiana, wasn't it?

G: Well that was one model and they were, understand the science of the situation, because we have a large delta, as far as the tides are concerned, better than 9ft on the average, and that's without a storm surge and the amount of wave action we get, until recently we've been outside the models and any other way they had to make assessments. They had models, they built a small model in Louisiana, small? It was in a warehouse. And they actually built it to the contours of the bay and all that other stuff and then they had a device that they would run in the back and they would actually make waves, and they could gauge the height and all kinds of stuff. But it wound up not being a very good model for what's going on here. And they could put dies and stuff in the water, and all that stuff, that's exactly what they did when they built the St. Lawrence Seaway, it worked pretty well there, but in a situation like this, no with the wave dynamics and the currents and stuff, you've got to get everything happening at the same time. The only way they could get any results for what they were doing here was to take actual data and relate it all through a finite element analysis model. Which is a very computer intensive way of looking at what's going on. And they actually looked at 1ft squares at the sand that was coming to and leaving each one of those squares. And they were looking at the amount of wave action that they had, that they related to buoys that they had out in the gulf of Maine. They took the wind and the wind caused waves and brought those in and used all of that, which they haven't been able to do until recently. The computer model that they ran for the final element to do the assessment on what went on here in the water, it takes two days to run one trial. You set it up and you punch go and come back in two days and get the results. And that's not because they're using somebody's laptop, they've got very sophisticated, high quality high speed multiprocessor computers that are doing this stuff. They're cranking. It's just difficult.

B: Can I change gears here. Again like everyone comes in and each of you has different experiences and has different things that your hyping on your priority list. And that will be true in Rockland and in York, and it will be true in each one of these sessions. I want to ask you about where you get information and how you consume it and what you trust and what you don't. And I've got a bunch of questions, but that's basically all the questions summed up into one.

G: Information about what?

B: Oh it could be information about erosion process, mitigation techniques, information about whether or not there are sea level changes or storm surge changes. What that's projected to do, any of those things that concern you about what's happening with your property. Where do you get your information?

G: Well I mean being out in the shore line committee I have a good source of information, and because that's something I'm concerned about and have to be knowledgeable about. I also spent a lot of time on the internet, because I wonder about what's going on around here.

B: Are there specific sources that you think you know, alright, if I go to the Maine geologic survey do I trust their information? Or do I not?

G: I don't know whether I can trust them or not, but it doesn't help me.

G: It doesn't?

G: No not for the problems, the erosion problems. I mean if anything they state what's happening and yes you know the shore line receded two meters that year. There is nothing in terms of how can we prevent it.

G: We send them information in the winter and in the summer.

G: Yeah that's all put in as a matter of fact, I don't know if you've seen it, but they made a cd of all of that data that's coming in from the last um, what 7 or 8 years and um each beach in Maine has been here with all of the points you know of how the beaches change and all that. It was very interesting, a lot of data that's not true. But that's what they did with our information.

G: Well I wasn't involved with the beach data collection group in Maine, but I know the group they were out there and they have been out there for the last 6 or 7 years, they [the state] have taken the data and disappears into Augusta, so.

G: Well actually they were very helpful and responsible on the telephone when I was doing my research on building, um they did what they could to give me the scenario of what was happening right at my beach as I was you know worried about it.

G: You went after the information and they gave it to you?

G: Yes and I think our town official is very helpful, I spoke with Dick Lambry, he came out to the house he came and sat in the beach house that we were going to tear down and I was sitting there saying well, this is what we want to do what does the town have for information, and he directed me to it. And then the other thing was that the FEMA information they have another new detailed brochure that um has also a cd it's now the Home Builders Guide to Coastal Construction. It's on the computer but they have redone their manual, I didn't get it bound because I think it was sent to me this way, and what they did was have an old 3 ring binder that they loosely fit that they had. But this is where we go the construction techniques and most of its being used I think down in the Cape Hatteras area.

B: And I handed these out for kind of your reaction about what you thought about these situations here.

G: I think its an important point is the only time we have found out anything had changed is when we went up to get a building permit. That's when we found out all sorts of bad things had been going on. So I would say that the important people that are resources to most of the local people would be the code enforcement officers, building inspector in the town plant. You want to make sure those people are kept fully aware.

G: And it's quite interesting as apposed to house property over here, we against the town in some of these organizations that associations that I have been in, the town and the property owners are working together to defend themselves against what that state is doing to them. Preventing them from maintaining their building and protecting their property tax income.

G: Well that's very much the story here, the city is very much tied into with working the State.

G: I'm sort of suspect of some of the information that comes out of the University of Maine Geological Survey.

G: I don't think the University of Maine is not Maine Geological, no its not?

G: Two different things.

G: One is a state organization and the other is an education. So there is a group of professors and the University of Maine who work theses types of issues.

G: No, no, that is one group and there is Maine Geological which is another group. Now they know each other and there are people who have migrated from one to the other. But they aren't the same.

G: Well that's what's been confusing to me.

G: Yes like Joe Kelly,

G: I wasn't going to mention any names (Ha ha)

G: Yeah he's confusing. And I'm not ?

G: There is another resource that I went to um and it's a beaches conference, and that's put on by the University.

G: Yup through Sea grant.

G: Through Sea grant, and 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 um speakers that they had come in.

G: Did you go to the one up in South Portland this summer?

G: I didn't get to that one.

G: Interesting program. They do a very nice job.

G: I'm an engineer by trade so some of this I just run into it and it's my cup of tea. At any rate my education has come through living here on Saco Bay for my life and observations that I have made discussions with the restaurant owner here who is a very good source of information, who has been on the commissions and in the groups SOS, and way back to the '50s because that when they really started all of this stuff. I got a lot from my father in law who worked in a similar role when he was alive um I was actually one of the authors of the Saco Bay Implementation that is now what we are working with, with the core of engineers.

B: Is that that 275 page document?

G: Yeah that came out in about 2000. I was on the commission at that point working on that, I have been working with the core of engineers since the beginning of this project as a member of the regional team, and uh my education has come from the beaches conferences as a matter of face I was a presenter a couple of years. And from working with the core of engineers, their coastal engineers, the state of Maine, Maine Geological I have found both organizations to be technically very good, and very willing to talk and discuss what's going on. And as long as were talking science, things are good. When we get out of science then it seems to be um whatever the prevailing bureaucratic wind is. Uh and uh that is a problem of that type of work. They work for the government so whoever's running the dept. really gets a tremendous amount of say as far as what goes on.

B: That never happens in education.

G: Oh I'm sure, I mean that's a fact of life, I mean of course it is and I don't mean to make it sound like sour grapes, but we were talking about sources of info and what we considered reliable. I find excellent. Uh Peter Slavinsky is just he is just fabulous, they are great. The head of their dept. is Bob Marviny. Uh he chairs at regional commission that I have been working on, he is very good as well. Again as long as were talking about the science they're great. Uh the core of engineers, there at half a dozen people that I have worked with in various forms and shapes of things, they are terrific. The contractors that they brought in to work on the problems and you can get a side bar with them that are valuable ammunition, because they go to the heart of the matter and you can get opinions and suggestions from them that you don't get from the government. Clearly there's a lot of politics in what's going on that's why it's taken us more than 50 years to get this done. Uh the #1 solution to the problem for a very long time here was, we'll just buy the property and you guys move somewhere else. So that kind of attitude sort of permeates, other places for education I've had people give me studies and reports from Orono, South Carolina, "Hey they use this kind of thing in S.C", the problem with it is it's too light of a structure we can't use them here. There were a number of structures that were designed to deflect the waves and so on, much to light they would just get thrown around here. Um let's see, internet I do get some info there and I get a lot from the history and discovery channel. So I get it from a lot of different places.

B: Anyone else? Let me ask a different question. Alright so I think we have established that this isn't a typical group of people sitting at this table, that if I had randomly selected beach property owners from this section, that possibly we've got folks that are on this table that are more informed, have done more research than the average person. Do you think that's a safe thing to say?

G: I would qualify that. I think if you take the property owners who are on the beach front, they would probably know what was going on.

B: But some of the property owners don't live there, they just rent it.

G: Who rents?

B: I don't mean here I mean...

G: Your generalizing a little bit too strongly there.

B: What I'm saying is they own the property, or it's held not even by an individual, but it's held by a corporation or a trust.

B: I had the woman who was the regional manager for _____ Hotels, and she said we are the largest coastal property owner in the state of Maine. Um they manage more coastal property than anyone else, but...

G: Well that may be in dollar value, in rentable units, but that's not in square footage or beach front or water front properties.

B: No and that's not what I'm suggesting, I'm just saying that there are other kinds of owners out there. That's what I'm saying.

G: I mean I know from being part of the Hills Beach association, our mailing list, there are several properties that are owned by trusts.

B: And how do you include some of those folks that aren't either as active in seeking out info, or are less approachable, or are hidden behind a couple of layers.

G: I also think that your idea of a trust is not a property owner, normally the property owner has set up a trust and the property owner is trustee of that trust. It's one in the same. The owner of the property is the owner of the trust.

G: Well I realize some of them are set up that way.

G: And I think it's the people that are too blocks back from the ocean that aren't as interested in pursuing the info.

G: Well I think, I find that if there more than ... if you go back from 1200 feet from the water here, that's going to put you in the marsh and stuff down there. They've got no clue what's going on.

G: I'm the only one in our group that pays any attention.

G: So I think that you have just reinforced what she has just said. I believe that's correct. Because even during the patriot storm, I talked to some people who were just on the other side of the bridge, and they said " oh that wasn't so bad it was really windy ..." I said yea I looked out the back of my house and the house behind me was surrounded in water! And I was watching 2 or 3 feet of water surge between a house that was just on the beach and a garage, it was coming through the street. The water out here was running a foot and a half deep, down the middle of the street. They have no clue.

G: But I think there are a lot of people that don't know where to find the information.

G: I don't know how to get the info to them about what are considerable reliable sites, or sources of data.

G: I think maybe involving the contractors that are out, that are doing business in the area, if they start getting more info about construction techniques, that are you know really susceptible to the front line of the storms, its not just water that were dealing with, its storms and wind and uh that I think would help. You know when you're a homeowner and you don't know much if you go to this contractor and your going to put up a building, change a building, maybe they are the ones to suggest well you really don't want 2x4 walls here you should put in something stronger.

G: First off let me say I have been really impressed with the amount of research you have done and how much you've looked into things, you've got be about 99.9% ahead of all the people I talk with and that's to your credit. But I find that generally that if it's going to effect you than its up to you to do it. If you ask anybody if they have ever heard of Camp Ellis, they would tell you right where it is. And you know why? Because they see the pictures on the news, and they say oh isn't that terrible, and I look out the front of my house and there's a storm. And what do I see, I've got a foot of snow, and the storm is raging, I may or may not have power and somebody wants to drive down my street and go look at the water. We have more traffic down here in the winter than there is any other time. I can't believe it, "let me get close, oh let me drive my car right through it" I mean you know and then they say, "My car got hit with that wave." They have no clue. Um I don't know how you educate people like that.

G: The ones that do have a clue, my son in law is a very smart guy and he loves the beach. And yet when it came to an opportunity to buy a place he bought a house on top of the only mountain in _____ Beach. ... He isn't worried about the storms, because he must be 65 - 75 ft high. He figures that's safe. But he's an attorney in Texas and he just doesn't pay attention to it. I pay more attention to his house than he does. He considers it safe it's up there on the mountain.

CPO focus group 3:

B: Camden focus group for the Sea grant this is September 23, 2007. We've kind of informally introduced ourselves.

G: I'm _____. I live on _____ Avenue. I've been there 30 years and pervious to that I lived 4 houses further down which was a sight of the '73 landslide. Woke up one morning with no backyard drop down like 40-50 feet going out to sea. I've seen some changes. Yeah.

G: I'm _____ and I live the 31 _____ Rd. in _____ and my next door neighbors are my friends across the table. And the I bought the lot in the 1953 and built a house there later. My wife and I were married we would buy the intervening lot which was next where one of my fellow lawyers was building a house. And I bought the lot has a fairly steep embankment it's a gradual embankment but it's fairly steep. I built some stairs. Well in the process it was so hard for me to run across the line onto my neighbor across the street to place the stairs. The land wasn't mine, so when I discovered that I went to my neighbor and said well we have a choice. I will remove it or I'll give you the privilege of using the stairs. He decided to use the stairs and so they are still there. They've been rebuilt a few times. Partly because of the erosion which takes place there. I've kept track more or less of the erosion of from the beach and on

the average I've lost about 1 inch per year. But the neighbor next door the old lawyer who built a house and died and his widow became friendly with my wife. And she was elderly in her late 90's. But insisted living there along and one night there came a rap at the door. The firemen were there and they insisted she go out because her house was sliding into the drink. And her house did slide into the drink and right into the muck. And so it eventually just completely disappeared. That landslide evoked a great deal of interest and newspaper publicity around the state. And my wife collected a very good scrapbook of all that and we became a little apprehensive about our own property. And we hired an engineer to check out the soil conditions of our property and he did. And advised us that probably in our lifetime we would be safe but you know that land bought we figured our decision to invest in some remedies that he recommended and as a result of we spent a great deal of money redoing the embankment on the side of the property toward where the landslide had occurred and looking at where our neighbors house been swallowed. And the result of the engineer's advice was that we hired a firm to do it. We followed his recommendations. Then though they took down all the trees and bushes I see that handled the wind and rebuilt that whole embankment with heavy rock, burst then rock of a little smaller size, then a little smaller size. Then eventually coming to loam and we planted grass on the loam. So we haven't done a lot but we have spent a lot of money to try to avoid the catastrophic landslide that we saw from our neighbor.

B: How long ago was that?

S: That was in '96.

B: Seem effective so far?

S: Yes, so far.

B: Thank you.

G: That's an interesting story.

B: I think we will be coming back to that one.

G: This part of the city contractor \$400,000 engineering study from the break order around. That wouldn't go into detail sometime.

B: Ok, I'll put a little asterisk next to that too, if I don't bring that back up though please do. Oh boy we're going to have plenty to talk about tonight aren't we?

G: I'm _____ and my family first came to Camden the summer before 1931. And we've been on the same point. The wring ham point since, the wring ham point is the western most entrance to Camden harbor. And I've seen quite a few changes. I could go into them later on in a little more detail.

G: Well growing up a kid right on the border. It was very observant of what the tides were doing. High tides and low tides, that's since I've notice that over the years that the higher tides are much higher and I don't think the low tides are much lower. I can tell that there just fine just by looking at them around all the rocks out in front of our house. There has been either a rise in the water level or ships sinks and the land has gone away.

B: Either way it's a concern.

G: Well I walk a lot in the hills but that doesn't you don't deal with that here. There have been so many changes up there. But there hasn't been any change on the waterfront. On the moorings now come through an intercom in Camden that crept out over the years. Right in front of our house where we were growing up we never saw a boat in front of our house. Couple in the inner harbor and the beginning of the outer harbor now we see great big tourist boats. That are big to us they're too big to come into the harbor the way I grew up you know tourist island. Then they have two boats that come in now they are a great success in Bangor. So much success that using Bangor as one of their stops, Bangor said we should make this our headquarters. So now there is two funny little boats that look quite frankly like boxes. They put there anchor out over night. One comes in on Monday or Tuesday night the on Thursday or Friday. I'm

one of those people who ride into town because there aren't all these cars to trap you in. It's serious a wonderful in the morning to see the shore and for us to get some tourist dollars.

B: Without any extra cars.

G: Yup, that's about all I have to say about that for now.

G: _____ I've been here since I met _____ in 1950. And I've been on _____ Point on vacations and I've actually retired here. A couple of observations about going up point the perimeter is lined on our house and the house to the point itself because they have 8 foot brick wall that it's a stone wall but it has gone through various stages of construction. Relatively small construction, except a couple years where there was heavy north east storms and completely wiped it out. That was about 100 feet of the wall not ours but it was the neighbors. About 100 feet and they replaced it with 2 feet by 4 feet by 8 feet look a like granite with blocks on the surface and protections and sand. We ourselves have and our lot have ledge running out from below. And a little bit of a stone wall. And what was about only 3 feet high. And that on occasion that little bit had erosion nothing really significant. But we know will eventually be a problem. In the future where there is more and more significant at a higher level. I would just like to touch one of the things. Our family happens to own an island off of _____ and this is about 40 acre island. Both of you can sail and both know the area, which is under merchant control it's a little funny island. All which are solid granite. There is no significant chance of erosion on any good house that we have, the cabin we own. Only about 50 people on the water about 20 feet high and for sake of certain period of time no concern about erosion at all. Possibly the sea is rising storm waves would wipe out our home.

G: I'm _____ and my first life was on _____ because my house bought a summer property there. I've been going there since I was 5. Then they retired there and we lived there, permanently. Three years ago we left the lake and bought a property nearly next to the _____ on _____ beach. It's on a block which is about twenty feet high. And part of the property is a cottage, which was built literally hanging over the edge of that and so the house we bought had been rehabbed. The cottage hadn't. We didn't realize what we got into in order to protect that the cottage, because the first few storms hit and the porch was hanging off maybe 6 feet over the edge. And huge big ash trees around it, the roots being exposed. So we had to put in 50 feet, two years ago, 50 feet of riprap 20 feet down and 50 feet long. In order to protect the building, we also have a stream that comes down right on the edge of our property that leads right into the ocean. So I'm just getting to compare salt water life with 55 years of fresh water life.

B: Is that different?

G: Yeah, really interesting. and also because we are so close to the ferry terminal to watch all the issues of the little Lincolnville harbor and the relationship between the fisherman and the docks. There's a lot improving in the Lincolnville beach.

G: I'm _____. It really comprises two parcels; the first parcel was acquired by my uncle in 1921 so it's the _____ Farm and he took the original small farmhouse and added onto it, took the barn down that building is fairly close to route 1. The second parcel it parallels the parcel he had. This parcel is about 11 acres and the parcel that I bought is 11 acres. Fairly narrow strips going down to Penobscot Bay. But in both cases the dwellings are on high ground near route 1. There's about a thousand feet between route 1 and the shoreline. So we're in a situation where we're on fairly high ground. I would say probably about 40 feet above sea level. The one of the properties we've been reclaiming the fields for years. That have been pretty well established now. And they go down to fairly low land along the coastline. At the corner of that, my uncle's original it rises to a bluff of maybe ten feet in height and on my adjacent property the land rises again to a bluff maybe twenty feet high. No ledge, no granite outcroppings it's all just soil or clay. In the middle of the property there is a stand of trees that are right on the bank. Fairly well established trees and the interesting thing is I haven't noticed any particular difference in the rate of erosion along that shoreline. Even though the tree roots you think would hold it better. The shoreline has been fairly even on the erosion. The bluff area is free of trees in both cases. And perhaps the erosion is a little faster there. A few years ago I was getting concerned about it and I believe I was before shore land zoning. And all the restrictions that are now are on putting up any kind of sea wall or retaining wall. I took a lot of walks and I was harvesting off that property. I stuck em on in to hopefully protect this bluff from further erosion. Of course I didn't have any way of anchoring them. And that held there several years until we had a major storm and they all disappeared of course. One of my concerns is that the DEP restrictions on building sea walls or retaining walls perhaps most of you know you can get waiver permission if you have a dwelling within so many feet I

believe is the restriction on building permanent sea walls. I guess personally I would like to see that change. These coastlines are in some jeopardy and if you can stabilize them all the better certainly those who have that situation. We are seeing it done my next door neighbor to the right of me used to work at the beach and of interest to you may be the fact that back when Duck Trap Condominium was being contemplated a number of us were very much concerned of the impact that type of development would have on our royal style of community, property values, all kinds of environmental concerns that was an experience I can go into. I won't go into at length but one of the things that we tried to make a point was that is sits on a high bluff a plate of land that comes out of Duck Trap Harbor. Was that is seems reasonable to ask the developer to put a sea wall, a retaining wall there. And he didn't want him to do and the DEP didn't require it of him, but a couple years later that sure enough he saw the wisdom of doing that because he had condominiums close as close to the shoreline as you could possibly get them onto shore land zoning to the edge of that high water. So that's been my experience the I was thinking back I'm not sure if it was twenty twenty-five years ago that we had that some of you may remember if you were here in February a major winter storm and I'll never forget it because it was hurricane proportions. It hit at a very high tide in the morning. That's the highest storm I have ever seen, hurricane storm or anything.

B: Is that the storm of '78 that hit the northeast so bad?

G: I think you're right. A very warm day in February I think it was in the 60s and everything at Lincolnville Beach was afloat. All the lobster pound outbuildings and everything were floating out in the bay and debris across route 1. So have seen some major storms but my as I say personally I'm not in jeopardy as far as dwelling goes. The other thing I wanted to mention. I've noticed along my shore land about thirty feet away from the bank a line of heavy, heavy rocks. And it's my thought that when that land was cleared originally by the farmer who first started out probably with ox teams he just dropped those off the bank. My guess is that those would indicate the amount of erosion and I haven't measured precisely but I've estimated about thirty feet that assuming that farm was developed back in the mid maybe the mid 1800s. That's something thought I would stick in there for your information because maybe it's an indicator of other traits of erosion too.

B: Yea I've read a lot of the coastal bluffs are experiencing half a meter a year. Certainly that's among the highest of the rates, and many areas are losing up to a quarter of a meter every year. That's that adds up pretty quickly. How about you sir?

G: My name is _____ I own and operate a _____ and I have for twenty-five years so I just simply add that I talk to many people over a course of a year on waterfront properties and there problems that exists for those type of things. I've lived at the on the _____ road for a good twenty-five years just as these two gentlemen have and I've witnessed a number of things. I've witnessed a couple houses fall in and I've witnessed what _____ related to. Also in my former occupation I have twenty-five years worth of work in a major corporation. I was exposed to many instances to a lot of erosion geology that type of thing. And so I have a pretty good background in this type of situation. Just having to do what _____ just commented upon about trees. I think a very interesting thing about my own personal property versus my neighbor's sand and our properties abut. That _____ a few years ago basically had to put in a bunch of rip rap to keep his banking in tact. My property is probably along the inner harbor or the _____ harbor that has heavy tree growth to it. Pretty much I have left that alone for except for some bigger stuff that I did take out so that I didn't have a big trees. And I have had very little erosion. A steep banking, there's a lot of gullies that I maintain where they were produced from a septic system a few years ago. But and I get around in my profession and I get around and I talk to a lot of people you know that have waterfront property both lake and saltwater. And listen and observe and there are a lot of things that the state probably does right but I'm an upset tax payer there's a lot of things that they do wrong.

G: I'm _____. I bought the my property in 1984. It changes or the time so I have to count it's the one, two, three, fourth house on the right. Down by the ocean, you can't see it it's hidden by the trees. In 1989 we built the house. I have severe erosions. I recently bought my neighbors property and that's about a fairly, I could say the shoreline goes from four feet above sea level to 30 feet above sea level. Especially the area of high elevation where we have the most erosion when we bought the property there were two oak trees old real old oak trees right yea I drove by and my neighbors would literally these trees were at least 20 feet from the edge. When we bought it there was about 2 feet left but because of it's big roots it was holding it. But finally of course they started to slide down slowly but surely. And it became a hazard because there was people down below walking back and forth. So I called the department and they came and looked it and said yup you can cut it. Cut them down but make sure they fall parallel they don't fall right into the harbor, parallel to the shore. The second one on top was the other one. So that's what we did and we had a huge

bare spot where a lot of erosion of course. The erosion is mostly not from the ocean but from above. From the big field and all of sudden there was a block of earth gone. Where you couldn't step on it you would fall down.

B: How much did you move each time?

G: At least four or five feet each time. The stairs going down they had to be moved and of course you can see trees are falling, all the time. So you always feel that there's much less erosion on the forth above sea level because it is protected also by the ledge. That's where I build the house. So that's in a nutshell also one important thing we put in a what they call an fringe trench. I don't know what that means that's about trench to the shore about half a foot maybe a foot down now it's of course overgrown again you can hardly see it. But it's also the has to do with the tides part of it. To catch the water and channel it into one spot that's helped too.

B: Thank you

G: My name is _____. My wife and I moved to _____ five years ago in 2002. We bought a little over ten acres. Our house was built in '75 that's kind of beside the point but we got in a touch more then we expected when we decided to live in it. It took us six months to refurbish it with the general contractor pretty much on site all that time. A lot of water damage but not from water itself but from just being at the ocean, not being properly taken care of or constructed. The house fortunately is about 250 feet back from the high tide line. We have about a fifteen foot embankment coming up from the shore and it's also graded up so I can tell you how many feet above sea level we are but my guess is that off the top of my head it's twenty-five to thirty feet or something like that. Our shoreline we've actually over the five years we've been there we've taken more and more of the land out of cared for grass and let it go wild. We extended the meadow basically all around environments towards the water. There is erosion on that bank. There is a big stand of pines in the one corner that shows signs of the erosion just on the water side of it. It's not serious it doesn't seem to move a lot in the course of a year but it's noticeable. It's not a risk to the house because we're a few hundred feet back. Things that I noticed when we moved in there were stairs to the water. There was a brook that runs along the side of the house. It's dry today but in a heavy rain it's a running river. Because we're much below the mountains and hills on the side of US1 an awful lot of water comes our way. In fact we had to actually put in basically subsystems to keep the basement clear because there was so much water, and that is a problem because we have erosion on the other side from sometimes the force of this water that brook has actually gotten bigger. I have a bridge that crosses it back up and that's almost wiped out the posts that are holding up the bridge across there. We then had stairs that go down the angle down the side down the bluff to the water. When I got there the at some point in time before 2002 some tides or some storm had wiped out the bottom part of that, the bottom six feet of that. We had to reconstruct it. Their hint I do have I've not had in the five years had to take that up in the winter but there have been sometimes where it has gotten pretty close. There have been a few days when I wondered with someone else and taken them out. It's maybe I'm saying six feet maybe in feet on that bottom section. They were specifically built so that you could pick them up in the winter to avoid having them wiped out. Both of my neighbors one is a much older home on my left, they have not necessarily but over the course of time they've spent substantial money on the ground and their house cause they are very close to the edge. My neighbor on my right built his home probably eight years ago in my honest opinion he built it to close to the water and he actually sold me my property. He bought it from the previous owner so basically he wanted to do that to protect his interest and protect his neighboring property. He sold it to me but as part of my deed now because he can only access his shoreline through my property. My deed gives him the right that if he has to do significant rip rapping to his shoreline that he can access through my property. So he's defiantly concerned that he has that problem and I'm obviously aware of it because if he has to do it he's going to have to let him come through my property to get to it. Other then that I don't think there's anything particular. I do notice changes but we've only been there five years. I don't have the prospective of other people who have been on their properties for like ten or twenty or thirty years. It's defiantly I mean it is a concern but not an immediate one to us because of our distance to the water itself.

B: Thank you, I've got this whole list of questions but they never work quite out the way you think. Ok so we're getting a lot of different examples of erosion, some different strategies for dealing with it here already here today just in our introductions. What do you think not just I know I'm just stating the obvious but what do you think are the causes for these issues?

G: Well I know in Waldo Avenue that this has been ongoing for a hundred years. When the first landslide or at least the first one I was aware of in '73 there was great help and interest. In fact I remember The University of Maine people

coming down and geologist just looking things over. At that time no one would say what's causing and that's been an ongoing problem. I think it's the water coming down from the hills and being retained in a basin and marine clay not allowing it to pass and after it got enough head of the water you get a weak spot of marine clay it just kind of goes. When the subterranean layer goes, everything at the top goes down.

B: Slump I think they call it.

G: Slump that starts with one piece and it's a semi circular action that kind of just follows it along.

B: Right

G: And what was it '96 when we lost two houses. It was then the city basically said we're going to find out what's going on. They hired an engineering firm to come in and survey the entire area. Did quite extensive samples of, I mean they even did some hand bourns even trying to get because some of it is very steep. There is a tremendous amount of marine clay. They've zoned what was bad, what was good, what need to be done, what should be done. About how much it would cost to fix in some areas. Some areas were coded red which meant needed immediate attention, some were orange, you know. But with that study there was pages of conclusions and lots of recommendations and this is what you have to do. And with 11 years the city of Rockland has done absolutely nothing for those recommendations. I've been to the city council asking them around budget to say let's put some money in here and start doing something. There's it says in a couple places, with 100 percent there will be a significant landslide within twenty years. Now that's within nine years. There's going to be another landslide there and no one's doing anything. A lot of us property owners I think would do things if there was mechanisms to do it with then our own pocket. There's no one working at that. What's causing it I think it's been there along time? I think there's some great recommendations, but they are just not fixing it, it's not being done. Do we have any good information about in the early days Maine as a state before it was heavily settled? Whether which areas of shoreline were heavily forested with spruce growth. You see on the islands still heavy growth I know they were timbered a lot to supply wood for block industry. But the reestablished themselves and you only have to look at them to see how those roots hang on I mean they are incredible. But I assuming that much of the coastal area mainland was heavily forested that way too and my conclusion would be if that was that that offered significant protection from erosion the way those roots grab and hang on. So I'm wondering if a lot of change erosion began to occur after strong forest, deforestation and agricultural development.

B: I don't know the answers to your questions definitively but other then wetlands Maine was almost entirely forest but whether it be deciduous or coniferous almost without any exception. Anything that is cleared now was forest before.

G: But if you go further down the coast I'm familiar with the Bristol area Ogunquit down that way. Oaks are predominating down there. There not unordinary like here on Penobscot Bay. Spruce is very heavy and well received that sort of thing. I don't know conditions seem to be better for oaks in that area so I'm wondering.

B: So I mean if I'm hearing you right one of the things that you're wondering about it whether or not the amount of vegetation that has allowed to grow freely along the coast has made a difference on how much water the ground can absorb. How much is retained etc.etc.

G: The shoreline is only not that you cannot cut anything. There is something about being 75 feet on the shore certainly is going to be worth at the day they developed that situation. In a small argument while protecting and maintaining that restriction looking for trees for support. They grow on all houses. That are concealed in due forest like preventing these trees from being cut.

B: Do you think that is going to be effective, is that reasonable? That was two different questions effective and reasonable. Sorry.

G: On of the recommendations in the landslide study was on these quite steep bluffs around Rockland was to cut trees and leave three or four feet of root of trees so they can branch out and allow the roots to live and maintain that foothold.

G: That in my experience is a very good recommendation the rule now is anything four inches or greater you can't touch and that to me seems to, I don't know how they came by that.

G: It's really a point system is it not?

G: yes I mean you can take a big tree down but in a definition of land if it meets certain parameters in terms of total points then it's substantially working now.

G: Every ten years too there is a time frame.

G: It becomes frustrating for a home who wants to sell who has some sort of growth in front of him.

B: You've got a million dollar view but you can't see it.

G: And so now he gets a half a million dollars for his property. The fact that you can leave the trees and they will take up the moisture and they do help retain the bankings if that's what you want to use. In many instances you can't touch them. And you certainly better not just wily nilly and go about and start cutting down without talking to somebody first. But that's that gets to be frustrating and it's hard to deal with sometimes.

B: Sure.

G: But you know you look at the old pictures of Camden harbor and what not. The really old ones like a hundred and fifty years ago. Not a pretty site they were all cut down for the lime kilns that's not happening now. They have all grown back but of course the spruce and needle trees only live a hundred year and people on the island are quite upset because of the fact that the trees are now getting to the end of their lifespan. They're all going to die and fall down. It could be a mess. And we notice on our island that the trees are older and are now turning grey and brown and that's just their lifespan. I don't think there is anything is causing it. It's just nature.

G: No re-growth of younger spruce coming in to take their place?

G: Some but I think they will need more sun then they're getting.

G: So you need to manage that forest but you can't.

G: What you said about the forestry plan it would be my property together with my neighbor that's about five hundred feet along the shore all the way to the Duck Trap. And three hundred feet up so that's quite a big, quite a few acres. That's like a forest a dense forest. So one would think that's there's not erosion in the bank, yet that's where it's the most severe.

G: But there are have been

G: Things fall down and so forth just over the embankment.

G: I guess the question is

G: It does not hold the water.

G: I guess the question is if there weren't trees there would it be eroding even faster?

B: I don't know and that's one of the things that I'm here to ask you folks about. There's lots of rules put into place. And get your reactions not so much that we're going to change them but not here tonight anyway but your ideas about them.

G: I have a question on your comment about the fact that you cannot build a retaining wall from the state to unless it's your house that's in danger. Is there a distance that they declare?

G: I think it is. I think it is determined how far back the house is from the shore. But there has to be a dwelling at risk. That my understanding is that the way you understand it sir.

B: I, You know to be honest I'm not sure of all the, I've done a lot of background reading on this so I'm not going to try to quote any thing chapter and verse. I'm not the right person for that. But I am curious though.

G: I been thinking about the global warming thing in one way because our property is twenty feet off the very flat and it's all grass, there's one apple tree. But it's basically open field. And it's not so much erosion from the sea it's the sedimentary and clay and there is so much moisture in the spring when it thaws that it's actually pushing water out and pushing soil out from under us going out towards the sea. And as we have warmer and warmer, longer and longer times of warm weather that is happening for a longer and longer period so I'm sure that must be speeding things up because you know maybe twenty years ago it was frozen and solid for a much longer period of time. Now there is much more thaw in the spring and there's a much longer thaw.

B: With this I think it kind of also ties back with _____'s comment, I think it was your comment on about you know the water that comes from the upland you know the water that falls on your property, it's probably not that many acres. You're not sitting on a thousand acres. That water mostly comes from somewhere else.

G: Just a further observation on that we're quite aware of it. In the sense that it's incredible to watch the movement that our house continues to experience is quite the fact the it was built in '75. This house that has been around for thirty some odd years. Constant movement of the land, we are sitting on I believe a certain amount of ledge. But yet I can tell that there are certain cracks in the wall that I repair every year that come back within 6 months. I actually have what we call an out garage. It's not attached to the house but it sits off further back up the driveway. I've actually reached the point where the driveway and the garage door will not open. Because the one side of the garage has sunk further then the other side so at this point I have it wedged up until I can get somebody to do something about it.

B: Sure

G: But I would have to admit I'm echoing your point I think we experience as much kind of up from the water erosion being down from where the water comes down from the hills on the other side of US1, that we are probably at a greater risk then we are from the ocean at this point. And in my particular case it's because we are far enough back. I've got shore ocean but it could very well be the case that the downward erosion is causing weakness all the way throughout the property.

G: One would think that the Route 1 would be a diversion for that.

G: Well it's all I mean in my particular case it's funneled down you know underneath US1 into the brook that comes across the property and that just comes straight.

G: That water you say you're getting from Route 1 are you inclined to that brook.

G: No I don't believe so. I think despite the fact that is channels a certain percentage of runoff from the hills not getting at all. I notice the water levels in the ground in the spring below my house. As I said to I actually wound up having to put in a subsystem just to keep it cleaned out. The perimeter drains were not doing anywhere near enough.

G: If you listen to something _____ alluded to a minute ago which was all sediment the clay just want poof. Buck shot and marine holds close to about seventy percent water. In the springtime or even if heavy rains it becomes super saturated. That means that basically the water has no place to go. It goes down until it hits the bedrock and there is absolutely no place for this water to go and literally it will pick the clay up and shoot it down. A lot of the problems in erosions are coming from surface water that's not to discount the ocean but there are a lot of problems coming from surface water. Take what you said take the house that has a lot of problems in the basement and the cure is to put some drains around and waterproof it etc. The bottom line is to get to stop the water from coming and same thing applies to the lands. If you can put drains that could get the water off your property then you've helped yourself a lot.

G: The French drains is that's part of the recommendations as well as to move that stuff off of the land to get it out into the water in the ocean where it belongs.

B: Without it making the transition over that vulnerable area.

G: The end of my property I can spring and fall it's very wet is to stand at the edge and look down four, five, or six feet to the marine clay and watch the water come out. I mean you have streams in three or four different places so it gets very saturated.

G: Is marine clay different from clay? I mean is there something in particular?

G: It's just a different type of clay that's all. Marine clay is a bluish clay and then there is a buckshot clay.

G: Oh I see.

B: And there can if it becomes kind of slippery when everything around it.

G: When it gets super saturated that's when it gets to that gooey slippery consistence.

B: Right.

G: In _____'s comment it sounds like it's the same phenomenon that happens in glaciers. As they start to melt the water goes down and gets underneath the glacier and becomes a lubricant. Then the glacier then slides off perfectly.

G: I would the general subject of global warming that is one concerns us not quite from the standpoint purely of what our property is but the general issue in two regards there was actually a good article in the Boston Globe Sunday paper about the more great or significant general coconscious amongst a lot of scientists that in the next hundred years the glaciers melt and everything else the ocean levels will rise a minimum of a meter. That many of the scientists have concluded that if we stop using fossil fuels tomorrow we still would have a meter rise in the ocean levels in the next hundred years. And what they're talking about is that the examples they gave are parts New York City that Battery Park no longer exists these sorts of things. But depending on what you believe or what you don't believe I think that the consensus is somewhat overwhelming these days that this is a constant problem. One of the things that concerns me even though I'm not in immediate risk for erosion of property is the probability of significantly greater number of serious storms coming off the ocean. The bottom line is Maine has been relatively lucky and relatively insulated from hurricanes. But in my mind that a certain probability that exists if there are going to be more of them every year in general because of the rising the temperature of the water all the other factors that are involved. Ultimately the probability is that those of us that are on the water here are going to get slammed. Maybe not as often as Florida or the Carolina's or anything else but the probability indicate that it will start to happen her then it has over time. That's I think that should be an obvious concern to everyone who lives on the water. Are our houses protected I mean and look at mine and it's certainly not hurricane ready like I would be if I lived in Florida or the Carolina's. It's pretty exposed you know.

G: One meter and a couple hundred years from now our homes will be gone. Now what we're talking about I'm a firm believer in global warming. I see it in Switzerland that is where I originally come from.

B: We're on a good topic and this is a perfect segue and I don't want to interrupt you but I do want to say this; you've mentioned where you've gotten some of your information as we're talking about this one of my questions is where do you get you're information, where do you trust. If you could work that into what you're about to say that would be super.

G: Well I see it in Maine too. I see it in front of my house. That basically we had a beautiful summer but not too many really hot days. But we were swimming in front of my house everyday in August all the way into the first week of September. Ten years ago or twenty or ten years ago we tried that we would swim one or two days every summer if that trend continues then we would be swimming every year.

B: Maybe you're getting tougher.

G: Maybe, it continues, nobody knows. But it's amazing every year we would go longer every year.

B: So where do you get your information about climate change, global warming, sea level rise these issues.

G: I get it as I said from the glaciers in Switzerland. The glacier I knew as a kid. There was hotel and restaurant that we visited with my parents. Last winter you could walk a mile and a half, before you see ice. That's only in less than seventy years, sixty-five years.

B: Wow.

G: That means that the ski lift towers which were built in permafrost, they start to move like a loose tooth. So as they say because of the Alps. All the countries along the Alps, Switzerland, and part of France, They will be experiencing more extremes and suffer more than any place because of the Alps melting.

B: Thank you.

B: Well I mean kind of one of the things was to find out about is where do you guys get your information. Do you go on the internet, do you read the newspaper, and do you look somewhere, where do you trust to. Who would you trust? Who wouldn't you trust?

G: Where I get my information is where I don't trust. For me the media is someone's giving you an opinion. He may, he may not. I've seen it that you've got to decide what it is they've said and.

B: So what do you trust most?

G: My judgment.

B: Fair enough.

G: But you're not a scientist? Are you.

G: No, I'm not a scientist. I believe what I see with my own eyes.

G: unless you're going to actually be witness to see a sea level rise on your own shoreline or you know we can talk about the seasons how they are hotter, they're cooler. Actually I think this summer was a cool summer but at a rather normal rate though but from the whole issue of global warming it seems to me that's pretty much in the hands of the various of scientific area's of expertise that are monitoring and scandalizing it. And if you're going to look at the media I guess the only alternative you have is to have a fairly balanced menu of the media that you read or listen to. In my own case I listen to public radio a lot I know a lot of people think that has a very leftist slant to it, I don't. But other media Bangor Daily News frequent articles on global warning. Newsweek I find I have take the National Geographic. The National Geographic has had some incredible articles on global warming. It's interesting how cause I've been a fan of Geographic's since I was growing up and how they take on today many of the serious world wide issues. Everything from pandemic flu. I think the latest issue was how to grow bio fuels right, You know they analyzed the various approaches to coming up with bio fuels that are in the end actually more consuming or of putting out of CO₂ then what you're diminishing it by. So my answer is to try and read very broad. Bred of media but I'm at the mercy really when it comes to this that the scientific can give you. And of course I know that has been the whole issues between the administrations. Well there are a few scientists who say no. Well there's certainly very much in minority from everything I read we outnumber them. Am I someone who can analyze the various arguments on either side. In that sense I say I'm not in science so I'm at the mercy of the media.

G: for the first time in that year, an east west (arctic) passage. You can comprehend what I've seen. I believe what I've seen.

G: Sure. What you have some evidence that you see first hand. One of the interesting things that I've come across recently and this is something you might pursue. There is actually global cooling going on as well.

G: Have you read anything about global cooling?

B: I'm aware of it. Yes some area's near places that get hotter and there are places that get colder. There's places that get drier there's places that get wetter. Everything thing that has an upside also has a down tick.

G: Right

B: But I actually want to kind of interrupt here a little bit. Although I like to let things flow there's a few other things I want to get at and it's almost 7 o'clock believe it or not. Um I'm sure some of you are aware of that but others maybe have lost themselves in this conversation. It's quite interesting. I'm asking about information and I'm wondering about from other folks where do you get your information? When you seek out information and you want to know, I want to know about such and such maybe when you hear a little about it and you say. Oh I want to know more. What do you do? Where do you go?

G: Google. Probably my primary source today and generally speaking there's enough there so you get a fairly balanced exposure to a subject.

B: Ok

G: It's not always all one way or another.

B: How about other folks? Cause I want to get a smattering in the whole group.

G: I got a lot of information from reading and seeing Al Gore's book and movie. It's pretty graphic on what happened to the glaciers.

B: Ok

G: Are you talking in relation to this, or in general?

B: In relation to these topics. In particular but it probably is a statement about you in general I suspect. Like if your one that's known unless it's about a recipe it might be somewhere else. But on these topics where would you go. If you say I really want to know more about that where would you look. Where would you go?

G: Well I've tried to keep up with things. I don't necessarily have a lot of time to go and just make a mess of stuff. I've read the New York Times and I subscribe and I'm a member of a lot of conservation organizations. And my husband talks at a lot of conferences so often I hear some things.

G: Where I would go for information of protecting erosion would be subscribing here. Coastal bluffs have different densities. I have no idea where to get information about that.

B: Well that's great, because that's my next question. Where would you like to be able to go to find out more about these particular things? Now you mentioned the study that Rockland had contracted. And so you would probably look at that. First and you have where else would you look?

G: Probably one of three people in Rockland have heard it.

B: Could be.

G: I would like to see local press address this. It's a common problem for everybody in certain areas. Especially in this area, talking about bluffs.

B: Sure

G: Like everybody here is talking about it.

G: I would go to the web and experiment with a few descriptors of the information that I wanted. My experience in one of every two descriptions you use you're going to find a fair amount of information. Which may do nothing more than lead you to another source.

B: Sure.

G: But it's a way to start. Sometimes it's a little tedious you have to be somewhat committed to sitting there and pouring through some things. But it's one of the most consorted I've ever found that gets some information about a subject.

B: Sam how about you?

G: Well I rely on the media pretty much. Not only the newspapers but magazine and television. I watch the Al Gore film that you spoke of and very much impressed with it. I was asked what I would do about it. I said I'll write my niece about it. I did write my niece and she replied that she did not have time to watch but she had some of her staff watch it. And they were very impressed with the accuracy of the scientific material that was the basis for the film.

B: If you've got a specific question about what you could or couldn't do with your property or specific question about coastal erosion who might you contact?

G: Where would you start?... the realtor.

B: The realtor. Here we go. You could go to the code enforcement officer. _____ would go where?

G: Local planning board.

G: DEP

B: DEP, Maine?

G: Yes

G: Corps of engineering.

B: Any others?

G: Local land trust they have information.

G: The university.

B: Anyone up there in particular? Or at any of the Universities? Anywhere? That you would seek out. That would require contact with.

G: Being here I would contact the University of Maine.

B: Fair enough.

G: I have to say I'm not aware what you're doing out there I wouldn't even think. The only person I know about that has any promeneses is your professor whose great expertise in glaciations has gotten a lot of publicity lately in studying the retreat of glaciers. I don't even count the couple of articles made. But that's the only connection I would make for your posing this question.

B: Take a look at these and I'm going to probably start with this Camp Ellis and the after hurricane Bertha after hurricane Fran, which was pretty devastating sequence of shots. And just kind of ask for your comments on them and see.

G: Anyone know the dates of those specific hurricanes?

G: Bertha? Fran?

B: the pictures certainly tell quite a story.

G: One of the things just as a comment, in a hurricane or even the edge of hurricanes one of the risks all of us may deal with depending on what our properties are like especially if it brings significant rain is that we have a risk from both directions. That's what at least one of these pictures after hurricane Fran looks like.

B: uh hm.

G: Looks like they had both problems from the ocean and from behind them. You know, the runoff.

B: Well I mean actually what happened in this sequence is we had over wash and so much over wash and so much pooling of water behind that as the water retreated that is just whoosh. It just took the land right out with it. Your properties aren't like this and I recognize this. This is not like your properties. I have some photo sequences from Rockland. I chose not to bring them because quite honestly that might not be, it might be kind of difficult for some folks if it was you or if it was a relative that has lost a house. To look at so I brought some other kinds of photos for this group and I also brought the photos from Camp Ellis, which is in Maine and it not so far away. My question is, what should these people do?

G: This is low flat and sandy.

B: Low, Flat and Sandy.

G: That's where they shouldn't build.

G: They must be facing some pretty high insurance rates.

B: It's almost impossible for these folks to get insurance. They get national flood insurance but that doesn't really cover their properties.

G: FEMA won't even protect them after a while.

G: Just seeing what I observe when something catastrophic happens to an individual's property due to mother nature that the individual and the families really feel the government should assist them financially one way or another. Government's position is that its private property therefore you're on your own. That's the frustrating part particularly if the family deems that the problem might have come as a result of some action or inaction that the government did not.

B: Right, Are you familiar with the Camp Ellis story?

G: Somewhat.

B: So in this case the sea wall which was built out or the breakwater rather which left the mouth of the Saco River open for commercial traffic. Built by the army corps of engineers in the 1800s. Was lengthened further in 1938 I think. It extends over a mile out into the ocean, a long way. The waves come in along the side of it and they are kind of amplified if you will and they come in and scour out the sand from Camp Ellis. And I told some of the folks that were here before we really started that they've lost now six rows of houses that were on the tax map in '38. Are now in the water, it's not like they are damages they're gone. There is no land left it's just water there. These folks are they had some pretty strong opinions when I met with them last week at this time. Would that change your opinion when looking at some of these sequences.

G: Of what, changing?

B: What should be done or what should be done or what could be done or what the public's responsibility should be versus private.

G: Well one of the things that happens with the public's responsibility if you take our issue in Rockland as if we have another landslide that gets more significantly into the streets, the water, or the sewer and the electric. I mean your whole infrastructure on that whole end of town has collapsed. Then whose responsibility is it? So it really is makes good sense for everyone to try to fix the problem because it is you know we're just kind of buffering the public utilities if you will and in some cases it's only a few hundred feet.

G: I guess the problem for me is; is the problem being created by the way the municipality has been developed. For instance, drainage off Route 1 in your case _____ is it a natural cause from say the sea itself I mean. That issue seems to be a play in a lot of the building of the southern coastal properties where you pour more sand on build again and they get washed away and the government ponies up again. A corps of engineers goes in there millions of dollars to do it time and time again. It seems to me if somebody was to take the risk if they know what the risks are to build on that property if they know they can't get insurance and you know they are facing an act of god in that sense. Then it's there tough luck if it doesn't work out for them. That's the risk that you go into. If its close by some problem in the municipality is creating to magnify their situation then I think it's certainly a legitimate.

B: It's going to cost 26 - 34 million to save a few dozen homes. In Camp Ellis, that's the cost of the break water reconstruction. And then there is disagreement about its ultimate effectiveness.

G: On the other hand this whole regulation. You peruse that. This whole regulation where I have a friend who has property at its called Great Hill in Kennebunk the mouth of the Mousam River. And he told me just what you told me, told us, that once your properties gone you cannot rebuild. Well he's irate the government telling he needs this is my property I've suddenly lost my value, that to him is just in a front to him as his freedoms as a citizen. To say in fact the government is taking that property away from him without any compensation.

G: What about the insurance?

G: Well if he can get insurance I guess. That becomes his problem. I'd submit to you that the government has taken your property more and more everyday.

G: Certainly restricting it.

G: Certainly taking some part of it everyday.

G: Can you see how more and more every day we lose regulations for perhaps it evolved around safety but never the less there in your house. You're local zoning issue for having chickens on your property. You can't do this and it gets greater every year.

G: And the way that I do it is its inevitable conflict between private interest and community interest. That's why I get back to the municipal side of a problem created by perhaps its municipal run off. It's exacerbating a slide in your marine.

G: It certainly is it could be a subdivision with inadequate drainage plans so everything is wound up here in this area maybe be a part of that. I don't know. Certainly we learn I know a lot more now then I did thirty years ago about this. But I think it has to be a partnership at least the community and the private owners.

G: The other frustrating point is that particularly on the Somerset Rd. One of those two houses went in, they still had to continue to pay their property tax until the following April.

B: Their house slid into the ocean they couldn't rebuild, and they still had to pay taxes, did they have room to rebuild?

G: No. It was taken by the city.

B: So what were they compensated?

G: \$5,000.

G: That was how many years.

G: 5 Oh my gosh.

G: How many years did that take?

G: It was years. Then they had to reclaim those two pieces.

G: And that was from the state or the community, the city.

G: The city paid the property, that was only 10 grand for two pieces of property but and then the work reclaiming of the whole thing so that the road and water and sewer and electric and everything wouldn't collapse into it.

G: It was up to the street.

G: It was right up to the edge of the street.

B: Let me ask a question then. Was that, is that fair or equitable?

G: No.

G: No, would you operate your business that way?

B: So but I'm getting mixed messages, I'm trying to figure out. Let's put this on pause here for a sec.

G: I don't know if I would disagree with you, I have to be honest. When you look at the number of disparate interests that come about just with discussion of what's happening with the waterfront. In its tiny little place like Lincoln, it astounds you. I mean there's almost what we have 1700 voters in the town. Many of them aren't really residents of the shore but if you have an item come up like shore land zoning, the opinions are so varied the ability of getting a contentious on almost any of these subjects is very very difficult. It's the property owner who wants no restriction, so that it maximizes its property value. It's the neighbor next door who doesn't want anything on the water because it may impede

G: A view

G: A view it's the fishermen who fish coincidentally and I've got lots of lobstermen who fish right outside my property. If I wanted to put a pier out there I would disturb their fishing bluff. So they have a view. I mean it is amazing and I don't know if it's possible to get a contingent of honest people as to what you can do with the waterfront from the community standards.

G: Isn't it all up landed?

G: Well generally that's what drives almost all of you.

G: yep. There's a famous story of a wealthy person around here who decided to cut some trees down on the ocean and they reported him. They told him he couldn't do that, that they were going to fine him. He had a bunch of trees that had to come down not much but it was fifty dollars for every tree. They worked three days with his crews cutting the rest of them down. So it's all about money.

G: But there's always going to be those extremes. There is this middle group which are generally capable of working with each other and generally interested in conservation and as slow and hard as it is I still think if there is information then..

G: You can hold the line or you can improve it.

G: Hmm, what in Camp Ellis about winning?

G: Why is it, Rockland's had a study for eleven years and nothing's been done? Money, money.

G: The mountains are so close to you.

G: and the guy that has built the glass house has a lot of glass in it. And when they this was a church that redid their property they built the "mountain" between them and the ocean.

G: Now wait a say that again, I've always wondered what that big mound was all about.

G: At best that's really a there's a gully beside the church and the field that gully has an awful lot a marine clay. There was a development that was going to come in, a Rite Aid I believe, they were concerned about drainage from that whole area. They put money into this, the church put money it, and the city put money into it. And this was supposed to be filled in, it never happened.

G: Price went up?

G: The price went up, the permits ran out, the church had to take care of their property which was collapsing and when they did that they cut the banking from here to here, basically took that big chunk of soil put it up here. To be land spread in the gully but they got as far as building a little mountain.

G: but they also let them bring a pile of rock.

G: Schist rock or shield rock. And the last month the DEP said no, that's the wrong type of rock you're not going to put it in there.

G: And that was, that was really under the granite that was going to be under this huge drainage pipe.

G: Right.

G: But maybe it wouldn't have been visible, it's money.

B: What about conservancy groups?

G: Oh they are fighting they fight tooth and nail to prohibit the development of anything, anywhere possible. Is that about money?

G: I don't think so.

G: What is that?

B: That's a major, that's a major constituency that is influencing regulations.

G: Well I gather most of these groups have as their main concern environmental reasons for taking the positions they do. Habitat, wildlife, you can even argue the economic side to maintaining those kinds of positions in the state. Tourism, hunting, or that style of life many of us like on the one hand and yet are willing to destroy the others to suit our own perhaps individual short sided purposes. So it's always a good trade off. What interests me about our conversation so far is we aired a lot of current contemporary problems that we see in our own situations and that is well and good and it's been a learning experience for me hearing, to hear all this. But I felt the purpose was to primarily focus on global warming and if that's the primary purpose, how do we focus this discussion on how we anticipate that will affect us or it doesn't at all then we are not concerned with it or if it does how are we going to get ready for that. I would think.

G: I would think for one thing if I were coming into the state and buying a shore front property I'd want somebody to go to that could give me a projection under the current scientific models of ocean rise. In twenty years will my property be under water? Is that a fair disclosure element to buying property along coastal Maine today? I would think it was.

B: This is a perfect segue because actually in my little follow up sequence, which is the end of the formal discussions. If you knew there were going to be events in the next thirty years that would significantly damage your waterfront property, what would you do starting today?

G: I tell my daughter her inheritance will be reduced.

B: Fair enough.

G: For us in Rockland, we know without a doubt we're going to have a significant landslide in ten years.

B: And it's not going to stop, it's going to keep going.

G: It's not an if, it's a what, that's scientific, that's well written.

G: Can't you use leverage like find some nasty leverage, like keep pumping in the grass what's going to happen and scare people into action.

G: Then I've been to the city council three times the budget time asking them to do at least the public segments that they are supposed to do, we have no interest in that. Me personal what can I do? I can go out and take out a hundred thousand dollar loan to fix my property. To the effect that maybe, maybe it won't be my property. Maybe it will be my neighbors that will affect my property anyways, so where am I there.

G: But can't you go to the press and really keep suggesting to the public in that area or to the town what's going to happen if they don't pay attention. Can't you use the press to your advantage?

G: I've tried.

G: I don't see how we can stop the rise of the tide coming up. To see how high our old, old house is sitting above the height. It's sitting on ledge the house is. Talk about cracks every spring again and it settles down, then it partly on land partly on soil.

G: We're trying to figure out how far the water would come before it starts taking our porch. And they think it might be worthwhile to jack it up a little bit. Or jack it up a bit. I don't know, I'm worried and that's going to happen very quickly.

G: I think there are two things that everybody can do. One which personal look at your own property and do what you can to protect it. The second one is get involved in the whole movement of start and conserve, what we all use ourselves. I mean what we've done in the five years that we've been there we basically threw out all our conventional light bulbs, purchase CFL's? My wife totally resisted the way they look. We have dramatically cut our oil usage but putting in a wood insert and starting to burn renewable source. We changed out certain usages for electricity, changed some more efficient appliances. I think one of the biggest problems we all have is that we can stop short and just try to protect ourselves but I think we all have a greater obligation and that's to get involved in a greater way to change the way we're dependent on fossil fuel. We've taken a significant amount of our acreage out of cultivation stopped the pesticides and all the rest that had to be used out there. So I mean I'm not trying to make unusual point about individuals but I think until the point when our society, our society in particular the United States gets more serious about its fossil fuel management. Where we and other countries keep contributing to the point that it's inevitable that you won't be able to protect your own acreage. Whether it's yours or your children or your grandchildren, I think it's it takes the better movement, then just putting in rip rap to be perfectly honest.

G: I've been fixing my properties from the erosion and whatever I did everything I can. Building a retaining wall for it. So I did what I could afford to do and so far it's helped but of course the sea level is rising. And it's not going to hold. But I can tell you that thirty years from now when I'm not here anymore that what comes afterwards I don't know how

my two sons are going to what they are going to do with this property. I have no idea. But as far as I'm concerned that's it, I can't do any more.

G: You talk about risk, in the future and I own a piece of property on Ellis I know that the risk is that this is going to happen. If I lived up on a mountain, there is less risk.

B: Where's your house?

G: On the water however I own up on the mountain and there was a risk of a forest fire.

B: Maybe it's more forested today and then it has been since just after the arrival of the settlers.

G: Do you think that if this continues in the near term, even in our lifetime that the economics of property values may change? In the sense in if you're close to waterfront property is being the highest, because it's quote or quote more desirable could perceivably be less desirable?

G: Well I think you're seeing that in Florida.

G: Yep.

G: People in Florida are having great difficulties selling waterfront properties because of insurance. You can't get insurance, if you can get you quote you can't afford it. That's the thing. Insurance companies make it so that you can't afford to stay here they are going to minimize their risk and if you want to take the risk then you are doing them a favor and that may be twenty thirty years down the road.

G: Well if it's not just Florida, and the cost of insurance as far north as Massachusetts is starting to get pretty high.

G: What do you think would happen here if we had a hurricane in the month of October that was devastating to the state of Maine and next September we had another hurricane and then the following September.

G: We kind of luck out.

G: The insurance rates on the Cape from what I read are getting pretty high.

G: and that's not all that far away.

B: Thank you. How about other folks. What do you think? So really great comments, this is a great conversation. You can see how I sat with the Camp Ellis folks until 9 o'clock because it's ten minutes of 8 right now.

G: Well we own a property in Florida and we just put roller shutters on and it makes me think that maybe people who live on the coast here should be putting them in as well. Because what it does it protects the section that is going out through your windows and it's really important to have.

B: right.

G: It's very expensive too.

G: We went to California a few years ago how many of us have seen things much larger in California with houses come down on mountains. We were traveling up Route 1 up the long hill with the sandstone looking up you could see the deck of a ranch type house that hung out over Route 1. We were looking up under neither the deck so you know this is going to happen. Right next door is a four thousand square foot home being built.

G: Can they get insurance? They don't care.

B: Well that was another interesting comment not from anyone in these focus groups but in some of my background research calling and talking with some different folks. And they said how much did I spend on this house, I spent what a million and a half dollars. I don't really care if it's gone in ten years. That's worth it. For ten years

G: That's well worth it.

G: It doesn't really matter if it's wiped out well I've gotten my money's worth out of it.

G: What's all around us is an influx of people with so much money.

B: Isn't it. I was just I was blown away.

G: A lot of money.

B: Talk about high rollers huh.

G: In my situation as I explained both the residences are on high land well away from the shore so even with the most dire projections such as global warming I don't believe I'll be directly affected.

G: We'll all be coming over to your house.

B: There you go.

G: right and as _____ knows really I think he and I share more urgent concerns on the whole incredible rise in coastal property evaluations. I'm kind of plan on doing and it remains if it'll work for us is to come under tree growth. Now that we have enough acreage so apparently we can plant along the coastal corridor and harvest under existing tree growth. To get out of the 150 foot strip of gold plated property and what I think it will have environmental consequences too. It might stabilize the soil better hold the soil and be good for the shoreline.

B: but your property will become worth less, or will it?

G: Not necessarily.

G: Well that the question. You often create a conservation or a conservancy trust for something if you have adjacent properties that you own to it they become more valuable because who would like to back up to a trust. You know. So that remains to be seen whether that would mean property that's further back that has high tax is more valuable something that isn't clarified. It's just getting how you are going to hang on. How are you going to pass this on to your kids? In my kids both children would love to have it at this point.

B: Who wouldn't?

G: Right. So it's a matter of playing all the angles you can. Legitimate but anyways that's where I am.

G: The builder who we had on our house has a lawyer who looks very carefully into all the loop holes. And he must pay a lot on loopholes if he's doing what he wants and one of the issues behind us is the wetland swamp stream coming down. And evidently he has figured out a way to donate, he has bought property inland donated it to land trust get some kind of compensation to that which then he can do what he wants to the wetlands. So he can a third of that habitat now because he's manipulated the conservation rule inlands to get what he wants on the water.

G: But it doesn't have to be that far inland.

G: Oh no it is just a few hundred feet.

G: Yea exactly.

G: and so in this matter of money and legal advice I mean you know you're going to find a little.

G: No, no I know but he's fulfilling the laws by giving it the land trust and then that gives him leverage no not the land trust.

G: I think it would be very useful for all of us really to know the likelihood that it will be damaged -- the potential future of the property to buyers to a view where not only the protected rise in sea level norms but surge flooding, frequency of hurricanes, those sorts of things to really get some clear idea of the risk for us personally in the area where we live.

B: it's very specific to what kind of property that you have.

G: Right.

B: For all of you that have coastal bluff property, I went to talk with a couple of the geologist at the University in part of my background research for coming in, they said it will make very little difference how much sea level rises in terms of the rate of bluff erosion. It may accelerate a little bit but not a lot. I mean the downside is that even if sea level doesn't rise at all it isn't going to slow down. Bluff erosion is more of a fixed phenomenon going inland until the shape of the coastline changes due to the sea kind of coming into different layers of rock or different layers of sediment that work differently or erode differently. That you know the issues that are going on in Somerset along the Somerset Rd there are just not going to change. No matter what under any scenario. Which made me very curious with this group because that the majority of the kind of erosion that's going on in this portion of the state. Unlike the Camp Ellis and Wells beach, and York Beach; for these areas it's very different set of circumstances.

G: Well some of it is predicated on whether anyone does anything about it.

G: I did find it interesting that your remarks about finding alternative ways to do things and get away from the fossil fuels.

G: And you would think a place like the state of Maine where you would get to more alternative measures easily when you couldn't put in what are the big wind generators up north and I suspect if someone was going to put some of those on Dodgers Mountain there would be a human cry like not in my backyard.

B: Mount Battie would be an excellent place.

G: Would be most wonderful

B: Wouldn't it. I think we could probably fit twenty or thirty of those guys up there.

G: That's right.

G: So there's issues with NIMBY.

G: and that's the public side of it, you also have the more public side of different forms of energy. Maine has not necessarily been on the forefront of creating incentives for alternative energy. It's one of the slower states. There are still are no potential tax incentives for the wind power. The incentives are there for solar but there are none for wind. And you look at the technology and the technology is changing pretty dramatically but the states not doing anything to induce it. One of the problems that the state has is that the state actually generates more electricity into the grid than it uses. So it creates a lack of magical implosion toward trying to make alternatives greater. The state complains about a lot of the rest of New England benefiting from the power needs putting on the grid as apposed to what we use.

B: We also don't own our utilities.

G: Yea

G: That all belongs to Florida power and lighting, most of the generation.

B: Ah yea that and Bangor Hydro belongs to Emera no something like that it's Canadian.

B: Yea absolutely.

B: I think that's a really open question right now. I mean I think the idea of this group was trying to infer from what you're concerned about what your interested in what you're focused on what you think is unfair or what you think is reasonable. Where you get your information, what would be a logical way for them to approach some of the specific ideas that they want to lay out for property owners and communities to consider as they continue to develop and redevelop and repair and maintain coastal property.

G: It's their goal the goal of the program is to essentially become out information source of choice. Is that the ultimate intent of what they are trying to figure out?

B: I think they, I think that they want to be one of your first choices of places to turn for information.

G: Much to _____'s point I don't think that most of us would think today to go to The University of Maine as a source of information or leadership or guidance or anything on these issues. Because we certainly don't know of it as a voice of authority.

G: Because the amount of information is overwhelming.

G: If there is creditable proof which would synthesize and prevent the everyday person something they could comprehend and actions they could take themselves. That would be terrific

B: Do any of you belong to Save Our Shores Maine?

G: No, I've never heard of it.

B: Almost everyone is my Camp Ellis group did. It's you know it's a special interest lobby group if you will it's not really a lobby group that's not quite right, it's just a special interest group in Maine they've hired a lobbyist to go work at the state legislature you know pursue their interests and to protect property owners rights to repair their property or protect them. And that's one approach.

G: But it has to be comprehensive, it has to be because Save Our Shore sounds like me in my house when I want to save my shore. It's got to be overall view of the ways we can all compromise.

B: So what would you be willing to compromise?

G: Um.

B: Sorry it just it was just begging to be said.

G: No that's a really good question.

B: So where would you I mean that's not just you _____. Anyone what would you be willing to compromise on if you would?

G: Well the restriction on what I could do, I would compromise.

G: I think it would need to be the property owners that need to compromise maybe it's the state DEP that needs to compromise.

G: Right, exactly.

G: They need to regionalize their thought processes and be more specific instead painting everything with the same brush.

G: yea exactly

G: You know I think that's the key. The situation varies so greatly between Camp Ellis and Penobscot Bay. So you can't rush it. General policies don't apply to both.

B: But that's not fair. I tell you, your house forget it. We're not doing anything to protect it and it's going to be gone. But it's your place, and you know that you can put down rip rap you can put a sea wall because we can kind of reduce erosion at your house and fairly long term view. But it will impact others.

G: Now that's a very real concern. It should be localized because we can't put up barriers.

G: Can it be based on specific criteria that the use strategies or solutions [that work] in that area.

G: I'm unclear if a house is washed away or a it's eroded in front of the house would it be the state or the government's job to put back the way it was before or now they say you build it tough luck fix it.

B: The government isn't my knowledge isn't responsible for rebuilding anything directly indirectly true the what's the name of the flood program?

G: FEMA.

B: No not FEMA there's a special federally sponsored flood insurance program. Anyways whatever the acronym it's got another government acronym. Only in that sense do they would they rebuild that place or give you money to rebuild but if it's more then fifty percent damaged and it's on for example a front dune say in Camp Ellis these guys here that you see wiped out this is they can't rebuild and nothing can be rebuilt on that lot.

G: And if they rebuild under the insurance program the next time they go through, there's nothing they can do. And again they'd have to give up the property. I think.

B: Yea there's a little more to it. I wouldn't want to say unequivocally it's this or that. Asked if whether you're on a front den or a back den in case of the beaches in terms of property that's located elsewhere. I don't know you will have to be able to satisfy the setback require for new construction.

G: Does the state of Maine have stronger environmental laws.

B: I don't know.

G: My perception is that it seems as though.

G: Other states seem to develop and build without a controversy and the snags that go on in this states, it's just the impression that I get.

B: You could be right. I don't know.

G: One of the questions involved is that much corruption is there in other states?

G: Of course that's a whole lot of corruption.

G: Exactly but I mean that's.

G: Give you an example of what I'm thinking about. Four of us were playing golf in Florida and we came to this hole on the golf course and one of the natives down there said now be careful up here on the right because when we go around the corner there's a lake there and you don't want to go through it. I get up around the corner and was like holy

cow there's no lake. The lake was filled in and there were seven houses there. Now try to do that in the state of Maine those were the first words out of my mouth.

G: How many waterfront places could you build here by filling in? You couldn't you couldn't conceive doing that ever.

B: Is that good or bad.

G: Yes

G: It might be a fact.

B: No I'm not challenging it I don't have enough knowledge to say on way or another. But I will ask you that as a group is that good or bad. I heard a yes.

G: Yes is good and bad.

G: DEP is too strong

B: Too strong.

G: There are a lot of things you can't do.

Town officials focus group 1:

B: What I would like is a quick introduction, who you are what brings you to this table, so were you invited as a property owner or someone who is representing an agency or town, and they in two minutes or less give me a great example of a way that you have dealt with some surprising erosion, in your job at your property things that happen that you really maybe didn't anticipate happening or were surprised at the severity of it, just a quick description.

G: I'm _____ from _____, property owner business owner, Inn keeping I live at the mouth of the _____ River, my family has been there since the mid 1600's. Most surprising thing that well, you know when you live down there I was brought up on the property, I guess nothing is surprising when you see different things happening. I will say I have seen the water level rise, I am a graduate of the University of Maine Orono, and unfortunately the ones over in the arts and crafts division were booked and I ended up with the engineers which was mind shattering, but there are a lot of things that I say contribute to sea level rise so I'm a little leery about the fact that my family over the centuries and today are contributing in so I get my backup a little bit with some things that _____ and I have gone through some of the organizations and trying to deny us our rights to protect our property as the various storms have increased in severity or the water levels have risen, I guess the most sever storm of 1938 was one of the worst ones to hit Gooch's Beach and that went right through the sand dunes on our property and went right through to the creek but since that period of time, things have been building up until probably the storm of 78 and that was pretty sever one at that point in time and we did repair the wooden sea wall that was across the sand dunes to prevent the storm from going all the way through again to the creek, and we also put about a 70-80 foot cement wall along there, which has stood up in the storm of 91,2,3 somewhere in through there, which took out the whole middle beach road, and wall. We have no wall, a cement wall and a sea wall its difficult to measure down on the beach side where the sand has disappeared except when you start looking at the post cards that were taken over on the middle beach to show where there used to be sand or on the other side of the sea wall and the other side of the side walk, that is no longer there now, at low tide the water is up against the wall and when I was young, in front of the _____ Hotel, which is a big brown hotel, there was sand in front of that now its pretty much at high tide the water is halfway down Gooch's beach. So we've used various things to protect the property from serious storms.

G: My name is _____ and I'm a beach front property owner. I live on Drakes Island in Wells and I've probably been on the beach since 1972. I went through a big nor'easter in February of '72 when my place got flooded out, same thing happened in 1978 with the big blizzard and suffered some damage with great big ice cakes that were washed up onto the beach. Also survived the Halloween storm in October '91 which was quite a surprise, we have a below ground basement and we usually board up the windows but nobody expected anything to happen and we totally got flooded out, and the Patriots storm this last year, in fact we probably have more damage than we did in the previous storms. That was a slow moving 3 day storm so you had 6 high tides and all 6 of them came over the wall, all the other nor'easters were just one high tide those were fast moving storms. When we bought the property in '72 we had an 8 ft high sea wall with 2 ft footings and the sand was probably about a foot from the top of the wall and then in '92 all that sand was washed out and we lost our sea wall. The harbor was dredged and the sand was put back on the beach and about 18 inches on the top of the wall and in about 3 years it was back to pre dredged levels so we have put in a new sea wall and I thought I'd help my property out by putting some inserts in the wall, putting iron pipes and boarding, and one wave knocked the whole thing right over. So the next time we built a little retaining wall which was about 10 feet back from the sea wall, it stands about 3 1/2 feet tall, made of landscape timbers and that survived for about 10 years and that was knocked down in the Patriots Day storm. I didn't have any back support, I plan to rebuild it.

B: How far down were the supports on the original?

G: They were probably 3 feet down.

G: I'm _____, director of emergency management for _____, prior to that I was a local director of emergency management in _____ for Mr. _____ for a number of years, and have lived through a number of the storms, the no name storm which was very hard on _____ and did a tremendous amount of structural damage and beach damage along our coast line there. And then for the last 15 years I've been the _____ director and I've watched number of our nor'easters and our storms come in and do some outstanding damage along the coastline. In some areas it's strange because one storm won't hit one area very hard and leave another one alone and then it will hit the whole coastline awful lot depends on the angle it occurs from the wind and the way the storms are coming in. The amount of sand the amount of damage that has gone along the years as the sand moved our whole coastline has shifted from a lot of sand to very little sand in many, many places and continues to do that. Not only in severe storms but in our astronomically high tides and now we get in places where we get splashed over on a sunny summer afternoon with just a regular high tide of 11 1/2 to 12 ft will give us that where before we didn't.

B: Well you say before we didn't and you didn't before in from your prospective do you think it's land subsidence, higher tides?

G: I think it's both. I think if you got your land subsidence because of your severe storms have shifted and moved things and changes the height of a lot of our barriers that were out there and have to believe that we are seeing you know higher tides on a regular basis over the years. There is some of this water rise, global warming however you want to put it, we're getting that and we're seeing that and it's defiantly impacting our communities. The damage to the homes and to the areas and business along our coastline has defiantly increased over the years tremendously.

B: Thank you

G: My name is _____ I'm the code enforcement officer for the town of _____. Hopefully that doesn't mean I'm the enemy I actually have a job to do and I try to work with citizens to help them get what it's like since nobody followed the rules and sometimes that can be a challenge. I think the thing that has happened recently that struck me is at an extreme was in the Patriots Day storm we had a section of embankment this is in the tidal portion of the _____ River that was about 60 or 80 feet wide and about 300 ft long it was about 40 ft up in the air and it just dropped in fowl swoop. The trees were still standing in the water and it was interesting talking to the homeowner. The homeowner was telling me how he had reinforced the bank he thought because he used some landscape timbers for his walkway down to it. It was land sake. It was probably the walkway that had the biggest negative effect. Most people really don't have a good concept of what's structurally sound, what's going to work in a storm. They live their life and things go along well it's a real shock when something changes and it does change because like _____ said storms 9 storms can come along the same intensity, wrong direction you're not hit. One storm doesn't even have the same intensity but the wind and the waves are just in the right I mean the waves in the tide are all the perfect storm and that perfect storm is in your backyard. It's pretty amazing and how to educate people because we see two changes. We know that there are

going to be more changes and how to educate the public and get the public to work along with you and have the same kind of goals that would be something that would be very useful I would think.

B: Ok

G: My name is _____. I am director at _____ which is actually in _____. That's pretty far away from the coast but we work with all the cities and towns in York County we obviously spend a lot of time working with coastal communities as well and we actually get funding from the Maine Coastal Program and some other agencies I've worked with _____ on issues related to FEMA and planning. I mean most of our work is really sort of on the front end sort of planning for hazard litigation and things like that. So I really don't have any personal experiences to relate to related to individual events. We spend a lot of time in our office working in Saco on the Camp Ellis situation. We actually were funded for a number of years to help sort of work on behalf of the property owners in the city and sort of working with the army corps and trying to figure out any potential solutions for that situation. So I think a lot of the times I think that we do find ourselves sort of as the middle people between issues related to property owners and the government and the regulatory structures that people are trying to deal with. A couple observations 1) we seem to be and this has come up recently I think the whole regulatory situation for a property owner is very confusing. Dozen, literally a dozen regulations probably that a coastal property owner has to deal with when they live near the ocean and they all overlap and they don't really always interconnect that well they're confusing and people really don't know what they are doing and frankly I don't know if they are having any benefit to the property owner or the state that is charged to use those regulations. Protect the public safety and welfare of the community. And I think the other thing is that was seem to be a lot better at cleaning things up then we are at finding things before they occur so I know I work with _____ all the time and you know on a number of projects but we there are certain things that we should be doing to prepare the coasts and communities along the coast and individual property owners along the coast in the event of a major hurricane or something. There is never any money to do that. I mean we are always funded to make sure that once things do occur we can help people. I again we are in a weird situation as an agency because we do you know I think we see issues where the east coast I mean we're being funded to start working with communities to deal with sea level rise and I think we need to start doing that but there is obviously this balance of making sure the property owners have their property you have the rights to protect it and unless the people are doing the regulating don't own coastal front property so there are some difficult issues there.

B: Ok

G: My name is _____ and I live in _____. Ok the property value of where I live was originally owned by a family member uncle and he purchased it in 1950 I think and my husband and I bought it from him in 1985. But as a child I always wanted it. A couple things as far as how the dunes have changed in our area. We do have a really nice dune system. Well just to give you an idea where I am now. There's Camp Ellis a nice beach, that's where the houses went in. then north of that is bay view where right before the sisters are if you know where that is, its very close to where the sister are. As a kid I remember just walking right straight out, now when my husband and I moved there probably in 1987 shortly after we moved there we wanted to protect the dunes so we built a board walk, 18inches about the dune grass which the DEP regulated, a permit for that was incredible. Last year we noticed the dunes had grown tall and sand was accumulated in the sea grass as it should be that's what it does and now the board walk is probably 6 inches lower that the dunes are so we actually have to take that, because we are inhibiting that dune system from growing and another point to, if you stand just a little bit North of where I live in ocean park, at the intersection there with that blinking light is I remember standing there and you could see the ocean and now you cant so the dunes are growing this way and that to me is ...

B: Let me say something maybe that's a little provocative, is that the sand from Camp Ellis?

G: Well, yes and no it is. The front of my beach where I am used to be powdery white sand, now its all just sand gravel its rocks, so yes it is but it is stuff that was dumped there. My property to my left two up from me is the Dearing Estate that has a 400 ft sea wall, it used to be just one property now its three, they had a sea wall that they put in 60 years ago that sea wall, just to go back where that sea wall is when my husband and I moved there, there was so much dune grass in front of that I would say about 30 feet in front of that, that is all gone now these many years later, and for the first time since the patriots day storm that sea wall was severely damaged. My neighbor and I really really did not want them to replace that sea wall because the way it was explained to me many years ago that each wave has energy and when a wave hits the energy will go to the dunes, but when a wave hits a sea wall it slams, that energy has to go

somewhere and it starts to dig in, and it was very obvious that it just dug right around the next door neighbors property, and she lost more than I did because of that and I don't think that the DEP allows more sea walls to be put in now, they are allowing people to repair. Um the thing that camp Ellis has proposed to do right now, it hasn't completely been funded but the army core has finally said, yup your right by putting that break water there all these years ago, it is part of the problem that is causing that erosion, but what baffles me is the solution is to add another sea wall parallel, wont that cause more? And since I am north of all of that I am wondering if it is going to move it north. So I had to say it, ha-ha.

G: My name is _____ and I live in _____, I grew up here on the sea coast, in _____ and _____ my family has a place up on _____ island which is about 2 hours north in Casco bay and I kind of come from the perspective as an ocean lover I guess because I've been a life long surfer, I don't specifically have any tales of erosion to share but I can tell you that I've observed the ocean as a surfer and seen a lot of the things that you guys are talking about from the prospective of the increase of the severity of the storms and the amount of damage that they are doing. I guess also I'm very interested in the concept of education around our ocean environment, and I think that's about it. I'm involved in a study called Beach Scape, and basically do some data collection on a number of beaches on the Maine coast to kind of serve as a point of tide that we can measure against ongoing.

G: The Beach Scape is a nationwide project that's certified all over the country so just a sub data base of where we are now so we know how we got there or where we were when we look back.

G: _____ I live in Biddeford I'm probably the only one here who doesn't have property on the coast. I've lived on coastlines pretty much all my _____ years except for maybe 5 years total with the military. I've been living in Maine since about 1996 and I moved here from Florida, maybe years in Hawaii so I'm interested in coastal issues and as a surfer scuba diver, beach runner you know I'm interested in making sure the beaches are there for my grand kids and I agree with Duncan education is a big piece of it for the younger folks and that's kind of what we try to do at Surf Fight is educate more than anything else. AS far as erosion after the patriot's storm I went over to Gooch's where I surf quite often and I was amazed where did the sand go? What is with the different colored sand that's here? I went out to fortunes rocks where I go primarily, I saw rocks I've never seen before, there was just no sand and that was an eye opener. I have friends living at Ferry beach that I went over to see their house afterwards and I didn't know that sand could abrade houses as much as it does. Whatever we can do to make some adaptations and to educate the kids because that's the future.

G: I just forgot to say this one thing I think that we live in an area that coastal erosion is not necessarily as obvious as it would be in we were in California and you can see the coast just drooping of the edge there....

G: Earthquakes, don't give me the sea rise too!

G: Well in any case I think it's also a problem to think about because we have a very rocky coast line and not everyone is really aware of the erosion that does occur, we don't visually see it unless you know you're in tune with being out there a lot.

G: I'm _____ I'm the town manager in _____ and I've been there _____ years, prior to that _____ years in _____ and I live in _____, for the last 20 years. I guess I cant add too much from what everyone has said, I've lived it I've seen it I've experienced it from boss perspective to homeowner perspective but what I can say is, I'm going to come at it from a public access, also private ownership issue, our goal from public perspective is to keep the beaches open for public access. I've seen that erode over the years from my work with the _____ beach case from Wells beach case to just recently the Sea point beach restrictions going in, the amount of use on these beaches continues to be ever wanting yet the impact both from nature what we've all talked about as well as homeownership has caused the issue to heighten, people want public access, yet public access has been reduced in large part because of the higher, erosion factors and beach ownership. Down on Drakes island where _____ lives is a sand dune that I rebuilt four times which is adjacent to probably two doors up from the house, and what you were saying with sea walls is the water would hit the sea walls and wash that sand dune away and we must have put \$10,000 into every rebuild with man power and sand that we brought in from our artificial park in Well's but that's the problem. We have artificial barriers and natural barriers and they don't work together, the other thing is that most of our population in southern Maine on the beach, are on barrier beaches and from what I can see barrier beaches are meant to move and shift and they are not meant to have solid structures on them. Just look at Chatham down the cape and so fourth so we've seen a lot of erosion,

Kittery the sea point beach up until 1978 the beaches were large and you could drive out onto the beach and with the impacts over the storms that we've had the actual road has washed away, and so what you have is marsh grass and the gravel beach and that's all you've got and what people are feeling in Kittery is that so many people use that beach as a dog park and the beach has narrowed down so much that the town has reacted and made the beach only a residential beach during the summer and that has just happened and I think is a fallout to some of the erosion and beach ownership issues.

B: Okay, so in the town of Wells 75% of taxes come east of route 1 which accounts for what 10% of the land area in the town or less. Coastal property owners have told me that they are paying an enormous sum of money out in taxes, far more than anyone else would be. Why should there be all of these restrictions and impositions on them to have to build and do things in a particular way when they are bearing more than their fair share of the tax burden?

G: From a guy who gets to enforce things I have to answer that question a lot because it comes up, and it really has to do with taxes and regulations that are not related at all, the way you pay taxes in Maine is based on the value of your property and that value is set by the market it has nothing to do with the town, I can't change the property value of your property and no one else does, its buyers who are willing to spend more for the property and that makes your property proportions more valuable, its unfortunate though because you think in most instances if you pay more you get more, and that's not the way taxes are set up. You get the same kinds of service and you shouldn't expect anything more than the average citizen that's the truth of it and it's very hard for people to swallow that.

G: Well I can speak from experience in that Wells just had another revaluation strictly for the beach front property owners and I think we were evaluated at something like 68 this round and the rest of the town was close to 95% so they boosted us up to 85% which was about a 20% increase in taxes and we're not all millionaires we bought this property 30-40 years ago and we're suffering for it now, people from out of state are coming in and buying property and they don't have to worry about mortgages or financing they are very well off, other people who bought the property 30-40 years ago are finding it very difficult with the tax burden...

G: I'm going to jump in here because it's sort of an inflammatory area and I'm not sure how it relates to what were talking about except maybe funding some programs but the current way that they are doing evaluations are so different in comparison to the way it was in my father's time. In his time properties were valued whether it was sand dunes, marsh, lawn, ledge, wetlands and the building were valued different to the areas and the building and structures were evaluated on the conditions of how many bathrooms and things like that. And when someone would come in and buy a lot or a house up the beach, and put up a mcmansion, they came in a bought that and they had a value attached to that which was higher and newer, our property was never weighed and valued as to how that person lived, today were being forced to compete on an economic level with those people who come in a build the mcmansions, they come in because they currently have a high income stream or because they have sold their business and homes in high income areas and there is no way those of us... so it's a very owners program. Then on top of that, he's absolutely correct those of us on the east side of route one, coastal areas dozens of restrictive overlays that take away in addition to that, are use of the property down there and so your correct its totally unfair, were not being valued on how we live on that property its how somebody else could live on our property.

G: Okay so _____ brings up a good point, well I don't know what this has to do with what were talking about, well a lot of folks who have property along the coast have had this property in their families for generations and have sort of traditional use of the property but the regulatory landscape is constantly changing on these folks, so some folks come in with full understand of the issues, other folks, this is evolving and changing almost annually where what used to be okay is no longer okay. What do you see as some of the core issues around this evolving nature of the regulations and the fact that there is this evolving tax scheme where folks are getting taxed more but there is no more support for those folks to...

G: Well I agree, I mean I know we've got some of those taxes and regulations, I know perception wise they sort of interconnect, to a lot of people but on the regulatory side, 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 and I haven't applied for a permit, I don't know but I mean I certainly sense that from people who have.

G: It's a nightmare for the towns especially, internally but on the federal level it starts a lot with the federal insurance and flood mapping and flood mapping derives the zoning and the zoning reflects the flood mapping so if your in a V zone or in an A zone the restrictions become less or more and then on top of that you have the state stuff and it's a never ending battle, I agree taxes and restrictions are two separate issues.

B: So how do you over come that I guess, here is now my follow up to this intersection, how have you overcome that in working with folks as a lot of town officials are on the table here and a lot of folks who are property owners, what have been some strategies that have worked for you and the property owners, that have made it a more bitter pill to swallow, these things that have been kind of presented to you?

G: Well I mean look at the work on the water front legislation that was geared to fisherman and lobstermen, and that's been a disaster. It was well intended but it got in the hands of the people of Augusta and there is no one in Kittery or in Wells that have signed up for it, I don't know about York but, the value of doing it is useless.

G: One of the big problems is that the state of Maine doesn't really appreciate the economic value of their beaches and a couple of years ago we tired to get money to study this and I think a couple hundred thousand dollars was pledged or donated and the state did not come up with there share of it and the project never got off the ground but I think before we discuss what the beaches are we really ought to find out what the value is for the state in terms of economic value and then I think you will judge what you want to try to preserve what you've got. I mean the whole mind set of the state officials is I mean one guys is talking about retreating from the beach and the Audubon society saying all the sea walls should come down and let nature take over, I mean this is the mind set that you're dealing with.

G: To broaden what _____ was saying its just not the sand dunes, this also reminds me that there are horrendous set backs from the marshes, and the creeks and the rivers and wetlands and now they are creating vernal pools and creating habitats around and set backs from those and its not just one agency or one person there is this multiple people that have agendas that are all pinpointed on property owners I guess. They make it difficult for those of us who want to protect what we have rather than just watch it wash away.

G: But the sad part is, if the sea level rises they are going to wash away, that's the most tragic thing in my mind I tried a couple of different approaches, one I try to look at what is the most limiting factor, what's the biggest hurdle I have to jump over instead of trying to make them just through a whole bunch of little hoops then get the big one, I try to say look you've got to talk to the DEP first this is sand dune permit everything else were talking about is secondary, so I try to focus on what's the most difficult but I have to talk about the loss of property and the loss of people, if you look at York beach it was built on small lots by blue collar workers and now with the taxes they will not be able to pass it on to the next generation and I see that and its really, wrenches my heart because I cant imaging if I couldn't afford my house, the property I live on which I love, and not being able to pass that to my family would truly hurt, unfortunately there is no way to regulate that I wish there was I wish we could somehow fix the taxes or do something to make it, but even more problematic though is if a property gets destroyed, no matter how many times you replace it before you decide you shouldn't replace it anymore. The first time things get destroyed you have to think really hard to let them rebuild again, the question is do you let them rebuild at all.

G: You can take the basis of how you value properties all over town and value it on current use not current potential highest value.

B: You can't do that without changing the law.

G: Its by the people who are up in the Maine revenue services that either are doing it by... but they are putting those statutes or evaluation in there, and all of a sudden when it comes around tax time, the land owners say well where did that come from....I would think should be representing the property owners, tax payers, and say hey state what are you doing to my citizens, we as a single person go up there and rant and rave, I'm not trying to get into an argument with you I'm just saying that that's an answer for that.

B: Well okay I want to kind of turn things a little bit again, now I've handed out several props and its started to stir folks a little bit, so another one of the core issues here is there is erosion and there are storms and stuff does get damaged, and sometimes we have public works and here's the street in Camp Ellis that is now gone, two streets are gone. Where do you make the difference with private property owners in ameliorating problems trying to reinforce things trying to motivate folks, here are the kinds of things that you can do that are in keeping with regulations that are going to minimize some of this law, part two we get stuff like this going on, what's the reasonable line that municipalities try to draw when, I mean is it out of your hands is it strictly a DEP issue?

G: it actually comes down to a local issue and if you have a flood ordinance, because a flood ordinance if a house is damaged more than 50% to replace it you have to bring it into compliance with the flood regulations which usually means raising it potentially putting a different type of foundation under it to try and protect it from that storm surge and protect it from flooding. Doesn't have much to do with roads sad to say, and roads are always very difficult because you cant raise them to get them out of the flood, we had a secretary and she did a profile of what would happen to York if there was a sea level increase and it was interesting and the tide would rise a foot if flooding changed dramatically and that's what I think were going to see and I'm not sure how much were going to see in our lifetime but its defiantly going to effect our children and our grandchildren and I think we have to change our way of thinking because as I said before I don't think some properties are protected, no as they stand, maybe you raise the building you put it on piers, you have insurance and there's a loss and you take your money and you have to find another place to live, because where you live isn't safe anymore and those kinds of changes are going to be very difficult for people and I hope I don't have to make that in my life time, there is probably some people at this table who may be faced with that within the next decade or two.

B: Okay, _____ you make a good point you just mentioned something that I'd like to hear what folks have to say about. In order to bring a property to compliance, many of the beaches in this section of the state are barrier beaches and they do migrate and they do move and houses prevent them from moving so if a house is or a set of houses is preventing beaches from moving then what? I know that's kind of the Camp Ellis questions isn't it, so this becomes that whole public use that there wont be a beach there if you put up a big wall, maybe you can keep the houses, but the beach will be gone, so how are you weighing that out in your communities, I mean that's clearly the case for some areas.

G: I mean when you take the camp Ellis area when you move those two streets you certainly over the years change the configuration, these houses here on shore 25 years ago never felt that they would be that beach... you know right up front and we've chewed that away and we've allowed that to happen and now were back to these homes and unless there is some method turned around were going to be back further, its not going to stop if it doesn't get worse and how, what you put first the houses or the beach, everything is important and everyone initially started out with the idea that they were all going to be there, we probably did not do enough mitigation and study early on, and to do something now is very difficult because no matter how you do it your going to be working against what's already there, we probably wouldn't design it that way today, but I don't have an answer what you do to stop this or how you tell that homeowner that he cant have his house anymore. But there are regulations that are trying to indicate that if its damaged more than 50% its not going back but you also put the wall up to keep the house and then you damage the beach out front which everyone wants to use and it's a tough situation that your in where I don't know if I've got any answers to fix it really. I know I deal with it everyday and I empathize with the city and homeowners and there are the regulations and I think they are all put in with good intentions to do certain things but I'm not sure they are all coordinated properly either to make sure that one doesn't run into the other and prevent this from happening. I don't know it's tough.

G: This handout that you gave that shows the Drakes Island simulated flood area, one of the concerns some of the property owners have is that this is a creation that someone may be using this at the state level and then suddenly create some of these flood lines and tell the municipalities these are going to be under water at some point in time and therefore the owners shouldn't be able to build on that vacant land if its there or they shouldn't be able to rebuild or make any improvements on it or they should immediately come in for a building permit to put it up on stilts, this is a different situation down here for something like this, it was one of the things I wanted to comment on. The municipalities are going to suddenly be the ones that are on the front lines that are going to have to tell the owners based on this the decisions are made at the state level of what can and cant be done in these areas and that's sort of has a lot of homeowners concerned about simulating what's going to happen in 50 years so there for today or what potentially may happen in extreme floods so there for today you should start enforcing limiting building or walls.

G: Objections have already been raised enough about this type of projection

B: I brought it for that reason.

G: 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.

G: I hear what you're saying doctor, 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.

G: I mean I would also say I know that your being taxed out of your minds, but there is also a cost to the public to just allowing um mitigated development along the beach from and I don't know whose 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.

G: For what the roads and

G: For the roads and I mean there is infrastructure down there, the cost of the crews when these emergencies happen and get people in and out, I mean there is a public cost anytime there is a disaster, if nobody lived at Camp Ellis then we wouldn't have a cost. Its just that may not, I don't know what that cost is and _____ would probably know every time something happens down there, which is every winter.

G: I want to defend the Natural Flood Insurance program first off with the losses for people who have houses with flood insurance is paid for solely by the rate players right now, we hope it stays that way couple of disasters could change that but people think that the flood insurance is subsidized by the federal government and it is not, its totally paid for by the rate payers which is really a great thing and I encourage people to get it even if they don't think they are going to flood because 30% of all flood claims come from policies that are not in flood zones, FEMA does pick up damage to public facilities, roads and so on. And has paid repeatedly and at some point in time they may just say its been damaged three times, three strikes your out what does a town do in a case like that, so I can see a point where the federal government wont be able to keep handing out those things.

G: They're looking now at a lot if you've had repetitive losses on these roads and you have a mitigated or a non to build better road they are really starting to look hard at how many times are they going to pay...

G: So the federal government is starting to have proactive ordinances, they are trying to be proactive, and the real issue is our citizens are the last ones to jump on board this change, and I can understand why, change is difficult we talked about it earlier and I think the way you get change is we need education programs for children in school because I think if they realize they are to grow up thinking about erosion they would be thinking about where to go or where are you going to build and they would be realizing even if they were children who would inherit the property in the future they may not have the same homestead they may not have the same view again it's very hard to change our mind. We're old dogs, we don't change easy and I don't blame us , but nature is going to do what it does no matter how we feel.

G: You mentioned earlier about what we do to protect our property....

B: Perfect and I want you to do this because... here's the segue and you can start this, what is it that you're doing either as town officials or agencies codes or private owners, to protect your property and reduce erosion?

G: As I mentioned before I lost my sea wall in 1992 and when we had a storm or a high tide full force of the ocean pounded against the wall and scoured out the footings and they fell over and collapsed when the wall went down we went to Augusta and temporarily were allowed to put in to protect our property before we could put the sea wall in so about 4 months we had to wait for the tides and access to the beach. So when we put our sea wall back in we moved the riprap a little off shore so we could put the wall in and then we would move the riprap back and put it in front of the wall and it has made a great difference. Before the riprap went in when the ocean hit the wall it would actually vibrate the house it would throw water up 30- 35 feet and if there was wind behind it, it would blow it right up over the house. With the riprap in front of the sea wall we would have a major storm and it breaks up the momentum of the wave, no longer do you get the water squirting up or the vibration and I find it to be a god send.

G: Did you get any erosion? You mentioned you had erosion with the flat sea wall, but how's the rip rap helping you as far as dissipating the force so it doesn't eat away,

G: It breaks it up before it gets to the wall.

G: The problem down on Drake's Island is unless you have some sand of the beach it becomes inverted and so there is no runoff.

G: when you use rip rap you need to use something behind it and under it because it will still get erosion. You use filter fabric that holds the sand in place and rocks do a wonderful job in dissipating energy. Go to a rock beach and watch a wave hit and it just disappears and you're like what happened to it.

G: Rip rap does a better job in my estimation than a regular seawall because the way it breaks up and then the combination probably is even better.

G: The reason I mention was when I mentioned goose rocks in the Patriots Day storm the thing that struck me was there was the little pebble rocks this size were only within 15 feet no 5 to 10 feet from the Rip rap which was all they had was coarse rocks. So I was wondering if the waves had hit that some of that is going to bounce back but it seemed it was scooped out to the sand adjacent to the rip rap.

G: Each time you have a storm you get so much water coming in as it pulls back it pulls sand with it and it's likely to expose anything. We have in short sands beach we have a ship that was shipwrecked like 50 years ago it's been exposed to 2 storms and was exposed recently. It's just you've got so much water coming in and it just does that. Sand has eroded and redeposit and that's a good cycle if it does it and if it does it more or less in the same place that's great. Rocks retreat we have this big storm and rocks are thrown over the road. Neighbors don't know what to do with them. If they are smart they would put them back on the beach because that's what is protecting the seawall and the road and eventually their houses. Without putting the rocks back where they are there are fewer rocks to absorb energy for the next storm and the storm after that and eventually it undermines the road or the seawall and you have real problems. But a lot of people they don't they kind of know if you live near a beach you know it has a life it grows in the summer and shrinks in the winter. Rock just moves in one direction, away.

G: Can I address this of what we do?

B: Yea I wanted to get on to different ideas of what you do to make this.

G: one of the things that part of the education materials can go out to the general public as well as to the municipality the property owners to dispel a lot of information. And that's why I sort of quickly jump on well interrupted Paul when he said wow we have municipality have to spend a lot of money on the Camp Ellis area and I quickly asked for a clarification infrastructure intended an excellent job in explain the flood insurance program is all about. Absolutely it's the homeowners that are paying for that to repair their homes and it's the municipalities that are going into the repair and replace their areas and whether they choose to do that until the homeowners say there forth and from this point

forward we're not repairing beyond this, that's another issue. And one of the other things that misinformation out is when FEMA comes in and sets up these staging areas technical operation centers or whatever they call them to hand out money to the general public thinks it's just being handed out to them, that's not correct. We borrow the money if we can't borrow it from any other source but there isn't interest on top of it so that misinformation should be taken care of.

G: You've got to understand it's such a hassle when there is a declaration.

G: Right.

B: It is if you don't want those pictures I would like them back to reuse them.

G: The FEMA funding in your home, you're going to get \$28,200 is all you're going to get no matter what for repairing or rebuilding your home of an actual handout from a FEMA check if not you're to get a small business administration loan as _____ said there is going to be an interested tied to that if you qualify. So it's not, they're not going to give you a credit card and hand out and it's an awful lot of work to get that 28,2 and it's an awful lot of work on the municipalities cause.

B: I bet you in York, Wells lost six months of productive work with the Patriots Day and the Mothers Day storm.

G: I wanted to say one of the things that's an important point for the whole overall program but beach nourishment for the two surfers that you may not come down to winter Beach but one of the great things that we were able to convince the river committee to plead with the dredging contractors that came in is to take the beach sand that had washed up the river a little bit but from that point out through the breakwaters and however far they went out to take that instead of going 3 miles offshore the dumping ground got right around where their barge and pushed it up as far as they could give it a tide open up the doors and dump it and that beach in the last 2 years has been one of the driest beaches because of the depth of the sand from the high tide mark to the low tide mark and we had a lot of sand up there even in this last storm that I think helped soften a lot so for those people that about the dogs oh my god the people that come down and I think they use this for a poop park rather than a dog park. That's what I was talking about and for all those people that are coming down it's very dry and it's a lot of sand moving around. Yea it's going to go back out again but it's not like a lot of these other places that are spending millions of dollars on a stand alone project to take when it's dumped out there pockets and drag it back in. they are taking an on going dredging program and just coming around that and that's what I would like to see him do at Wells. When they do it I would think I don't know how much dredging they do down the Saco how far inland.

G: Notice the waves? I was there for the Patriots day storm and I was just amazed, I was sitting in my car until the wave broke and I was like I've got to leave I took a picture. I came back many months later and I noticed that there was one section of the seawall where they put rip rap.

G: Rip rap because that's what was taken right out and they hated that.

G: They built the seawall back up and the road, the sidewalk and everything else but they left the rip rap was that some focal point for the beach?

G: I don't think so I don't know the actual facts about that.

G: You know I think one of the issues that we mentioned for the economic impact of the beaches and I know that somebody had talked to _____ Coleman about doing something or some sort of study and I think, I don't think it was ever done. I think it needs to be done because I don't think the realization of what the beaches mean, how much they bring into the local economy and I think if you want to... I mean some of the beach nourishment projects I think are a great sort of compromise between sort of armoring properties and meeting sort of the environmental concerns about what to do and protecting property and protecting the environment but there is no way to fund it.

B: Why not, I mean what do you perceive is the reason why...

G: Because nobody acknowledges that the beaches are a major income generator for the state I think they just assume that the goose will continue laying the golden egg and we don't need to be concerned about it, what their health is or if they are still going to be there.

B: Alright I've heard about rip rap and about beach nourishment what else?

G: Well one thing about rip rap, over the years it settles, I mean you have the rocks piled up then they will settle down.

G: To my knowledge the DEP will let you reposition them but they won't let you bring any new rocks in.

B: ... the whole Patriots day thing?

G: You can do it temporary, permit by ruling?

B: So what else? What other amelioration or techniques, are municipalities relocating some of their public works, you know...

G: Actually in Saco they did, in Ellis they moved the fire station, but on a smaller scale there is a property owner... Um we have the Bay View association and since I've lived there since 85 we've done sea grass planting 3 times,

One thing I would like to see and I don't know how I would go about it, just in my opinion the dune system is the best, the most natural the best way to go if you have room to have it but just walking up and down the beach this summer I noticed, I don't think people are doing it intentionally but they are ruining the dune system, one person had this enormous gazebo right smack in the middle of the dune, they put a deck there, you know you hate to, we are trying to educate people a little more about how to save the dune system that they have, I personally would like to see doing this for the city, not that they need another thing to do...

B: Are you asking for another regulation?

G: I'm not! I'm asking for.. I don't know what I'm asking for but...

B: Do you think that people would do they right thing if they knew what the right thing was?

G: I do.

G: I think a lot of people would.

G: I really think the old timers or the people who have had family in the area know what to do, the folks that come in from out of state to buy or build the new generation of houses treat it like any lot in any neighborhood and they are going to build what they think is the right thing and they don't ask anybody they don't sit back and talk to their neighbors before they do it, they just do it...

G: But you see that's the point the point is that we will make the decision based on whether we will invest in that lot, build there or not. The sand dune are based on today's situation is an entirely different thing, they shouldn't be building up there, but when you should be able to make that decision to invest our own money or the banks money or their insurance money to repair or id even say, heighten the sea wall today we cant heighten them anymore but if our neighbor doesn't choose to do that, I think education is part or the whole thing. Our children may choose not to have their houses banged into every 2 3 4 5 10 years.

G: Just from an observers prospective because I haven't been directly involved or impacted by the same issues that you brought up but it seems like there needs to be something in place that the people who are concerned about their properties couple up with the town and work towards the same goal because ultimately it sounds like it's a protection thing, there is obviously some different interests in mind but it just seems like there is two different views on things and I think we all want to protect our house or the beach or ocean.

B: What if those two things are running counter, protecting the house and protecting the beach or not?

G: Then it's not that simple, because of mandatory shore land zoning ordinance so no matter what the citizens of the town believe, the state overrules them.

G: We're going through a situation where the state is requiring all communities to rewrite their shoreline zoning ordinance. And York we're heading to placing the ordinance and suddenly the selectmen we don't think this is right we get the input we don't think the DEP is really going to enforce these issues we're going to wait. So instead of voting on it tomorrow you may vote on it May you may challenge the state. Kind of an interesting concept, you don't want to but it may happen if the voters in the town choose to do.

G: the beach for me? the beach for me is my front yard and why in the world would I try to do things and destroy and do away with my front yard, However when it comes down to my home. Gee whiz let's see do I want to have 50 feet of white sand in front of my house or do I want to say take only 40 feet because of the sea wall and save my house. So again the property owner should have the rights to protect his home until he says gees I'm not going to build that house there. If I have the depth in the lot I'll build it further back and yea nobody likes sea walls and my ancestors or the prior people in these other cases their houses were there when they bought and moved in and they would like to spend the rest of their lives there but keep what they got.

G: I've noticed over the years that the public that uses the beach are much more demanding and less apt to take care of the beach and now they leave beer cans and diapers and you go down politely ask if they would pick up they give you a word or the finger or something different.

G: I totally agree

G: We do beach cleanups so we see a lot of what's left behind.

G: We did one at Drakes Island during that surf contest a couple weeks ago. I was there for 4 hours before we were actually going to do it. I went there at 8 o'clock I put a tent up posters I talked to all the kids in the contest, walkers by, but when the time came we had donuts and coffee for people. The time came to do it we looked around the beach was empty.

G: Nobody home.

G: They walked right by on the way out. So we went out this beach is a very clean beach. I haven't seen this so many beaches with the clean up efforts. There were 7 of us club members and a couple of kids of one of the members and we didn't pick up that much trash and we walked from where from about the end of your property all the way down to the other end. It was amazing to walk by people you know we've got gloves on and bags and it's obvious what we're doing. We had some surf fighter shirts on people look at you. You know they hand you their stuff it's like ok and we had one person said hey thanks for cleaning the beach and went back to what they were doing.

G: Well one of the things about how that happens there is a lot well there is a committee beach committee over the last few years a lot of signs a lot of effort to make sure the trash pales down there a lot of little dispenser for plastic bags for the dogs and we have now instead of 1 bicycle policeman to patrol from Gooch's all the way up through Grey Hill now there is two and they do enforce a lot unleashed dogs and trash and that sort of thing. Education is part of it.

G: How do you in general sense of ownership. So the people, it's a high tourist trade just like all the beaches for those who live her all year round it's hard to try to convey that to people even if one don't speak your language or 2 don't care they are renting some place for a high dollar and they don't want to be bothered picking up their trash and

G: A lot goes far beyond the beaches that goes.

G: well yea I agree.

G: I'm afraid what you're bringing up today is what we got out there. When you and I were growing up you wouldn't think of leaving if you used someone else's beach you wouldn't think of leaving a pile of trash behind.

G: when you had trash you wouldn't throw it out the car window.

G: Parents let their kids do it.

G: That's a whole another discussion for another night.

B: Yea it is. Let me refocus you and getting back to other things you've done or your doing. These are all good I just want to keep the conversation going in that way. Other things that people have done to help address some of these issues.

G: What are the issues of trying to pass out information and work with the homeowners of how if you're going to do some construction due to mitigation construction to build beach to build safer homes and raise your homes taking those things into consideration for the foundations and so that you don't lose your home. Those types of things that we keep working with for the coastal the towns and the beach owners/homeowners as well And getting that out there and we are getting some pre disaster mitigation which is a whole new concept that finally things were realized that we should do pre disaster mitigation and not wait until you wash everything away before we rebuild it.

B: What's been the most successful so far?

G: Well pre disaster is really just coming back but I think working with the homeowners as they are working on construction has been successful in a lot of places of them realizing where they are located, what they have to do now on the beach in Wells after the Patriot's Day Storm we did a tremendous amount of break away foundations we had to replace those homes we have not gone back there for issues and the homeowners have had some success with that.

B: So does that kind experience carry more weight?

G: Oh I think it does and I think the publications that we're able to get out at public workshops that we are able to put on and coastal construction for contractors which is a program that is offer periodically that we're able to get out there and the interest level comes up for it.

G: One of the things that I see is a lot of people coming into our community, usage guys, systems use our town website and GIS we have a lot of information on there, including the flood mapping, hazard areas and things like this and that's very helpful because people are coming in and they are a little bit more aware of what it going on before you bought a piece of property you know and the bank said you need flood insurance probably the first time you ever even thought about it and now it's readily accessible you can look at an aerial photo and see if you're house is in a flood zone its kind of interesting one of the more successful things York has done probably contrary to what most owners like is they have increased set backs from wet lands and oceans because if your further away your less likely to be damaged and we also require surveys when you look at flooding FEMA requires you to protect the flood zone so if it's going to flood to 10 feet you have to be at 10 feet, well if you're in boat if you're full of gun holes you would be sinking in a minute that's not a real good plan. The idea of freeboard is getting up above the flood zone so if the storms a little worse and this has been very helpful, we have required more, the homeowners don't like it until usually the first storm where they would have been flooded and go wow thank you. We have had a few people come back and say, my neighbors flooded and I didn't and I'm really glad -- so that's kind of been useful.

G: The CEO getting a thank you.

G: Many towns are adding the two foot freeboard, I noticed a lot of that.

G: the federal government requires no freeboard the state of Maine requires one foot freeboard and many other places requires two...

G: You don't want to get too crazy, you could say two is good maybe five is better but at some point you're really making cost prohibitive and that's not the idea, the idea is try to be responsible at protecting people either from things that are likely to happen, because this person that comes from Mass the haven't experienced the first storm let alone 20-40 years of storms so they really don't know and sometimes regulations can be helpful, but going back to regulations I often thought that it would be one stop shopping and how we should do it, but think of the concept, you

went in to either the town or the county or whatever and you got all your permits for that particular job not the DDP or the EPA or the flood hazard permit, one. It seemed like it ought to be a professional job and you ought to be able to go there and do what you need to do but at least your not jerked from pillar to post, we see this a lot they are trying to work with the DEP and the planning board, it's a horrendous problem for all.

G: Is it are you like the billing inspector too?

G: Yea

G: Where they come in a get a permit I would think when you say one stop to me as an individual I would think that's where I would go and you would hand depending upon where you live the one single sheet of what he had to do or the notebook.

G: we do most of that I'm the code enforcement officer that means I'm a zoning administrator. I issue permits I also do building, plumbing and flood so I'm responsible for the three things that are the most effected in the town. Flood regulations, zoning regulations and building regulations fall within my jurisdiction. So when I issue a permit I try to review all those things I still have the sand dune permits other DEP permits other things that have to be dealt with too that are not within my jurisdiction.

G: What I meant is try to find a way to actually bring all of those in to

G: I don't think that's fair.

G: I've had that happen in our lifetime here giving the permits. Two different boards ruling in the same paragraph so that somebody says that wasn't pretty. I don't see how that's still happening.

G: It happens less but when it usually happens is when different jurisdictions like the DEP, the army core or the town could all have different points of view. Even within a town you have several people or a board that administer different rules and have different interpretations of the same rule in the same town. Which is horrendous it doesn't happen too much in York thank heaven but in the past it has been more of a problem less of a problem now cause actually one of the things that the town did was the planning board used to do building permits in the shore land zone. The code enforcement officer does that now and we notify people that there's going to be a permit they can come in and look at it but instead of having a board that might make different decision because of the make up of the board that evening. You get one person who pretty much sees it from the beginning to the end and hopefully guide you through the process and help you get to your goal.

G: One thing about insurance you think you're covered until you try to use it and we had our basement flooded out and the adjuster came around he said sorry I have to a walk out basement to be covered by the flood plan. So my next door neighbor got flooded out this past storm and he has a walk out basement but there is a slight incline and they wouldn't cover him for all the damage in his basement.

G: what I usually do when people come and tell me their stories because of adjusters. There is something called public adjuster is somebody that represents the insurance company and when they start saying things because some insurance companies will try to walk away from things a public adjuster is kind of your attorney your representative and it can work very well if you don't think you are being treated fairly that's what I suggest.

G: Good point.

G: Yes

B: Ok what about some other folks? Things that you've kind of put into place I'm thinking of maybe you John and whether there were additional pieces that your time in Wells or your time now down in Kittery that you've put into place to really try to change the landscape if you will. Push things towards a more protected or sustainable.

G: well on the soft side of things I think you said 75% of the evaluation is east of route 1. But in these coastal communities the power structure that is on the West side of Route 1 so it's so important that even these coastal

communities that the folks that are here year round participate in their local government because most of them are gone half the year either they are retired and they go south, they can't hold a position and in a town meeting form of government it's vital that you have a say in what goes on. In Wells there were one or two vocal strong leaders on the east side and that's what made all the difference work.

G: they fought the state to the regulations to make them more reasonable. They worked towards straightening out the flood mapping program there is no silver bullet in this.

B: No I recognize that I'm just kind of looking for. I think there is an appreciation at least from Maine Sea Grant that folks that are out there doing this in communities. Dealing with this up front and personal they are coming up with solutions that are better then folks that don't live there, don't have a you know that direct experience but and I think they want to benefit from some of you experiences and your insights and you know this is a unique opportunity where you're gathered together like this.

G: I think that the things that work the best was when we were able to collaborate with the homeowners and the environmentalists to make something happen. Such as the dredge at Wells Harbor that resulted in the sand going back on the beach and but that took 9 years and a lifetime of sitting on my rear end talking until I was blue in the face about it.

G: we were endangering the harbor, the inner harbor with the loss of the marsh in the inner harbor and it took 9 years to show through scientific data that costs the town \$50,000 a year that it wasn't eroding the marshes because of the harbor trees.

G: And to take one step beyond what _____ was talking about what is being successful is at the legislative level the committee level and also in the DEP level a lot of these groups like the homeowners the Save Our Shores are being invited at the early stages the planning the discussion stages before all of a sudden it comes out for a legislative vote and it gets out in the general public and it's great for all and so now at the grass roots a lot of things are being arbitrated out, compromised.

B: Right, well it's an interesting point I mean originally they were going to do two or three of these focus groups up front. Then we were going to two or three after they had finished up on their materials and it's and we talked with them and I suggested it I said look what you really want to do is you want to get a broad set of input from as many people as you can in this kind of personal environment and use as much information as you can get to plan what you're going to do. Then you can go ask people what they think of it.

G: On reason that we have been forewarned of what's coming up in Augusta is that SOS hire the lobbyist Ted Johnson.

B: Sure

G: And so there are a couple times up there in January when they tried to ram through some legislation that they thought everybody was away or asleep.

G: Isn't that a shame when we have to hire a lobbyist to protect ourselves against our own representatives?

G: That's not quite the case.

G: We spent probably 4 years and one person devoted 4 years of his life working on the beach management plans for Scarborough, Wells, and on the Camp Ellis issue and Wells was by far the most retractable, unsolvable problem.

B: This one?

G: Yes

G: Yea it was we actually hired a facilitator for that at about \$200 an hour and in two meetings he said this I don't think I've ever said in my life that I don't think I can bring people to any sort of consensus but that's where we're at with this project and I think sometimes you've just got to say we'll do as good as we can and we'll move on. On the other hand Scarborough you know project beach management program you know 6 months I mean Camp Ellis it seemed a lot more difficult but you know a lot more people came together a lot of different ideas but everybody sort of had a common goal in mind it was to make sure that Camp Ellis was still there wasn't wiped out.

B: Alright

G: I don't know it just

B: The Issue is different because you've got a couple major environmental persons involved

G: We do and I think for I don't know where sea grants going with this but I think each one of these beach systems has its own particular set of issues and problems and concerns I mean they are sort of regional issues. The sands moving within the Saco Bay from you know I read Old Orchard Beach is now getting upset because they lose their sand you know each one has its own particular set of problems and it's going to have its own particular set of solutions. Some common denominators in there but.

G: 25 years from now people will be saying this is causing more problems.

B: Where do you get your information?

G: I thought we were making progress on a confrontational subject we're getting where we're coming together.

B: No no no I don't think this is confrontational I'm curious is there climate changes? That changing what's happening along the coast and personal experience.

G: Why are you bringing it up though?

B: Because it's one of the things I want to talk about.

G: Because you think we can do something about it.

B: No I want to know what you're perceptions are.

G: Did anybody read the Wall Street Journal in the last 10 days? Gore wins Nobel Prize? The (newspaper) came up with a view that it is not as alarming as what it's being made up to be. These are changes that have occurred over the centuries in a normal range.

G: I've sort of joked with what you said about California they are losing big chunks. Well it's from earthquakes. I really believe that the as I said before that the earth is a project in progress that the plates the tectonic plates are moving constantly and the earth warms up and it naturally cools down has huge cycles over many years and the human race has migrated all over this planet and we're going to continue to migrate and change and move. We will have to move away from our homes but I would like to think it would be our choice to do that.

G: Is Mankind contributing to it. The climate change which is affecting sea level rise I would say perhaps because our numbers are getting greater now and our industries are there but our percentages is so very small compared to what the volcanoes and everything else is that we could all be walking and have no industry and we would still have a climate change on Earth.

B: Ok, Maybe I should clarify my question a little bit. I guess I'm kind of just interested in where you get information, what do you think is trustworthy information and sort of how do you discern whether you think it's trustworthy or it's not trustworthy in your review of what's out there. You could go out and you could research scientific journals you could

listen to, or you could listen to whatever or PBS or um you could do a variety of things in between and maybe as a town manager you might approach things differently than just a personal citizen because you may be doing it on behalf of an organization you may be at a different way to look at this issue than just for yourself.

G: Well I quite honestly having been visually seeing something for 20 years and looking at old post cards and pictures and so for the intensity of the storms and the splash overs that have occurred seemed to be coming more and more closer together than when I first started in Wells or on the coast. One of the real problems we have in the state is that the Maine geologists are of a view that climate change is happening and that's who shapes the policies and regulations and from the get go there has been several geologists that have said listen you can't do something because the beach won't be there in 50 years. So they have gone out in front of people and people have gotten their backs up because of their views and that is not changed in 20 years.

B: Their views or the people who've got their back up.

G: Both, there

G: Getting in the middle all the time.

G: I saw that in Wells all the time.

G: The Stephen King of geologists Dr. Kelley yea I mean he is.

G: He just recently had an article in the paper.

G: He thinks it's a complete waste of money on beach nourishment, on putting it into seawalls, doing all these.

G: I think the other thing is he thinks it's all a waste of money.

G: Yea and these are the educators he saying he's a professor at UMO he's sort of the folks that the young people are being taught that it's a waste of money putting money into these systems yet you have the SOS groups form because they don't like what is happening with these policy changes until you end this big waste of time of people fighting each other and walking down the street together it's going to continue into the future here.

G: Bob, how many hundred year storms have we had in the past 15 years? 3?

G: 3.

G: You know and whether that's trivial to climate change or what I mean I don't I think everyone is saying there is problems with climate the earth is getting warmer now when we are creating that or not.

B: we're not here to determine that.

G: Right, but then the question is do we just ignore that? I mean just because it is not being created.

B: There are plenty of folks that are saying it's not getting warmer that in fact that this isn't happening at all...

G: that point of view is increasingly under fire.

G: I want to see Exxon oil to prepare for climate change and developing new strategies to deal with it. That's what I'm watching.

B: That's good.

G: what ever the state of Maine does, and Joe Kelley we know what he's going to say but I guess my point is that whether if we're creating it or not does that mean we just ignore it as an issue and I think that there is something to be said for starting to think about how we're going to deal with the Wells map that you showed is total bogus or not there

are going to be some impacts and I mean we've just ignored them and prance along in our way or we can start as John says start getting together and start thinking about some reasonable ways to deal with it.

G: The sad thing is we sit here talking like that we see something happen there are people who for political reason say it's not going to happen, not at all.

G: Well if you accept some of these simulated tidal rises the municipalities here then as you say you shouldn't build on your lot that's down there then you should also adjust the evaluation of it down to the fact that it's an unavailable evaluation of \$1,000 and acre as opposed to 1 million for an acre or a million two.

B: That's an interesting point.

G: No it's a fact I'm sorry.

B: No that's an interesting thing.

G: It's interesting how all these parts really have to come together if you want to have consensus we have people who believe there is global warming and people who believe there isn't and it's perpetuated in the news I mean turn on a station and you'll have some expert saying something happening in this little corner of the world there might be a ice cap growing or an ice cap melting but when you look at the storms and think they are the real test of what's going on and we're seeing more frequent and severe storms. So I think we have to do something but not everybody thinks like that. Everybody's like this happens in the environment and it's really hard to get people to work together on this because when I think particularly the news divides people up. Because I thought this tells a person the kind of statistics you go ok there's got to be something in the global warming with all the reports you're getting back most of the major scientists and I was talking to a friend of mine. He's quite intelligent I mentioned global warming and oh my god did I hit a hot spot, he went off like a rocket. That's so much *^&%\$ I was shocked. So why is that if this is well proven why are there still people who don't believe it concerns me that something I think it's the confusing information.

B: Well I guess this ties together with some of the mitigation strategies and there are quite a few studies that suggest sea walls themselves are pretty detrimental in many instances on the other hand that's not a very easy point to make in a lot of communities.

G: That are already in place you mean?

B: that are already in place yes. So I don't see them as unrelated issues.

G: You asked earlier about where we got our information and tying it into what sea grant may be asking is a most home owners or people new coming into the community will go in to see Tim and say look I need a permit and that's when they first get the wake up call. I would say another area which as a result of a lot of things that have been happening to us on that property is in addition to the coastal associations also tax payer associations to defend us not so much against the municipalities because I've learned that you fellows are getting beat up by the state but I get a lot of information from local associations through the e-mail. Hey this is what's going on at state this is what these legislators are saying and these are what other tax payer associations are doing and saying.

B: So sort of like self selective word of mouth almost.

G: Yea

B: Where you say this is an organization you trust therefore I will pay closer attention to e-mails and communications.

G: It's no longer the individual out there so much that is trying to learn and educate themselves as much as they are joining in associations is addition to the code enforcement officer the next one is the planner that should have the information that is provided to the individual or to the town planner and then if the town is small enough it's the town manager that's got to know everything he's got to be a walking encyclopedia any information that is being put out it should be put out to the town managers as well.

B: But what about other folks where do you get your information. What's the avenue you trust I mean sea grant is looking to say alright where should we focus these communication efforts is it internet is print media is it through these associations is it through the town managers?

G: Through all of them.

G: people do all these things so you need to use them all.

G: You see like the today show had the three big guys, one at the north pole, south pole, and one at the equator you know that reaches and touches more people then anything we would do.

G: It's always good if you trust it?

B: I guess when I hear people talk about what do they change their persons decisions based on? How do they decide that they are going to go and buy different light bulbs, or they are going to plant beach grass or they're going to whatever. It may not be from a news reporter, what is it from?

G: I think it's from the neighbors. I mean the beach grass we have someone from our office who sort of got that going and plant some and it took off.

G: If somebody hadn't thought about it but they tell you it makes sense and you can see it would work so it is your neighbor.

G: Beach grass is the greatest thing but for doctor here you can't plant sea grass

G: Oh and I understand that

G: It doesn't exist

G: When we do something it would be our neighbor who's done this before. We ask around if it's locally or in the municipal because you're going up there and they say well so and so is doing it over in Scarborough or in Wells the contractors have the experience or whatever.

B: Right

G: So I just pointed on the political side it's pretty remarkable that I mean when you look at some of the things that are going on tomorrow there are a whole bunch of referendums. A lot of them are very specific to you know riverfront development I mean there is like 5 I don't know there's like 5 or 6 million bucks set aside for riverfront projects no why in the world can't we get something done like the beaches not only you know Joe Kelley says beach nourishment doesn't work or not but why can't we do something like that for the beach systems that we have and I think it's a matter of people fighting with one another rather then sort of coming together and saying get Maine's Geological survey together with SOS and work together to get something done on the political side.

B: You're saying that they should fight or they shouldn't fight?

G: NO they shouldn't they should work jointly to pull together

G: I think they tried and that's why a lot of these association have formed, and then tried to get invited to the table at the planning stages at the state level.

G: Right well it's only sort of irregular to work and it's always a regulatory environment which is never a good environment when you have two people on opposite sides of the issue I mean what I'm I guess what I'm suggesting is maybe it would be good if they could get together on sort of a proactive approach to a certain serving. I mean they both have the same idea in mind which is to save the beaches pretty much.

G: You've got to take the lead I mean they have not taken the lead in getting these parties together I mean the state of Florida I mean they actively go out and get money to re-nourish the beaches because it's a great economic ?? in the state of Florida. Maine doesn't recognize it and they should.

G: It's degenerated to the state level, the statutes level because a lot of the state agencies were creating by rule rules that govern the property owners without any deliberative debate at the legislative level or at any level.

B: Let me play devils advocate here the feds said ok we're going to come in and re nourish all public beaches will you folks give up your beach rights?

G: Oh you mean if you signed off

B: Yea and made it public.

G: Is it public now?

G: You still exert not you particularly but people on Drake's island claim it's a private beach

G: It is.

G: Ok Gooch's beach is

B: I'm not saying anything I'm just listening.

G: Gooch's beach is a privately owned beach but the majority of it is opened for the public

B: But if the feds said we're not going to put the federal dollars into it unless it's a public beach.

G: Then the public can lose their beach.

G: That's I'm glad you brought that up because that's what I was thinking we've been talking about that at ?? and oddly enough one of the rules is we could walk on the beach some of the beaches that were private if you carry a surfboard but we have to have some sort of fishing or hunting element.

G: Fishing and fowling

G: By the colonial rules you have

G: and navigation right?

G: But who told you that?

G: well no that's the extreme absurdum. To walk on beaches here in Maine which people would like to do that's what one would have to do.

G: That's not true

G: So you wouldn't have any problems with people walking

G: They do today

G: I know

G: They walk all around the marshes they come up the clam flats.

G: But you could as many coastal property owners have done you could some how put some physical barrier there.

G: No what we do try to enforce is when you try to stop on the beach and set up camp or have a drink or make out with your girlfriend and stuff like that.

G: Because as I said earlier it's our front yard.

G: Right

G: I guess what I

G: But surfing we don't stop you from surfing unless you are endangering people.

G: Right

G: If the state warrants the beaches why don't they take them by eminent domain and pay for them.

B: You would lose what if the feds said we'll change the laws of how assessing is done and if you give up your front lawn, front beach we'll half your evaluation.

G: I think that's an invalid point. Either pay for it or give us a break from taxes.

G: Then you'll want the sand dunes next for some reason or another then you will want the grasses next to our house next. I won't answer that question because it'd be up to ???. Adult children who are managing the property arbitrate that. That's a ??? where convenience. Now that the high tide is there you're going to say well not only do we want your front beach but we want 3 feet of your seawall and front lawn because the high tide we're going to need to walk over this. Well you can't have that because you've going to be 6 feet from my kitchen window.

B: Well it is.

G: These people are victims. The municipalities are victims between all the players.

G: absolutely

G: How much of it is ours?

G: You know why it's because the states continuing to spend and then bonding rate is going down so they have to increase evaluation so they jam the assessors to raise up the value so the bonding can go higher.

B: You know I have people saying to me why is the people on the coast paying more then the outlets in Kittery.

G: that's weird

B: Yea well What are you saying? We got saved because the market is so good on the coast, it drives up the values as Tim was saying earlier.

G: He's probably earning a couple million dollars a year.

G: you know oh yea the outlets are great and you're paying half the taxes.

G: So you do that to the residents but people who come in here probably all those stores are going by who knows so we'd rather do it to our citizens.

B: That's the assessing laws I mean the market is more valuable on the coast then it is on route 1.

G: Then tax route 1 to get the money as long as you get the money somewhere I don't care.

G: That the potential taxing that 80 year old retired person that bought their home 60 years ago you tax them at the highest potential use for that law.

G: I mean your house ??

G: One other factor is down on Drakes Island there are 20 homes down there. There are only 7 children in the public school system. So our demands on the town are much much less and yet we're paying prohibitive taxes and not demanding much in the way of services.

B: And that's true for most of the highest taxed homes anywhere actually that would continue to float through.

G: there are no children which I don't think bodes well in the municipalities healthy future.

B: Well I think there are children just not in that area.

G: They're all retired

B: They don't live in those houses, most families with kids don't typically have homes in those neighborhoods.

G: Where they're all living now back in Wells and Kennebunk on the other side of the turnpike in the blueberry and the ?? and the infrastructure water districts I'm sure down your way I'm sure too they are all starting to put stakes in the ground now and say holy we need all this for our purification of the water that is coming down and moving down to our water stations.

B: For sure, Anything else that anyone has just got to say?

G: Did we answer the questions you were asking.

G: This was a very good session.

G: wonderful session

B: Really interesting conversation thank you all very much.

Town officials focus group 2:

It would be great to have you introduce yourselves and tell a little bit about what your role is, and then if you could share a brief example of an issue around either sea level rise or erosion, that sticks out in your mind as being something that was challenging to deal with, or was interesting or surprising to deal with in your capacity, or in your experience, living on the coast. I know several of you live right here on the beach. Who would like to start?

I'm _____, and I live in _____. I have property on _____ Beach in _____. I'm a member of the _____ Beach Assoc, and I've been doing, with a few other folks there, some profiling of _____ Beach for the last three or four (however long the program has been going on). And I'm also, for the last four years, on the planning board for the town of Scarborough and to date there hasn't been much interaction as far as beach problems, as far as the planning board since the planning board doesn't get involved on individual building permits. That's more zoning board of appeals. But at least at Higgins Beach, there's no more room for a subdivision. However at Pine Point Beach, there is a subdivision going on. And the first issue that came up with that subdivision right on Pine Point Beach, the property had deeded access like others in the state of Maine to the low water mark. So the first question we raised to the developer was "Are you going to deed the inter-title zone to the town?" And that did happen. I don't know if you've been to Pine Point Beach but there are dunes and the high water comes almost up to the dune line. So the three lots in the subdivision that would have owned the beach in front of the dunes, that all was deeded to the town before the subdivision was approved. So that's the only interaction the planning board has had with properties on the beach. And I guess what's happening at Higgins Beach anyway, is erosion. Just like our coastal geologist up in Orono. The whole movement of sand goes from here as itright out in front of here. It ends up a lot of it at Pine Point and at Higgins Beach it all ends

up where the Spurwink River comes into the ocean. So I say beach erosion is probably prime issue as a property owner and a user at Higgins Beach that I see. And I asked a question at the last beach conference from the gal at the state planning office, whether anybody up there in the state government has done an economic impact of the beaches in the state of Maine in order to counter the legislators from the northern part of Maine, who I understand aren't too willing to endorse any particular funding for beaches in southern Maine. And I'm not sure if the state needs to do some kind of economic impact study. What it means to the state for all the beaches down here in southern Maine; people coming here for every three or four months, spending money and renting cottages, buying property, and so forth.

Were you talking with _____ and _____ last night? Were you talking on the phone with them today, because they said the same thing last night: the need for an economic impact study. The same issue.

It seems to me, as I understand it, when they try to get money for let's say replenishing beaches, unless it happens, happenstance that the core of engineers is going to dredge your river and there's a whole bunch of sand needing to be dumped someplace, the beach erosion problem doesn't get addressed by any planned replenishment, which costs a bunch of money. So if the legislature isn't interested in spending money to replenish beaches, if nobody tells them what the economic impact to the state is, of this part of the state, then we won't get any programs.

_____ (sp?) Conservation Commission here in _____. I'm one of the people that live right on the beach. In the last...our April 19th storm, that took about 20 feet of our dunes right in front of our house. And on the top of that dune, we used to be able to not see the ocean when you walked down the street. Now the dune is down low enough that we can see right out to the ocean. We started beach profiling in 1999, and since we started that in '99, we've lost over 45 feet of our dune. In 2002 to 2006 we lost 20 feet out of that 40 feet. So, hopefully we'll get some kind of remediation if the sea wall gets built, which it looks like that may be vetoed. And it's very hard on people down here, because your house is built too close to the ocean to start out with, and the water comes right up to your foundations. And we're the third house back, but the first house in front of us, they've lost so much of their frontage in that storm, the waves were coming right up over that dune and it deposited a lot of sand and a lot of water in the street so that is our biggest problem down here, is the erosion.

I'll go next. _____ in _____. I sit on the planning board and I'm also an owner and user of _____ Beach. There was a house that fell into a hole because the ocean had come underneath their sea wall, washed out the sand and a near house fell in a hole. DEP told them how to fix it, which was very expensive, but being a homeowner he figured it was his responsibility, it was his house, he was going to do it. But the city official didn't call it an "emergency". That man went through three months without a house, because the town official said "it's not an emergency". And to me, no one should have to go through that. His house was easily picked up in three days and re-enforced. So I believe one of the things that should be worked on between property owners and city officials is a concise action that should be taken when something catastrophic happens, before it happens. Have guidelines before something comes up, instead of having a homeowner wait for however long to determine if it's an emergency or not.

And was there just not a process in place, or was this just an individual action?

It was vague and it was an individual of...it wasn't his house. And I'm not saying he wasn't caring, he was. He is a caring individual. It was just...it was very vague and nothing was put in place to address such a problem.

Okay. Someone else?

Did he have DEP permission?

Yes he did, the next day.

So that's normally the hurdle.

Right I thought they would have addressed it if DEP said "It's okay, you do it this way, and it could be done within a few days".

I assume it would have been a building permit.

That's where it stopped. Actually he didn't have to rebuild his house. All he had to do was boost it up out of the hole. It fell into the hole and all he had to do was re-enforce it, put beams underneath it so it was above ground and then fill with riprap underneath. But they wouldn't allow him to do it because he didn't feel it was an emergency.

I'm _____. I'm the community development director in _____. I've been on the position for about six months, so I don't have any real horror stories to share. The last thing we did, dealing with sea level rise and coastal erosion, skipping the floods because the physical stories are easy (?), we did deal with this when we were working on the divisions. When we looked at the inventory and analysis section of the top plan, we recognized the state tells us we have to plan for two flood rise and sea level and we just don't know what that means. So we've acknowledged we don't know what we're dealing with. We know we need to do something about that. We have generated two plans for the whole town, so now we at least have a base of information to look at. But that type of analysis is really beyond the local capacity. How will the flood plane change if the sea level goes up two feet? We don't know what the range of tides will do. There are any number of things that come in to play. So I guess the way I look at this, is there's this big unknown and we're being told to plan for something and that's it. We're kind of on our own and I assume every town is going to go through the same thing. There seems like there's a great potential for the state or a group of towns to get together and work on that collectively.

Thank you.

I'll go next. I'm current chairman of the _____ Planning Board. I'm a past chairman of the _____ Conservation Commission. I've been at this stuff for twenty years or so in _____. I'm also an architect, so I know what it takes to build in the coastal zone and what some of the criteria is. I hope we're not going to go around the issue of what's really going on here, because it really is a big environmental issue which deals primarily with climate warming (global warming) and that's the cause. So one of the things I'm involved in is work that is geared toward cool communities. Hopefully that will someday get us back on the course to thinking about what the cause and effect is of all of this cyclic climate change. Beside that, I'm dealing regularly with folks who say, "Help me save my buildings" and so I'm looking at what are the current construction technologies that we can use to preserve those buildings. However I know full well that I can say to my clients, "In two years it's not going to be enough. In five years it's going to be ridiculous, and in ten years this building won't be here", and they can say, "What? You're not serious are you? That's ridiculous!" Nobody is talking about it, but that's what is happening.

Thank you.

My name is _____. I'm the planner in the town of _____, and I also own with a couple friends a hotel in midcoast Maine up in the Boothbay area which doesn't have sand beaches, but we have a lot of ???. In Wells, 18 months ago, we had a house that is now uninhabitable because near the storms there was a surge and the river going out is slumped and a bunch of soil went out and unlike DEP... where in your case the DEP says "Oh yeah we can do this" and you had to break for locals, we can't get anyone in the federal or state level to agree that there's any remediation that should allow for this house. Where it's essentially, it's too close, you can't rebuild it, and you got to do something. Of course no one else wants to pay for it, so you know we have a lot of sympathy for the owner. And we've just recently gone, or re-gone the process of putting together a bid for a new bridge in Wells Harbor which silted in approximately one half the time that it was predicted it would silt in after the last bridge. And as a planner I'm more than happy to help write this and all because that's what I'm told I have to do, but I also have to sit back and say, "Why are we doing this?" It's clear that unless we want to be yearly, this is not something that is going to work. So it bothers me. I don't own a house that may disappear and I'm thankful for that. Although I own a motel that may disappear. Hopefully we've insured it for that and we'll find out. But it seems to me that a lot of people are still looking at band aids, and I think it's probably time where we can't do it on a town by town basis. We've got to start looking at, alright, what is that needs to happen here? It's easy, in terms of scale, it's easy to say if you're in a flood plane or a river, you buy wall out and move it. It's hard, it's wrenching, and it costs a lot of money. People don't like to do it. But the amount of energy and effort and fight that goes into keeping your house on a river as opposed to the amount of energy and effort and fight that goes into keeping your house by the ocean where your family has been. And one is a six, the other is a hundred. There's a huge difference there, but I think that ultimately some form of that is got to occur. And Maine is not going to suffer the dislocations that Miami or some of those places are where you got two billion dollars of stuff right on the beach, but it's still going to be wrenching and it's still going to be difficult.

Someone else?

I was the town planner with Old Orchard for 4 years. I'm not Kittery for the last 4 months. We were doing major study of a 200 acre basin, and that actually was created through, 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. Had to pump under the basements on a seasonal basis when the water table came up. And now they find that it's costive 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 that would pump. What's going to happen eventually with the rising of waters is that we're going to lose everything we've got in there. They are at this time, if you rebuild, you have to raise your floor level in consideration of the future high waters, but they won't be dealing with the housing. There are houses there now that a little lady has to wear boots every time she got out to her mailbox. The water doesn't go down and during just a normal rain now, they're flooding out. So it's a bad situation and a lot of people should help, but I don't know if they're going to help.

_____, _____ Public Works director. Probably the most noticeable thing I've seen has been actually since I was a kid, is the loss of Strawberry Island in Kennebunk. When I was a kid, it was an abandoned farm, you could easily walk out on the way to the island and see the old foundation of the farm and now some 35 years later, that island is down to a few rose bushes and probably one or two big storms away from losing them. And everyone else in town, the older people in town remembers the farm. But everyone in town sees that as what we're facing, the loss, nature took it away, and it's coming.

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 influence 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 Scarborough 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 ??? Day storm other than some minor erosion and some flooding, some street flooding. But it's only a matter of time before something else happen. We're doing a drainage project, it gets complicated because it's hard to sometimes 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.

I've wanted to ask several questions, but I think I'm going to ask this one instead. It's come up several times, "We need to start doing things differently, we need to be more systemic about what we're doing, thinking in the longer time frame, further out on the horizon." What are the initiatives that you're working on right now or things that you're doing right now that are looking further forward? I've heard a couple examples, but I suspect there's a lot more than what's already been shared.

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 York of course is water. We're dealing 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 emendable 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.

Let's say that we completely reversed all of our personal behaviors on a global scale and everything was in the absolute best case scenario. We would still be experiencing significant sea level rise and significantly greater erosion along the coast. Irrespective of any kind of personal change of behavior. What I want to try to get focused in on, is what are the things that we are going to do to deal with this coastal zone, in terms of people's behaviors, policies...in that direction?

I don't think we're doing very much at all. I think we talk about things and we do some studies and we kind of try to think about what's likely to happen, but the practicality is, is that there is no political will or motivation or incentive to do any of the things that we should be doing if in fact our analysis of what's going to happen in the future is correct. Because it's not ???? It requires people to make some very difficult choices and I think as human beings and as a culture, we've shown that we don't like to do that and we won't do that until something significant and disastrous happens. And then we decide that then we need to do something. We look at it in our comprehensive plan. We look at it, we talk about...We will permit a subdivision close to the beach and we will ask them to give us the beach front as then it goes to the dune. And we think about, "Well, what does that mean ten or twelve years from now". There won't be a dune and all the property that's owned by the town will have disappeared. No, what happens? But to deal with that in a real way is just not practical to do that. People aren't prepared to make those kinds of decisions or choices. And I think unfortunately we try to do the best we can looking maybe two or three years out, or four or five years out to try to be reasonable in terms of trying to create some safe guards for residential areas, to try to look at what should we be doing in terms of trying to preserve the beach or replenish the beach areas or create the dunes or protect them. But I suspect that largely what we do is kind of wind addressing and we're not going to do anything...it's the band aids, but that's the way we are.

How do you afford to even purchase people's property?

I don't think you can when it comes to dealing with the ocean because the value on the property is so great. No community, let alone the federal government, could really step in and really have a very successful program of purchasing property. It would just get terribly expensive.

Part of the problem, I think is that, it's taken people a long time to accept that this is not just a cycle. Those people who remember the Maine Times, back in the late 70's, had a series of articles about some houses in (town??) that disappeared. When I first came to Maine in '67, a friend of mine's family had owned property in (town??) for years and we used to go there, and a nice house. And it was from here to that door over there, from the water and eventually it disappeared. Each came back and back and back, and the people who were two houses in back of them, had beach front property. My friend's family just shrugged their shoulders, got their insurance money, walked away, and 20 years later each had gone back out and if you took the guys deed and you went out, then you could have found you could now build a house here again. The beach went in and out, the dunes were built. I think that it's taken a long time for people to accept that that's not what's happening now. I think it's unfortunate that the political world has disappeared.

It's ridiculous. It isn't just the coast; it's everything, social security, Medicaid. We got the money if people were willing to say, "Let's tax ourselves and do this" and we could do it. But why would we?

Why bother to plan for anything? Why not just wait for whatever to be washed away, and people to lose their property or they don't? And the town simply moves roads around and the sewers around according to whatever happens, rather than try to plan for something that is so complex that you can't calculate?

The short answer is, at least for some of us here, that's what we're paid to do; is to be thinking about those things and try to plan for them. Doesn't mean anybody's going to pay much attention to them but that's what we're paid to do. You try to do what you can to move either the dialogue along or the actions along to try to get closer to that goal.

If you're just talking about private property, that might make some sense, but you hit on it yourself. Now you got to move the road, now you got to move the sewer.

They blame the government for being in the situation. They're not quiet. You can't ignore it. "Why did you let us build here?"

The easy thing to do is simply say, "If you're going to build there, you insure it." There's no more disaster to individuals period, end of discussion. And I don't think that's necessarily a bad thing. I think "If that's where you want to live despite everything that is out there, that's fine. But just don't expect me to contribute a penny's worth of my taxes to ever fix you up again. Your house disappeared into a sink hole, you didn't have insurance, hey you know what, go build another house!" There are all these improvements out there that will cost you a ton of money, but you are spending that money because that's what you want to do then you are spending public money that is not going for other things that I think, and a lot of people think, are important like schools and healthcare and stuff like that.

As I understand it the state of Maine, I think 1992 was the shore land zoning ordinance. Before that I guess, what you mentioned, you could build wherever you wanted, as close to even in the flood plane.

You can't now and that's the beautiful thing.

I know it. Up until 1992 as I understand it that's when the shore land zoning went into effect. And I think there's an interesting book that Joe Kelly wrote, he's up at Orono...I have not only his book, but that other one from Dr. ??? called "Beaches are Moving" and I think Joe Kelly wrote off most of our beaches because people build too close to the water.

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 extremely 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. It's those that are in the wetland basins that are going to be affected by the high water tables. The first time we got a wave that comes over the track, fills that whole base and then floods the whole...that's the only evacuation ?? that you got out of there. And you'll have something like you had at New Orleans, not to the extent...I'm talking about Old Orchard. You will have a whole area that's flooded out at the loss of houses. We don't have the control where we do in the frontal dunes.

You talked about upland or more inland wetland areas and those are areas that also migrate over time naturally. They migrate inland according to sea level and we have lots of developments that are built on the periphery of these different wetlands. And the wetlands are now starting to bump into these development buffers in a lot of cases. And something that was far away a while ago, isn't far away any more.

We had a race track that was very popular in Old Orchard for years, and it's completely gone. It's under water now.

I feel like a sitting duck. I'm on a sand bar. Not frontal, not back dune. And I'm ten feet from the water, and ok I didn't build the house.

But they were saying earlier, you personally accept the risk that's involved and if it's gone it's gone.

We knew that there was a risk. We'd like to rebuild. God forbid if anything happens. I'm solving it now. We're out of there. Our house is for sale. I'm chickening out. It's the taxes. You said, "Why does anybody want to reimburse me for my house if it goes under?" Because I have paid very high taxes to that city for the last 20 years that I've owned the house. And that counts for something. I'm not saying it's totally wrong.

But proportionally I pay higher taxes for my house in a community that doesn't have high tax because where I live our tax rate is 25 mills. So I'm paying 2.5% for the value of my house every year in taxes. In Wells the tax rate is 8 mills, actually 7.2. So people are paying .8%. In terms of dollars, you're paying a lot, absolutely. In terms of percentage of what your property is worth, you're paying nothing compared to me. So if my house burns down, I'll take your argument all the time, because I'm paying three times as much in terms of the value of my property in taxes. So when my house burns down, I don't want insurance. I want you guys to build it for me.

I do have insurance on my house. You have to have a certain amount of responsibility. But so doesn't the community have to have a certain amount of compassion of when something like that would happen. It's just like if your house burns, you can rebuild where you are. If my house floods, I'm out of there. Nothing. Can't do anything with that land. Can't sell it. Can't reinforce it.

If your house was worth a million dollars, and you got your million dollars and move inland and build your place for \$500,000, you're alright. You've lost your house, but you have a place to live.

But what I'm saying is you're paying higher taxes than I am?

As a percentage of my value, absolutely.

I have one less than one quarter of an acre of land and a house that has a leaky roof. It was built in 1937 and still has the same clapboards. And my assessed value, what I pay for taxes, \$8,000 a year.

And then again, I'm not saying in terms of you write a check for, it's bigger than what I'm writing a check for. In terms of the percentage of the value, I'm paying more. I live in a house that was built in 1925, probably has the same clapboards cause I keep painting them over and over. Too lazy to do anything more about it. But again, by the time we're all done, and I live in a community where we have a town meeting and all that, our tax rate comes out to 25 mills. That's 2.5% of the value of my house. In Wells, it's 8 mills, .8%. So you're paying 129. And I have a lot of sympathy for people who inherited their property and came into it and are now assessed with these big taxes. On the other hand, it seems you can't accept the market works in one hand I could sell my property for a lot, and in the other hand you say.....

And I think this is an interesting point. And it brings to this table some of the conflicts that you regularly deal with, I suspect, in your different roles and capacities. Where you have one set of interests versus another set of interests. And that's the balancing act that you are all playing in your professional lives. So, tell me more about that balancing act and how you are doing this two and three year planning and what's working and what's not. You have some real public interests, also, that you're looking out for. I was just watching the waves a little before I came back in, and I've been here for a few hours today. I was killing time. And I noticed this must be about high tide. The waves are right up on the seawall. There's no beach. It's gone at high tide. Now there used to be 375 feet of more beach right out here.

There used to be 32 homes out there. And some people are still paying taxes on the sand that is underneath the water, in case it ever goes back. With the seawall, it's never going to happen.

No it's not. Things are most certainly changing. Another flip side to this, is despite all the taxes that are paid by property owners that have beach front or ocean front property, the people of the state of Maine also underwrite all of the infrastructure that supports the entire state. The public access to the water front is diminished every year.

The state of Maine as I understand it, and other coastal states that recognize what I mentioned early on, the economic impact of the beach areas in the state like New Jersey .but then again, Maine recognizes that there is some economic impact. I'm not sure at the state level anything happening in that regard. And whether it works or not, that's a whole other subject, whether replenishing the beach...you'll have it for a few years and then it'll disappear again and why do

it in the first place. So that's a whole other subject of...whether it's worth doing. But other states seem to be doing it in a big scale where particularly in Florida.

I think New Jersey also has a charge to go to the beaches. That charge...individual cities used to own it, now the state has taken over so that some of the money goes into the government for restoration of beaches.

With the severity of the storms having gotten worse over the years, it depends on what the severity of a particular storm is. It can cause from where surf...ends, which doesn't go all the way through anymore, because it's too unstable. It costs anywhere between \$16,000 and I think at one storm, this last one, about \$75,000, to replace that road every time a storm comes by because those big stones wash down everything that was with it.

Now we're just sort of at the beginning of the winter season where the beach retreats, and how much further does it retreat from where it was today?

An interesting observation, I think is, this isn't new. This has been happening for hundreds of years and continues. It may be accelerating. But what's happened, is that we have occupied so much more of the beach front property and we've placed a higher value on it and now we're saying, "We want to draw a line in the sand and we don't want it to change anymore because we want to protect this". And the reality is, nature is constantly trying to move that boundary and we're forced to try to protect it because there's so much invested in it, whether it's that the government has invested in it, or whether individuals have invested in it and have their homes there. In some ways, it's like Louisiana, (like New Orleans). There's so much of New Orleans that should not be rebuilt, but who's going to make the decision that those people, and many of them were poor people, can no longer have their property. And no one in the federal government came up with an idea that we will pay for your property and you can afford to relocate to another area and have something that you had. I don't know what the answer is, but I think somehow we're still moving against the tide (no pun intended).

I think we're fortifying. That's the tactic that we have.

I think I could technically afford to build about three hundred feet out there and have a bridge constructed to it, with enough money, no problem. I could live there forever. I could connect to any roadway that comes and goes. I think one of the things we argue about, and think is an issue, is can we afford to maintain the properties that we have at that level of investment. No, we cannot. There's no way. And the reason is, with inflation, there's no way to keep up with it. And also with whatever value is in that property, with time, historically that will be eroded not just by the sea, but by the banking community, and by our ability to be able to earn enough to support and sustain that. So, I hope we have the ability to, look for bridges, not the physical bridges, the metaphorical bridges, that will enable us to grow into our community and sustain our communities, even in the coastal sub. And whatever values it takes, are the ones that that the communities are willing pay for.

It's more long term thinking.

It's got to be long term thinking, and it's got to be sustainable in the long term, and even radical in its approach. If we start thinking of maintaining beaches without building the bridges....that will change.

I can't say I agree or disagree, it's not my job. I'm interested, though....the value of these houses and the value of the taxes that are generated by these houses is of course socially constructed thing. It's only because people place value on them that they have value. 75 or 100 years ago, most of these places were shacks. Some are camps and shacks. And if the wave came up and blew them all off here, you just throw up another shack.

The owner would come out and make sure there wasn't anybody around, and set it on fire, because there were 2 or 3, and that's what they did.

And is that a viable different direction to go? Maybe you just say, "Look you can't build anything too permanent. It washes away; you just put it back up. We're not going to worry too much about it."

My house started out as a fishing shack. That's exactly what it was. It was built from dump, and if you go down in my cellar, you have to lean backwards to go down the stairs. But I call that character. And I love my character. It's true. The assessment is...I haven't changed my house and it has grown.

On the other hand, if you decided to put your house on the market tomorrow...

It is on the market.

When you sell it, you're not going to get a shack price for it though, at least not right now.

No, I don't expect to.

It seems it's the land, not what's on it.

Yes, the land is assessed at, I just got it a little while ago, \$310,000. Less than a quarter of an acre of land.

And you can rebuild it.

Yes, and it's on the market for \$650,000, which I think I'm asking a very, very fair price for it. But my realtor tells me I'm way too high and he only wants to sell it for \$400,000. I'm sure he could in two seconds flat.

What are some of the things you'd like to do, that you haven't done? Or you think ought to be done that have not been done?

How about improving the cost for infrastructure, in other words, throwing in what it really takes to maintain whatever it is that we build. If we are talking about seawalls, they're going to be undermined and eroded. There's going to be things that will happen...engineer structures that are just building islands.. Can we engineer things that are technically capable of sustaining for at least the life of a project, whatever that happens to be? And if that's the case, our building codes are insufficient.

Our building codes are not what define roadways and seawalls.

No, but the public infrastructure has to come under the same scrutiny.

Which we could be building on pilings, rather than slabs on piers and elevations. There could be a different type of structure. Right. And parking underneath, which may get washed out once in a while, but leave a little more green area and beach area. It's going to cost if you want to live there.

I think, as _____ knows, we have an infrastructure problem in Scarborough at Higgins Beach from the Patriots Day storm. The riprap which is adjacent to the town's street runs along the beach got undermined.

Yeah I think we may end up getting the whole thing repaired.

That's not a solution at all.

No, it's fortifying. There was one school of thought when we had a committee about 8 years ago, that looked at issues at Higgins Beach. There was one school of thought that that particular street, Bayview Ave, just go whatever. But what they kept forgetting was the public sewer for 400 properties goes under that street, so it's worth protecting. Otherwise, as _____ knows, the three beach areas in the town of Scarborough contribute a fair amount of, probably an undue proportion, of the tax revenue to the town because of the value of the property. So you can't let the infrastructure go if 400 properties are going to disappear.

It would make sense to beef up that infrastructure.

The built up section is between the Mousam and the Kennebunk. They started building sea walls in the 40's. The town's people had been very happy to rebuild after a disaster. And since the FEMA program went into effect in the

70's, and construction costs started to escalate, we've been very happy to take FEMA's money every five or ten years and rebuild. We have basically one section of wall left, probably about 2 million dollars of investment that we're trying to get out of FEMA. And that's how we have been paying for our walls, by asking FEMA.

But that won't last, because FEMA's pulled away from the private sector.

And these things now are expanding exponentially. Where it was one wall, or a couple walls here and there, now it's ten, fifteen walls. As everybody has started to fortify and do things all along the coast line, now it's not just one or two isolated situations. It starts to become extremely expensive, and you're right, eventually it's not going to sustain itself and the money is not going to be there. If the community wants to do that, they can do that, but the federal government is not going to be there.

As I understand, the state DEP won't allow to construct a new wall that will approve repairing an existing wall to fortify again.

You talk about band aids and putting these large stones down along here...and it's those who are moved further north....at the end of it is where it gets washed out all the time.

(Name?) did a beautiful study in his book "Design with Nature" in the 1970's I think. You can see his thinking about sea walls and it undermines the whole beach process and eliminates the beach ultimately. So, I'm putting this out there as a question. Is there a civil structural way to maintain the shore land environment for people to live in? And I say that I think it's a radical approach, because people want that kind of solution.

I don't know, but I do think what happens is that we reach that point where it becomes critical and technology and ideas do generate that kind of solution. Whether we will be able to and feel we want to afford what the technology can offer and whether we want to live with the kind of changed landscape that that may involve may be another question and another generation will make that decision. But in terms of the technology, I'm sure there can be ways found if it becomes critical enough and the investment will be justified to come up with ways to do that, as opposed to the other way would be to just draw a line. Historically, we've seen this all on the coast line, and you draw it back ten years from now, this is where the line will be.

Politically undefended (?)

Absolutely!

But it's not if you think of there are two types of infrastructure. There's local service infrastructure, like what it takes just to serve these houses that are out of the flood plane. 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 pipe up or it's going to be gross. There's a road back in here, Ridge Road, that's out of the half flood plane and we need the pole, probably the major transportation route and the major sewer connector and probably whatever else is there, back away from the ocean. So if this breaches, we can keep pieces of it to keep the access, but it doesn't have to be a thorough fair (?) 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. But a road isn't a road, isn't a road. There are different tiers of the road.

It seems to be a kind of thing, is going to evolve. I don't know if we have all the answers today. We can decide how we try to stop this, but I don't think it will work. But I think what could probably be successful is creating strategies through technology through infrastructure, through construction, through zoning, that will attempt to mitigate some of the impacts. We absorb some of it. We kind of work around it so that instead of giving up entirely, we maintain and keep pieces of it and then it keeps retreating over time. My feeling is, given the political will, which is also individual will, what are we willing to sacrifice to (?) some of this, is that it's going to be incremental. That we're not going to see the big changes, people's behavior change, their decision making. Get to the point where they are able and willing to make big changes. It's going to be more incremental. And we'll do things incrementally that will keep things in balance. To try to avoid the disaster or the calamity. We'll do enough to try to keep things working. And then there won't be the motivation to do something dramatic and out of the box. We'll keep working on pragmatic solutions and deal with it

over time. It will change just like history has changed. It will be gradual and incremental. I don't know if any of us can really understand what a two year two foot rise in sea level really means. The scientists can show us what they think it means, but how that really affects the entire globe. I don't think any of us really know.

I want to go backwards here a little bit. When I joined this conversation, it's totally hypothetical to anything that has to happen. But I am going to go there anyways. ?? We know we have an arbitrary sea level, which we know is going to rise. We know that legislatively we can effect where that zone is. It doesn't have to be at where we are right now, but it's probably right about here. We can arbitrarily lift that up about five to ten feet. That's just done legislatively. The policies that go around that, though; how you live within it for the long period. Say to the people, "Well this is really where you are going to be. This is really what you have to deal with" Now, incrementally, we can come into policies that can overtime effect how we actually live at that level. But unless we acknowledge that at least we know it's going to be here, we can't have policies that keep us on the ground.

But the state has already told us. Right now we need to be dealing with two feet of freeboard of where we are today.

And that is a good way to go about it. I think two feet is probably just not much different than what we got. They're saying, "Well maybe that is radical. Folks will have a hard time accepting that". But the reality is, is they put it higher, folks might pay attention. But right now, we now it's not really there.

They might not want that kind of attention.

Let me interject something and see whether there is any thinking along this. Part of the issue here is that because the properties are so highly valued. If this was worthless property, we wouldn't be sitting here having this conversation. Five years ago, it was entirely fashionable to have a suburban and to be buying the large possible house you could and to be flying all over the place. Now all the sudden those behaviors are not quite as fashionable and folks are buying lots of hybrids and this green movement has taken a real turn. And it's driven in part by oil prices and more consciousness issues, and who knows what will happen. It will be this movement or just sputter and die off. Is it possible that that same kind of movement can be pushed in communities, where folks started adopting a different idea about living near the water, living near these kinds of things, or not.

No way. Too many people are coming from away. It's not the people in the community that are driving. It's people in our case, it's "York-achussetts". 70% of the people in York in the 2000 census were not from Maine. That's the whole time, not just the water front. So you look at community issues. People don't have a community background to begin having a common understanding to have that discussion. It's scary.

And a lot of them are buying the properties along the ocean.

And that's what they want; they want the waterfront properties, the ocean properties.

And as long as the nation is growing, the population everywhere is going up and up. There's more and more pressure to move to the coast.

Well, what's the age of people who live on the coast?

Old. Well compared to me.

But there's a steady supply of that age group, for the next 20 years. So even if somebody, 50 years old, may buy the house today and they're going to die out in 20 years, there's another replacement, well financed 50 year old to take their place.

I may be wrong about this, but I believe, if you look at who's buying the greener cars, those are the people who are coming into the system. Steve's right. If somebody is there, you are not going to get him or her out, other than to sell to the next person. And the next person is going to pay more than that person paid and so they're going to want to do more and have greater expectations probably. And if they're a recent owner, then we find that then they make demands on the town or government to do something, to protect their investment is even greater. And if you get into a community that 70% of them are newer people, then they are the ones that are going to be making the decisions. It's

not a question about whether, does this make economic sense? "I don't care if it makes economic sense or not. I want you to do it! I've invested here and you're going to protect my property."

"I'm paying \$9,000 here in taxes, and no kids in the school and you're going to do this for me."

We only hear that every other day.

It's interesting. When I one day entered in another community, not in Wells, but somebody came in and they were really unhappy about something and we tried to explain it and nothing was working. Finally the guy just said, "I pay your salary". And I said, "Really?" and he said, "Yeah" and I said, "so what are your taxes?" And I said "here you go" and I gave him eight dollars and two cents. He said, "What's this?" I said, "That's the percentage of what I get paid that you've paid, so now we're even, so go away." And I think it was the first time he ever sat back and thought about it. And the next time I saw him, we had a much more civil discussion and eventually resolved his problem. But you can't do that with everybody. Luckily I could do it with him and he didn't get mad and come across the counter at me.

The problem is, is that some much of the coastal area has already been built on. If it's undeveloped land, then we can be more successful in implementing these kinds of strategies. We can impose restrictions that help deal with what's coming down through the years. What you have is much of its already developed and it continues to grow in value each year. So, it's not going to go away. There isn't very much you're going to be able to do to get people in that situation to change their activities or the behaviors or what they want to do with their property. So that's what we're really up against, is that kind of reality.

Let's take a break and transition to the other table.

I wanted to ask you a couple more questions. One of them was, where do you get your information about things like climate change, sea level rise, the signs of the resulting kinds of impacts that might have? Where do you go for information about it if you are seeking it out? And when you go looking, what is it that you trust?

If anybody was able to catch the Today Show this week, they got a map up in Greenland and Antarctica and ?? at the equator is kind of an interesting little thing. And all week, they're doing a whole thing about how the ice caps....so I think there is more awareness if people are not working when the Today Show is on. So I think that's been pretty interesting this week. And I think other public broadcasting is eclectic in education on global warming.

Discovery channel, Planet Earth.

Beach Conference is best.

That's right, the one in South Portland. It's not quite been annual, but there's been a beach conference every two years.

As you are looking at information, what are the sources that you would trust?

G.S. State agencies.

I've talked with land with land owners who say they distrust those sources. Why would that be you think?

Because they don't want to admit that they are probably living where they shouldn't be living. Me, included.

I'll give you an example. There is a survey 20 years ago had, I think, what we called streams. seasonal When you go up in the other streams, the small ones that fall out, I think probably based on influence from private property. So there's a real distrust of these agencies although I don't think it's really credible. They can do mapping from outerspace. York has an excellent GIS system and can look at where these streams really are.

There are a lot of municipalities, too, that haven't...well they've figured it out. They go by the hundred year flood map. I'm sorry I'm in my 50's and I know that area has flooded out. And they say, "oh no there's never been a flood there" and it's like "yeah right". But the mapping that goes with these things isn't completely accurate. And I heard you saying

the city officials and the planning board doesn't always listen to what the conservation commission has to say and you are absolutely 100% right and I think they should start. I'm on the planning board in Biddeford, and I have changed my ways a lot listening to Richard Rhymes (sp?). He's on the conservation commission and there has been a movement in the last five years to listen to the commission more and to meet with them more and I think cities and planning boards should work closely with the conservation commissions.

I would say in Scarborough, for every meeting from our conservation commission and that's valued input.

I was on the conservation commission six years before I became a planner to actively give them a voice on the planning board and I am a tree hugger, you might say. But I won't hug it so I choke it to death, either. There is always a happy medium with everything.

They are saying now that we are becoming too green. Five years ago we were able to at least get all the plans...and there is a place for us to make comments which is good. They don't always listen to us, but at least they get our comments and it is inputted in the record. We are having the planning board chair next month for our meeting, and that's going to be one of the very issues we are going to bring up; is the conservation being listened to a little more. Not the authority, because they'll never give us that.

I put it through that when you have public comments...in Biddeford; I had this three minute rule. Now I have given commission, city officials, so-so's and everything, five minutes or ten minutes. I'm hoping the new laws go through tomorrow night, and there will be rebuttal also and the commission can just stand up and raise their hand at any old time, and they can speak through the chair.

We have it for open, then they closed it, so we can no longer speak either, which I don't think it's right.

You guys were just talking a second ago of an interesting topic. I haven't brought this up before. Do you have the right people at the table in your conversations in your communities? Are all the folks that ought to be there talking about the issues, talking about how you do things? Who is not there? Who should be there?

Realtors. The reason is, is that realtors have a strange interest out there. It's not just the 7%. My friend is a realtor and he's an appraiser as well. He has a conflict of interest sometimes. He said to me not too long ago, "Well what's the difference between a wet land with ???? and the coastal zone? Quite frankly people would rather be on the ocean than on a wet land". And I said, "no, the wet land is far more versatile, has far more things going on than does the ocean. There are things living in it, it's thriving, it's growing, it should have a higher value". He said "No, it will never get there". I said, "Well there's an opportunity for the real estate and appraisal communities to start thinking about the real values of the biological communities and what they mean to us and how we interface with them. They are not at the table. They have a whole other interest.

City managers. My city manager doesn't go to the meetings.

Builders and developers.

A planning board and also zoning board of appeals. I think they should have more of an active presence.

Are there enough private land owners present for them to get a good sense...and for you to get a better sense of what their issues are?

Depends on what the issue is.

I think when we went through our comprehensive plan, it took about a year and a half before we finally ended it, but during that process there were three public forums in different parts of Scarborough and there was pretty good attendance to get public input about issues facing the town and land use and recreation. But as far as meetings, planning board meetings, if it affects a particular neighborhood, then there will be people showing up. I think my experience when I became a full time resident of Scarborough, I went to the first public hearing on the budget and I was pretty lonely. But then as you remember, we had a big issue about dogs on the beach, and we had standing room

only for that public hearing. So it depends on what I might call public interest. Not many for the big broad picture, but how it's going to affect them...will they show up to make their input known.

It would depend on what you are discussing. When you ask who should be at the table; If you are reviewing a plan that is working through a process that's in place that has the checks and the balances that it ought to have, you might want different people than when you're doing the comprehensive plan. Because presumably, if the ordinance is in place and you can move through it, it's probably helpful to have some people with some expertise on what's being presented at the table to help you make a decision. But if I'm going to start over, and you say, "alright, here's no zoning and there's no plan for this third of the community" you want people who can envision what's going to be there.

I think one of the weaknesses right now is kind of relating both to your question of who should be at the table and trust. The issue is so poorly understood and everybody has a slightly different perspective on it and it depends on where you live and what you want to believe and what you think may or may not happen. So there isn't a real good consensus and I think there is some sense that things are changing. On one side, the change is perceivably bad, and on the other side, people say, "oh that's just the way it is" it's not all that bad. And I think the public has a hard time dealing with who should they trust on this issue. And everybody is seen as being somewhat suspect. If it's the government, well they are saying this because of some other reasons. Maybe it's to keep the taxes rolling in or for something else. Or if it's an environmental group, they are taking a position because that fits with their particular interest and what they sense is wrong with the world. Or whatever the group is. So I think for the most part people are really confused. Who do you believe? What is really true? What is likely to happen? What is fact and what is fiction? And I think unfortunately I think we're still trying to sort all this out and because there are so many different views, people will pull and tug you either way. And I think until there can be some kind of idea...some kind of impartial authority and say, "this is what's happening and this is what's going to happen, and this is why and these are the things", we are not there yet, we may never get there, but I think people are really distrustful of everybody in this. If you're on the coast and living in a property, everybody says that your house is going to wash away, you want to distrust them. You want to believe that they don't know what they are talking about.

A community really isn't healthy that doesn't have trust. The sense of wellbeing in a community has to derive from citizens' ability to speak the truth and to act in ways that are truthful. And when you get indecisiveness in a community because there are separate polarizing influences; that's not a healthy community. And I think a part of what we've neglected to do, is bring our educators into this process. Often and early, I think the connection ??? University of Southern Maine and Wells reserve, these are folks that really understand issues and could be very positive in creating things that our communities could use.

The purpose of this meeting is for us to develop a broader survey to inform the question we ask, but it's also to inform Maine sea grant in designing education materials that they will then take out to community planners, like yourselves, as well as to contractors, realtors, private property owners, both business and residential. What is going to be the most effective way, in your opinion, for them to deliver that message and to sell that message in a way that is believable and engenders trust?

The values that are different, not just what's in dollars, but they need to be brought into sync. In other words, what's the value of a healthy environment? And if you can sell it, if you can compartmentalize it as we have done in so many ways, that's going to be a resource that folks can look at and begin to trust that the values will be sustained and be understood across the border. I'm not sure what those values are, but right now, the values say, build along the shore within spitting distance of the water, is high value. And it maybe to some folks, but across the board for our culture, it's not a high value. It's a higher value to protect the water source and to somehow maintain the type of environment, the ecosystems that are dependent upon the water. So I think it's really important to be able to assert the values, because you know what those values are from a logical point of view our systems of education so that everyone can look at it in a way, I hate to say this, but can profit from it. It sounds like a terrible mechanism for why we have motivation in our culture, but it's a primary motivation.

For southern Maine, I think one of the things an education organizational thing to do is look more towards the history of the coastal area from a standpoint of...from Indians to settlers, to a fishing economy, to Seashore Trolley Company coming up through, to trains, to cars, and I think you could look from 1600 on, and one constant is things change. But if you live in southern Maine, you are in a community. So, while things change, it's still a community. There will probably

be change over the next 50 years, so be ready for change and anticipate change. Maybe make it a little better. If you don't think things were planned out well for the first 400 years, what are you going to do to contribute for the next 25 or 50 years?

Two terms come to mind: credibility and pragmatism. I think what they have to do, they have to be very credible, and whatever materials they come out with. They have to be able to present them in a way that is perceived as being truth and factual and is credible. Because if it's not, they are going to have a hard time selling it. The other thing is, is that it has to be pragmatic in the sense that things that they propose need to be implementable. Things that can be done that aren't perceived as being too idealistic. Sometimes speaking on conservation commission, sometimes some of their ideas in the past seemed a little too far out there, and so people that want to listen to them because they were perceived "well they're idealistic, they're the tree huggers" and so there was a tendency to push them off. I think conservation commissions have become a little more realistic and they've gotten closer to what works with people and what resonates with them. I think the same thing about sea grant, is that they have to be able to put forth materials that are in a way taking small steps, not big changes. I think they have to be small changes and things that people can do and understand and feel comfortable that they are not making a mistake and somehow this is going to result in a better house or a better location, or better support. So I think, to me, that's key. What the substance is of all that, they have to figure that out. I think they have to be careful and make sure they've done their homework, because if they come out with something that seems to be too idealistic and something that is a little too radical, then they are immediately going to be discounted and people won't pay attention to them. Builders and developers in particular are people who are very practical. They're very driven by cost decisions, "If I'm going to do something, it's going to cost me so much money and why would I want to do this if it's going to cost more money, if I could do it some other way." So they have to have a clear reason. Some of that has to be values within a society and a community. It can't all be just calculations, but it has to be a part of that. It can't be too far out of the mainstream. I just think there can be longer range ideas of what needs to be done, but I think in the immediate future, it has to be things that people can feel comfortable and sense there's a good reason for implementing some of these changes.

It has to be pretty focused, too, because if you look at any given plan ??? conservation commission, they might have 100 hours of meeting time in any given year and you are competing for agenda time with the planning boards...

Should they be coming in and presenting, too? The planning board?

Yes. It may help.

In the schools, I think our young folks are probably more acceptable to things like that. If you can work on them, they can work on us older folks. But I think some of the schools do quite a bit to alert their students about the environment. But it doesn't always transcend upwards to their parents and so forth.

It will. We get them involved in painting and manholes *****.

It's like recycling. It's one of the things we discover in recycling. As you start it in the school system and the kids get behind it, that pushes their parents into recycling.

And now everybody is into it and everybody feels it's a successful program.

And those children are the next realtors, builders, and carpenters. I think it should start in the schools, but I think have the curriculum in Maine in 4th grade is Maine?? I think maybe you ought to up it to a senior subject of your community, not just Maine, your community. That way you have people that live on the ocean, they go to that school, and they go into that. The inner states and the inner tree growth and everything, their schools would go into that to let it out to the kids. And to have the kids have the sense of community when you graduate from high school, there are meetings and there is city government that you should be involved in. And you should get involved in and have them both together and the perfect society.

We have junior achievement day once a year in Old Orchard and we brought the schools in to the town hall, and to the police and fire and into public works, and let them experience government. They would hold a mock council. And the planning department prepared for the MS 4 program of studies and made presentations on power points to three different grades and got the students involved and let them do experiments. We had beach cleaning day. These things

are very effective. It's us, the government, reaching out to the schools and they're very welcoming and glad to let you in, to spend some time with the students. I think that's one of the best things we can do.

We have been very lucky here in Saco. One of our conservation members is a teacher at the middle school (a science teacher) and he started a group at the middle school. They are doing water testing on ****. They're doing it on Bear Brook over to the school, and they've also set up a nature trail along Bear Brook that they have **** for what animals. It has been very successful, and some of those kids in that class have gone on to school to become in forestry and working on the environment, and lawyers for the environment. It has reached out into the communities on the other end of it now, because they're going back to their communities and doing things that they may not have done if they hadn't learned that. Water testing is a very successful program.

It might be a good target audience, initially for sea grant, would be the conservation commissions to create some kind of alliance with them, to get that information to them. I'm not sure conservations deal a lot with the beach issues. It tends to focus more on thermal poles and wetlands and those kinds of issues. Not so much to shift their focus, but to get them involved and understanding in the kinds of issues that are faced along the beach. Planning boards are a real key target because they are the ones that begin to establish the standards in terms of new developments and in terms of existing structures and work going forward as your code enforcement individuals. Obviously town planners should be involved in that. The front line individual often is code enforcement. The person that people contact the most and ask questions is code enforcement. So they set the state, in terms of whether you should be listening to these other people, or shouldn't. I think those are a target audience because they are all part of a regulatory process and obviously what you want is to have much of this over time embodied in regulation because you'd like to have people do it because it's the right thing, but obviously that won't always work. So you have to have a certain amount of regulation that requires people to do the right thing. So that's a good place to start. I think if you had conservation commissions, code enforcement, and planning boards well versed in this and there was a sense of trust of the message, then I think you're on your way to establishing that credibility.

I would rather not see *** men be delivering the message. We have message groups. What would be will be helpful and useful to me and to other people too, is to know there is a place that was gathering the information so we could get it. If you make a valued judgment of whether we should trust it or not, that's fine too. I can live with that. But I'd much rather think, rather than my relying on what comes into my office through magazines or publications, or developers. It would be nice to say "If I go to sea grants (?) website or go up to Orono and visit somewhere, there will be these resources that are there that are gathered and I can use to present the views". I think that's something we're missing. I can find out all I want to know about LDDD buildings (?) because there is a website. I can find out all I want to know about forest pavement (?) because I can go to University of New Hampshire and watch the forest pavement demonstrations. What I can't do easily is find out what else is out there. What contrasts with that, what could work better than that? Those are things where it's difficult for me to find that information. It would be easy and nice if I could do something easier.

I think there is a couple of tiers to their objectives and one is to actually interface with the public more and private land owners, developers, these kinds of folks, and target them. The second is to be a repository of information for folks like you. I think they're both appropriate from what I understand.

Columns and local newspapers. That's a great way to get out to anybody and make people aware that the information is there. My monthly reports went out for two or three years that every monthly report I gave out to the town manager, the press would ask for. I got more feedback on that than anything I've ever done professionally. You can feed them anything you want. I think it's different if you got a regular column that people will start to look for after a few years. If it's once a month that they're writing in about an issue dealing with coastal communities; broadcast it up and down the coast, most newspapers would probably like it because it's interesting to the people that own them.

Thanks so much

Town officials focus group 3:

Please introduce yourself and tell a little about your history, being attached to the coastline of Maine. And then an example if you have one, of your experiences with dealing with coastal erosion, or changes that you perhaps have seen in your experiences with regards to high tides, erosion, warmer weather, these kinds of things that you may or may not have had experience with. Who'd like to go first?

I'm _____ and I can't say I'm from Maine, but I have four sons and their all born in Maine. I'm from Michigan, but I lived in Maine more than I lived anywhere else. The coastline is what attracted me. I have seen a huge difference in the climate. I first came to Maine in '73, January 1st; just the most beautiful snow storm in Bar Harbor, Maine. And I've liked it since really. I love snow, I love the cold, but it just seems over the years it's been changing. January and February are just not what they used to be. And I've spent most of my time in Maine on the coast. I've spent a lot of time sailing. I lived in North Haven for a while, now I don't live in (town?), but I teach there. I haven't done anything scientific yet with measuring but I know just running and walking the coast and the shorelines, they are different. The shape is different and there are things that are happening. Part of my mission is, now that I'm a teacher in _____, is to get my students involved with monitoring and being observant about what the changes are, and help them look at the present, but figure out what the future might be like.

My name is _____. I came up from Boston about seventeen years ago. Always heard the horror stories about the terrible winters in Maine and wasn't looking forward to moving up here initially. But it just isn't that bad. I would see pictures in historical books where the ocean froze from Lincolnville, over to Swan's Island and used to then used to drive horses over to the island. And that would never happen probably many many years. I'm a nurse. I have a degree in Biology and am very interested in conservation and environment. So we like to keep an eye on a lot of the things that are going on. The pollution in the river, which is a big problem. We have rip rap wall on the direct east side of the ocean, and you can see that collapsing every year. Fifteen years ago, it was pretty solid, but we can actually see how much it's sifted down, and that's a huge rip rap wall when they first put it in. And if you walk around the peninsula the trees are pulling away now. More and more trees every year which means, you're eroding more of the land of the peninsula that we actually live on. So, I'm concerned about it and would like to see what we possibly can do and would like to look at the things try to stop it. I think we may have to end up putting more rip rap wall in, because that's actually going back to the ocean.

My name is _____. Originally from MA. I moved to Maine in July of 2004, and I'm a Maine resident. My work experience has been in large corporations from the Midwest and southeastern part of the US. In terms of examples of catastrophes, I can only relate to the loss of 3 million dollars worth of fish in a major Midwestern river, because a flood came. So those things happen. Since coming to Rockport, I'm fairly new member of the Rockport planning board and dealing principally with interpreting the law and regulations of town and state and the federal government as it relates to applicants wishing to develop land in the community. There's very little contact between the seven members. We are not allowed to speak to one another outside of a board meeting. There are "right to know" laws that we have to comply with. All testimony has to take place at a public meeting in a forum. So there's no collaboration. I can't talk to someone about consensus. It has to happen at the meeting. My concerns are primarily related to global warming and how the land use regulations of our communities address these particular issues. I think a lot of levels are prospect. All our regulations are retrospect. So the question in my mind is not whether global warming will occur and not whether sea levels will rise, but the rate of rise and the consequences associated with that. And how local regulations might be adjusted to reflect that. For example, the flood regulations, we have a 75 foot set back. And you have 100 foot flood plane and they are allowed to build 1 foot above the 100 foot flood plain. The sea level rises 4 feet; you're going to exceed the 100 foot flood plain. If the projections are 35 feet, which appears to be the extreme, a great deal of impact will occur. We had a category 5 hurricane going to New Orleans and it was devastating, but it would have been much worse if the hurricane was 100 miles further west of New Orleans. Same thing applies to us. I don't believe we've had more than a category 2 hurricane in Maine historically. But if you go back to 1938, the hurricane's path was through Providence, RI and just west of it. It was devastating. A similar path today would make it up the northeast quadrant, and one that strong more up in the vicinity of Penobscot Bay. Penobscot Bay is a very deep bay; 200 to 260 feet with trenches. As you go north, past Islesboro, it shallows out and there would be tidal surges would impact a great deal of properties on the islands, but also, I believe Port Harbor would be totally inundated and much of the development on the coast would be affected. But all that is prospect and you can't rule on prospect. You have to have multiple experts testifying. And the town doesn't have the means or the will to have that testimony.

But all those schooners sitting on Route 1?

You're lucky to find them at all. It depends on how you look it. There's tremendous development pressure. I'll use a term I've heard. We are in the midst of the cottage industry. That's the building of cottages on the coast line. Just Rockport alone has got 26 units. In Rockland, another 48 units in Rockport. An additional 45 units in Rockport, another 26 units in Rockport. That doesn't mean they shouldn't be built.

I'm _____. I live in Rockport. I grew up in Rockport. I'm about a tenth generation Rockport native. I work in Rockport. And my father was a harbor master in Rockport for 25 years and my brother and brother in law lobster down in Rockport. I do a lot of sailing. I have a lot of connection with the coast my whole life. But, having said that, I don't really know a whole lot about the issue of global warming and how it might affect the coast. I hate to disagree with people, but I don't see that big of change in the climate over the course of the last 60 years that I've lived here. We have warm winters. We've had warm winters. My grandmother talked about open winters when basically things were thawing (?) all year round. But then we still have some pretty brutal winter weather, too, like last year. We had 18 inches of snow in April. But that might be part of the global warming. It's just kind of a freak storm thing. I think I would rather learn more, have more to contribute in a discussion like this, because I am sort of ignorant on the subject.

Remember, too, that our purpose tonight is also to share some personal experiences. I'll ask you this question. You said you've been living there for 60 years. Other folks that have lived in the same community for a long period of time have said, "You know, I've seen the tides come in higher than ever before and I'm seeing surges of water breaching places that I think historically that really haven't been covered" Has that been your experience?

Maybe I don't pay that close attention to things like that. This month or last month, I saw a really high tide, but it's full moon and that happens. And also very low tides. I can remember my father would set his alarm to get up and go down to the harbor at 2 in the morning because the tide was going to be the lowest it had ever been, in his lifetime. So I have never really noticed the tide was 6 inches higher than I had ever seen in any particular place. I could start looking for that I guess. I haven't so far. I love the ocean. I like to be on the water, walk on the beach, swim, you name it. I enjoy it. But I guess maybe I haven't been observant enough through the years.

I'm _____. I've lived in Camden about a year and a half. My interest is, over time we've always come to Maine. Spent many hours sitting on the rocks. The only change I can see is there are some huge boulders, I guess turned around. It's like they floated up, it's almost unimaginable. But other than that, I have no experience with the coast line. My interest was originally in landscape design. I was very taken with the ideas of Ian McCar (?) who was at the University of Pennsylvania who spends his lifetime saying that people should not be living near the edge of the water, because for many reasons, including some that we are talking about today. My interest also in the climate is in what grows. That's my primary interest. Gardening. I'm still learning what is recommended in Maine, what I couldn't have in my garden in New York City. And what grows better here than grew there. That's basically my background. I was in Academia for a while, and I worked in cooperative extension for many years. The last 11 years I worked for a cooperative extension in New York state, which is connected to Cornell University.

I did think of something that I have noticed over the years. And that's the change in the bird populations. For instance, we never used to get cardinals. And now they're common, and I don't know if that's connected to this or not, but that is one thing I've noticed that has changed. And maybe another thing that fluctuates throughout time anyway.

My name is _____. I'm from far away as you can tell. I'm a ten year resident of Rockport. I live on the coastal land. I have an interest in erosion, which I see. I have taken measures to protect my property. I'm also a Pen Bay Steward which is probably why we're here. I got my invitation through that organization. I hope to be able to contribute some thinking, because I've heard you all say things and it's always being the advantage of being the last person in line. I think I can contribute some.

Tell me about some incidents of erosion that you either experienced yourself, or you have been party to in your professional capacity, or in your personal capacity, with your neighbors or your friends. What happened? And then what was the response to what happened?

We own 400 foot of coastline, some of which is disappearing. What I have done to protect the erosion that is going on in one small part of the shore line, is to encourage root growth because I learned the importance of vegetation in Pen Bay Stewards program. We had a session on erosion. So I picked up my ears and saw the application immediately and

listened and learned a lot. From what they said, I learned certain measures. For instance, I did not disturb roots growing, or bushes growing, or trees growing near the water because roots hold soil and it prevents erosion. Where erosion was most marked, and it is most marked because my neighbor who had faced the problem and was there long before I was, told me about it. And he said he had to build very expensive stone work put in to protect this property to prevent the erosion. That was heavy work and heavy marine engineering that was involved probably somebody like _____ engineers in Rockport and the cost was prohibitive. I did not do that, but I took different measures on the adjoining property which stopped the erosion. I put bricks down and put them in myself. We put bricks down to lesson the erosion, but still erosion is going on.

Have you planted anything in particular?

I've planted nothing, but I have been aware of from whatever is growing down there, naturally, we have to cut wood to build our house. We had to cut down woods according to the requirements. We trimmed trees to allow us a sightline to the water, but did not take them all down because we're not allowed to. You're not allowed to take off the land. Our builder was very clever. He brought in forestry expert. I forget the name exactly. He measured the woods, all of the way back to the 100 ft line and he said you can cut so much of this Maine regulations say. And I think it's 14 % cut.

You're dealing first of all with the shore line zoning act and what you're allowed to do under the shore line zoning act is one thing. There's a point system, within a certain number of square feet of land area, and you're allowed to have so many points, you have to maintain a certain point level and the more points, the larger trees than from smaller trees. And generally speaking, you're allowed to cut the bottom branches off as long as you maintain a certain level within the height of the tree. I guess you could take up 12ft. You can take up to 12 ft. of the branches off, but you can't take more than 12 feet.

There are a number of things. Best practices of the Maine ocean control regulations are quite sophisticated. And they're very advanced at some projects. Some of them are using rain gardens. They're using flood ***** that cut down on erosion. They're putting in special materials to absorb and filter water both below grade and above grade. It's quite sophisticated. I've read about 40 pages on one of them today. I'm really impressed from that point of view. On the other hand, historically, we have not had best practices and we have to live with what we have in a lot of ways. It's very hard to correct that. I have a good friend of mine in another state who bought coastal property. A neighbor had put in a sea wall. The result of which was, his land was protected and her land eroded. So, she ended up out of necessity putting up her own sea wall and that just progresses down the coast. I guess the best example today might be of discussions over Camp Ellis, in southern Maine.

Are you familiar with the sink hole in Rockland?

_____ and I were talking a little about that.

That was national news.

That was about 96-98. Sounds about right.

That's interesting. ...we talked in pretty good detail when I talked with the land owners from this area. The guy that lived next door to one of the ones that had split in, his neighbors over there it was an interesting talk. And I guess there was a lot of controversy over reimbursement to the property owners that the city took the land, I guess.

I understand a lot of people did not get coverage, I think there were three or four houses that actually were destroyed in the sink hole. But I heard that some of them got nothing whatsoever, and they had to walk away.

You know whether that's man made or natural?

I think that was just shore line. It was not due to human activity to my knowledge. The question that I had in my mind, and I don't think anybody went there, was Samoset was doing a lot of building lagoons on their golf course. And there were many additional lagoons put in to beautify the area. And I had the feeling that it upset the water table. Because it wasn't that far away from the slide area, but it never went back to the Samoset.

I think I heard, and I don't know if it was from a reliable source or not, but there was some connection to maybe a land fill at where Shaws is...that area had been filled it and it somehow effected that part of the shore line. I don't know.

I think that's another project. I believe a couple years ago, they put a Christmas star on top of it and called it *****.

Do you know why that's there? That's got to be the most annoying thing in the world to people across the street.

I think so. My understanding is that a developer proceeded to fill in that section of the harbor, and boy did that spoil. Didn't have the proper permits. Was given a ***** by the city of Rockland. And run into liability cooperation with no assets and he walked away. Somehow the church there acquired that land, had some interest in that land, where the pile of dirt is. There was some construction work done as part of the sewer system or the building of the Home Depot complex. There's a controversy between the city of Rockland and the church as to who's responsible for removing the dirt from the land, and it's never been resolved and the pile is still there.

That's been there for a long time.

I was going to mention when you were talking about things that you can do for all the erosion. Before they built this village that I live in _____ they put the rip rap wall in probably 25 years ago. So they put a major wall in because it's in a peninsula and they felt where it's ocean side they really need to protect it. They're putting in vegetation now which you're supposed to have the root systems that will prevent erosion. So that was one of the things that individuals were doing, was planting vegetation along the sides to see if they can prevent some of the erosion.

I see a lot of it along the shore, but I always thought a lot of it was wild.

So that would be a really good thing, to start looking at...and I don't think there's a lot of discussion over erosion. It just it's coming, it's going, it doesn't seem to be a plan of action to try to stop some of the erosion. It's slowly but surely working its way through. You can see the beaches down in Florida, you see them directly up to the whole *****.

Florida and southeast of U.S., including Georgia is suffering a rain drought. Florida has no shortage of water. They're problem is, that they have paved over everything so the water runs off, and they don't have a collection basin. So they're losing their water. Projects that you look at, the Maine best practices, for flood control. There are ratios between pervious and impervious sections that we are supposed to follow. The ratio recently seen are 54% are environmentally favorable, 47% impervious. That includes the roofs of houses, the driveways, the walks, the road systems, everything.

Can I shift gears here just a little bit? I want to push the conversation in a slightly different direction. I handed out some visual prompts here, and I got some questions to go with them. They get people thinking a little bit about...clearly when you live close to the water, there are things that happen. Also, that it's important for municipalities to plan forward; perspective planning. What kinds of perspective planning for sea level rise, higher tides, more extreme storms, if that is to happen, (when is a more accurate term). What are some of the kinds of things you would like to see your communities doing, that they're not?

I guess I'm more of a realist. Being in an idealistic situation is very difficult. You have so many political interests, business interests, financial interests within a community that is competing with one another as we address the development of land use regulation. Every word that goes into that code is interpreted by an army of lawyers and if one part of the code differs from another part, there's inconsistency. There is quasi judicial system. You really have to decide in favor of the applicant, it's up to the town to be consistent in its regulations. If it takes several years and multiple attempts to come together with land use regulation or a comprehensive plan, that in itself is a compromise. Then you're in the position of having to interpret what that means and apply it to a particular applicant situation. I don't see how you can do it without putting a lot of realism into it. It's not prospective in that sense, it's retrospective. Our whole legal system is based on case law, which is retrospective.

Stepping out of your realist shoes for a moment, and everyone else. What are some changes that you would like to see? Or behaviors?

What you need is a higher level of education brought to the community planning process. I think that things can start locally as long as the populous has information and an interest. As long as we're looking at 75 ft. set backs and a 100

year flood plans, we're limited in interpreting the regulations under that scheme. If you come to me and say that global warming is going to result in a 10 or a 15 ft rise in sea level, then we can make a comprehensive plan, if they accept that premise, we could start to develop new regulations regarding how land and how new lands are used within that framework. What exists is going to be grandfathered. In other times, if you had a cottage by the beach, it was worth \$5,000 or \$15,000 and was lost in a 20 year storm, you could write it off so they could build another one. Now you have multi-million dollars houses and are risking subsidized by taxes by insurance programs and people are willing to accept that under those terms. So we have greater developments along the shore lines, not less. We have policies that are promoting growth, not limiting growth.

Promoting growth that is not sustainable with the sea level rise?

If you assume the sea level is going to rise. And, I happen to agree with that, but I don't understand what level to put it at. It could be 2 ft, it could be 20 ft. Who knows? So there's where the research and the tests come down to. If you've got a body of evidence that says Penobscot Bay is going to rise between 4 and 12 ft, in the next 20 years, then I think people would try to plan around that. But you'd have to produce the body of evidence. It's not my word or the interpretation or my neighbors.

I think historically there has been evidence, there has been scientific studies that have foretold what might happen. And it is indeed happening. So, I'm not convinced that we need more evidence. I think we have plenty of evidence. And I think, in speaking with some of the people I've talked with in Islesboro, that we need to start making some changes yesterday. And Islesboro is doing an interesting thing right now. There's a group of people over there who are seeing they need some affordable housing on this little island that they want to build more structures, that is going to put more stress on a contained environment. That people living there have seen the stressors from the storms, they're seeing an increase in the salinity levels of some of their inland water. They're seeing a lot of shore line recession. They've been talking with me and my students. I've had them come and talk to us about this. But yet they see, they would like to provide housing for a lot of their builders over there. Today I was interviewed by someone to find out, would you live here. I said, I would love to live here, but my concern is the environment. Where will you put us? It's difficult. I think we have the evidence. It saddens me that there are people that don't care, I guess what we have is enough.

There are different kinds of evidence. I think we hear a lot of anecdotal evidence versus scientific studies. I would like to see more on the lines of scientific studies than anecdotal. But, I do believe that anecdotal evidence has its place. Anecdotally, there are hornets on ***** the first time that they've ever been seen, in recorded history. There are bears on **** peninsula that are not hibernating any longer. There is substantial **** in the *** regions of Africa. All of this, one *** droughts in Australia, heat waves in Europe, fires in California; you can put all these together and get a sense that we're headed in that direction, but is it over above the normal direction. We're in historical long term climatic cycles. We need more scientific evidence.

Let me argue that point for a second. I'll argue the point that we in fact have an overwhelming body of not just anecdotal, but long term scientific evidence that suggest that sea level is in fact, rising, and it's rising at an accelerated rate with each passing decade. We're seeing statistically more rise with each passing decade. We're seeing more extreme weather events recorded in history...going back into recorded history. Even me presenting that, it seems to me there is a resistance with some folks saying, "Well maybe". Do you experience that same perspective, or maybe some of you have that same perspective? Quite honestly, any scientific study can be constructed in such a manner to come out with almost any outcome.

I agree with you up to a point. I will say that I'm a strong believe in the laws of large numbers. You can have a high probability of a particular event occurring, but to say that the consequences of that are going to end up happening in Rockport, Maine, is another story.

Usually we don't move on something unless it's at our doorstep. We think about it and consider what might be happening, but until the waters are lapping at your front door, people are going to start moving. Just one interjection, my daughter lives on the water down in _____, and she's had traveler's insurance for ten or fifteen years. They notified her two weeks ago, they had dropped her insurance. She lives within two miles of the ocean, and all the insurances are going to be dropping. That's an indication of a larger pattern.

I also believe in the law of large numbers. But, Annette, you have been wanting to say something now for almost fifteen minutes.

I believe there's some global warming. I also believe that if there were big volcano's somewhere then huge amounts of soot were in the air, we'd have the cooling affect. We've had that in the past. So I don't think we can predict scientifically, or project absolutely scientifically what will be. But I'll be even more controversial than that. There are two ways to do. Holland has had to deal with waters, Venice has had to deal with waters. Sometimes they'd do it better than at other times. But the other thing is, maybe shoreline should be public land and not private. (I know I'm not going to be very popular on this one).....

*** it's 85% public in Oregon ****.

Right, but maybe if you're looking for a long range plan then you look to not keep building and to make preparations if there are incidents and not continue to have....it's not the \$5,000 cottage that people are building and they could rebuild. So, if they're not going to be able to get insurance, are people going to build? There are others ways to discourage continue building on the shore line. You're talking primarily about people who have invested interest in keeping their property, and I can understand that. If I had property on the shore, I would also be very concerned. I'm happy right now, because I'm living up on the high hill. I'm just throwing that out as an alternative. Dykes, huge levees to protect shore lines, or retreat from the shore line, and give that property over to public use.

I just wanted to say that, something I talked with my students about is, rather than calling some of these issues by these names, like global warming, that gets people all upset. Why not merely think of it as the human impact on our environment? There is absolutely no denying that we are making a huge stamp on our environment. I don't think anyone can deny that. And I think it's undeniable that unless we change today, it will be worse. That's just something that I'm urging my students to think of: "What are you doing on a daily basis to lessen your imprint on this earth?"

And I think that's a wonderful thing. But, it's not just us. What is China doing? What is India doing? We can't change it entirely.

Exactly. I think that, for my own self, and this is what I've done my whole life is, I just believe in the notion of doing whatever you can in the moment and with what you have. And I try really hard when I work with my students, my sons, to ask them that also. Don't get so overwhelmed, "oh my god, everything is happening out here, there's nothing I can do, because I'm just this little piece". I say, "No, in your world, what can you do moment to moment?" If each one of us thought that way, that would make a difference.

*Alright, let me play devil's advocate for a moment. This isn't my perspective. If we met all of our most aggressive time tables today for reducing our impact on the environment. This issue of global warming and sea level rise can't be reversed. So no matter what we do, this is still going to be an issue. The communities are likely to have to make some changes....you go under the presumption...what ought we to be doing? You come back to this question. You mentioned that you use a hundred year flood plain plus 1 ft. which is 1 ft freeboard(?) ***, right? Wells, for example decided that they would go to 2 ft, so no one can build anything within 2 ft of freeboard and they're considering raising it to 4ft as a local ordinance. So essentially what that means, is if you take the 100 year flood mark, then you add a foot to it in elevation, that's the lowest possible height that you could build a structure, the first living floor of the structure, that's the basement level. That's freeboard That's a federal regulation. So, Wells, for example, is double that, and they're contemplating 4 ft freeboard.*

I believe that under the FEMA regulations that if property is destroyed, they have to be much higher than they chose to rebuild. They have to elevate it much higher than that 1 ft. That's a 6 to 12%.

I'm brining this up as an example. What are some of the other kinds of things that have come up in your discussions, planning board, or come up in your thinking about what people ought to be doing, or not be doing, along the shore line? For example, retreating is certainly a controversial option. You mentioned something about communities purchasing property, reimbursing folks, but I'm going to guess that that's an unrealistic thing for a community to do. You're buying it at full value property where that's the bulk of the tax base is, too. So what are some other suggestions or ideas?

I feel I have to say something right now. I'm for scientific evidence, as I think in my retirement more and more about truth, honestly, and good and evil. My background is in science, anyway. You have to think, look for evidence, not here say, not anecdotal. It won't convince anybody if you tell them those things. I blame very much the media, by which I mean newspapers, and television, and broadcasts, for this. You could commend them for making us aware of so called global warming. I say "so called" because how long do our weather records go back? How long do our geological studies go back? There was an ice age which covered everywhere we're talking about now, Northern Europe and covered most of where we are in Maine. That's the sort of evidence I'm talking about, not rising tide here, rising tide there, hurricane here, hurricane there. What is the longer view? The more evidence...nobody was counting hurricanes a thousand years ago.

They have data about the glaciers and how the glaciers were at the levels and thickness of the glaciers. They have documentation. They have these freezers that they can literally and go into them and pull out sections of glacier that happened.

I happened to have first experience with some of that, because I have a glacier named after me. I was stationed at a base ***** in 1957 and one of our **** was **** down through the ice. We were up 8,000 feet and we thought we were on solid land. We sent **** down and said we're not, we're on a frozen ocean. That was a big discovery. Anyway, we **** and the **** came up with **** and there was the famous Krakatoa, the explosion of a volcano in 1882. The dust went around the world and caused beautiful sunsets for 2 or 3 years. They could tell when Krakatoa happened, because they saw the evidence of it in the ice core, so I'm very much for long term evidence.

And they recently also found retreating glaciers, they've found trees that had been grown, were growing in that area. So it means there was warmth there and then there was cold. It can be cyclic...there will be cyclical patterns, not maybe in our lifetimes though.

There are sort of like photographs, too, that really have shown how the ice cap is melting.

I'm not arguing that.

I think whether that it's man made or cyclical or where ever it comes from. If you know it's happening, you still have to plan for it. It doesn't matter what the cause is.

I agree with the ice core approach. You also get air quality samples within the ice. Three thousand year old pine trees with the limbs being pounded and getting weathered and other factors associated with the trees, ocean temperatures...there are several catastrophic scenarios and I don't know how to put a probability to any of these. But, in my view, the worst thing that could happen is that the Gulf Stream stops moving because of salinity problems. Historically, there was a huge lake in Canada in the Hudson Bay area that broke through into that went down through much of the central part of the United States. It broke through and changed the salinity levels of the north Atlantic deep water currents reversed themselves and stopped completely. Our whole ecosystem, food, weather, everything, from a global perspective depends, life as we know it, depends upon in large measure, the body of water that's coming up the gulf stream of the British isles, the deep water currents going back to Antarctica which takes about a hundred years to get there. The upwelling of the Antarctic coast which brings nutrients and makes sea life **** and then the predatory food change that's built on that. Our understanding of these things is limited.

The aquifers are also turning to brine in some of the coast line in eastern United States because of the use of the fresh water and the saline water coming in. That's the population problem.

Well, there are a number of different factors, and I think a lot of this evidence has to be brought into play. The question is how do you develop a policy from it? How do you apply it? Will it have an effect? How do you measure the results of the program? You have to measure it, or you won't know whether you're doing the right thing.

Yes, and I do say, so called global warming, I privately do believe there is global warming. But I want people to think that they have to get that from evidence, not getting it from the media. Probably prescriptions by so called climatologists...so called.

Their evidence is reproducible a person should be able to prove it. That's the scientific method.

How recently, cause we've all measured rising carbon dioxide, measured recently...who are measuring sea temperature levels, sea temperatures, and somewhat we're measuring ocean levels. Yet, I think, I love your story that nothing is happening in Rockport harbor for 40 years.

I'm not saying that.

Well, I think you're right. I'd support that. But today's ***** everybody will come up with a story, "oh yes, this is happening now". I say, "Wait a minute; please analyze what's going on".

There are peaks and valleys. But again, 60 years is a very short time, too. And my grandmother was, she was born in 1887, I think, and that still is a very short time when you're talking about climate. Although I must say, somebody mentioned the height that the ocean being frozen over to Islesboro, and I have not seen that in my lifetime. And I think my grandparents did.

The winter of 1888 was one of the severest winters of storms in recorded history. The Portland one went down which was a paddle wheeler that went from Bar Harbor to Portland, Maine and was heading to New York or Philadelphia. How did it go down?

It went down in a very large storm. It was cold back then. There were ten or twelve feet of snow in New York City. So historically when you look back, we're in a warming trend. Probably started in the 1800's and is going forward. To what degree....does human impact as a major and significant trend....it's probable. Boston harbor used to freeze over.

What, if anything, do you think ought to be done? In either of your communities on a small scale, very small scale, or a larger scale?

I'll throw a suggestion. Carbon tax instead of a cap. Treating carbon dioxide as pollutant instead of an inert gas.

Have you read ????? on weather? I'm sure you have. He's very well read. He's studied every subject before he writes about it, just like James **** does. And he wrote a book about global warming. And he showed all sorts of charts of rises. He showed the famous charts of the rise and the straight rise in CO2, which is why we're all here. Why we're all convinced that it's *****. But there are other means of CO2 going up, which you touched upon them. You said volcanoes, what are they doing? They're a law all to themselves.

We can't predict that.

We can't predict that, but even to a small level, you can predict when they're likely to erupt, but you cannot predict their effect on global hemisphere (?).

In geological studies, the largest volcano in the United States is in Wyoming. It is centered in Yellow Stone National Park.

If it were to explode, it would take 1/3 of the United States. I don't want to say the magnitude, I don't have the numbers in my head, but

But there are underground, under the ocean volcanoes that are rumbling.

We're getting further away from Europe everyday.

Under that scenario, we would have to evacuate most of the United States. I don't think, from a realistic point of view, it's not practical.

There have been earthquakes on the east coast in the United States magnitude 8 or greater.

Yes, in the geological record.

The oldest rock in the Canadian Shield is one of the safer areas. The Mississippi Delta is probably one of the more dangerous areas.

Going back to your question that you've asked several times about what we can do. What I have been doing with my students is to get them more involved as we're sitting and talking about different things, that make a list of something things that we are going to do a survey of our own kind. Develop some kind of design of some evidence, find out what kind of changes are going on? I have some six graders, as far as I know, they're going to be living there till they graduate from high school, and hopefully I'll still be teaching there. So, we can set up some stations along the island where we can monitor some of the changes. Something from the kids....and I agree, evidence is always the best way to collect, and I am easily swayed by anecdotes, because I love to hear people's stories, and we can't always or reduce everything to a scientific thing. But it's very useful, and I know a lot of people that need that information and it's useful. I feel as a teacher, I need to teach the students to know that scientific evidence and use it in a scientific method is what they need to learn how to do.

Make sure their critical consumers of that, too.

Exactly.

The most important thing you can teach is critical thinking.

So, how do you plan for a 20 ft rising sea level?

Maybe you don't.

Who's to say it could be 20 ft?

Well, I'm just throwing that out there.

The people that make a living saying it's going to be 20, or 30. It's going to be 30....its going to be 10...who knows? They're just guessing.

Let me ask a question. Does Camden or Rockland, or Rockport, have a well established evacuation route in emergency planning to get everyone out of these little inlets?

I've never heard one.

So, I've been asking what you've come up with here. Sea grant has got some stuff that they put out to community leaders, and let me just ask you about a few of these things. One of them is, does Rockport use a lot of GIS mapping to examine shore line property data?

The recent applicants used it quite sophisticatedly. If not GPS, they're using aerial photographs and contour maps actually presenting elevations and computerized generation of the topology to support their perspective whatever it be.

I did use it. Damariscotta had an escape plan because of when there was a nuclear facility there. And that they realized if any bridge went down the plan would be worthless. So they would start to talk about evacuation by boat. But I don't know what's happening with that.

Camp Ellis has an evacuation plan and they have an evacuation route and plan that seems like it's clearly understood in the community and it's clearly marked as you drive around down there. Now obviously they're in a very high risk area and this is a relatively low risk area, but it's not a No risk area. That's one of my questions.

There's a basic presumption here that we can control nature. We can conquer the land, we can conquer the sea. Maybe we shouldn't try in some areas. We designate lands in certain areas as reservation land, as conservation land. Why can't we designate an area that can be returned to nature? For example, why should we save Camp Ellis in the first place? Why should the southern portions be saved of Cape Cod. Its moving northwards geologically. Why not let it happen?

There are areas down in Cape Cod where they've left half of where people had their cottages and once the cottages were taken by the ocean down in Cape Cod, there's areas where the cottages have been taken with the storm, and not allowed to rebuild. Once the cottage is gone, that's it.

Do you think that's sensible?

I do.

I can only laugh at those people who build their houses in areas prone to hurricanes, and build their cottages and expect somebody else to pay for them or their insurance. They have flood and hurricane insurance to penalize those people who have to pay it or not insure the property. They still want to build in areas where engineers would say, "I would never build here".

New Orleans had the category 5 hurricane, we are building down there again. It's just another question of when it's going to happen again.

On the other hand, river flooding in the Midwest. Some communities have elected to abandon their towns and rebuild elsewhere.

What was the community on Red River?

I can't think of the name, but it's happened in at least two occasions that I'm aware of.

By the way, New Orleans had an evacuation plan and they did not put it into effect.

years before that, everything was in place and nobody did what they were told to do. But I do see the evacuations plans being gridlocked. You have a couple of evacuations and that many people should get out of the place. You just end up having cars sitting there for hours on hours and nobody going anywhere at all. There's not very functional.

_____ brought up another point I wanted to bring up in this conversation, and that was "where do you get your information" and you had said that you were a little peeved at the media for oversimplifying this topic. Where do you get your information? How do you determine you can trust it or not?

I read. I listen to my husband a lot who reads more, and these things seem so filled with controversy. But what you're asking reminded me of a granddaughter story. I have a five year old granddaughter and she was asking her mother where everything comes from. Where does it come from? And her mother started to explain as though she could as a molecular biophysicist, beginning of the world, and realized she couldn't and said to my granddaughter, "Well, Sonya, this is a very good question, and scientists are asking this question". And she said, "Who are the scientists asking?" There's a point at which we can get information, and I read the New York Times when I can, and I read other sources, but I'm not sure that we're going to get the information because we don't, again and I've said this before, we don't have **** to what's going to happen in the natural world. That's not in our control.

Well, I have read several times Al Gore's book, you get a lot of information from that book, I must say. I try to read a number of different sources, and I bring that information to my students that I teach. And I encourage them to come to their own conclusion. So, I look at CNN, which I just hate, but that's the headlines. There's a website called, Common Dreams, that hooks you up to all the newspapers, magazines, that as far as we know are out there. It definitely has a liberal source, but it puts you in contact with all kinds of information. So I go there. I've tried to stay on top of the things we're studying in school and go to some of the scientific journals to find out. But we all have a certain amount of time, and I can't spend it all researching things. So then I go back to my kids and say, "Okay we need some more information. Who would like to do some searching and look for some information?" But I do try to look myself at as many different places as I can, rather than one source.

Much the same thing. The internet, BBC, newspapers, reading, discussions with friends, with different subject matter that comes up and then trying to expand as much as you can and touch base with as many sources out there as you can.

Are there sources that you find more trustworthy?

I would probably lean more towards BBC and some of the foreign press as far as the accuracy and truth that's coming through.

I'm basically the same as the rest of the people here. I don't have time to read merely as much as I'd like to, and I do read the New York Times online, and I subscribe to Time magazine and the Economist. One source that hasn't been mentioned is WERU, they have alternative news on that station, Amy Goodman and I do listen to that when I can. But again, it's a time thing. I don't have time to. I do work, and do a lot of other things, like come to interesting meetings like this. But WERU does provide some alternative sources of the news.

I think that's wonderful. I realize what prestigious group we have here, because we all do a lot of reading, and you all do a lot of thinking. I don't represent for one minute the bulk of the population. However, for those that like to know this, how does a scientist try and judge whether he's reading something that's troubling? Peer reviewed journals are what we read. Peer reviewed journals means a panel of experts who don't write the article, criticize the article, and say, "you can't publish this, because of this". They verify the facts. Most of them achieve a high level of acceptability, and that's what they do. Peer reviewed scientific journals, that's what the scientists read. I read the Economist, New York Times when I get the chance, Wall street Journal occasionally, New England Journal of Medicine, because I'm retired. And I keep abreast of what's going on, what the current opinion is. I select table of contents but that's everyone's privilege. Everyone has limited time.

There is an abundance of information, there is too much information.

Explosion of technical information. There was a time my mother said, "Now that you're a doctor, you never have to open a text book again". That was 60 years ago or 50 years ago. It isn't true, because medicine has exploded with technical knowledge. So, you can't possibly know enough anymore. You're lucky if you know what you're dealing with directly and even that you have to try and stay abreast. One of the best things is talking to informed people.

He covered much of my list. But, I would say I start with the Economist, because it's a weekly periodical. It gives a European, particularly a British point of view. It covers geographical areas, politics, business, medicine, a number of different issues. It gives a very broad view of what issues are in the world. To that, I would add a number of different internet sites: Harvard Business Review, again, a periodical that peers review. I reference certain medical sites that reference studies and medical articles. I often find that the articles I look at appear in the Portland Herald one to three days after I've read them, on a selected basis. I like to read both sides of an issue. A more conservative journal, Planet Monthly and some other journal on the other side. I believe in critical thinking and nobody knows what they want to do young in life, is become Liberal Arts major and learn how to think.

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