#	Chapter	Page	Line	Comment	Response
1	General	0	Overall	More simply put, government agencies don't plan for retreat because, by and large, it is not their job to. If we want them to we have to make it their job and provide the resources for them to do it.	This is a good general overview point that should be reflected in the report. We have tried to make that point in Chapter 11, but may still need to state it more clearly in the findings for Chapter 11 or the executive summary.
2	General	0	Overall	I hope these comments are helpful to the primary authors and others in improving an important document that promises to be both useful and controversial. I look forward to the Northeast Assessment. If I can be of any assistance in future endeavors, feel free to contact me at (508) 289-2993 or joconell@whoi.edu	No response needed.
3	General	0	Overall	This report is an important and timely contribution to the coastal management community in the U.S. at all levels. The content covers all major issues related to relative sea level rise along the mid-Atlantic. Moreover, the issues covered are topical for all coastal regions and should spark further interest and discussion on how future sea level rise will affect all coastal regions, particularly in a scenario of accelerated rates of rise.	No response needed.
4	General	0	Overall	Hopefully this report will be the impetus to generate funds for necessary further research, data synthesis, and mapping efforts.	No response needed.
5	General	0	Overall	I apologize. I am finding it very difficult to comment in the excel spreadsheet form. Many of my comments don't fit properly into your format or address your questions. In fact, many of my problems with this document make the questions that you ask irrelevant. Instead, I will summarize my comments below. In summary, I believe that this entire document needs rethinking.	See reponse to comment #6
6	General	0	Overall	The inclusion, in numerous chapters, of the "best guesses" of planners seems like a very bad way to evaluate the prospect of future shoreline protection. The first question one has to ask is this: Are these planners really qualified to answer that question? What is their background? Are they able to integrate the science of coastal change with a detailed understanding of the future economics of shorelines protection and local regulations along with the future zeitgeist for the environment? Could anybody do this? NO!	Author contacted reviewer to get clarification of reviewer concern. The main concern of the reviewer was that the executive summary and chapter 5, when read together, left the impression that the authors were making an unconditional forecast of shore protection, which could create momentum for such shore protection. Author explained to reviewer that the Titus and Hudgens study was actually intended to simply be a baseline analysis of what is likely to occur under current policies, practices, and trends--so that the public and policy makers can start a more informed dialogue on the level of shore protection that would occur under current policies, and whether the baseline shore protection is desireable. Reviewer stated that author's intentions were very reasonable, but that the actual text had left him with a very different impression. Ultimately, it was decided by EPA not to include these studies in the report since information may be misconstrued and EPA would consider how to better relay this information in the future, beyond the publication of this SAP.
7	General	0	Overall	I find all of the data that includes planners "best guesses" to be unworthy of what should be a science-based report. Of course, the authors admit that the planners guesses make this report a "living document", but you may as well have asked the planners to predict the next 100 World Series champs. They would have just as good of a chance at being correct and the work would be just as complex.	See reponse to comment #6
8	General	0	Overall	In order for anyone to make the prediction the planners are asked to make, they would have to understand the true nature of future coastal change in response to SLR as well as the impact that change will have on the economics of coastal protection. For example, it is my belief that the shortage of sand at the coast will make much renourishment cost prohibitive. Most planners that I work with at the coast do not really understand the geological forcing behind this sand shortage. In my opinion, the shore protection data presented in this report is pure speculation, and the speculation is not based on a group of experts with adequate data to speculate well.	See reponse to comment #6
9	General	0	Overall	In addition, the report supposes that coastal protection is inevitable for shorelines that are developed and have no statutory prohibition. One could even read the report as advocating shoreline engineering because there isn't a thorough analysis of the negative environmental impacts (beyond a simple mention) and there is no analysis of the negative economic impacts. Consulting engineers will love this report because they can use it to urge communities to begin planning now for the inevitable shoreline engineering projects of the future.	See reponse to comment #6
10	General	0	Overall	Finally, it is hard for me to believe that this document has been fully vetted by the SLR scientists at USGS. The science is not rigorous and the basis for many projections is tenuous. The simple elevation-based approach that is the foundation for much of the report does not even begin to capture the complexity of the physical and biological response of systems to future SLR. What are we supposed to do with this report? What are we supposed to do with this information? If I understood the broad goals, the intended audience, and the intended uses of this report, I might be able to offer more suggestions on how to improve it. As it is, I wouldn't recommend that it be used for any scientific, policy, or planning guidance without major revision.	Context section added to provide more information about what to do with information, goals of the report, etc.
11	General	0	Overall	A general comment on redundancy: Many of the chapters repeat facts and conclusions from other chapters. This is a minor problem if the average reader or the people the report is intended for are expected to read the whole report. However, if the typical reader is likely to read selected chapters, then it is important to briefly reiterate some of the results or conclusions from appropriate chapters for perspective.	Noted. Attempted to incorporate wherever possible.
12	General	0	Overall	I would be happy to discuss my review with you. Also, I have included my cv, which includes some (but not all) of the articles that need to be included in this government report. I will send you the reference for the second Leatherman et al (2000) EOS article, which somehow got left off of my own publication list--it is an important article. [Article = Leatherman, S.P., K. Zhang and B.C. Douglas, 2000, Sea Level Rise Shown to Drive Coastal Erosion: Reply, EOS, V. 81, p. 439-441.]	No response needed.

#	Chapter	Page	Line	Comment	Response
N/A	General			Comment provided orally to Jim Titus January 14th. My two most important comments are: First the report needs to address storms more fully. Second, the report need to provide the basis for saying that some things are "likely" or "very likely."	We added a sentence to executive summary emphasizing the importance of storms. We agree that the basis for the likelihood characterization are important and will attempt to clarify them in the chapters that characterize likelihood.
13	General	0	Exposition/Org.	It could benefit from a consistency in writing style. For example, some chapters use extensive foototes and no list of references while others use no footnotes but reference a list at the end of the chapter.	Comment taken--improvements to writing style consistency made.
14	General	0	Exposition/Org.	Found it surprising that the locality-specific information was relegated to appendices. These sections are so integral to the report that they could form a Part VII of the report.	Due to length of Appendices, it was decided to keep them as individual sections for readers to gain location-specific perspective on information presented in Chapters.
15	General	0	Exposition/Org.	Glossary is great. An abbreviations list at the beginning would be very useful. On several occasions I had to search for first time an acronym or abbreviation was used to check on its meaning.	Will incorporate abbreviation/acronym list into final draft.
16	General	0	Exposition/Org.	Because I am not familiar with the SAPs and how they have been used historically, this comment may not be appropriate -- it's provided as food-for-thought. I found it difficult to develop comments in response to this question and #7 because the audience for this document (as explained in the Preface) is so broad. The level of detail and complexity of data needed by decision makers is very different than those needed for the media or lay public. The tone and organization of the document largely supports the more techincal end users, as it should, in my view. If the intent is also to produce a document that can be used by media/lay public, I do not think this succeeds in that regard. I would recommend this report be the base document from which more a user-friendly document (read: shorter, w/ conceptual graphics) or series of documents be developed for the non-technical groups.	Preface, Executive Summary, Context, and Overview chapters are meant to provide information for broader audience, whereas Chapters have more technical information to support conclusions.
17	General	0	Exposition/Org.	Nothing.	No response needed.
18	General	0	Exposition/Org.	I find the product's exposition and organization very effective in presenting the information.	No response needed.
19	General	0	Fairness	There are four sea level rise scenarios discussed in Chapter 2, Ocean Coasts, but only three are discussed in the Executive Summary. Recent satellite and tide gage data are pointing to an acceleration in the rate of global sea level rise that exceeds the FAR projections (which do not include land ice uncertainty). If this is indeed the case, the scenarios that are discribed here will happen much earlier than projected in this report.	Tried to be more consistent in discussion of different scenarios and account for possibility of rise exceeding the FAR projections.
20	General	0	Fairness	Emphasis on the needs of the private property owner without considering the public attitude towards funding shoreline protection projects or harm to the environment. I understand that this report relies on today's conditions/regulations, but as projects get more expensive or harmful to resources, there is likely to be a change in attitude, especially if "low regrets" policies (vegetative buffer zones, setbacks, etc.) have a resonable chance of mitigating impacts.	Report no longer makes projections about future shore protection, but goes into more depth about the different options available.
21	General	0	Fairness	It is fair in that it describes past practices and extrapolates them into the future. However, it does not mention new directions that seem to be emerging. Discussed more in appendix A.	Noted.
22	General	0	Fairness	I found no evidence of special pleading. I think that statements, conclusions and possible actions follow logicallly from the facts as presented in the various chapters.	No response needed.
23	General	0	Fairness	The report is very fair. Using historic examples of past storms, USGS and other base maps, and national state and local policies to explain key points, the report is fact-based in presenting evidence to show regional vulnerabilities to sea level rise. The presentations of options such as shore protection versus shore retreat is clear and concise. There is no special pleading and the report succeeds well in imparting an impartial tone.	No response needed.
24	General	0	Fairness	The report seems fair. I did not detect any particular biases or pleading. In my detailed review, I did comment on some text that appeared to be without a strong technical basis, at least in comparison to the remainder of the text. This type of issue was very rare.	Noted.
25	General	0	Fairness	The report takes a bold step in depicting and mapping areas that are 'likely', 'more than likely', 'unlikely', etc, to be affected by relative sea level rise in a variety of ways. However, because these likelihood determinations are 'based on a consensus of expert **judgment**' (emphasis added), that may be a source of criticism, particularly in mapping areas where barrier islands may collapse or disintegrate in the not to distant future.	Chapters 2 and 3 attempt to describe the lack of a sufficient basis for making quantitative predictions of the future, and thus the need to rely on expert judgment. It would be fair to say that the panels of experts who participated in the preparation of material for chapters 2 and 3 believe these depictions serve starting point for discussion of research needs to improve such predictions.
26	General	0	Fairness	**The report needs to be redrafted to indicate what we do know and what we don't know--it does not clearly present the principles of coastal geomorphology, especially regarding coastal erosion.**	The report was significantly revised to include more discussion of the scientific context and present understanding of coastal processes that inform the report.
27	General	0	Fairness	I find no evidence of bias.	No response needed.
28	General	0	Fairness	The report fairly represents current attitudes and professional perceptions. As more data become available regarding sea level rise, planning and environmental considerations will undoubtedly be refined/changed to address new circumstances.	No response needed.
29	General	0	How to Improve	Overall, the report was good. It provided useful information, was comprehensive, and easy to understand.	No response needed.
30	General	0	How to Improve	While very informative, for the most part a detailed quantitative analysis of how landforms will respond to future rates of sea level rise is lacking. This is not to suggest that this report should not be relied upon for initiating planning for relative sea level rise – it should be. As outlined in Part VI, 'A Science Strategy for Improving our Understanding of Sea Level Rise and its Impacts on U.S. Coasts', much research is still needed in order to quantitatively 'predict', with higher levels of certainty, how coastal landform systems will respond under various rates of accelerated sea level rise.	See response to comment 25.
31	General	0	How to Improve	In order for any report on the potential impacts of relative sea level rise – or any other coastal hazards related issue for that matter – to be truly effective in fostering effective on-the-ground planning, data and maps of areas to be affected must be accurate and readily available 'on a localized scale'.	Chapters 2 and 3 recognize the limits of scientific knowledge at the site-specific and regional scales. Part VI of the report identifies research and data-gathering opportunities that may ultimately allow the kind of local-scale products the reviewer desires.

#	Chapter	Page	Line	Comment	Response
32	General	0	How to Improve	There are occasional incorrect use of 'data is' instead of 'data are'. The report should be checked for these.	Noted, corrected in many locations.
33	General	0	How to Improve	The units of measure need to be consistent throughout the report. In most cases metric units are used but in others English units are used.	Noted, report tries to consistently use metric units (sometimes with English units in parentheses).
34	General	0	How to Improve	The report needs a stronger focus on the social science aspects of climate change. The report focuses on the adaptation role of government. Little attention is paid to the adaptation role of households and business firms. Adaptation is a key determinant of the costs of sea level rise. If households and firms in the mid-Atlantic can perfectly adapt, there is no need for a governmental response. If household and firm adaptation is imperfect, there is a role for government adaptation policy.	This point is valid. The particular questions where this issue would arise, however, are largely limited to chapter 9-11because of the specific questions being answered. Moreover, there is a dearth of literature on these issues that undoubtedly made Chapters 9-11 depend more on logical consequences of basic principals, rather than results from social science research. The shore protection studies are based largely on the behavior of individuals--but that may not have been clear from the draft report and those discussions were removed in the final. The best way to address this comment is in the research chapter, because without more available research on coastal decision making it is not possible to provide much more discussion than this report contains.
35	General	0	How to Improve	Most readers cannot easily convert meters and kilometers into inches and miles. More frequent conversions of metrics to inches, foot and miles should be provided, or foot noted.	Attempted to do this wherever possible.
36	General	0	How to Improve	Tyrrell County, NC is often miss spelled including footnotes.	Noted.
37	General	0	Overview Sections as Summary	Some overview sections are better than others -- see additional comments for each overview below. I don't know how the writing assignments were divvied up, but the overviews often read like someone new tried to synthesize the chapters and guessed at what the main points of each were, with little done to find uniting themes. In at least one (I), the main text in the overview was not the same as what appeared in the corresponding chapter, or different aspects were emphasized. I have provided specific comments in a separate form for Ch 2, which had the most inconsistent overview (I). It's hard for me as a reviewer to be sure what the most relevant or critical content should be for chapters outside of my subject-matter expertise. So, as a global comment, I would recommend having one (1) lead author for each chapter within a section provide a review that's limited to ensuring that the overview accurately and succinctly captures the most critical 2-3 points of the chapter.	Overviews no longer present Key Findings, which are now in the Chapters only. Overviews are meant to provide a brief summary of the topic and a segway to the information presented in the chapters.
38	General	0	Overview Sections as Summary	For the most part the overview sections are good summaries. The only (minor) problem is that they make parts of the corresponding chapters appear a bit redundant. I think that this is unavoidable if the goal of the overview is to present key elements to those who are unlikely to read the chapters.	Overviews no longer present Key Findings, which are now in the Chapters only. This may reduce some redundancy.
39	General	0	Overview Sections as Summary	The overview sections provide accurate, concise summaries of the corresponding chapters.	No response needed.
40a	General	0	Physical Settings Section	These comments relate to Coastal Elevations and Inundation -- which may or may not be Chapter 1. The data for this chapter and the analysis are not clearly presented. Beaches and wetlands would both be inundated by tides. The question of tidal inundation makes the "nanotidal or nontidal" wetlands in North Carolina difficult to include in this report. The report might better cover the provided questions and address the North Carolina condition of the data were presented for all three shorelint types -- tidal wetlands, non-tidal wetlands and beach/dune shorelines. Also, non-tidal/nano-tidal wetlands need to be defined at the beginning of the chapter.	Chapter 1's presentation was revised. We now have a text box explaining wetlands and tides. The data has not been subdivided the way that the reviewer has in mind--Chapter 1 only addresses the inundation of lands that are not inundated already (i.e. dry land and nontidal wetlands). Beaches are examined in chapter 2 and tidal wetlands in chapter 3--in both of those cases, the process is more complicated.
40b	General	0	Physical Settings Section	In the Physical Settings Section, the discussion on the coast neglects information on the human modifications to the coast -- dredging, nourishment, groins, jetties and such. Also, the wetlands information, while interesting, is not used as a subsequent discussions and analysis of wetlands.	The Part I Overview has been totally reorganized and largely rewritten, with the total length of text reduced from 16 pages to 5. The Key Findings have been removed because they are already presented in the Executive Summary. The comments specific to the Key Findings were addressed where they occur in both the Executive Summary and the individual chapters. The wetlands information (geomorphic settings, text box on accretionary processes, and table on accretionary processes and geomorphic settings) has been removed from the Part I Overview and inserted in the wetlands chapter (Chapter 3).
41	General	0	Titles	Generally fine.	No response needed.
42	General	0	Titles	The title seems fine	No response needed.
43	General	0	Titles	Yes, the report's title is appropriate. Part and chapter titles are clear and concise. Appendix titles refer only to geographic area; perhaps appendix titles could include a subtitle such as "Appendix B. New York Metropolitan Area, Vulnerability and Adaptation."	Will consider renaming Appendices for final draft.
44	General	0	Titles	The overall title could be far more descriptive, either in explaining the content or the intended use/application of the report. While establishing "Coastal Elevations" is essential to understanding what areas are at risk due to sea-level rise, much of the report is dedicated to physical consequences, policy implications, and potential actions.	Submitted request to CCSP to rename report to "Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region"
45	General	0	Titles	Part and Chapter titles are fine generally. I recommend "Sustainability" be removed from Ch. 3 title -- this part of the report is supposed to focus on defining the physical setting and processes, not issues. While I have commented where necessary in my assigned chapters, I would recommend you have primary authors make sure their subsection titles are accurate based on the content and. Once the major structural edits are complete for the entire document, it would be worthwhile to review the terminology/level of detail in the titles throughout the document to ensure some consistency.	Chapter 3 describes the physical processes for a range of physcial settings that show how tidal wetlands can build vertically at a pace equal to sea-level rise. The chapter also provides a description of wetland survival (i.e., ability to keep pace) over the next 100 years in response to 3 sea-level rise scenarios. In this sense, the chapter describes wetland sustainability. We did not change the title.
46	General	0	Titles	The 'title' does not reflect the totality of the report content. Many of the impacts described throughout the report are the result of limited sediment supply (natural & human induced), not necessarily as a result of sea level rise (e.g. Chapter 5, p.2-17, lines 8-9). Thus, I suggest the title of the report may be broadened to perhaps, 'The Sensitivity of Mid-Atlantic Coastal Resources and the Built Environment to a Potential Acceleration in Relative Sea Level Rise' (as articulated on p.P-4, line 16-17; and, p.S-2, lines 3&4).	Submitted request to CCSP to rename report to "Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region"

#	Chapter	Page	Line	Comment	Response
47	General	0	Titles	It is clear that considerable time and resources have been expanded to produce this report. Unfortunately, I feel that it still falls quite short. First of all, the title does not encompass the subject matter. If this report were only about inundation, then the title would be fine. But coastal erosion occurs along low-lying sandy spits, such as Sandy Hook, NJ, as well as high bluffs, like Sconset, Nantucket (which is much in the news presently). Also, the term “shoreline erosion” is used throughout the report. Technically, a shoreline cannot be eroded unless the entire landform disappears in its entirety. Therefore, shore erosion or coastal erosion should be used instead.	The title is derived from the CCSP Strategic Plan, and the SAP Prospectus. The expansion of the report to include more discussion of coastal processes came significantly after the title of the report was decided. The revised report uses the terms coastal erosion and shoreline retreat in place of shoreline erosion.
48	General	0	Titles	The title is appropriate and part/chapter titles are descriptive of their content. No Suggestions.	No response needed.
49	General	0	Titles	The report's title is appropriate.	No response needed.
50	General	0	Titles	Be consistent throughout the report whether or not a hyphen is used in "sea level."	"sea level" is not hypehnated; "sea-level rise" is hyphenated
51	General	0	Titles	Elevation, while an important factor, is not the only one affecting coastal sensitivity to sea level rise. Erosion, ability of wetlands to accrete vertically, population density and extent of shoreline development are also important and have been considered in this report. Therefore, a better title would be "Assessment of sensitivity to sealevel rise for the mid-Atlantic coast."	Submitted request to CCSP to rename report to "Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region"
52	General	0	Titles	The "sensitivity" to sealevel rise needs to be also evaluated in terms of coastal flooding. The risks will be even greater if one considers the area subject to more repeated flooding due to SLR, as well as the area to be permanently inundated. This increasingly high risk zone is much more extensive than just land permanently underwater.	Discussed in Chapter 8.
53	General	through Chap 3	suggested source	Assateague Island National Seashore website. Accessed November 2007: http://www.nps.gov/asis/naturescience/resource-management-documents.htm	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
54	General	through Chap 3	suggested source	Brinson, M. 1989. Fringe wetlands in Albemarle and Pamlico Sounds, landscape position, fringe swamp structure, and response to rising sea level. Publication 88-14, Albemarle-Pamlico Estuarine Study. U.S. Environmental Protection Agency and N.C. Dept. of Natural Resources and Community Development. Raleigh, N.C. 83 pp.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
55	General	through Chap 3	suggested source	Cooke, C.W. 1931. Seven coastal terraces in the southeastern United States. Journal of the Washington Academy of Sciences, 21(21): 505-513.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
56	General	through Chap 3	suggested source	Darmody, R.G., and J.E. Foss. 1979. Soil-landscape relationships of the tidal marshes of Maryland. Soil Science Society of America Journal, 43: 534-541.	Source referenced in Appendix F.
57	General	through Chap 3	suggested source	Hine, A.C., and S.W. Snyder. 1985. Coastal lithosome preservation: evidence from the shoreface and inner continental shelf off Bogue Banks, North Carolina. Chapter VII. Barrier shoreface retreat element. Marine Geology, 63: 307-330.	Source referenced in Chapter 2.
58	General	through Chap 3	suggested source	Oertel, G.F., and H.J. Woo. 1994. Landscape classification and terminology for marsh deficit coastal lagoons. Journal of Coastal Research, 10(4): 919-932.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
59	General	through Chap 3	suggested source	Owens, J.P., and C.S. Denny. 1979. Upper Cenozoic deposits of the central Delmarva Peninsula, Maryland and Delaware. Geological Survey Progessional Paper 1067-A. U.S. Government Printing Office, Washington, D.C. 28 pages."	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
60	General	through Chap 3	suggested source	Spaur, C.C., and S.W. Snyder. 1999. Coastal wetlands evolution at the leading edge of the marine transgression, Jarrett Bay, North Carolina. Journal of the Elisha Mitchell Scientific Society, 115(1): 20-46.	Source referenced in Chapter 3.
61	General	through Chap 3	suggested source	State of Maryland Department of Geology, Mines and Water Resources. 1955. The Water Resources of Somerset, Wicomico and Worcester Counties. Bulletin 16. Baltimore, Md. 533 pages plus plates.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
62	General	chap 3-5	suggested source	Field, D.W., A.J. Reyer, P.V. Genovese, and B.D. Shearer. 1991. Coastal wetlands of the United States. National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service. 58 pages.	Source referenced in Chapter 4.
63	General	chap 3-5	suggested source	Maryland Department of the Environment. 2003. Nontidal Wetlands of Special State Concern of Five Central Maryland Counties and Coastal Bay Area of Worcester County, Maryland. Maryland Department of Natural Resources, Natural Heritage Program. Annapolis, MD. Funded by U.S. Environmental Protection Agency, State Wetland Program Development Grants. 202 pages.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
64	General	chap 3-5	suggested source	Shreve, F., M.A. Chrysler, F.H. Blodgett, and F.W. Besley. 1910. The plant life of Maryland. The Johns Hopkins Press, Baltimore. Special publication, volume III. 533 pp. plus plates and figures.	Authors did not find appropriate location to insert reference but will continue to consider this source for final revision.
65	Preface	0	Overall	I suggest using ‘relative sea level rise’ – not just sea level rise – throughout the report. It is critical for the public to know what the word ‘relative’ means and its associated rate of rise (land rising or subsiding plus eustatic sea level rise). When professional organizations speak of the eustatic/worldwide rise in sea level they will not be speaking of local rates of relative sea level rise. For example, in MA the RSLR rate is approx +1’/100years, however, the eustatic rise is only 4-6”. Using only the term sea level rise could cause much confusion, and make it more difficult to implement response programs.	Report qualifies this information in the Preface.
66	Preface	0	Overall	No comments.	No response needed.
67	Preface	1	8	Is sea level rise considered for any other U.S. regions besides the mid-Atlantic states?	To some extent in Part V, but focus is on Mid-Atlantic
68	Preface	1	15	Title need caps for Sea Level. Current version is sea level.	Changed to capital letters.
69	Preface	1	15	Level Rise - caps needed	Changed to capital letters.
70	Preface	1	14-15	If the answer to the above question is "no," then the title should reflect the fact that this report only covers a specific region. A better title is "Assessment of sensitivity to sea level rise for the mid-Atlantic coast."	Revised report title, "Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region" proposed to CCSP
71	Preface	1	22-24	Statement does not address rate of SLR change affected by land subsidence in Bay region. Increasing SLR not limited to just higher sea level.	Statement now addresses global SLR. Subsidence is addressed in subsequent discussion of relative SLR.

#	Chapter	Page	Line	Comment	Response
72	Preface	2	5-6	Question is oddly posed. If at an elevation to be currently flooded by the tides, mostly referring to wetlands, they wouldn't necessarily need shore protection measures. Re-phrase this question; "which lands currently inundated by the tides (i.e., periodically) would be permanently inundated by sea level rise, and of these, which would then need shoreline protection."	This is the language used in the prospectus--cannot be changed at this time.
73	Preface	2	13 to 16	Item 4: As described, mainly the planning departments of municipalities were interviewed. Additional information from local parks departments may have enriched the study with more specific examples/lists of available sites where wetlands may be able to migrate inland.	Noted. Report no longer attempts to project where land may be available for wetland migration based on local planning studies (only by elevation).
74	Preface	2	5 to 6	Word choice. "Shore protection measures" to an American implies structures to provide protection against shoreline erosion, not flooding (although in the Netherlands and elsewhere the concept of inundation/flooding protection or increased drainage to "reclaim" land may be implied by the term "shore protection"). Suggest changing this to term to one implying prevention of inundation/flooding (perhaps using term dike, levee, etc.)	This is the language used in the prospectus--cannot be changed at this time.
75	Preface	5	12	occurs because of a …	changed to "occurs due to a…"
76	Preface	5		Much of the report results do not appear to be 'quantitatively based', as stated. Much is based on professional (qualitative) judgment, e.g. barriers that are suggested to be at or will be at a 'threshold' for disintegration. Also, the 'range of uncertainty', while appropriate, is not quantitative – it's a 'consensus of expert judgment' (p. P-5).	Removed claims to being 'quantitatively based' and inserted statement, "In some cases, specific chapters may incorporate more quantitative assessment of uncertainty related to a specific analysis conducted to address a specific question in the report."
77	Preface	6	14	While I think its appropriate to assess impacts from a higher sea level rise, why was 100cm selected for the third sea level rise scenario (p. P-6, line 14)?, as well the 2m rise? If the document describes impacts resulting from a rise that is not reasonably anticipated by the scientific community within 100 years, planners and the public may consider it an alarming or unrealistic portrayal.	Scenario 3 reflects concerns that the IPCC values might be conservative and are less than high estimates suggested by more recent publications. Some chapters refer to higher sea-level rise scenarios, such as a 2 m rise over the next few hundred years, to account for the possibility of melting on Greenland and Antarctica exceeding model estimates.
78	Preface	6	6-8	The 2 "accelerated" scenarios represent a mainstream, conservative view. Some concern exists over increased meltwater from Greenland and Antartica. A higher possible sea level rise is hinted at in Chap. 2, p. 4, line 9. Also, strictly speaking, the rise in sea level is likely to be exponential, rather than linear as assumed in this report. Furthermore, the way of describing the 3 scenarios is cumbersome. Why not just add the extra rate of sea level rise and label them as: scenario 1 - current trend (3 mm/yr), 2 - An "accelerated" trend of 5 mm/yr, 3 - An "accelerated" trend of 10 mm/yr	Implemented suggested changes.
79	Preface	7		Consider adding recognition of Glossary and general protocal used for footnoting and citing sources.	Glossary is now discussed. Use of footnotes was reduced in entire report and substituted for standard citation format--hence the need to discuss this is no longer necessary.
80	Exec. Summary	0	Overall	Executive Summary is excellent preview to what comes later in report.	No response needed.
81	Exec. Summary	0	Overall	The graphics need work. I realize most are representative graphics from corresponding chapters. Some are too complex for a summary (e.g., bottom figure on S-3) or are too small to be readible (e.g., figure on S-4). None have captions to explain the significance of the information shown or relationship to accompanying text. The top figure on pg S-3 is pretty good -- only 1 key variable is shown in the figure, and its printed at such a scale that the differences in this variable can be resolved.	Shoreline erosion figure simplified for Executive Summary. Shore protection figure no longer appears in ES. Captions added to figures.
82	Exec. Summary	0	Overall	Suggest providing guidance in selecting an appropriate relative sea level rise rate (or range) for planners, policy makers and regulators to use in making real life, every day decisions. They need support from technical folks to select a range to implement changes.	Context section provides more information about the likelihood of scenarios used in this report.
83	Exec. Summary	0	Overall	Much of what I would like to see in this kind of a document isn't in here: 1) Detailed guidance for how states and localities should begin dealing with sea level rise (instead we get guesswork on what planners THINK will happen). 2) Create a model decision support system or outline how the science should be integrated into decision making.	The document cannot make policy recommendations; the Measures to Improve Understanding section does incorporate some opportunities for integrating science into decision making.
84	Exec. Summary	0	Overall	The Executive Summary accurately and concisely describes the key findings and recommendations.	No response needed.
85	Exec. Summary	0	Overall	I am having a great deal of difficulty grasping the point of this document. There doesn't seem to be a clear vision statement for how the report will be used or who will use it. The integration between the science and the societal impacts is poor. Much of what the authors would like to do regarding the prediction of SLR impacts is currently impossible. It is beyond the "state of the science". The elevation-based approach is oversimplified. So, the result is a document that relies on a great deal of speculation with little scientific backing. The "Key Results and Findings" in the Executive Summary are either obvious and add nothing to the public discourse (Sea level rise will cause some areas of dry land to become inundated by the tides) or they are so hypothetical that it is difficult to understand how one should use the information (Most shores are likely or very likely to be protected along the Atlantic Coast…..)	Executive Summary revised considerably. Added Context chapter to better describe the point of the document. Attempted revisions throughout report to avoid speculation wherever projections may be viewed as such.
86	Exec. Summary	0	Overall	The summary seems to capture the major issues and conclusions of the report and presents the actions that can or should be taken.	No response needed.
87	Exec. Summary	0	Overall	Yes; the key findings and recommendations do appear to be present. Below are 3 comments that could improve the presentation of the information in the Exec Summary.	No response needed.
88	Exec. Summary	0	Overall	The executive summary concisely and accurately describes the key findings and recommendations.	No response needed.
N/A	Exec. Summary			Comment provided orally to Jim Titus on February 5. The executive summary should include a table similar following the format of the early IPCC reports, which listed the impacts in the order of how well established the science is that those impacts will occur.	This is a good idea that we will consider as we revise the executive summary.

#	Chapter	Page	Line	Comment	Response
89	Exec. Summary	1	6	A conflict exists between p.S-1 (line 6) and page S-2 (lines 5&6). My same comment as in the Preface: Is sea level rising about 3mm/yr along the Mid-Atlantic coast, as stated, --- or is it 'relative' sea level is rising about 3mm/yr? When planners and the public (who may not follow sea level rise as closely as scientists) read that sea level is rising 3mm/yr along the Mid-Atlantic coast (p. S-1, line 6), and then read that the report is going to examine the impacts along the Mid-Atlantic of an 'acceleration' in the rate of rise of 2mm, there is a conflict of information, i.e. the current rate and the accelerated rate are stated as the same.	Clarified relationship between global sea-level rise rate and Mid-Atlantic trend. Also, clarified that acceleration of 2 mm/year is an acceleration *over* the current trend, i.e. a 5 mm/yr trend.
90	Exec. Summary	1	6	Planners, etc., may be confused about or question this report & its conclusions after reading two conflicting statements about the current rate of sea level rise (or shall we say 'relative sea level rise'), and a rate acceleration to be examined in this report. It's a very important distinction and is explained on p. I-7 & I-8, but not all may read this chapter.	Revised discussion of current sea-level rise rates and acceleration scenarios to reflect these concerns. Also added further discussion to Context chapter.
91	Exec. Summary	1	8	Rising waters are not eroding beaches. Other processes are eroding them, rising waters are innundating them. Rising waters translate the other processes further up the beach.	The reviewer identifies an important distinction between sea-level rise and erosion processes; however, this comments was inadvertently overlooked during revisions. Following public review, the sentence will likely be revised to read, "Rising water levels are leading to the submergence of low-lying lands, changes in shoreline position, conversion of wetlands to open water, increased coastal flooding, and increases in the salinity of estuaries and freshwater aquifers."
92	Exec. Summary	1	18	contended with replaced with adapted to?	The Executive summary has been completely rewritten and reorganized. This comment was addressed during the rewrite.
93	Exec. Summary	1	2 to 5	Could add short description of post-glacial crustal adjustments still felt along the Mid-Atlantic coast. Check with V. Gornitz for references.	Material on isostatic adjustment added in Context chapter and Chapter 2.
94	Exec. Summary	1	2, 3, 4, 5	In the preface you indicate that global sea level is also affected by thermal expansion of ocean waters. There is no mention of that in this paragraph.	Although thermal expansion is the greatest contributor to the current rate of sea-level rise, the greatest fluxes in sea level are determined by the amount of land-based ice. More discussion of sea-level changes discussed in Context chapter.
95	Exec. Summary	2	5	Even though given in opening page (S-1), clarity would be increased by adding again rate in current trend to read in line 5: "...the current trend of 3 mm/yr" instead of just stating "…the current trend."	Rate is given in parentheses after mention of "current trend."
96	Exec. Summary	2	6	There is no reference to a two meter sea level rise that is discussed as a scenario in Chapter 2. Given that some parts of the mid Atlantic already have relative sea level rise rates of 5-7 mm/yr (tide gage measurements from the 1970s to 1999), the +2 seems very conservative and the +7 rate is still low (never mind. 2m over a few hundred years is less than +7mm/yr. But I strongly feel that this rate is too low).	ES now mentions two meter sea-level rise. Preface and Context further discuss possibility of higher sea-level rise scenarios.
97	Exec. Summary	2	6	Likewise, would insert after numbers per year "…above the 20th century trend of 3 mm/yr (one foot per century)." Brief additional text would help the reader understand that an approximate 5 mm/yr total is meant in the +2 mm/yr scenarios, and 10 mm/yr is meant for the +7 mm/yr scenarios. Same comment is given for Section III.	Text added to give total rise by 2100, and language clarified to suggest that acceleration of 2 mm/yr and 7 mm/yr is in addition to the current rate.
98	Exec. Summary	2	7	these accelerations would amount to an "incremental" rise in sea level?	Added total increase in sea level *by 2100*.
99	Exec. Summary	2	7	Acceleration plus historic rate = 50-60 cm/ 100-110 cm.	Added these numbers to scenario description.
100	Exec. Summary	2	7	Refer to appropriate chapter and section (as in the IPCC report) in supporting these concluding statements.	Added chapter. May add section for final report.
101	Exec. Summary	2	19	"…50 cm by 2100."	No change needed. Dry lands less than 50 cm would be flooded by a 50 cm rise regardless of the time it takes for the sea to rise 50 cm.
102	Exec. Summary	2	21	Wouldn't the area of vulnerable land depend on the topography?	This is a result from Chapter 1, not speculation. Executive summary has been revised so that it is hopefully more obvious that this is a finding from the data, rather than speculation.
103	Exec. Summary	2	3-8	Check these scenarios. The total sea level rise over the century is given as 20 cm and 70 cm (for the 2 "accelerated" trends). This contradicts the values listed in the Preface (P-6; lines 7-8), which lists 50 and 100 cm by 2100, respectively.	Corrected to say 50-60 cm and 100-110 cm by 2100, respectively.
104	Exec. Summary	2	5-7	Re-phrase: "the current regional trend of 3 mm/yr, an acclerated trend of 5 mm/yr (2 mm/yr over the current trend) and an accelerated trend of 10 mm/yr (7 mm/yr above the current trend)." The way the scenarios are listed is unclear.	Description clarified.
105	Exec. Summary	2	1 to 2	While point is correct, wording could be improved. Concern for shoreline-dependent species (particularly terrapin, horseshoe crab, beach tiger beetle which are beach dependent) is loss of natural habitat critical for reproduction, not just "changing habitats" - they generally do alright with natural changes. Additionally, these dependent species can't move - their life history requirements obligate them to these habitats. To simplify things, it's more appropriate to just point out that less habitat means smaller populations for species dependent upon natural shorelines. While some species do move to "less desirable areas" (such as terns nesting on shopping center roofs), if these less desirable areas are able to support population numbers that's not necessarily bad! (Many rare birds, many of which are not very bright, would be much better off if they could adjust their behaviours to adapt to the human-dominated world).	Wording changed in introduction and vulnerable species section to reflect these concerns.
106	Exec. Summary	2	19-20	"For a larger rise, the amount of vulnerable dry land is roughly proportional to the rise in sea level.". How so?	More detail provided in Chapter 1.
107	Exec. Summary	2	5 & 6	Reference to "current trend" and "Over the course of a century" ideally would be put in context of a base timeline such as 1900- 2000 and 2006-2106.	Qualified that current trend is for the 20th century and that "over the course of a century" equates to the year 2100.
108	Exec. Summary	2	7, 8	Add brief note that the 20 cm and 70 cm sea level rise is superimposed on the historic trend of the last 100 years (20th century) of 30 cm.	Added that the current trend would result in a 30-40 cm rise by 2100.

#	Chapter	Page	Line	Comment	Response
109	Exec. Summary	2	Map caption	Statement "For a larger rise, the amount of vulnerable dry land is roughly proportional to the rise in sea level" surprises me. Is that related to known topography in the study area? Generally, if a foot elevation is lost could mean far more than a foot inland depending on the land contours.	This is a result from Chapter 1, not speculation. Executive summary has been revised so that it is hopefully more obvious that this is a finding from the data, rather than speculation.
110	Exec. Summary	2		The first key finding (no line number) it states that the amount of dry land vulernable to flooding if seas rise more than 50 cm is roughly proportional to the rise in sea level. More a question than a comment, but why is it save to assume that would be	This is a result from Chapter 1, not speculation. Executive summary has been revised so that it is hopefully more obvious that this is a finding from the data, rather than speculation.
111	Exec. Summary	2		The first key finding (no line number) it states that the amount of dry land vulernable to flooding if seas rise more than 50 cm is roughly proportional to the rise in sea level. More a question than a comment, but why is it save to assume that would be proportional? The topography is hardly uniform and I could easily imagine the differences might be measured in depth of flooding rather the spatial extent of flooding. Also, I am not sure what the proportion is based on. Is it for every x% increase in rise above 50 cms there is an x% increase in the area flooded? If so, what is the land area we are using as our base line. We have one for sea level rise, it is sea level, but what is it for land area? This may just be me being out of my depth, but if the manner in which this is stated confuses me, it might confuse others in our target audience.	The reviewer appears to have taken this finding to mean something other than what was intended--perhaps viewing "vulnerable" as flooding rather than inundation. We will plan to discuss this finding with the reviewer to clarify the finding.
112	Exec. Summary	3	10	What is the timeframe of text discussion and maps?	The Executive summary has been completely rewritten and reorganized. This comment was addressed during the rewrite.
113	Exec. Summary	3	10-25	Figure -- the key does not clearly distinguish the different responses to SLR among the 3 scenarios.	Figure legend was revised.
114	Exec. Summary	3	1 to 10	Given breadth of this document and reliance upon geologic information, I think it is an error not to point out existence of terraces which favor wetlands development at sea levels that are near terrace level. I submitted comments on this topic previously. Although their nomenclature is a bit messy, and origins multiple, terraces do constitute distinct geomorphic features, and the flat planes of the terraces support expansive tidal wetlands whereas the sloped land between terrace flats does not. Potential references: http://www.wm.edu/geology/virginia/provinces/coastalplain/coastal_plain.html; Owens and Denny, 1979; State of Maryland, 1955; Cooke, 1931.	The purpose of the wetland accretion chapter is to address the ability of tidal wetlands to keep pace with sea level rise. The potential for wetland migration is discussed in Chapters 1 and 5, where this comment has been addressed.
115	Exec. Summary	3	1 to 4	Again, would add "An acceleration above the current trend in sea level rise of +2 mm/y…" Note that year is abbreviated with a "y" rather than as "yr" as in previous page.	Previous discussion qualified this. Changed "y" to "yr."
116	Exec. Summary	3	1, 2, 3, 4	Should it be stated that this paragraph assumes no upward accretion of wetlands through sediment deposition, nor creation of suitable lands by sediment deposition and current driven processes?	The Executive summary has been completely rewritten and reorganized. This comment was addressed during the rewrite.
117	Exec. Summary	3		Top figure - add color key	This figure has a color key. We are unsure why the reviewer believes otherwise.
118	Exec. Summary	4	8	Distinguish between ocean versus bay protection?	Executive Summary and rest of report no longer discuss liklihood of shore protection.
119	Exec. Summary	4		Section S.1 contains the main findings in a very effective and logical manner, in particular the use of bold text for the leading sentence. Section S.2 really needs some structure for presentation of seemingly disparate findings, and effective formatting to allow policy folks to quickly deduce the key points.	Structure and presentation of findings changed considerably to reflect reviewer's concerns.
120	Exec. Summary	5	13	… lower elevation areas…	Text no longer appears in Executive Summary.
121	Exec. Summary	5	14	… that could be most impacted …	Text no longer appears in Executive Summary.
122	Exec. Summary	5	14	… in order from the top…	Text no longer appears in Executive Summary.
123	Exec. Summary	5	15	Wetlands allowed to migrate on Agricultural Lands? Is this inconsistent with the high percentage of land that will be protected?	The maps and calculations of land that will be protected have been removed from this report; so there is no apparent consistency. Nevertheless, even with those calculations, there was no inconsistency (though clarification might have been needed). Residential, infrastructure, and business uses of land were assumed to be protected. Lands that are agriculture today but expected to be developed were expected to be protected. But lands expected to remain agricultural were generally not expected to be protected.
124	Exec. Summary	5	15	delete "four"	Text no longer appears in Executive Summary.
125	Exec. Summary	5	16	The statement that rising seas have little effect on public access to the shore is wrong legally and practically and is inconsistent with other statements in the report (Page II-14 lines 15-18, 7-2 line 9). The issues of public ownership, the public's right to legally access lands and their practical ability access lands are related but distinct matters. My opinion is that sea level rise could have a dramatic legal and practical impact on the public's access to the shore. Since the report deals with these issues in largely conclusory ways I can't know whether there is a more detailed analysis to back up this statement in the Ex Sum. At the least the language in the report needs to be harmonized but I suggest a more thorough consideration of the access topic is in order.	The reviewer (reasonably) construes "access to the shore" as referring to perpendicular access, whereas the intended meaning was all forms of access. One way to correct for this ambiguity would have been be to say "access to and along the shore." This comment has not been addressed in the revised draft; and will have to be addressed later... The rest of the comment has been addressed, however, because the executive summary now is a faithful reflection of the findings from chapter 7 whereas in the previous draft--as the reviewer says--it was not.
126	Exec. Summary	5	22	Erosion may not cause more flooding if the complex of coastal landforms migrate landward, unless the report is addressing only buildings, i.e. 'the built environment', which is not specified.	The Executive summary has been completely rewritten and reorganized. This comment was addressed during the rewrite.
127	Exec. Summary	5	1-10	Beach nourishment does not necessarily preclude wetland migration. Sand on the beach is usually transported by storm surge to the back barrier and surge platforms.	These paragraphs have been deleted.
128	Exec. Summary	5	16- 19	Believe the intent is to refer to public trust waters/areas and not public lands. If public lands are inundated or flooded such areas are lost as well as their corresponding landward public access.	This error has been corrected in the public review draft.

#	Chapter	Page	Line	Comment	Response
129	Exec. Summary	5	7 to 11	the data (75% & 40%) do not support each other	Likelihood of shore protection data no longer appears in the report.
130	Exec. Summary	6	2	… of the amount …	Text no longer appears in Executive Summary.
131	Exec. Summary	6	9	The statement that most organizations are not yet preparing for sea level rise due to institutional inertia is undoubtedly true but does not say why. It is easy for the reader to construe this a largely a matter of institutional culture since no broader context is provided. Culture is clearly one of the drives. But institutional missions, authorizations, budgets, decision guidance and policy--some of which are legally driven--play a larger role in my view. I discuss this more in my comments to Chapter 11 but wanted to mention it here as well.	The reviewer is correct and his suggestions should be reflected in the Executive Summary.
132	Exec. Summary	6	1- 8	Paragraph is awkward.	Text revised considerably to reflect chapter revisions and to read better.
133	Exec. Summary	7	21	In Recommendations section, 'monitor modern coastal conditions': a very important research topic not mentioned is 'to be able to monitor environmental and landscape changes (p. S-7, line 21) AND be able to distinguish the changes due to natural cases (RSLR) from those induced by human activities (e.g. revetment, bulkheading, etc). Then integrate both into predictive models (p. S-8; line 5).	Text in Part VI was revised to emphasize the importance of understanding human-impacted coastal processes in addition to the natural processes.
134	Exec. Summary	7	10 to 17	I do agree that historical ecology and geological studies are useful to determine the range of historic and geologic variability of conditions that can enable us to prioritize among stressors. However, I don't agree with the need to conduct additional investigations because we "lack adequate information" in this case, consistent with my comment on line 6 to 9. We already know the sea is rising, we already know that areas will be inundated, we already know that certain geomorphic settings are more vulnerable to change that humans would consider unsuitable than others. I do not believe that we will be able to pin thresholds of any of these down exactly enough to allow better decision-making than we can already make with the information at hand. Again, it is lack of a critical public and political mass willing to support change, not the absence of information, that is impeding society's ability to plan ahead.	Discussion revised to reflect need to exploit and intregrate existing information into tools that inform policy and decisions, in addition to continuing need for improvements to existing knowledge.
135	Exec. Summary	7	6 to 9	I don't agree with this "more study" recommendation. I think we know enough to make decisions. It is political and public will that is lacking. Human nature being what it is, it may be that minor (or severe) crisises are required to incentivize action in any particular region. From a social responsibility perspective, developing a critical educated mass of the public and government willing to support making changes in coastal zone management is what is needed if change is to occur. You can collect all the information you want and not accomplish this.	Discussion revised to reflect need to exploit and intregrate existing information into tools that inform policy and decisions, in addition to continuing need for improvements to existing knowledge.
136	Exec. Summary	7		The "Recommendations" in the Executive Summary (p S-7) are fine, but there is nothing new in them. The authors describe needs that many scientists are already working very hard to address.	Discussion revised to reflect need to exploit and intregrate existing information into tools that inform policy and decisions, in addition to continuing need for improvements to existing knowledge.
137	Exec. Summary	8		the recommendations are OK, but as a manager it would be great if information was provided on land uses, policy, that are justified to use now to avoid future problems.	Report's intention is not to make policy recommentations, but to provide necessary information to inform decisions and identify where gaps in information exist.
138	I	0	Overall	It would be helpful to list the subheadings in this section in the table of contents. 'Key Findings' title to the first section is OK; but 'overview' is not descriptive of the content of the second part and should be expanded as a title. The 'overview' is a good descriptive set-up to understanding the remainder of the report.	The Part I Overview has been totally reorganized and largely rewritten, with the total length of text reduced from 16 pages to 5. The Key Findings have been removed because they are already presented in the Executive Summary. The comments specific to the Key Findings were addressed where they occur in both the Executive Summary and the individual chapters. There are now only four subheadings, so subheadings were not added to the table of contents.
139	I	0	Overall	The 'overview' is quite repetitive of Chapter 2. It could be significantly shortened, as much of it is repeated in Chapter 2.	Agreed. The Overview has been greatly reduced in length to eliminate these overlaps. See comment # 138.
140	I	0	Overall	It would be helpful if there was a short summary paragraph or two that helps the reader transition into the detailed chapters that follow.	Agreed. The Overview has been totally reorganized and largely rewritten, including summaries that allow an easy transition to the chapters in this Part.
141	I	0		There are references cited within the text of the Overview section, but the citations do not appear at the end of the text (pg. I-16). Need to add them here, or put all references for all of Part (including chapters) at the end of the Part or the entire document. How you want to handle references is somewhat of a global comment.	The references have been added at the end of the Part I Overview.
142	I	1	2	Title of the section and subsection is "Overview"? Recommend revising subsection title.	Overview has been completely reorganized. See #138.
143	I	1	10	What is the data base used for these assessments? How accurate are the elevation data —need error bars indicated. I did not find this explained in a scientifically valid manner later in the text.	The methods and handling of error regarding the inundation estimates is addressed in chapter 1.
144	I	1	11	"…to rise 50 cm by 2100,…"	The Key Findings text has been removed from the Overview. See #138.
145	I	1	13	Strictly speaking, this would depend on topography	The Key Findings text has been removed from the Overview. See #138.
146	I	1	6 to 8	See previous comment on P-2, lines 5 to 6.	The Key Findings text has been removed from the Overview. See #138.
147	I	2	8	"…Pacific coast" "New England…" relevance here?	The Key Findings text has been removed from the Overview. See #138.
148	I	2	16	add "as" before "increased"	The Key Findings text has been removed from the Overview. See #138.
149	I	2	7-8	The sentence as written doesn't make sense. Wouldn't low-lying wetlands and sandy beaches be more vulnerable to sea level rise than rocky coasts? Do you mean "inundation…would be more limited for bedrock coasts…?"	This section has been significantly revised. Our intention with this statement was to point out that changes in shoreline position will result from inundation as well as erosion as the landscape comes into contact with waves and currents at the waters edge. Only in places such as on bedrock coasts, will inundation dominate changes in shoreline position.
150	I	2	9-11	Relevance of statement? Rather state: "…behavior make them more vulnerable to sea level rise and coastal erosion."	This statement has been revised as the result of rewriting this overview section.
151	I	2	1 to 2	Reword this to "nanotidal" for consistency with text in 3. (As per my previous comments, I disagree with use of word "nontidal" for these wetlands since it connotes independence from sea level to most people that would read it).	The Key Findings text has been removed from the Overview. See #138.
152	I	2	22-24	What is collapsing? I don't think of shorelines as collapsing?	The term collapsing has been removed.

#	Chapter	Page	Line	Comment	Response
153	I	2	23 to 24	Word "collapse" is perilously close to being a scare-mongering term (something that's been a consistent problem for the environmental movement, and over time creates skepticism in the cause). Example provided in text for this condition, northern Assateague, is a fair analogue for future conditions only in part, since the stabilized inlet there induced multiple breaches by reducing sediment supply - only where sediment supplies would be expected to be greatly reduced would this be an appropriate example to forecast future "collapse." However, rapid landward migration and island "flattening" that occurred is probably a fair forecast for increased rate of sea-level rise (as well as increased inlet formation rate and island segmentation). This to me does not constitute "collapse" - that term implies conversion of island to open water.	The term collapsing has been removed.
154	I	3	Start at 21	The findings provided before this portion of the text had effective and consistent use of bold text with "likely," "unlikely," etc. On these two pages, everything is phrased very definitively with unqualified use of "will." Recommend revising to be more consistent with format of earlier findings/conclusions.	The Key Findings text has been removed from the Overview. See #138.
155	I	4	7	How large a wetland area is necessary for sustaining the coastal ecosystem? This is a general question that needs to be answered.	The Key findings text has been removed from the Overview. However, the comment warrants a response because of its general applicability to the topic of the report. The finding states, "A primary concern is the potential for the decline of wetlands, which provide several important ecosystem functions." The remainder of the key finding goes on to list numerous important functions. The question, "How large a wetland area is necessary for sustaining the coastal ecosystem?", cannot be addressed from the current literature. If we could, then we would have numeric criteria for protecting coastal wetlands, but we do not. No one area of wetland will serve all functions to the same degree. Their functional role will depend on (1) size and orientation of the adjacent subtidal estuary to respond to wind-generated events, (2) the supply and composition of sediments, nutrients, and pollutants delivered to the marsh, and (3) the size of the marsh itself and the existence and proximity of nearby shared habitats. What is certain, is that a diminution of marsh area in whatever region will result in a decrease in these functions, and thus the ecosystem services available to society.
156	I	5		Section I.2 is a very lengthy discussion of some content in Chapter 2, and it's inconsistent with the chapter in terms of the order of information and some of the specific content provided. I have substantive suggestions for Chapter 2 that, if incorporated, would also affect this section. I strongly recommend that you have the author of Chapter 2 prepare a very condensed version of that content for insertion here (after any edits to the root chapter are made, of course). What's in I.2 is far too long for an overview, in my opinion.	The Overview has been totally reorganized and rewritten to address the concerns of overlap with Chapter 2. See comment # 139.
157	I	6	5	A principal problem with this report is that published papers—the good, the bad, and the ugly—are treated as of equal value. For instance, the Pilkey et al (2000) response states that there is a 1,000 to 10,000 multiplier of vertical sea level to determine the amount of horizontal retreat of barrier islands. We don't have to wait until the future to show that this statement is patently wrong. Relative sea level has risen about 1 foot in the last 100 years along the U.S. East Coast, and the barrier islands have not moved miles. Instead, the long-term, average (which is not necessary good for any one area) is 2 to 3 feet per year along the U.S East barrier coast, translating to a horizontal retreat of hundreds of feet, not miles! Leatherman et al (2000) responded to Sallenger et al (2000) and Pilkey et al (2000), yet this paper is not even mentioned. This approach is problematic throughout this report.	Our main point was to indicate the lack of concensus in the field. We removed all reference to these Eos articles.
158	I	6	16 to 17	Estuarine mouthes are also important cause of this. Tidal currents cause sediments to accumulate in tidal shoals at mouths of Chesapeake and Delaware estuaries which then refract waves which then induce regional reversals in longshore transport.	This section of text was removed from the Overview.
159	I	7	15	The book on sea level by Emery and Aubrey (1991) is mentioned, yet the more recent and a better Academic Press book by Douglas et al (2001) is not even mentioned.	This discussion of sea-level rise was removed from the Overview. Three chapters from the Douglas et al. (2001) publication have been cited in other chapters along with Emery and Aubrey (1991).
160	I	7	20 to 21	May wish to add sentence covering New England, since as written implies that New England is NOT experience relative sea-level rise. Glacial effects here have "worn off" enough that eustatic sea-level rise now can cause local sea-level rise.	This discussion of sea-level rise was removed from the Overview.

#	Chapter	Page	Line	Comment	Response
161	I	8	14	I think the hypothesis that groundwater withdrawal is a major driver of local sea-level rise in the Mid-Atlantic is not widely accepted among geologists, even in "hotspots" where it has greatest likelihood of being true (such as at Blackwater). Instead, I think it's more plausible to instead attribute Chesapeake Bay "hotspot" to regional geologic condition - its position in the Chesapeake-Delaware Basin (also known as Salisbury Embayment), a massive downwarped region where a very thick wedge of sediments have accumulated (perhaps located over a geologically ancient failed rift valley?) (Walker and Coleman, 1987). This contrasts greatly with other more stable regions, such as the "Cape Fear Arch" area which does NOT have this massive accumulation of thick sediments. Instead, I would list groundwater withdrawal as a factor that is probably locally important, and perhaps give Cambridge, Md. (Blackwater) as an example.	This discussion has been removed from this overview. This comment is also addressed in the response to comments for Chapter 2. Our intention was to indicate that relative sea-level rise in the mid-Atlantic region is the result of eustatic sea-level rise as well as regional subsidence which has been attributed to several causes, such as glacio-isostatic adjustment of the earth's crust (Peltier, 1994), groundwater withdrawal (Davis, 1987; Braatz and Aubrey, 1987), and tectonics. Davis (1987) specifically suggested that head decline in coastal plain aquifers in several regions of the eastern United States (southeastern, VA; Dover, DE, and Atlantic City, NJ) has contributed to land subsidence and increased rates of relative sea-level rise. We also recognize that there is some scientific work that identifies groundwater related land subsidence as a localized phenomenon, such as near Cambridge, MD (Kearney and Stevenson, 1991). We disagree with the reviewer's suggestion that the region surrounding the Cape Fear arch is a stable region in comparison to the Chesapeake Bay region. Several studies have suggested that this region is undergoing uplift (Brown, 1978; Braatz and Aubrey, 1987; Marple and Talwani, 2000). Braatz, B.V. and D.G. Aubrey, 1987: Recent relative sea-level change in eastern North America. In: Sea-Level Fluctuation and Coastal Evolution [D. Nummedal, O.H. Pilkey, and J.D. Howard, (eds)]. Society of Economic Paleontologists and Mineralogists, Special Publication 41, 29-48. Brown, L.D., 1978: Recent vertical crustal movement along the east coast of the United States. Tectonophysics, 44, 205-231.
162	I	8	24	"motion" could include land subsidence (e.g., Mississippi Delta) and land movements due to glacial isostatic adjustments. Rather say "crustal displacement," "faulting," or "uplift," or "offset"	This discussion of coastal geology was removed from the Overview.
163	I	8	5 to 16	If report is relying on earlier Holocene/late Pleistocene Epoch higher rates of sea-level rise as analogue from which to forecast future geomorphic conditions, should include SL curve from that time period to present.	This discussion of sea-level rise and coastal geology was removed from the Overview.
164	I	10	21-23	Last sentence here repeats info on lines 7-9. In addition, I'd recommend the same author working on the revised I.2 also review/revise the current I.3 for consistency.	This discussion on shoreline settings was removed from the Overview.
165	I	11	21	"thalweg" ?	The term has been added to the glossary.
166	I	11		The formatting and discussion of the wetland shorelines needs significant editing. What's then provided appears to be a lengthy regurgitation of info from Reed et al. (2007), including many acronyms, jargon, and long tables full of details about wetlands. The corresponding chapters (3-4) seem to focus on somewhat different content. The overview text should be a high-level summary of the wetland type(s), and introduce key characteristics, processes, or issues that are covered in more detail in Chapters 3-4.	The text box and table were removed and added to Chapter 3.
167	I	12	Text Box	It may be worth noting that N.C. Sounds possess vast area of peat-based wetlands (Brinson 1989, or even perhaps Spaur and Snyder, 1999). It would also be providing a definition for coastal wetland peat somewhere in document if not already done that is "sensu lato" (highly organic sediments formed in coastal wetlands, although much of this contains too great a mineral content to actually qualify as peat from a geotechnical or soil science perspective).	The text box was removed from the report, and replaced with a brief description of these processes in Chapter 3. we used the term organic-reich soils instaed of peat to describe soils with high organic matter content.
168	I	13	Text Box	The entry for fluvial sediment supply includes future policy considerations. If this is the case, then policy implications should also be considered where appropriate for other entries. For example, nutrient management and regulation of shoreline armoring may have large bearing on nutrient and sediment supplies in some settings.	The text box was removed from the report, inlcuding all policy statements.
169	I	13	Text Box	Wildlife management practices are important in Federal and state lands, particularly wildlife management lands. Burning and hydrologic manipulation are both likely to be of significance in this regard in Delmarva.	Textbox was removed from the report. Where necessary, the human impacts are described in other parts of the report.
170	I	14	1. Open Coast	Sheltered condition fails to generate sufficient sediment to form beaches, and provides low tidal energy subsidy to coastal wetlands, thus large area of peat-based wetlands (although it may be shallow over carbonates).	Agreed. No change was made to the text.
171	I	14	2. BB	This wetland type is essentially absent from Chincoteague Bay, except perhaps at the southern end. In contrast, this geomorphic setting is abundant in Virginia portion of southern Delmarva (Oertel and Woo, 1994)	Backbarrier lagoon marsh is found in the Virginia portion of Chincoteague Bay.
172	I	15	FF	Pocomoke River, Md., good example, and NEEDED, since other sites listed don't support bald cypress (too far north)!	No response needed.
173	I	16	Nontidal …	I disagree with use of this term, and prefer "nanotidal" as you use elsewhere in document	Nontidal is a widely used adjective to describe this general category of wetland type that occurs throughout the United States. We use the term nanotidal in this report specifically in reference to marshes behind the Outer Banks of NC. No change was made to the text.
174	1	0	Overall	The chapter answers the question quite well. I am not an expert on coastal topography but can understand everything here. I do feel that some of statements are sort of wishywashy.	Reviewer identifies the wishy-washy comments below, each of which we address.
175	1	0	Overall	The tables and graphs which contain the data that would answer this question could be presented more clearly. See specific comments below.	Reviewer identifies the specific issues in her comments below, each of which we address.
176	1	0	Overall	The section references recent study by EPA and it would be good to include other studies of the Mid Atlantic. Also, it would be helpful to replace any tables with graphics.	Added graphic to make the point in final table.
177	1	1	4	Beaches should be mentioned here.	Done
178	1	1	6	Are these the only reports that have looked at coastal elevations? Why aren't any of the USGS studies included here.	Referred question to USGS authors, who stated that there is no such elevation study by USGS for the mid-Atlantic.

#	Chapter	Page	Line	Comment	Response
179a	1	1	6	Some of these references could not be found or else were incomplete.	References clarified. Reviewer is correct that at this scale, the details are difficult to discern in most areas--but one can see the broad picture where the areas of wetland or low dry land are large.
179b	1	1	6	Figure 1.1. The wide range in vertical accuracy of these data (15cm for the top-quality LIDAR to more than 6 meters) result in severe problems for any estimates of coastal inundation. When numbers are presented based on these widely disparate data, error bars must be given.	This comment may be applicable to some of the maps in the Appendices. Author has referred this comment to people revisiong the appendices for inserting caveats in the map captions. For this map, however, the scale is so small that the maps are not misleading. Text has been clarified to explain this point.
179c	1	1	6	For the IPCC range of sea level rise values, data with a vertical accuracy of 15 cm (e.g., high-resolution LIDAR) should only be used for sea level rise impact analysis. I suppose that Table 1.2 (page 1-11) attempts to show the error bar, but I think that the range is much larger than stated herein because such a poor data set has been used for this analysis.	Methods for the uncertainty range were clarified, as was the reasoning for concluding that the maps and tables provide meaningful estimates. But noite: the title of the Titus and Wang paper itself suggests that this data is just an interim data set while waiting for LIDAR.
180	1	1	2 to 3	See previous comment on P-2, lines 5 to 6.	Comment is Unclear. Author was not provided a comment on page 2. Asked review coordinator for clarification.
181	1	1		Given the great reliance of this chapter (and the report overall) on the results from the EPA studies, I think it would be appropriate to include 1 general paragraph explaining the methods employed under 1.1.	Added a brief description of the 5 steps followed in conducting the analysis.
182	1	3	8	This implies that we know about suitable management actions that can be taken. We could add a lot of sediment, I suppose, but that will never happen except on a small scale because of the cost.	Comment does not match the text. Reviewer clarified that comments # 174, 182, 183, and 186 apply to the Part I Overview, and not Chapter 1. The Part I Overview has been largely rewritten, and the Key Findings were removed. The Key Findings are presented now only in the Executive Summary. This comment is the same as comment #262 - see response to comment #262.
183	1	3	9	This would be better as a positive statement. It is virtually certain that there will be a loss.	Comment does not match the text. Reviewer clarified that comments # 174, 182, 183, and 186 apply to the Part I Overview, and not Chapter 1. The Part I Overview has been largely rewritten, and the Key Findings were removed. The Key Findings are presented now only in the Executive Summary. We did not revise this finding because the previous key finding explains the issue of loss, while this finding explains the limited likelihood for new marsh development.
184	1	3	12	Tide range and the relative difference between MSP and NGVD will vary by location.	No Change made. Reviewer is correct. This passage is discussing the Delaware River as an example, after having referred to Map 1.2 which shows tremendous variation. Therefore, no change needed here.
185	1	3	14	Point estimates seem inappropriate for developing 0.5 m increments from 20' contour intervals. There is no information on the statistical methods to allow evaluation of the methods.	Added a paragraph explaining uncertainty analysis.
186	1	4	15	It is a key uncertainty as to extent of loss, but loss of habitat is a certainty!	Comment does not match the text. Reviewer clarified that comments # 174, 182, 183, and 186 apply to the Part I Overview, and not Chapter 1. The Part I Overview has been largely rewritten, and the Key Findings were removed. The Key Findings are presented now only in the Executive Summary. We did not revise this finding because previous findings indicated the likelihood of loss, while the intent of this finding was to indicate the uncertainty associated with the availability of dry land for inland marsh migration.
187	1	5	1	Table - Reformat table to make clearer. Delete "wetlands" from top section and move to "tidal wetlands" - middle. Also insert vertical lines to separate second column.	Moved Text. Comment also forwarded to copy editor and layout editor.
188	1	5	Table 1.1	Rows labelling hard to interpret, meaning of "wetlands ----------…" and "Tidal ----------…" ?	Revised
189	1	6	Fig. 1.3	At the scale shown, it is difficult to distinguish the color zones for dry land vs. wetland. Use a black line to separate the two major classes.	Sentence added referring the reader to the appendices for larger scale maps. Reviewer is correct that at this scale, the details are difficult to discern in most areas--but one can see the broad picture where the areas of wetland or low dry land are large enough. A black line between the two classes would further confuse the picture: such a line would be thicker than the width of the wetlands in many locations, and to some eyes it might be difficult toi discern from the dark purple.
190	1	8	17	define "nanotidal"	New text box added which explains.
191	1	8		Footnote 4: "Erode" is probably not the correct word -- from the context, it appears you mean the dry beach/dune would move inland before becoming inundated by the tides. Consider replacing word with "migrate landward" or "retreat".	Missed this comment during revisions; will consider during final revisions.
192	1	9	12	Indicate that this is the result of historic sea level rise.	OK
193	1	9	1 & 23	The spring tide is not a traditional reference datum, but having chosen to use it, the authors need to be consistent and not use mean sea level as a datum. And, by using this datum, the authors have a tendancy to ignore the submerged part of the wetland and the loss of productivity that will occur from transforming intertidal zones to sub-tidal zones.	Text box added to explain this reference elevation. This reference elevation tells someone directly how much the sea must rise to submerge dry land.. No reference elevation would directly address the implications of sea level rise for tidal wetlands, since one must also know the tide range and accretionary potential. Thus, the implications of sea level rise for tidal wetlands are addressed in Chapter 3, instead of this chapter.
194	1	10	2	This analysis overlooks the subsidence that would occur for overburdening the shoreline to create elevated/buildable areas.	New Table 1.1 includes some limitations of this chapter.
195	1	10	9	The extraction of the 0.5 m increments needs to be explained, based on the data sets available to the authors.	New methods discussion should clarify this issue.
196	1	10	6, 17	First person used -- inconsistent w/ remainder of chapter and report overall.	Editors will decide upon pronouns--but we intend to avoid passive voice.
197	1	10		Note at bottom. There are many other groups, beyond NOAA and NASA, have acquired LIDAR data. In fact, UF-FIU purchased a dedicated airplane and Optech LIDAR in 1999, and have acquired billions of precise elevation points with an accuracy of 15 cm RMS error. The Corps of Engineers has also acquired a large amount of LIDAR data in Florida through consultants, but many of these data are only good vertically to 50cm and sometimes are off by as much as a meter! The University of Texas also owns and operates a LIDAR plane. Not all data are collected at high accuracy. EPA should work with the states who are acquiring the necessary, high-resolution data set for inundation studies in response to sea level rise scenarios. For instance, the State of Florida is presently completing a $20 million LIDAR collect for all coastal areas with a vertical accuracy of 15cm RMS error.	Note Revised

#	Chapter	Page	Line	Comment	Response
198	1	11		I have already commented on Table 1.2 above. Unless sea level rise scenarios of 5 to 10 feet are being considered, then I don't believe that the elevation data are of sufficient vertical accuracy to compile such a table.	See responses to comments 179a-0c.
199	1	11		Change the tables to show beach coast, tidal wetlands and nano-tidal wetlands. If there are other categories, include them. The data do not easily open up to the analysis.	Available publications only distinguish dry land, tidal wetlands, and nontidal wetlands. USFWS wetland inventory project manager confirmed that NWI does not distinguish nanotidal wetlands. The area of beach is small compared to the other categories, and as mentioned, elevations are not a good indicator of expected beach loss due to sea level rise. That is an issue for Chapter 2.
200	1	13	11-15	Is this ratio the most meaningful indicator with rising sea level? As sea level rises, the boundary of spring high water or 1/2 tidal range above SHW will also shift inland. Need therefore to consider the new position of spring high water after a given amount of SLR.	This gives us the ratio of wetland loss assuming that wetlands do not keep pace with sea level rise. Will try to clarify that with additional text in this section.
201	1	13		Since there is no information on the area below the mean spring tide, the area of wetland loss is not provided -- only the area of land that can or cannot be converted to wetland.	In this analysis, all tidal wetlands are below spring high water, so our estimate of the area of tidal wetlands is the estimate of the area of land below SHW. The reviewer is correct, however, that we do not provide the distribution of wetland elevations relative to (for example) the elevation at which they drown. Such a coarse analysis has been conducted by Titus and EPA contractors, but has not yet been published. Thus, the reader should look to chapter 3 for an indication of wetland vulnerability.
202	1	13		Would be great place to mention coastal terraces (see comment above for S-3, 1-10) - their relevance is high, form nice flat surfaces for coastal wetlands to form on.	Researching this issue, but was unable to find enough information to include during this revision.
203	2	0	Overall	Good discussion on coastal processes and morphology for the ocean coast. The threshold behavior criteria seems appropriate. Four sea level rise scenarios are refered to in the text; the historic rate, historic rate + 2mm/yr, historic rate +7mm/yr, and 2m rise over the next few hundred years. The 2m rate of sea level rise over the next few hundred years is probably less than the historic rate +7mm/yr. This high rate is probably too low given the most recent data (referenced on page 2-6). The FAR sea level rise projections did not include any land ice uncertainty component because of the high degree of uncertainty for this measure. That is the reason that the sea level rise predictions are lower in the FAR than the TAR. The observed data since 1990 is following the worst case scenario on the TAR curve (Rahmstorf et. al., 2007). This record is getting long enough that it is becoming hard to argue that this is due to decadal variability. If we see a larger contribution from ice sheet instability in the near future these numbers will go up.	In this report we defined future sea-level rise scenarios based on the IPCC FAR because it represents the consensus of a considerable portion of the scientific community. The FAR states that potential contributions of accelerated ice melting (Greenland and Antarctica) could not be well constrained (see FAR Chapter 10 [Meehl et al., 2007], and Summary for Policy Makers), and thus limit the prediction of future sea-level rise. We acknowledge the published criticism of the FAR by others in the scientific community, and describe in the text that these may be low estimates if ice-melt accelerates. Note also that there has been some discussion of the methods used by Rahmstorf et al. in the paper cited by the reviewer. See Holgate et al. Science 317, 1866b (2007), doi 10.1126/science.1140942; Schmith et al. Science 317, 1866c (2007), doi 10.1126/science.1143286; and Rahmstorf et al. Science 317, 1866c (2007), doi 10.1126/science.1141283.
204	2	0	Overall	Doing a quick check on sea-levels-on-line show that the tide gage measurements from the mid 70s to 1999 are higher than the longer records for the mid Atlantic (Chesapeake Bay bridge 7.01mm/yr, Colonial Beach 5.27 mm/yr, Lewisetta 4.85 mm/yr.) This might indicate that the sea level rise rates may already be at or higher than the +2mm/yr, and that the 3.1mm/yr global sea level rise measurements since 1990 are accurate. The point is that I think that the scenario numbers are too low. There is no data on estuarine shorelines in chapter or elsewhere in the report. If the estaurine shorelines are the areas most likely to be hardened, there should be some information on erosion rates, landforms (bluff, beach, etc.) or identify the lack of information as a future research need.	Studies of long-term sea-level rise using tide gauge data advocate using records of at least 60-70 years in length (Douglas et al., 2001). Recent work also point out that the linear rate is highly dependent on the length of record that is used (Jevrejeva et al., 2006); linear rates over shorter time periods might not truly reflect the long-term sea-level rise. The IPCC review of sea-level rise observations utilizes tide gauge observations over the last century (1900-1999) to characterize long-term global sea-level changes (Bindoff et al., 2007). Shorter-term rates from satellite measurements are reviewed, but it is specified that it is unclear if these rates are part of a longer term trend or a shorter-term oscillation in response to ocean circulation or climate fluctuations. For this report, we use long-term rates published by NOAA (Zervas, 2001) as described in the text. Bindoff, N.L., J. Willebrand, V. Artale, A, Cazenave, J. Gregory, S. Gulev, K. Hanawa, Le Quéré, S.
205	2	0	Overall	need an evaluation of the estuarine shoreline (maybe in a different chapter) that includes shoreline type, erosion rates, other.	It was decided early in the preparation of this SAP that we could not fully address estuarine shorelines, and this possibility is mentioned in the Prospectus. There is a wide range in the age and quality of information available. In some cases, the available information was at least two decades old and based on methods that are now considered to be out of date for accurate depiction of long-term shoreline changes (e.g., inclusion or exclusion of storm-influenced data; rate of change statistics based on end-point vs. regression techniques; source data of variable quality [Crowell et al., 1991; Dolan et al., 1991; Fenster et al., 2001; Honeycutt et al., 2001). In other locations (e.g., Maryland, at http://shorelines.dnr.state.md.us/), there have been efforts to make shoreline data available so that shoreline change rates can be calculated, but this is largely work in progress and has not been published in peer-reviewed literature. In addition, information (published shoreline change rates) was not readily available for large portions of estuarine and inland waterways. We have pointed out the need for better baseline and environmental change data in Part VI of the report. Crowell, M., S.P. Leatherman, and M.K. Buckley, 1991: Historical shoreline change; error analysis and mapping accuracy. Journal of Coastal Research, 7, 839-852.
206	2	0	Overall	Re-name "coastal zone processes"	As a result of this comment, the lead authors considered a number of potential alternative titles, including the broad title 'Coastal Processes and Landforms on the Ocean Coasts of the mid-Atlantic Region'. Further consultation with an editor familiar with other CCSP reports suggested the brief form is sufficient.
207	2	0	Overall	Descriptive statements are qualitative at best - regarding land forms and processes. Section 2.8. Potential changes… bolded statements e.g., "very likely," "likely," etc. needed to be justified. What are the criteria used to arrive at these conclusions?	The assessment reported in this chapter was achieved through consensus reached by the scientists that were consulted for this report, according to the guidelines for determining likelihood put forth by CCSP. The likelihood scenarios that we use in this report and how they were determined are discussed in the Preface section of the report. Those relevant to Chapter 2 are reviewed in section 2.2.

#	Chapter	Page	Line	Comment	Response
208	2	0	Overall	As indicated elsewhere, this chapter should be renamed "Coastal zone processes" or "Coastal landforms and processes"	Response to comment 206 above is reproduced here. As a result of this comment, the lead authors considered a number of potential alternative titles, including the broad title 'Coastal Processes and Landforms on the Ocean Coasts of the mid-Atlantic Region'. Further consultation with an editor familiar with other CCSP reports suggested the brief form is sufficient.
209	2	0	Overall	This Chapter provided interesting general predictions of the potential responses of particular coastal landform types to sea level rise. But the responses will be to the physical processes of storms waves and currents enhanced by sea level rise. Section 2.7 articulated that nicely.	Noted.
210	2	0	Overall	Cross-reference to general comment provided for overall report: The text in Overview I that corresponds to this chapter should be developed or rewritten by the author(s) of this chapter. Regardless of whether my comments below on Section 2.5 are incorporated, the text that appears in Overview I is not completely consistent with this chapter in terms of organization, points of emphasis, and some factual info. The author(s) here are best suited to take the chapter content and condense it to something appropriate for the Overview.	The Part I Overview has been revised to reduce overlap and any discrepancy with the succeeding chapters. The description of coastal processes and factors important to coastal landform development are discussed briefly in the overview.
211	2	0	Overall	Recommend reordering the sections slightly. 2.3, 2.5, and 2.6 should be together, as they describe the physical environment and key geological processes. 2.4 on 20th century SLR rates seems as though it should follow that info, and would then immediately precede 2.7, which describes potential responses to SLR.	The text was re-organized as suggested.
212	2	0	Overall	Recommend adding a conceptual diagram that shows key processes explained in Section 2.5, especially sediment budget. Something equivalent to Figures 3.1-3.2 would be helpful, and break up the text.	We were unable to develop an adequate figure in the time between expert review and public review. We agree with the suggestion and will pursue this avenue during subsequent revision.
213	2	0	Overall	Suggest revising subsection titles for 2.7 and 2.8 to make it clear that the former describes the physical environment's response to SLR, while the latter deals with human actions.	Section 2.7 is the description of potential physical responses. Section 2.8 is the assessment of the potential for these responses in the mid-Atlantic.
214	2	1	11	I have already commented on this problem above in Part I. It seems that all journal articles are judged to be of equal merit. This is like saying that the truth is the average of good and bad science. The problem that Pilkey and some others have with the work by Leatherman et al is that they really don't understand it. The point is that sea level rise is causing an underlying or background rate of sea level rise, but, of course, other things can overpower or conceal this impact.	We agree that sea-level rise impacts can be subtle compared to other factors along the ocean coast, and have described this situation in the introduction to this chapter. We have removed the reference to Pilkey et al. (2000) that the reviewer identifies, as well as the related articles. The point we are attempting to make with these references is that there is a lack of consensus in the coastal science community regarding the role of sea-level rise, storms, sediment availability and other factors in long-term shoreline change. We believe that the SAP should communicate that scientists have a reasonably clear conceptual idea of what potential future changes may be, but providing discrete, useful answers is not straightforward. As the reviewer notes, elucidating the connection between sea-level rise and shoreline retreat has been very difficult. We agree.
215	2	1	11 cont	For instance, beach nourishment projects where the foreshore is extended several hundred feet seaward can offset many decades of sea level rise induced losses. If a beach is eroding at 5 meters per year, such as downdrift of the Ocean City, Maryland inlet jetty, then clearly the sand starvation caused by engineering structures overwhelms any losses caused by sea level rise (but it does not mean that they are not occurring). This report does not truly evaluate our state of knowledge of coastal science, nor provide a good context for that understanding.	The chapter describes what the group of authors and contributors believes will be the important operative processes affecting the ocean coasts over the next century, based on an extensive review of relevant literature and consensus expert opinion. The reviewer suggests above that sea-level rise-induced losses are difficult to quantify. The same can be said of a beach nourishment project: it is not possible to identify what portion of a nourishment project is offsetting sea-level rise-induced losses and what portion is offsetting erosion due to other processes (e.g., long-term sediment deficit, human modification, etc.).
216	2	2	26	Editorial: Correction citation is Honeycutt and Krantz, 2003 (not Honeycutt et al.)	Corrected.
217	2	3	Overall	Section 2.8 may be the most important and most controversial section the entire report. The 'potential' responses to the physical processes being enhanced by sea level rise that will alter specific landforms/areas along the mid-Atlantic coast are mapped (& identified to a degree). This is going to gain the eye of the public, property owners and planners.	Noted.
218	2	4	6	Is the author referring to an appendix to the Gutierrez et al. report, or Appendix H of this report (titled, "Projecting Shoreline Change")? Please clarify.	Text modified to refer explicitly to Appendix H of this report.
219	2	4	7	Great line! Appreciate note that "Shore protection is often the antithesis of shorline preservation."	This comment was referred to the PartII Overview authors as it addresses that chapter.
220	2	4	8	Add: "…the 20th century regional rate (the local relative rate) of 3mm/yr…"	The phrase has been modified.
221	2	4	9	Editorial: I believe the author means "elusive," not "illusive"	Corrected.
222	2	4	13	Delete or replace the word "come" in: "Part II is a discussion of the come choices that society…"	This comment was referred to the PartII Overview authors as it addresses that chapter.
223	2	4	7-9	…"four sea level rise scenarios," "a sea-level rise of 2m…?" The preface and exec summary only list 3.	Section 2.2 has been modified to indicate that the chapter 2 assessment relies on the three sea-level rise scenarios presented in the Executive Summary, Preface, and Context Chapters, but also includes a 4th scenarion that considers a 2-m rise over the next few hundred years.
224	2	5	18 to 20	Generally section is very clear and straightforward in helping the reader understand the concepts presented. Explanation that where shore protection is very unlikely, means Shore Retreat is well done.	This comment was referred to the PartII Overview authors as it addresses that chapter.

#	Chapter	Page	Line	Comment	Response
225	2	6	12 to 13	See previous comment on I-8, line 14.	In this section (2.6 Twentieth Century Rates of Sea-Level Rise) our intention was to indicate that relative sea-level rise in the mid-Atlantic region is the result of eustatic sea-level rise as well as regional subsidence which has been attributed to several causes, such as glacio-isostatic adjustment of the earth's crust (Peltier, 1994), groundwater withdrawal (Davis, 1987; Braatz and Aubrey, 1987), and tectonics. Davis (1987) specifically suggested that head decline in coastal plain aquifers in several regions of the eastern United States (southeastern, VA; Dover, DE, and Atlantic City, NJ) has contributed to land subsidence and increased rates of relative sea-level rise. We also recognize that there is some scientific work that identifies groundwater related land subsidence as a localized phenomenon, such as near Cambridge, MD (Kearney and Stevenson, 1991). We disagree with the reviewer's suggestion that the region surrounding the Cape Fear arch is a stable region in comparison to the Chesapeake Bay region. Several studies have suggested that this region is undergoing uplift (Brown, 1978; Braatz and Aubrey, 1987; Marple and Talwani, 2000). Braatz, B.V. and D.G. Aubrey, 1987: Recent relative sea-level change in eastern North America. In: Sea-Level Fluctuation and Coastal Evolution [D. Nummedal, O.H. Pilkey, and J.D. Howard, (eds)]. Society of Economic Paleontologists and Mineralogists, Special Publication 41, 29-48. Brown, L.D., 1978: Recent vertical crustal movement along the east coast of the United States. Tectonophysics, 44, 205-231. Davis, G.H., 1987: Land subsidence and sea-level rise on the coastal plain of the United States. Environmental Geology, 10, 67-80. Emery, K.O. and D.G. Aubrey, 1991: Sea Levels, Land Levels, and Tide Gauges. Springer-Verlag,
226	2	8		In section 2.5, I think the discussion on the role of the geologic framework misses the mark somewhat in terms of the key processes and impacts. Starting with the 4th sentence (line 10), the text goes into detail on the tectonic controls and issues related to active versus passive margins. While important at a broad scale, the key points of the papers referenced (Belknap and Kraft; Riggs et al.; Schwab et al.) concern the more the local/regional effects, which are going to be more relevant to the impacts of sea-level rise over the next century. Specifically, the framework can control (1) the type and abundance of sediment available to the littoral system; (2) the erodibility of sediments (and thus shoreline retreat rates; also Honeycutt and Krantz, 2003); and (3) the location of features, such as inlets, capes, shoals/sand-ridges, etc. If you revise this initial framework text to explain these controls, you'd set the stage very well for the rest of the subsections in 2.5 (Sediment Supply, Physical Processes, Human Impacts) and chapter sections (especially 2.7).	The reviewer raises a valuable point and we have incorporated this perspective into section 2.5. The text has been revised to describe that the geologic framework includes both large-scale influences as well as smaller-scale influences.
227	2	9	2	Delete "of" and in: from "of far-away" disturbances.	Corrected.
228	2	10	14	What is the volume of sand used for beach replenishment today?	Answering this question is outside the scope of the SAP. We do note, however, that previous studies of the U.S. beach nourishment experience have noted the difficulty in accounting for all sand placed on beaches (e.g. Pilkey and Clayton, 1989; Pilkey and Dixon, 1996; Leonard et al.1990; Valverde et al., 1999; Trembanis et al., 1999). Pilkey, O.H., and Clayton, T.D., 1989:, Summary of beach replenishment experience on U.S. East Coast barrier islands. Journal of Coastal Research, 5, 147–159. Pilkey OH, K.L. Dixon , 1996: The corps and the shore, Island, Washington, District of Columbia Valverde, H.R., A.C. Trembanis, and O.H. Pilkey, 1999: Summary of beach nourishment episodes on the U.S. east coast barrier islands. Journal of Coastal Research, 15 (4), 1100-1118. Trembanis, A.C., O.H. Pilkey,and H.R. Valverde, 1999: Comparison of Beach Nourishment along the U.S. Atlantic, Great Lakes, Gulf of Mexico, and New England Shorelines. Coastal Management, 27(4), 329-340. Leonard, L., K.L. Dixon, and O.H. Pilkey, 1990; A comparison of beach replenishment of the U. S. Atlantic, Pacific and Gulf coasts. Journal of Coastal Research, SI 6, 127-140.
229	2	11	fig 2.1	No assessment of estuarine shoreline	See previous response to comment 205.
230	2	12	4	Add specific compartment #s where matches are found: e.g. (Sandy Hook, NJ Figure 2.1, compartment 4) and Delaware Bays (Cape Halopen, DE, compartment 15).	The coordination between the text and figures has been reviewed and revised to minimize confusion.
231	2	12		For Section 2.6, consider adding a simple graphic that illustrates the various coast types; this might allow the text to be trimmed.	Added photographs to Figure 2.1 for each coastal type.
232	2	13	25, 18	compartment 2) remove "3" if map is correct--add later to mixed canopy.	The text has been revised to identify compartment numbers consistently and clearly.
233	2	14	1	Map and text don't always match. Text could refer more frequently to compartment #s given on map. Errors between map and text for compartments 10 and 3.	The text has been revised to identify compartment numbers consistently and clearly.
234	2	15	19	It has not been proven that hurricanes have become more powerful as linked to greenhouse warming. In fact, there is new evidence (and a refereed journal article that reports) that global warming will result in more wind shear that will tend to tear developing hurricanes apart, lowering their power, perhaps below today's levels. There is also no mention of the Atlantic Multi-decadal Oscillation (AMO), and the natural 20-40 year cycles of hurricane intensity.	We have added this reference (Vecchi and Soden, 2007). We also review some of the recent findings that discuss the possibility and specify that the issue is currently the subject of debate. Note that SAP 3.3, which is forthcoming, addresses the issue in greater detail.

#	Chapter	Page	Line	Comment	Response
235	2	15		While I agree that inlet formation 'may' become more prevalent in selected locations, the examples of recent inlet formations on page 2-15 are not necessarily related to sea level rise. Inlet formation may not always necessarily be adverse: estuary and bay water quality, along with the health and abundance of marine organisms may actually improve.	We acknowledge that this could be stated more clearly and have modified the text to reflect this. We do not mean to imply that inlet formation is an adverse phenomenon, but that it is a natural process that will contribute to shoreline changes as sea-levels rise.
236	2	15		The vulnerability of Assateague Island NS is not due primarily to sea level rise, but to human activity (jetties). As a result, it 'may be' at a threshold but due to both human activity and future accelerated sea level rise. Thus, human activity may be on par with sea level rise in determining the future response of barriers: too much emphasis on sea level rise 'alone'.	We acknowledge that this is an important distinction and have added text to this section to make this distinction more clearly.
237	2	16	2	Editorial: Delaware abbreviation is DE, not DL.	Corrected.
238	2	17	23	Fitzgerald, 2006, is not in the references.	Corrected.
239	2	17		The entire analysis in Section 2.8, while conducted by respected professionals, appears to be qualitative only, based solely on physical dimensions (p. 2-17, line 14-15), not quantitative as stated (p. 2-21, line 16). Importantly, the process or analytical methods that arrived at the conclusions resulting in mapping the degree of vulnerability (i.e. Figure 2.5) are not described.	We revised the wording to reflect that our analysis is based on the consensus opinion of a group of experts. The preface of the SAP also more clearly states how the likelihood terms used in these report were formulated.
240	2	17		Policy makers may find qualitative analyses useful to generate broad statements of long-term goals for action on particular types of coastal landforms, but I suggest if on-the-ground actions by planners and regulators to manage high hazard areas, they require 'quantitative' analysis to be back-up in a court of law after management and/or regulatory decisions are rendered.	One of the major points made by this SAP is that the kind of quantitative analysis the reviewer desires is simply not possible at this time. Part VI of the report describes a number of opportunities for basic and applied research, data-gathering, and decision support that could improve management and regulation development in the coastal zone.
241	2	17		Identifying areas that are at or approaching a 'threshold' of collapse can be alarming, and should be based on a quantitative analysis. However, as articulated in the Fire Island case study (Appendix H), various existing quantitative predictive approaches are not necessarily in agreement. Thus, Figure 2.5 (summarizing the results of the analysis) may be best used to suggest areas for in-depth future research.	The term collapse has been replaced with segmentation. We agree that areas identified as potentially at a threshold require more study. Part VI of this report suggests opportunities for research and assessment that would identify topical and/or geographic priorities.
242	2	18	Box	This is good information, which could be further enhanced for full understanding of coastal processes and geomorphology. The only place that we actually document barrier island disintegration is in the special case of barrier islands that have developed on a rapidly subsiding deltaic plain that contains mostly fine-grained sediments. This is important to remember when later wholesale statements are made about the Outer Banks of North Carolina disintegrating based on speculation. Figures 2.2 and 2.3 are excellent—more real data needs to be presented in this report.	Noted.
243	2	18	Text Box	See previous comment for I-2, 23 to 24	The term collapse has been changed to segmentation, and we have revised the text to clarify the role of sediment deficit in Assateague Island evolution.
244	2	18	Text Box	Last sentence - although correct since long-term success isn't known yet, it should be noted that initial results following several years of restoration work are very promising from a sediment volume and geological perspective (getting things "right" for piping plover though may be more of a trick, however that's a bit unfair, since destabilized condition actually created optimal habitat for that species [and several other rare species]) Assateague Island NS website, 2007)	We acknowledge the reviewer's point, but we feel it is too early to judge the long-term success of present management practices.
245	2	18	Text Box	Principal analogue of great value: uncertainty over Barrier Island form or even whether they existed along Mid-Atlantic prior to ~5 Ka, thus indicating that great threshold was crossed as rate of sea-level rise slowed in mid-Holocene (e.g., Hine and Snyder).	The reviewer raises an interesting point. However, the concept the reviewer refers to cannot be directly cited from the existing peer-reviewed literature.
246	2	22	3-7	On what basis are these probabilities assigned (e.g., "very likely," "likely"). These terms carry fairly precise values as listed in the preface (P-5, Table)	The terms used were assigned by the group of experts who participated in the preparation of this chapter and related material, and follow the CCSP guidelines for expressing uncertainty. The preface of this report has been revised to more clearly state how the likelihood terms are used in the report.
247	2	23	fig 2.5	What methods were used to determine slr responses? What data used (elevation? barrier width? other?)	The assessment reported in this chapter was achieved through consensus reached by the scientists that were consulted for this report, and follow the CCSP guidelines for expressing uncertainty. The likelihood scenarios that we use in this report and how they were determined are discussed in the Preface section of the report. Those relevant to Chapter 2 are reviewed in section 2.2.
248	2	24	4 to 5	Authorized project life for Assateague Long-Term Sand Management is 25 years; beyond that no project is guaranteed (and even during that time period, if adequate funding isn't received actual sand volume moved/placed may be substantially less than needed to maintain island geologic integrity)	We agree with the reviewer's comment, which emphasizes the caveat that we communicate at the beginning of section 2.8; that it may be incorrect to assume a long-term commitment to erosion mitigation efforts.
249	2	24		Bold statements, same applies here.	See response to comment 246.
250	2	30	1, 4	Editorial: Honeycutt references should be M.G., not M.R.	Corrected.
251	2	35	9	The papers by Sanders and his students (Kumar and Rampino) about an ancestral Fire Island being drowned in-place have been totally debunked by Panateagou and Leatherman (1986), Leatherman and Allen (1985) and Schwab et al (2000).	Reference to Kumar and Sanders (1975) was an editorial mistake and has been removed. We do not discuss barrier drowning in-place (and as an aside, agree with the reviewer on the basis of the studies the reviewer cites).
252	3	0	Overall	The chapter presents the general processes affecting wetland development, migration and sustainability in a text book manner. The descriptions seem fine and the conclusions seem logical. What is missing is any depth in evaluating existing data and interpretation of these. Perhaps, an in-depth evaluation is not the intent of this chapter and, if so, then the chapter does a good job of describing the situation. However, an in-depth evaluation in an appendix should be considered.	TEXTBOOK MANNER: To improve the readability of the text, especially for the non-technical reader, additional introductory sentences/paragraphs were inserted at the beginning of most paragraphs/sections in the first half of the chapter. IN-DEPTH EVALUATION: The text presents a general overview of the issues on a national scale, but an in-depth analysis is provided for the mid-Atlantic region by the expert opinion approach. See Text Box 3.1 for an explanation of the data used, which includes 88 published accretion rates and sea-level rise trends from all NOAA tide gauges in the region. No change was made to the text.
253	3	0	Overall	Gives a good overall picture of the processes involved and that must be considered to predict what will happen. Again some of the statements could be more positive. The chapter summary is good.	The improvements in the readability of the text also included incorporating a more balanced tone.

#	Chapter	Page	Line	Comment	Response
254	3	0	Overall	My recommendation would be to overhaul the document completely. I found Chapter 3 to be a fine summary of the science of wetland response to rising sea level, but the end result is an admission that we don't know enough to predict the response of wetland ecosystems to long-term sea level rise on a large scale. There is too much uncertainty in the geomorphological response of shorelines. So while Chapter 3 is well written, there is little actionable information. In fact, maybe what is so frustrating is that this report recommends doing things that scientists are already doing (see above), but makes no real policy or management recommendations for wetland ecosystem preservation.	The section Models and Validation Data was rewrittened to emphasize what actions could be taken to improve landscape scale modeling efforts and long-term predictions of wetland sustainability. Beyond describing information and data needs, CCSP guidance constrains us from making specifc management recommendations and policy statements.
255	3	0	Overall	Some citations include page numbers which differs from previous chapters. These seem unnecessary unless the reference is to quoted text. Also this style is mixed with citations without page numbers.	The page numbers were removed from the ctiations in the text.
256	3	0	Overall	Again, I feel there is a need for a fuller presentation and evaluation of the data. What is presented seems good and certainly greatly informed me about the potential effects on wetlands. However, there seems to be some 'meat' and critical review missing. Some of this comes out in some of the appendices and perhaps some reference to these is all that is needed.	See response #1 above. The critical review is provided in the expert opinion synthesis and assessment.
257	3	1	5 to 6	After "…a 2 mm/yr acceleration" insert in sentence: "above the 20th century trend of 3 mm/yr (one foot per century)" so that it is understood/recalled by reader that an approximate 5 mm/yr total is meant.	We agree and have replaced the word current with "20th Century trend or rate".
258	3	1	7 to 8	After "a 7 mm/yr acceleration" insert "above the current trend" or "above the 20th century trend"	We agree and have replaced the word current with "20th Century trend or rate".
259	3	3	1 to 7	Suitable topography not mentioned (e.g., Oertel and Woo, 1994) and terraces could again be mentioned!	The role of suitable topography is described in the last line of the previous page.
260	3	3	Figures 3.1 & 3.2	The information provided by the arrows in these two figures is redundant. Suggest deleting arrows from Figure 3.1 and instead show wetlands evolution figure (separate attached powerpoint file).	We opted to keep the present figure because it shows the factors influencing both horizontand vertical evolution, rather than only the horizontal evolution shown in the suggested replacement figures.
261	3	8	11	I agree that we need detailed data as stated, but - the uncertainties about the effects on climate (or weather), sediment supply and especially on the social responses to these changes brought about by sea level rise, make it likely that models are likely to be little better than expert opinion. This is not to say that the modeling should not be pursued, only that it must be considered in light of all other inputs.	We agree. Each type of model requires specific assumptions to be made regarding future climate, sediment supply, and societal responses. We think this issue is apparent in the descriptions of the various modeling approaches.
262	3	8	23	Again this suggests that we know what to do, how to do it, and have the will and money to do it!!	It was not our intent to suggest this. The last part of the sentence has been revised to read, "…unless management/restoration actions are taken that can alter current trajectories."
263	3	8	24	I would change "very unlikely" to "exceptionally unlikely", or, preferably, certain that there will be a decrease in tidally influenced wetlands	We decided to keep the phrase "very unlikely" because of the possibility of wetland formation as uplands are flooded.
264	3	8	17 to 18	While question is interesting, I don't think lack of accurate predictions is an important factor limiting society's ability to make decisions. See S-7, 6 to 9 comment.	Question: "Given the limitations of current predictive modeling approaches, what can we say and with what confidence can we generalize about future wetland sustainability at the national scale?" This is an important question that should be addressed in this report. Our directive under Synthesis and Assessment Product 4.1 is to synthesize in this chapter the current knowledge of wetland vulnerability to sea-level rise and assess the future impacts of sea-level rise on the Nation's wetland ecosystems. We agree that decisions can be made with any level of understanding of an issue. But more and better data on an issue leads to better informed decisions.
265	3	8	9 to 10	Tangent here. A dilemma. Inherant in most ecological work is presumption that natural processes and changes are "good." Accordingly, I don't know that we need to forecast with great accuracy what inventory (i.e., acreage) of future coastal wetlands will be in settings where the change is largely driven just by sea-level rise (which is still primarily a natural phenomen, not anthropogenic). If mother nature would cause losses/gains over decades to centuries, that's "okay." Otherwise, we place ourselves in position of being ecosystem engineers on a regional scale trying to maintain a particular inventory, regardless of whether it would be created and sustained by natural processes. Instead, it is those losses that would be anthropogenic that are arguably the ones that are "unacceptable" and requiring management intervention.	It is our job to provide in this chapter the best available information on how salt marshes respond to sea-level rise. The dilemma you describe is one society faces when deciding how to use this information. We are not advocating how society should use this data, merely that decisions be made based on the best available data.
266	3	9	9 to 10 cont	Or, if we decide that it's humanity's right to determine what inventory is appropriate, it will get us into the situation of ecosystem engineering begetting more ecosystem engineering where we run the risk of creating systems requiring continuous engineering to maintain that are not naturally sustainable. We can make that decision though, of course, since it's the the Anthropocene Epoch.	See above.
267	3	9		The evaluation that collection of data would be too expensive is not supported here. The reliance on models (without the necessary data) and experts (without the necessary data) seems wrong. Without sufficient data the models will have large errors and the experts will argue or be refuted by other experts. If data are required to solve the problem then the report should say so. If the problem is sufficiently important then the funds spent getting the appropriate data may be trivial.	Agreed. We revised the text to read as follows: "To scale up site-specific model outputs to a national scale with high confidence, we need detailed data on the various local drivers and processes controlling wetland elevation across all the tidal geomorphic settings of North America. Obtaining and evaluating the necessary data would be an enormous and expensive task, but not a totally impractical one. It would require substantial contributions from and coordination with various organizations, both private and government, to develop a large, query able database. Until such a database becomes a reality, current modeling approaches need to improve or adapt such that they can be applied across a broad spatial scale with better confidence. "
268	3	11	Text Box	I think that contention that increased salinity will cause increased decomposition rate is correct in only limited settings, ones I'm aware of where this is true are where coastal wetlands transgress over peatlands (sensu lato), such as on margins of Blackwater (former peatlands - Cahoon current work [although he wouldn't call them peatlands, but I think they fit that HGM-wise]) or along sounds of N.C. (pocosins, Atlantic white cedar swamp, etc.). In estuarine and deltaic settings, there are substantial areas where coastal brackish and salt marsh overlie deposits of less saline to even freshwater systems, indicating that those earlier deposits retained enough "umph" to support development of these ecosystems on top of them.	We agree that salinity effects on decomposition rate vary among settings, and we describe those settings where the effects are most likely to occur. The fact that relict fresh marsh peat can be found underlying salt marsh peat does not mean that the fresh marsh peat has not compacted or was not subject to early diagenesis. The citation Glodhaber and Kaplan specifically mentions conditions under which sulfate metabolism becomes important.
269	3	12	Text Box	Minor point, but shallow water habitat formed over drowned coastal wetland peats may be prone to hypoxia in settings with restricted circulation.	True, but the point of this paragraph is how sea-level rise may affect wetland sustainability, not the quality of open water habitat that may result from wetland loss. No change to text was made.

#	Chapter	Page	Line	Comment	Response
270	3	14	12 to 14	Would be appropriate place to again mention terraces as control on availability of suitable terrain for coastal wetlands to migrate onto.	This issue is addressed in Chapters 1 and 5.
271	3	15	4	Estuarine meander settings (sensu Darmody and Foss, 1978) probably occur locally in all these major geomorphic regions; I don't think you need to explicitly state that these are restricted - can omit that.	We report here the findings of the expert panel as described in Reed et al. (2007). We have not explicitly excluded any information.
272	3	15		Wetland responses are complex! I have seen data from the 1700ha PSEG salt hay farm restoration in Delaware Bay where the site before restoration was mostly 150mm below the level at which S. alterniflora was growing outside the site. There was no filling of the site aside from the sediment loads that came in from the Bay with the tides. But in ten or eleven years in considerable areas in the site had gained 150mm in elevation. The highest areas had gained 400mm while some areas had lost 100mm. We are seeing here a lot more sediment gain and loss than the 3-4 + 7mm used as the high rate of sea level increase. These changes have not been modeled and there is not the hydrology data necessary to do so. But this case does illustrate the complexity of understanding how wetlands may respond.	This is an excellent example of the point we are making here. If reviewer will provide us with a reference for this example, we will gladly cite it!
273	3	16	Table 3.1	Divide columns below each estuary into 3 subcolumns to allow reader to more clearly determine which result accompanies each scenario; I drew lines in with a pen to help me think table through.	Table was revised and subcolumns were added.
274	3	16		Table needs more explanation such as the difference between multiple different letters with and without commas, multiples of the same letter, and multiples of different letters.	Table was revised and subcolumns were added.
275	3	17	22 to 26	Management implications here a tricky topic - are we advocating undertaking measures (including engineering) to attempt to maintain a fixed inventory of coastal wetlands if mother nature would not do so and if these are non-self sustaining in the Anthropocene Epoch under heightened sea-level rise rates?	No, we are not advocating how society use the data from this chapter. See response to precious comments #265 and #266.
276	3	18	5-7	Seems to put the collection of necessary data in the hands of local managers after earlier stating that data collection would be too expensive. This seems to side-step the question of the need for the appropriate data. Is a potential hodge-podge of local studies with different methodologies really what will be best?	The intention here is just the opposite of what you describe. We are warning against applying coarse, landscape scale model outputs to the local scale. The site-specific mechanistic models provide excellent data at the local scale. However, scaling a site-specific output to the landscape scale is very difficult. It would require site-specific data across a broad landscape. So collecting local data at more locations will help overcome this scaling problem and improve projections. What is needed is a plan to collect such data in a comprehensive and systematic way across a broad landscape, which will be difficult and expensive as explained in our reponse to comment #267.
277	3	18	18-19	Chowan and Roanoke Rivers are listed as draining into the Albemarle Sound; and the Tar and Neuse Rivers for the Pamlico Sound. Suggest editing to orient rivers include Chowan etc. Otherwise consideration should be given to other notable rivers such as: Perquimans, Little River, Pasquotank, Pungo, Pamlico and Trent.	The sentence was revised to read as follows: "Principal flows to Albemarle Sound are from the Chowan and Roanoke Rivers, and to Pamlico Sound from the Tar and Neuse Rivers. "
278	3	19	22	Minor point, but trees fail to reproduce as salinities increase. Adult trees can often hang on for many years beyond conditions that would allow successful reproduction of new trees.	The sentence was revised to read as follows: "…and most trees and shrubs have restricted growth **and reproduction** at much lower …..
279	3	20	8	Fabulously good read Spaur and Snyder (1999) covers wetland evolution over last few thousand years at one site that may provide useful supporting analogue for forecasting future if current rise rate continues. Also, note that Spaur and Snyder (1999) poked at topic of Outer Banks evolution and impact on coastal wetlands in area.	We added this citation to the text.
280	3	23	2 to 23	I don't agree with this "more study" recommendation (previous comment S-7 6 to 9)	We understand your point, but the issues of political and public will are beyond the scope of this chapter.
281	4	0	Overall	The chapter concentrates on habitats and the species in them but does not really deal with the interrelationships between habitats and the species in them. That is, if one habitat replaces another, how might this occur temporally and spatially and how would this affect the species? Many of the species listed use mulitple habitats so the replacement of one habitat or changes in the relative sizes of the different habitats are likely to have complex effects. This will depend on what life-stages of the species are linked to particular habitats and the interrelationships among the species. Shoreline protection also can have linked effects among the different habitat types and the species that move among them. By considering each habitat type on its own the problem is over-simplified. If the question is species vulnerability then an alternate approach of focusing on species rather than habitats might be better.	This chapter is a simplification of the interactions, in order to identify primary impacts in a relatively short amount of text. A paragraph explaining these limitations has been added to the chapter's introductory text.
282	4	0	Overall	Does a good job. Summary is fine.	No response required.
283	4	0	Overall	Chapter 4 is interesting, but once again, it is completely hypothetical. I did learn some things about species that may be impacted by SLR, but it is all dependant on the outcomes of the very difficult to predict changes to the physical environment. So the chapter provides food for thought, but I think that the public could be misled on the scientific certainty of the guesswork.	No response required.
284	4	0	Overall	There really is no data evaluation in this chapter. It mostly reports on and uses rather general descriptive work and projects from this.	The chapter is intended as a survey and combines data on physical processes with available ecological information.
285	4	0	Overall	Overall, this is the weakest chapter in the report. I reads like a field guide and seems based on general texts and descriptions rather than evaluating the extensive ecological literature on these habitats and species. In other chapters the complexity of the problem is clearly presented, but this chapter seems to gloss over the complexity of habitat change on the many species linked to these habitats. Highlighting what we know and what we don't know is critical if this topic is to have any credibility. Part VI calls for more ecological studies and this needs stronger support from this chapter.	This chapter is a simplification of the habitat-species interactions, in order to identify primary impacts in a relatively short amount of text. A paragraph explaining these limitations has been added to the chapter's introductory text.
286	4	0	Overall	General comment. It is important to include the scientific names of species since common names can vary regionally with different species having the same common name and many species having more than one common name.	We have compiled a table of scientific names for Chapter 4.

#	Chapter	Page	Line	Comment	Response
287	4	0	Overall	General comment. Use of footnotes is not consistent with previous chapters. This is not a standard way of referencing in the scientific literature and in most scientific reports.	This has been edited to be consistent with other chapters.
288	4	3	1	"ocean's edge" poor word choice. These wetlands typically are many miles from the ocean proper, thus "bay edge" or something comparable would be better. Or, could instead just emphasize direct access via water to ocean.	Text edited to note that "direct connection to the ocean" is the condition.
289	4	3	3 to 14	For fairness, it should be noted that many of these benefits are produced by regularly-flooded tidal wetlands to greater extent than irregularly-flooded tidal wetlands.	We have added a brief discussion of flood pulses to the end of the paragraph.
290	4	4	14	Terraces could be mentioned again here (see previous Spaur comments).	Effect of slopes between terraces noted.
291	4	5	10-14	The references cited might be updated to reflect more recent work on trophic relationships	Additional newer references added.
292	4	6	6-9	Awkward wording, L 8 - herring	Sentence reworded.
293	4	7	8	other killifish	Edit made.
294	4	7	fn	Two footnotes are identical - Erwin et al.	Addressed with footnote style change.
295	4	8	18	"degraded" poor word choice. If natural erosion causes loss, we have to generally presume from ecosystem perspective that this loss is inherently "good" thus loss is NOT "degradation." Instead, it is the loss of replacement habitat opportunities caused by people that is "bad." Also, over decades and centuries, mother nature would not maintain a fixed island habitat inventory; there would be periods of time where bird species dependent on islands would naturally do better and vice-versa.	Degraded was changed to reduced, since both "natural" and anthropogenic losses are included.
296	4	9	8	"requirement" for high sediment inputs is incorrect. There are also tidal freshwater swamp forests in areas with VERY low sediment inputs - any such system occurring along a Coastal Plain Blackwater stream system would likely have low sediment inputs. However, tidal freshwater swamp forests do also occur in brownwater streams which do convey greater sediment loads.	Reference to sediment requirements eliminated due to variety of forest types.
297	4	9	20 to 22	Could also mention Atlantic white cedar, since that occurs in sea-level controlled settings along Barnegat Bay, NJ, NC Sounds, etc.	Sentence on Atlantic white cedar swamps added.
298	4	10	14	There is some neat, but limited, historical documentation on these sites for Maryland - they were apparently abundant on the bayside of what is now Ocean City, Md. and occupied perhaps several hundred acres (Shreve et al., 1910). Now we're down to just acres in Maryland, and they're low quality.	Agreed that this is interesting history - but more detailed than the section allows. No edit required.
299	4	11	3	"sea-level fens" I think that actually occur at elevation range from about mean high water high (provided enough fresh water seeps in) to elevations where occasional infrequent salinity intrusions preclude much tree growth (spring mean high water). Some must lie just above even mean spring high water, however because some of the rare species occur where trees also occur along Md.'s coastal bays where bay salinities are high (MDE, 2003).	Required edit unclear - more detailed than the limited text in the section allows.
300	4	12	9	Are pickerel really considered estuarine rather than freshwater species?	Agreed! They are almost exclusively freshwater. Eliminated from list.
301	4	13	13	I believe there is evidence that wetlands landward of SAV beds benefit them through their denitrifying actions.	The noted paragraph is specifically about SAV beds landward of armoring. No change made. However, the relationship is now noted in an additional overview paragraph (response to first Osman comment on Chapter 4 overall)
302	4	13	20	Shouldn't this be "bank swallow"?	Yes. Barn edited to bank.
303	4	14	7 to 9	Should probably state that tidal flat acreage is greater generally where tidal range is greater. Accordingly, if tidal range in an area increases as sea-level rise progresses, area of tidal flats could increase unless some factor prevents their formation (Field et al., 1991 is I think a fair reference - only one to look into tidal flats regionally to my knowledge).	Effect of tidal range noted, Field et al. 1991 added.
304	4	20	10	Add word "island" after marsh if that's what's more specifically meant.	Changed to lagoonal marsh in both instances (here and page 8)
305	4	20	18	Word choice "degraded" questionable, see comment page 4-8, line 18	Degraded was changed to reduced, since both "natural" and anthropogenic losses are included.
306	II	0	Overall	Under Key Findings for question 1 'Which Lands have been set aside…', and p. II-4 (Context), lines12-13: Contrary to the statement that Part II does not set out to tell what choices people will make…but describes options that will affect their decision', the 'Overview' and Chapter 5 'Shore Protection' do, in fact, provide professional judgments on the choices people will make, e.g. p. 5-8, lines 6-7.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
307	II	0	Overall	By extensively citing the results of the underlying report to this SAP '…likelihood of Shore Protection', this SAP does in fact support the professional judgments in that report. I am not suggesting citing results of the underlying report or that the professional judgments are inaccurate, just simply stating that by association this SAP 'is' stating what the choices of property owners will be – based on the likely-unlikely, etc., judgment scale.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
308	II	1	2	Suggest edit subheading to "Overview and Key Findings", or simple "Key Findings".	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
309	II	1	12-18	I'm not certain I follow the percentages presented - perhaps this could be clearer. For the 75% of the coast first mentioned, are planners certain they will be protected? Does the text in the rest of the paragraph concern the remaining 25%? If so, I read this as planners expect most of the remaining area (80%, or 20% of the total shoreline) will be protected, while 20% of the remainder (5% of the total) won't be.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
310	II	2	19 to 20	One potential stakeholders group that I've never heard from is recreational boaters - do they mind loss of bay beaches to pull their boats up on to? (Perhaps not, since bay beachfront property owners chase people off as if they own the beach).	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
311	II	2	21-23	The intent is to refer to public trust waters/areas and not public lands. Though clarified elsewhere it needs to also done here for the reader. Otherwise- if public lands are inundated or flooded r corresponding landward public access is lost even if waterward is iincreased or remains.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft

#	Chapter	Page	Line	Comment	Response
312	II	3		The first bullet under the impacts to floodplains should be something that explains the physical manifestations of SLR on floodplains and flood hazards. This content is touched on later (Section II-6.1, and pg V-14), but needs to be in the key findings, as well. (Suggested addition: Sea-level rise will lead to inland incursion of coastal flooding, both nuisance flooding and during extreme storm events. Flood hazards within coastal floodplains will also change as the landscape [beaches, dunes, wetlands] responds to increasing sea level. Coastal environments change, but the built environment typically does not, meaning the exposure to flooding and flood-related hazards will vary over time for structures and other development.)	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
313	II	3.1		Section II.3.1 'Shoreline Stabilization' & methods: while I find this section informative, is it the purpose of this SAP to describe shoreline protection and stabilization methods? If yes, then the title of this SAP, 'Coastal Elevations & Sensitivity to Sea Level Rise', should be expanded.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
314	II	3.1		Unlike the 'Context' & 'Shore Protection' sections, the 'Floodplain & CZM' section fits the title of this SAP and does not offer solutions or state professional judgments of the choices that people will make. Well done.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
315	II	4	8	this paragraph includes people as part of the built environment, but they are also part of the ecosystem. In NY, we are just beginning to adopt ecosystem management. Which may have implications for shoreline stabilization in the face of SLR.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
316	II	4	13	"come choices" - don't understand this phrase. Should this be "some choices"	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
317	II	5	3	Term "Shore Protection" is questionable word choice (see previous comments). Implies erosion protection to most people, not protection from gradual inundation as is also included in this section.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
318	II	5	19	…this **current**	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
319	II	6	14	people **would not**	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
320	II	7	13&19	Suggest including beach nourishment. Note to this reader it is unclear whether the term beachfill and beach nourishment are intended to be used interchangeably. If so the definitions in the Glossary section should reflect it as well as other locations as a x-reference. (example Table II.1, page II-10)	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
321	II	8	7	…protection **is not** feasible.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
322	II	8	11	**intentional** retreat ...	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
323	II	8	15	…can be **either** voluntary **or** involuntary	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
324	II	8	16	and the **resultant**	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
325	II	8	19	areas **to** retreat	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
326	II	8	20	(***e.g.*** , Cape...	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
327	II	8	21	**Abandon** buildings	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
328	II	8		Be consistent in the capitalization of "shore retreat" & "shore protection."	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
329	II	9	1	…areas at risk**.**	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
330	II	9	3	stabilization **practices**,	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
331	II	9	4	as **they deteriorate**.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
332	II	10	Table	Inventory of potential project types is incomplete, leaves out more environmentally-sensitive projects now being given preference on Bay shorelines (e.g., living shorelines, sills, etc.)	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
333	II	10		2nd paragraph of Environmental Effects column of table. Don't believe that the concept of "coastal squeeze" has been discussed priot to the tables position on the document.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
334	II	11	16	…that **are not reflected** in...	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
335	II	13	6	Add "publicly-funded" prior to beach nourishment. In some states where beaches can be privately owned, presumably beach nourishment that is privately funded would not create public land.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
336	II	13		Table II2. Is there merit to normalize by acres? Population density. Total value by acre, etc. so comparisons can be made.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
337	II	14	7	Property lines in NY are often referenced to "metes and bounds" instead of tidal waters. This has significant impact on ownership as the coast receeds.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft

#	Chapter	Page	Line	Comment	Response
338	II	14	15	The description of the Public Trust Doctrine as principle providing a right of access to water is incomplete and too narrow. It does much more than provide a right of access to water. It provides for public ownership of navigable waters, waterbottoms, shorelines as well as for certain public uses of those things. Though its origins are in common and Roman civil law, the extent and reach of the doctrine today is largely a matter of state law. Its importance to the subject matter of this report is not limited to access. It can also provide a legal basis for state action in encouraging or discouraging (even barring) certain coastal managment practices to the extent that the would occur on or impair lands and waters encumbered by the trust.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
339	II	15	16	…that **do not** flood	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
340	II	15	24	…seas **cause** rising water	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
341	II	15	18-24	Should we mention the impacts on fresh water supplies for drinking and industrial usage. It may not be an issue in the mid Atlantic region but I know it is elsewhere. I know of some communities that have had to issue public health warnings against person	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
342	II	16	1	that **do not** have	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
343	II	16	8	In addition to laws and regulations, court decisions, like the "Lucas" case have had impact on the actions of government too.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
344	II	17	12-17	Needs editorial attention.	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
345	II	tbl II.1		Define "coastal squeeze". Seawalls, bulkheads, revetments, are essentially all the same except for the method of construction. Why are the SLR implications different? Beach fill and barrier raising also have the implications of reducing overwash and breaching, which can have impact on the barrier's ability to respond to SLR. Breakwaters, bulkheads, etc. can attract marine life. It might be noted that the marine life it attracts is generally out of character with the sandy environment. Environmental impacts of constructed dunes may also include a change in habitat behind the dune since salt spray in the area will be reduced. "Necessary storm surge flooding in salt marshes, and accompanying sediment deposition..."	This overview has been completely re-written and revised, key findings have been re-written - comments have been taken in context when re-writing the chapters for the public comment draft
346	II			The part II overview does a good job of summarizing the key information.	No response required.
347	II	3	12	…households **existed**	Text no longer appears in Part II Overview.
348a	5	0	Overall	There is no differentiation between beach replenisment and hardened shorelines. Beach replenishment should warrant a separate category because in the long run it should be beneficial to wetlands migration. That sand will be transported by overwash processes to the back barriers and surge platforms in the estuaries creating higher elevations for marsh growth. There is also no discussion of shoreline protection methods that could aid (for a while) in wetlands migration as a response to sea level rise such as using vegetated buffers and setbacks.	Chapter revised to better reflect environmental impacts of shore protection methods.
348b	5	0	Overall	Existing conditions are used throughout the report except for considering lands that can be developed (but are not yet) will be protected. Is this inconsistent? If not, you may want to consider that the public support for beach replenishment projects may wain as costs skyrocket especially if the public percieves these projects as protecting second homes of the wealthy at taxpayers expense.	Report no long uses existing conditions to project future shore protection.
349	5	0	Overall	One other point to consider is when does the development rise to the level of nuisance (so that it is not a takings). The wetlands in the figures of the rolling easements under the structures may not have the same functions as a wetland in the open. Hardened shorelines, too, may be considered nuisance in some cases. The public access is lost, adjacent and downdrift property owners may be harmed.	No change made. The comment relates more to Chapter 4 and possibly whichever chapter includes the rolling easement diagram. Question has been referred to the Chapter 4 author.
350	5	0	Overall	This chapter depends upon the values developed in the Coastal Elevation Chapter. The lack of error bars or uncertainties comes through in this chapter. There would be value in provided a table in this chapter that identifies the types of back shore development that land use planners used in their decisions about what would or would not be likely to be protected -- or if other factors were used in the decisions, those should be provided. There is likely to be strong support for the divisions between very likely, likely, unlikely, etc. and those criteria would strengthen this report. As it is now, it seems like a quantitative presentation of subjective information. Also, the percentages in Table 5-1 do not add to 100%. And, finally, it seems like a high about of beach areas would be armored, especially since the federal government controls much of the coast through national parks or national shorelines. These lands should perhaps be separated out.	Shore protection likelihood information no longer appears in this chapter.
351	5	0	Overall	Is this Chapter 5 merely an encapsulation or reproduction of EPA's study, 'The Likelihood of Shore Protection along the Atlantic Coast of the US" for Mid-Atlantic states?	Chapter no longer discuss likelihood of shore protection.
352	5	0	Overall	The results of that study, as read in this SAP, make intuitive sense; however, those results are based on the professional judgment of planers who participated in that study. I do think distributing the results of that study broadly has value. But again, the title of this SAP needs to be significantly expanded to be more descriptive of the actual content in this SAP.	Reviewer agrees with reporting the planning study results, but other reviewers had questioned the use of this information and it was ultimately decided not to include in this SAP. The suggestion relates to the report title (not the chapter title). Author forwarded this comment to all the authors.

#	Chapter	Page	Line	Comment	Response
353	5	0	Overall	In the Shore Protection Chapter (5.1), the authors actually use the phrase: "which lands will require shore protection". An unbiased author could certainly argue that no lands "require" shoreline protection. There are many groups of scientists, managers, and NGOs that are working feverishly to repudiate that statement. This report, as written, will damage those efforts.	Author contacted reviewer to get clarification of reviewer concern. The main concern of the reviewer was that the executive summary and this chapter, when read together, left the impression that the authors were making an unconditional forecast of shore protection, which could create momentum for such shore protection. Author explained to reviewer that the Titus and Hudgens study was actually intended to simply be a baseline analysis of what is likely to occur under current policies, practices, and trends--so that the public and policy makers can start a more informed dialogue on the level of shore protection that would occur under current policies, and whether the baseline shore protection is desireable. Reviewer stated that author's intentions were very reasonable, but that the actual text had left him with a very different impression. Ultimately, it was decided by EPA not to include these studies in the report since information may be misconstrued and EPA would consider how to better relay this information in the future, beyond the publication of this SAP.
354	5	0	Overall	There is a big difference between shore protection via hard structures and shore protection via renourishment. The costs, impacts, regulations, likelihood of use, and feasibility for long-term protection are completely different. They need to be evaluated and discussed separately. The report does not do this. Again, the guesswork on what lands will be protected is, at best, purely speculation, at worst, dangerously biased towards one solution for dealing with SLR.	Chapter now incorporates more discussion of different shore protection methods. No longer includes projections of what lands will be protected.
355	5	0	Overall	This chapter is answering a question about land use and land use planning. The chapter relies primarily on the EPA sea level rise planning study, a coastal land use and environmental planning study, which is a reasonable way to answer the question posed. However, many people think about the Corps of Engineers rather than land use when they hear the phrase "shore protection." The land use question for this chapter is about which land uses will need shore protection. But another question is what is the cost and feasibility of providing that shore protection, which none of the other chapters seem to address. One may expect it to be addressed here even though the question is simply about land use.	Chapter no longer relies on EPA planning study, but instead elaborates upon different shore protection methods and possible environmental effects.
356	5	0	Overall	I reviewed the original draft prospectus for this report last year. The draft prospectus had a question about shore protection costs and feasibility, which would have put this chapter in better context. My comments to CCSP emphasized that Corps of Engineers (and FEMA) needed to be more involved in this study. But it looks like the Corps was less involved, because there is no chapter on the costs and feasibility of shore protection. Either this chapter should deal with the costs and feasibility, or it needs to warn readers that this issue is entirely omitted from the report and explain why.	Chapter includes some qualitative discussion of cost and feasibility. Time and resource constraints did not allow additional information; instead, the chapter more fully describes environmental implications of shore protection.
357	5	0	Overall	As a second comment, the most important reason for the EPA planning studies was to estimate how many wetlands will be left with different levels of shore protection. I believe this chapter needs to report the various estimates of wetlands loss from those studies.	Chapter no longer includes planning studies, and wetland loss was more appropriate topic for preceding chapters. This chapter discusses effects of shore protection on wetlands but does not quantify loss.
358	5	1	5.1	Section does not appear to address shoreline protection works now being constructed to protect marshes from erosion. Of potential greater importance, these are proposed on a fairly large scale for Smith and Tangier Islands in Chesapeake Bay by the Baltimore and Norfolk Districts, respectively. And such projects could be undertaken elsewhere in Chesapeake Bay if desire is to maintain inventory of coastal wetlands and principal threat is seen to be erosion (and because many still argue that shoreline erosion when fine-grained sediments are generated is "bad" for SAV).	Chapter 5 no longer discusses existing shore protection, although this does come up in the Appendices. Most discussions in this report only look at shore protection of dry land. We have also referred this question to the authors of chapter 4, which examines environmental consequences.
359	5	2		This text seems reasonable, but they need some references.	Noted. Attempting to locate more references.
360	5	3		Why are you relying solely on Titus and Hudgens report? Why not also include a section based on the Corps of Engineers assessment of shore protection?	Chapter no longer relies on Titus and Hudgens report. Reviewer's previous comments indicate awareness of unsuccessful efforts to enlist assistance of the Corps of Engineers for this effort.
361	5	4		A table is needed to summarize the key assumptions. If the assumptions are obvious, then one does not have to agree with every assumption to get value from the study.	Chapter no longer makes assumptions to project shore protection.
362	5	5	fig 5.1	unreadable	Figure no longer appears in report.
363	5	5		The map is unreadable and it also needs explanatory text. The EPA study only looked at demand for shore protection not whether it will be implemented. Need to caveat that this is not where you are recommending shore protection, or where you predict implementation just that this is where it would be given the assumptions of the studies.	Figure and study are no longer discussed in this report.
364	5	8	20	Reference CoBRA section (8.8.8)	CoBRA no longer discussed in this chapter
365	5	8	6,15,18,19	Who are the planners? A short report summary would be helpful.	Chapter no longer relies on planner information
366	5	8		The text talks about planners expressing little doubt. This is confusing. Page 5-3 talks about the study being based on data. This text suggests that someone conducted a poll.	Chapter no longer relies on planner information
367	5	10		The prose is well written, but it is confusing to someone who doesn't know the locations. Suggest adding locations to the map.	Map no longer appears in this chapter.
368	5	10		Lines 4-6 make perhaps the most important point, but it seems buried. The fact that Mid-Atlantic still has options open for half the low land stands in stark contrast to Southern Florida, where rapid development has foreclosed options for almost all land that is not part of a nature preserve. Using your map colors, the map in Southern Florida would be almost all brown and green.	Noted, but due to restructuring of chapter, this point still appears towards the end. May consider moving forward during final revisions.
369	5	11		"Planners are virtually certain…" Suggest you stick to the study results and not talk about planner opinions.	Chapter no longer discusses planner opinions.
370	5	12	20 to 23	Probably should reference the Northern Assateague restoration projects. See suggested sources for potential text.	Noted in footnote 1. Author did not see suggested sources during revisions but will incorporate during final revisions.
371	5	12		Suggest you stick to the study results and not talk about planner opinions.	Chapter no longer discusses planner opinions.
372	5	13		Suggest you stick to the study results and not talk about planner opinions.	Chapter no longer discusses planner opinions.
373	5	14	13,8,21	Reference the appropriate figure in the appendices. Will be much easier to follow the discussion.	This discussion of shore protection no longer appears in the chapter.
374	5	14		Suggest you stick to the study results and not talk about planner opinions.	Chapter no longer discusses planner opinions.

#	Chapter	Page	Line	Comment	Response
375	5	15	16	Erosion is often unfairly credited with making Smith Island less inhabitable and causing human population loss. However, inundation and other economic and social factors are more appropriately blamed, since towns are remote from rapidly eroding shorelines (are well inland in the island).	Discussion of Smith Island no longer appears in this chapter. Comment referred to Appendix F.
376	5	16	20	Might be worth adding that there's still confusion at the Chesapeake Bay Program over whether shoreline erosion is "bad" for SAV and therefore the Bay. For example, check out publications at http://www.chesapeakebay.net/stressor1.htm and http://www.chesapeake.org/stac/stacpubs.html.	Text no longer appears in this chapter. This comment referred to authors of chapter 4 and appendix F.
377	5	18	18-20	Not sure what the numbers mean. Is 7 1/2 the average of the two scenarios?	Table no longer appears in this chapter.
378	5	18		This discussion is an oversimplification. The scenarios actually came first, and then the authors later used the likelihood terms. The entire point of the studies was to compare wetland loss for the different scenarios.	Chapter no longer discusses likelihood of shore protection or wetland migration scenarios.
379	5	Reference		Two references plus 39 endnotes is very confusing. Suggest references and a small number of footnotes if needed.	References converted from footnotes to author,year.
380	5	Table 5.2		Vertical accuracy column is unclear and looks incomplete.	Table no longer appears in this chapter.
381	5	Table 5.5		This table needs to report wetland loss. That's the whole point of the study. The final column on topographic vulnerability ratio is confusing. Suggest replacing it with a figure.	Table no longer appears in this chapter.
382	5	Tables 5.1, 5.2		Tables need additional clarifications. References seemed garbled.	These table sno longer appear in this chapter.
383	6	0	Overall	The chapter describes the GIS methodology thoroughly. The susceptible population and residences is presented. Land use statistics are presented but all sorts of infrastructure is subsumed in the "developed" category. There is no information on "infrastructure (e.g., roads, bridges, parks, playgrounds, industrial plants) and commercial buildings including hotels, casinos, and office buildings." See page 9-1 for this quote. There is no information on property values at risk, only numbers of housing units. There is no information on economic activity at risk.	Further breakout on types of infrastructure not available for this study. Results are broad categories as a constraint on the time to complete the analysis and the data available. Value numbers were not avaialble at time of draft but hope to be added for public comment draft.
384	6	0	Overall	I have no comments to offer on this chapter.	noted
385	6	0	Overall	Re-name "population, land-use, and infrastructure"	will change for public comment draft if land value statistics become available prior to the final report
386	6	0	Overall	Statistical methods were not used, beyond the GIS accounting procedure. For example, I anticipated a hedonic pricing method approach to assessing property values at risk. There is some literature on this (Parsons, Coastal Management). The results are that a straight summing of the property at risk will overstate the potential loss. This is because the amenity value of living on the ocean is passed back to the second row of houses as the first row is condemned or washed away. Any subsequent property value analysis should consider this methodology.	we did not have the time or resources to do other than this "first order" GIS analysis in the time available but note this comment in the document as a constraint and will reference this other work
387	6	0	Overall	The analysis is not complete enough to draw any conclusions.	will acknowledge the information nature of this chapter - it provide information form which decision-makers can draw there own conclusions for policy decisions.
388	6	0	Overall	See above comment on statistical methods.	noted
389	6	1	1	Re-name title "Population, land-use and infrastructure"	duplicate to above
390	6	9	6-7	Table 6.1 Sea level rise scenarios do not correspond to the 3 listed in the preface (pg. 6, lines 6-8)	we use additional scenarios than the three noted earlier - we will explain in text
391	6	9	8-13	The data analysis was limited to owner-occupied and renter-occupied housing units when it should also have included a subset of vacant properties--namely, those that are used for "seasonal, recreational, or occasional use." This information is easily available from Census 2000. The analysis separated out the renter-occupied housing as a way of getting at the "transient" population, but if the intent was to get a sense of the seasonal population that's not the way to do it. As an example, the town of Ocean City, Maryland had 26,317 housing units in Census 2000, of which only 3,750 were occupied (2,526 owner-occupied and 1,224 renter occupied). But there were 14,286 vacant housing units that were for seasonal, recreational, or occasional use. So while the report's methodology would have focused on 3,750 housing units, it should have been focusing on 18,036 housing units. The analysis in the report, then, is actually understating the actual number of housing units in coastal areas--in some cases by a sizable amount.	noted - we are attempting to do an anlysis with this kind of seasonal resolution in time for the public comment - if not, we will not this drawback.
392	6	9	8-13	Another reason to include seasonal housing in the calculations is that in many coastal areas, the permanent populations are expected to increase as retirees occupy their seasonal homes for larger stretches of the year. That is, even without *any* additional construction, the permanent populations in coastal areas are likely to increase in coming decades. It's not always clear in this chapter (and in its tables) whether the primary focus of the analysis is on housing structures or people. For instance, in Table 6.3 it refers to renter occupied "residences." I'd suggest changing the word 'residences' to 'housing units' to avoid any confusion.	will change for public comment draft
393	6	9	8-13	I'd suggest adding some kind of reminder that the coastal population also includes people staying in hotels, people coming for only 1 day, etc. It's mentioned on page II-11, but it deserves further emphasis. Data on coastal areas rarely are able to fully reflect all of the population and economic activity occuring in the area. The point here is that rising sea levels would presumably impact much more than just the permanent population residing in those areas. I thought this might be one of the points covered in the section on societal impacts, but it wasn't.	noted as above
394	6	10		Tables 6.2 and 6.3, see comment for table 6.1 (p. 9)	noted as above
395	6	11		Table 6.4, see comment for table 6.1	noted as above
396	6	12		Table 6.4, con't	noted as above
397	6	13		Table 6.5, see comment for table 6.1	noted as above
398	6	14		Tables 6.6 - 6.7, see comment for table 6.1	noted as above
399	7	0	Overall	Answers the question.	No response required.

#	Chapter	Page	Line	Comment	Response
400	7	0	Overall	The report concludes that sea level rise will have limited impact on public access. The analysis is based on legal issues and precedent. The conclusions are that beach nourishment will increase public access and beach hardening will reduce public access. These conclusions are too simplistic. It seems that with increasing scarcity of beaches, those with a vested interest will increasingly assert their property rights. It would not be surprising to see more communities pay for beach nourishment without the federal share of funding and attempt to restrict beach access.	Added a sentence toward the end addressing this issue. Reviewer suggestion is more applicable for the gated private islands of South Carolina and Florida, where it is possible to completely exclude the public from a reach large enough for its own nourishment project.
401	7	0	Overall	As noted earlier in my comments about part II, the Public Trust Doctrine is about more than access. It is also about ownership and control of navigable waters, watersbottoms and shorelines and can become an important factor in determining whether certain government restrictions on development or shoreline protection give rise to a compensable taking. The report also speaks of the Public Trust Doctrine as if it is a common feature to all states. While its origins may be common to all, the extent and reach of the doctrine can--and does--vary from state to state. Generally, in tidal areas there is not much variablity but since this report speaks to non tidal coastal wetlands care should be taken to not speak too broadly.	Section has been cut. Deleted section cures most of the problems. In addition we added a sentence m entioning the subtle variations from state to state in discussing Figure 7-1.
402	7	0	Overall	Chapter 7 provides a thorough overview of the public access issue and effectively addresses the prospectus question.	No response required.
403	7	0	Overall	Data types, sources, and analyses are competently handled in this Chapter.	No response required.
404	7	0	Overall	The conclusions and recommendations are adequately supported by evidence, analysis, and argument.	No response required.
405	7	0	Overall	Good effort. Some sussgested clarifications associate with NC are noted below.	No response required.
406	7	0	Overall	This section could be more specific to the mid=Atlantic states. It's pretty general right now and addresses the question about impccts to public access in a very general way.	Several reviewers offerred specific mid-atlantic situations; so the revisions from the peer review have made this chapter somewhat more specific to the mid-Atlantic. Nevertheless, the basic law is the same thoughout the nation.
407	7	0	Overall	No data or statistical analyses are used.	No response required.
408	7	0	Overall	There is little evidence given for the conclusions reached. It would help if individual case studies were presented. How have communities responded to shoreline erosion in the past? How likely is it that communities will attempt and successfully restrict access? As it stands the chapter reads as if the conclusions are reached based on the opinions of the authors.	This chapter relies primarily on law, which is clear about access. We have included instances where access increased due to beach nourishment. We have no cases wehre a community rstricted accdes in response to sea level rise or shore erosion.
409	7	0	Overall	As above, case studies would be helpful. Potential statistical analyses might involve the national survey of recreation and the environment. That data includes recreation participation including beach recreation. The data might support an empirical analysis related beach participation and the beach access. A successful modeling effort could be used to predict on beach recreation might change with fewer beach access opportunities.	The study that the reviewer mentions requires future research. This comment is forwarded to the research chapter authors, along with Contractor notes from a conversation with the reviewer.
410	7	1	7	As noted elsewhere, in NY many coastal properties are referenced to metes and bounds descriptions rather than a tidal stage. Those that have a tidal stage description, gain or lose land as the line moves with SLR, accretion, etc. Those with metes and bounds retain ownership no matter what water levels do. So, if SLR occurs, those with a metes and bounds description on their deed retain ownership even if the land is submerged. Of course, the practical side is that once their land is submerged, the regulatory environment changes and about all they can do is pay taxes on the land!	Section has been cut. However, our basic description of the public trust doctrine was revised to address this issue, clarifying that the public trust doctrine usually over-rides deeds with fixed property lines that extend into the water (unless the state explicitly overrides public trust doctrine).
411	7	1	23	Cite an example of where a suit has been brought regarding blocked ocean views or access to the beach under the public trust doctrine.	Section has been cut.
412	7	2	3	I believe that the Public Trust Doctrine gives the public the right to access the lands, waters, and resources of the coast without unreasonable interference.	Section has been cut.
413	7	2	5	Insert "to" before "now" in sentence "… water has evolved now include swimming…"	Section has been cut.
414	7	2	6	This language about public access is too broad. While the Public Trust Doctrine (PTD) does generally allow public access to waters and sea shore for certain purposes those uses and the extent of access above the low water mark can vary from state to state. Lines 6-8 suggest, without citation, that the PTD confers some right of access across private land to reach the water. That may be true in some states, but it is not a feature of the PTD as traditionally construed. Access from the water yes. Access across private lands no.	Section has been cut.
415	7	2	10	…public use) **will narrow.**	Section has been cut.
416	7	3	7	access or **preserving** environmental ...	Section has been cut.
417	7	4	7,8	This is not exactly correct. If the mean high tide line is defined as in the Borax case (the intersection of the plane of mean high water with the land) the wet beach line averages about 65 feet inland from the mean high tide line on ocean facing (high wave energy) beaches. It may be ok for low energy shorelines.	Point clarified by adding another sentence. A sentence was added that addresses this point as well as comment 418 a few paragraphs later.
418	7	5	6	The statement that the PTD includes wetlands is far to broad. Wetlands are not by themselves within the PTD. If the wetlands fall within the definition public trust waters and lands under a given state law that is one thing. To state that wetlands as wetlands are within the doctrine is wrong.	Made minor edit to add "these," but this implicit from reading previous paragraph.
419	7	5	fig 7.1	same as above	Made slight revision to this figure. The unlabeled dashed line on top figure can be called MHW. The solid line above that can be called "wave runup at MHW".
420	7	6	2	In NY the public does <u>not</u> usually own the dry beach. Dolphin Lane Assoc. established that the "local custom and practice" was for the public to own to the "thatch line" in one are of Southampton. In NY the public owns to high water, unless well established local custom and practice dictates otherwise.	Point corrected that this happens in some locations.
421	7	6	16	Should not it be qualified or clarified that the reference to providing beach nourishment and federal policy is only applicable if federal funds contributed to the project, not the federal permit process (?).	We assume that reviewer means note 16 and the accompanying text. Sentence clarified that we refer to funding.
422	7	10	9,10	There is a direct effect if beaches narrow, especially against a coastal bluff or cliff.	This comment really applies to line 4. Parenthetical comment about rocky cliffs added,

#	Chapter	Page	Line	Comment	Response
423	7	11	8	public access along the south shore of Long Island is not limited laterally, but perpendicular access is limited in a few locations by towns and private ownership of the backshore. Towns generally do not keep the public out, but might charge a fee for access to the general public that is higher than the fee charged to residents.	Examples from NY added as suggested by the reviewer in followup convesation.
424	7	11	1 & 2	Should not it be qualified or clarified that the reference to government policy is only applicable if federal funds contributed to the project, not the federal permit process (?).	No change made. Reviewer indicated that he was not concerned about the permit issue, but rather that the text should make it clear that we are only talking about federal requirements. This is a topic sentence whose only citation is to the Corps of Engineers--but the paragraph (expanded to two paragraphs from other comments) talks about state as well as federal policies. Note however,during the same conversation, the reviewer suggested that we mention ADA--a sentence was added citing RI, the only example easily identified on a web search.
425	7	11	3 & 4	Suggests that the public would not have access to the beach in NC under the public trust doctrine w/out a federal nourishment project. Nourished beaches resulting in wider beaches whether funded by federal, state or local funds does increase public access.	Public trust doctrine does not provide access to the dry beach. (Did clarify that we are talking about dry beach.)
426	7	11	6 & 7	In North Carolina, lateral access is not limited only access to the beach through adjacent private property.	Text clarified to indicate that we are discussing perpendicular access here.
427	8	0	Overall	Report switches between English and SI units for no apparent reason. Units should be consistent. Also, the jump from sea level rise and the floodplain is obvious in some locations, but not so obvious in other areas. This shift to floodplains needs to be clarifies and aligned with the earlier chapters on sea level rise. And, the values for much of the property that is threatened by flooding is based on current day conditions. As the flood hazard increases, it is likely that the property values (subjective values) will drop as more people recognize the hazards associated with thses properties.	Enlgish units now only appear in the FEMA report textbox because they are quoted directly from the 1991 FEMA report
428	8	0	Overall	While there is a lot of good information about the regulatory framework concerning coastal floodplains and strategies for dealing with coastal hazards including SLR, the chapter's lack of clear structure and logical flow of information makes it difficult to pinpoint the answers to the key questions. The chapter reads like it was written by many authors, without a clear vision on how the various pieces would fit together. As explained in other comments below, some aspects may need to be investigated further based on additional data, but the content there now can provide basic answers on par with the rest of the report.	This chapter was reorganized in line with these comments
429	8	0	Overall	Recommend the chapter content be somewhat reorganized to be more consistent with some earlier sections of the report -- that is, discuss physical characteristics/processes of the environment, the expected physical changes/consequences due to SLR, impacts on humans/built environment, the legal/regulatory framework currently in place, and potential actions. The current chapter has physical processes and expected changes spread throughout (e.g., 8.1-8.4, 8.6, 8.9). FEMA and the NFIP are a primary agency and program that deal with coastal flooding, but not the only ones -- other agencies/laws are not brought up until much later. On the next tab of this spreadsheet, a suggested outline has been provided. [PQA note: the next worksheet was blank.]	This chapter was reorganized in line with these comments
430	8	0	Overall	It is valuable to discuss some of the findings from FEMA's comprehensive study of SLR from 1991. That said, the age of the analysis does affect the reliability and suitability of these data for future planning and actions, particularly the estimates of effort to update maps (Section 8.4). With Map Modernization underway, the total cost for mapping coastal counties would FAR eclipse the $46.5M (in 2006 dollars) provided in the report. If there are no data (e.g., info from the Heinz Center Report, or from FEMA [MHIP] on the estimated costs for coastal county mapping through the rest of Map Mod), I would be very hesistant to give metrics like these without serious qualifiers.	Qualifiers will be added to these statistics to put them in context
431	8	0	Overall	No other comments relevant to this criterion -- the chapter is, by nature, more policy-oriented, with less pure data analysis.	noted
432	8	0	Overall	Cross-reference to Overview II: Based on revisions to this chapter, ensure that the key findings provided in Overview II reflect the main findings and points of emphasis of this chapter. One of the key floodplain issues appears in the current Chapter V (see lines 1-4 on V-14), but this point isn't made clearly in Ch.8 or in Overview II.	Overviews have been completely re-written
433	8	0	Overall	This chapter answers the questions posed: describes potential impacts from sea level rise, and discusses issues faced by the floodplain management community. Despite identifying impacts & issues, and calculating potential economic impacts, unfortunately, if this Sap is state-of-the-art, up-to-date information, it appears that not much progress is being made in mapping potential inundation areas and preparing for these impacts by any level of government.	noted
434	8	2	4	Recommend inserting the FEMA definition of floodplain (provided on lines 9-18) up here. Then follow with your improved definition that considers coastal issues better (current text from lines 4-9).	Definitions section was re-arranged
435	8	3	5-10	Description of open-coast floodplains should be added -- beach, dunes, shrub/forest, to upland. Can cross-ref to Chapter 2, as appropriate. This is a critical omission, since most of our problematic development and infrastructure is concentrated in this type of coastal floodplain.	This definiton nuance has been added
436	8	3	11-18	This ecology text is appropriate for riverine and perhaps estuarine floodplains. Need to expand to include open-coast floodplains (from beach through dunes, maritime forest, and upland); can be nutrient-poor along open coast, and human disturbance can be greatest there.	added this comment to text

#	Chapter	Page	Line	Comment	Response
437	8	3		Section 8.2: Seems premature (in terms of organization) to discuss impacts of SLR. Suggest making this section a more comprehensive discussion of physical processes of coastal flooding. Include basics of flooding (flood levels reflect tides, storm surge, and wave heights/wave runup), and complex relationships w/ rainfall-runoff flooding (section 8.3). Can mention that FEMA maps coastal flood elevations (this would be first intro of NFIP); FEMA studies consider all of these factors in identifying 1%-annual-chance Base Flood Elevations. Could end section talking about how FEMA studies do not consider future conditions, such as future SLR, long-term coastal erosion, and subsidence. Could provide link to current October 2006 FEMA Guides & Specs for the Atlantic/Gulf Coasts (do search on FEMA.gov - it's easy to find). Stick to science/engineering, saving policy issues for later.	these sections have been reorganized
438	8	8	5	Wherever discussion of the FEMA 1991 SLR study ends up, the Box 11.1 (8.1? -- see pg. 8-9, line 12) of key definitions that's referenced here needs to be included. (This box appears to be missing from the draft report.)	added this comment to text
439	8	8		Section 8.3: Discuss impacts of SLR on coastal flooding, and mapping of coastal flood hazards - focus on physical processes. Here, put the content about the shortcomings of coastal maps that are based on snapshot of conditions at the time of the study. Explain what will happen over time -- floodplains will move inland, nuisance flooding will increase (Sect. 8.8), coastal landforms will shift and change (refer to Chapter 2), wave impact and erosion zones will move relative to fixed features (buildings, infrastructure), and there will be impacts on storms (Sect. 8.9). The point at which coastal flooding transitions to riverine flooding will also move. Map updates have not kept pace w/ past changes, and unless there's a major infusion of funding into updating and maintain coastal maps (beyond current Map Mod plans), this problem will continue into the future.	crowell comments addressing this were added to text
440	8	8		Section 8.4: Regulatory framework for flooding and SLR -- past and current methods to deal w/ coastal flooding. Includes NFIP and other laws mentioned (CZMA, COBRA, Clean Water, etc.). Must point out current practices/policies that address coastal flooding, otherwise the discussion would belong later in the report, not the floodplain chapter. Emphasize your content on policies/programs addressing SLR -- FEMA 1991 SLR study results fit here, as does Heinz Center (erosion). See cautions above about citation of metrics/costs from the 1991 study.	noted and re-arranged chapter
441	8	9		Section 8.5: Potential responses to SLR and coastal hazards: Talk about future changes possible or underway. Include updated info for Section 8.6 (top of pg 8-12) on Congress's 2007 NFIP reform bills (H.R. 3121, passed in Sept.; Senate equivalent passed out of Banking Cmte in Oct.; I can furnish, if needed.) Note: Neither the 2006 nor 2007 legislation specifically authorizes FEMA to map coastal erosion. In the 2007 Senate bill, FEMA is directed to consider climate change and future conditions (incl. SLR) and erosion data in the mapping of flood hazards; the House bill also directs FEMA to consider future conditions, but erosion data are left as something separate -- FEMA can refer to others' erosion data via their website.	Updated this discussion with FEMA comments latest information
442	8	9		While interesting and somewhat related to the topic at hand, there is a lot of text that is not directly germane to the questions to be answered in the chapter. Need to distill down greatly and fit into overall chapter sections above, or eliminate. Examples: (1) Section 8.7's discussion of NAI (which has no relationship to the section title, incidentally); (2) Discussion of post-hurricane mapping (pg 8-11), which was necessary because the underlying coastal flood analyses were outdated, not because of SLR; (3) Lengthy report on ASFPM's National Flood Programs in Review(pg 8-12 - 8-14).	these sections were shortened or re-arranged
443	8	18		[Also applies to Overview II, since some of this section's text is repeated there.] Section 8.8 departs from the remainder of the chapter in terms of the tone (more "preachy" and conversational) and the lack of supporting sources/studies. This section sounds like someone's opinion. While most statements are not necessarily incorrect or unreasonable, the text is not consistent and some statements lack scientific basis. For example, the final sentence on pg 8-19 is particularly problematic. Sediment transport processes that move material within and among coastal environments will not cease because of SLR; tidal channels and the like will continue to serves as sinks to sediment, meaning there will likely be no change in the needs for dredging over time solely due to "extra clearance."	much of this section was deleted
444	8	21		Consider closing chapter with discsussion of need for integrated solutions, such as that explained in Figure 1 (pg 8-21). Summarize w/ answer to key chapter questions, and recommendations.	suggestion noted and added
445	III	0	Overall	No comments.	No response needed.
446	III	0	Overall	This overview is excellent. It's actually an overview, unlike I and II, and it does a great job of putting the preceding and following chapters into context for the overall report.	No response needed.
447a	III	0	Overall	The first sentence ignores indigenous communities.	Edit made to avoid implication that no one settled the coast until 400 years ago. However, we can not go into the issue of indigenous people here, this is just a segue and an overview--and the report itself does not investigate indigenous settlements. EPA's DFO did research whether tribes had an interest in the general subject matter, and was told of only one tribe with a significant coastal landholding in this region.
447b	III	0	Overall	Also, there are many who believe that the statement (III-1, 12) that shoreline protection could prevent developed barrier islands from disintegrating is untrue in the long run.	Revised sentence to make clear that point was not that beach nourishment always preserves barrier islands, but that it may preserve some.

#	Chapter	Page	Line	Comment	Response
447c	III	0	Overall	Especially because this report largely ignores the impacts of storms. One or two more storms like Hurricane Katrina and Dauphin Island, Alabama (a shoreline that is both protected and developed) will disappear. Increased storminess could invalidate all of the assumptions made by the planners. There must be a more rigorous examination of storm impacts.	This comment was offered mainly to support recommendation to revise the sentence addressed in previous comment--and we have done so. But it also seems oriented toward the report in general. To that extent, it is one of the comments that the Context Chapter was designed to address. It also is directed at Chapter 5, where the reviewer made similar comments in greater detail--however, the revised Chapter 5 no longer discusses planner assumptions, so the comments is not as applicable.
448	III	0	Overall	This very short section is generally ok.	No response needed.
449	III	1		Part III - is a well-written, concise overview of the associated chapters.	No response needed.
450	III	2	36	Is this sentence incomplete?	Sentence revised.
451	III	3	53	making are well known	Sentence revised.
452	9	0	Overall	Chapter was acceptable	No response needed.
453	9	0	Overall	The chapter does a very good job of presenting and evaluating decisions. I think there is a balance in presenting actions that can be delayed and those that could be implimented now. I think the chapter presents these as alternatives to be considered and evaluated. The logic for this evaluation is presented but no one approach is advocated. Overall, my impression is of an unbiased presentation that provides the framework for decisions.	No response needed.
454	9	0	Overall	This chapter does an excellent job of framing the issue. In the economics literature, the problem is known as "quasi-option value." Postponing major decisions, that can wait, can lead to an increase in the value of information. If the new information (e.g., increasing sea level rise) indicates that the benefits of adaptation exceed the costs then decision makers can pull the trigger on adaptation. If the new information (e.g., no change in sea level rise) indicates that the cost exceed the benefits then the "wait and see" approach can continue. It would help to review this literature in order to further justify many of the conclusions.	Sentence added making the point; Footnote added referencing this literature
455	9	0	Overall	may want to consider public attitude/perception. There will be a limit to how much public funding will go into projects perceived to benefit only a few. Also when does a property constitute a nuisance?	The reviewers raises good points, and while there is some literature on both points (public perceptions of shore protection and coastal property development nexus with nuisance law), we did not find the literature conclusive to the point where we would wish to add or modify the text.
456	9	0	Overall	A useful discussion, though I found the use of the value term in the discounting section on page 9-4 a bit confusing. In one sentence, the report states "The value of land represents the difference between the value (fair market? Discounted?) of the property fully developed (for what purpose, residential, commercial, agricultural?) and cost of development. The next sentence then defines "value" to mean the present value of an income stream ending many years in the future. This confuses me. First, if I recall correctly present value requires some actual time frame to measure from. The notion of "many years in the future" doesn't do that.	Actually, if the investment has a specific end-date, one discounts to that end date. If an investment lasts into the indefinite future (i.e. to the point where additional years have a trivial present value anyway), present value is simply Income/discount rate. That is, one discount into the indefinite future. In this case, easiest thing was just to cut "many years" from the text.
457	9	0	Overall	Second, I question the assumption that the value of land can be adequately be measured as a function of cost of development and income stream. This requires that there be an income stream an assumption that doesn't hold for residential property. And even with commercial property, the revenue stream from the developed land may measure the value of the business activity but not the underlying assests. For ag lands, residential and older commercial property the value of the land is often completely out of sync with the income streams associated with the property.	Added a sentence clarifying that income can be either cash or imputed rent. Also clarified that property value depends on stream from fully developed, not necessarily what is there now.
458	9	0	Overall	Chapter 9 provides a very effective and balanced consideration of the prospectus question.	No response needed.
459	9	0	Overall	Data types, sources, and analyses are competently handled in this Chapter.	No response needed.
460	9	0	Overall	The conclusions and recommendations are adequately supported by evidence, analysis, and argument.	No response needed.
461	9	0	Overall	Good and adequate discussion	No response needed.
462	9	0	Overall	re-name "Implications for decision-making"	No change made here. We are considering various recommendations for title changing. This and other chapters have short titles. Brevity comes at the expense of specificity. However, this chapter is not really an analysis of the decision making process, but rather the end point. Thus, the current title is probably more accurate than adding the phrase "making".
463	9	0	Overall	See comments below.	N/A
464	9	0	Overall	Apparently the US Army Corps of Engineers has decided to use a range of possible sea level scenarios in the feasibility analysis for new projects. The top range is the 1.5 m in 100 years that was used in the 1999 NRC Sea Level Rise study, so there could be a great change in Corps practices for future projects. This policy should be discussed in the report.	Added three sentences quoting this policy. Also referred the comment to chapter 10, where a more lengthy discussion may be appropriate, since this is about what agencies are doing now.
465	9	0	Overall	The chapter answers the prospectus question; however, the perspective considers from this day forward--as if many of the decisions discussed are being faced for the first time. There may be a way to introduce how people have, for example, already placed stilts under their homes, or placed sand bags in front of their homes to try to limit beach erosion, or applied for permits for hardening the shore (and received them). Often municipalities have been dealing with these issues in the absence of a national plan as descibed in the November 2, 2007, New York Times article As Beaches Erode, So do the Solutions: http://www.nytimes.com/2007/11/02/travel/escapes/02sand.html?ex=1351742400&en=67a2813805d3a956&ei=5088&partner=rssnyt&emc=rss. The chapter discusses possible approaches--more examples from what has already been done would be helpful e.g. page 9-14, lines 20 to 24 about London and the Thames River Barrier. Some photos of shore protection structures may be helpful to the reader.	Part II Overview, Chapter 8, and Chapter 10 talk about what people are doing now., with Chapter 10 focus on the conscious response to sea leel rise, and Part II and Ch8 on activities that in effect respond to sea level rise but are motivated by other factors. Decisions inherently look at this day forward--but of course a decision maker would think about what others are doing. Therefore, it does not seem prudent to add much into this chapter along those lines. No change made.
466	9	0	Overall	Well written & informative chapter for coastal planners & managers: answers the questions posed. There is no definitive answer. As articulated, the response depends on many unique local factors.	No response needed.

#	Chapter	Page	Line	Comment	Response
467	9	0	Overall	The difficulty in choosing & implementing any alternative is in selecting a sea level rise rate to plan for, especially for critical resources. Thus, the scientific community must be bolder and assist in narrowing and suggesting the future sea level rise range for local, state & federal planners to use effectively in their respective areas – and if used, assist in backing them up in a court of law. For example, if coastal wetlands are as critical as the scientific literature suggests, and if the predictions of the loss of wetlands due to BOTH sea level rise AND human activity (e.g. bulkheading, revetments, etc) as articulated in this SAP, then it is the responsibility of government at all levels, especially federal, to take the lead in implementing/requiring legal mechanisms to protect the future existence of wetlands, as far as feasible.	The reviewer has drawn a policy conclusion--but is not suggesting that this report draw such conclusion. Such recommentations are beyond our charter; but the author is glad that the reviewer is able to see some policy relevance in this report. No change made.
468	9	0	Overall	Again, the writing, referencing, and footnote styles need to be consistent with the rest of the report. This chapter uses standard references and extensive footnotes. Unlike previous chapters the footnotes are placed after the reference list rather than on the particular page.	Editing issue. The intent is to have explantory footnotes but standard references.
469	9	0	Overall	No data is presented. No analyses are attempted.	No response necessary.
470	9	0	Overall	The results in this chapter are not data driven. Given the extensive discussion of benefit-cost analysis (BCA), I was expecting some sort of BCA. The report should acknowledge that the conclusions are based largely on literature review and speculation.	Expectation may also be created by the data-driven chapters elsewhere in the report. Summary table about what the chapter is, added to help warn reader
471	9	1	8	"normal"? Do you mean "regional sea level is currently rising…?" At current rates of 3-4mm/yr, this comes to ~0.01mm/day	Corrected. (Note also, the new context chapter makes it clear that in this report "sea level rise" means local sea level rise.)
472	9	1	10,11,12	Sea level rise may be much faster than predicted in this report. This will result in less time to prepare.	No change made here. We are simply explaining that in some cases, the impacts are far in the future, to help the reader think about the difference between decisions that warrant preparing now and those that do not. (We assume that the reviewer is not suggesting that all decisions require preparing for sea level rise.)
473	9	2	3	Period missing	Corrected.
474	9	2	19-21	it is not clear what is meant by "channel development"	Clarified
475	9	3	8	observations suggest that the uncertainties are that sea level rise is underestimated	No change made. We are explaining how a decision maker must consider both the possibility of over- and underestimating sea level rise. No reasonable decision maker would assume that he is underestimating sea level rise--he would instead adjust his projection upward. But he would still have both possibilities.
476	9	3	12	For your consideration: in NY there is interest at the state level in moving away from beach nourishment as a method for reducing risk. Many reasons for that, including long-term costs, need to be self-sustaining, etc. The example of beach nourishment as a robust way to prepare for SLR is understood, but is a concern because there are those who will read this and cite it as a reason to do beach nourishment - as opposed to retreating from the shoreline. Is there another example that could be used?	Added a qualified "if protecting development is important". We could have also added rolling easements as another example, but they are discussed elsewhere. Moreover, we are hesitant to alter the examples we offer because we are trying to give a balanced discussion of protection and retreat. Dan Hudgens, author of Appendix A, discussed the NY policy issue with the reviewer. The issues he raises on NY moving away from beach nourishment will be incorporated into that Appendix. The comment is also referred to the chapter 5 author.
477	9	4	box	end of 3rd pp. Isn't this true only if the property itself is not lost? And each year the property edge gets closer to the house so the value diminishes and the lost is not linear.	No change made here. Instead of making a linear assumption, we are making a "zero-one" assumption, that is, we are only assuming the facts we stated. We are assuming in this case that the property has value with the house, and no value without the house to the owner. The only reason property value would decline over time is that the "certain loss 10 years hence" will be 9, 8, 7... years hence and thus present discounted value of future use declines. That is a separate idea, but too much detail for this report.
478	9	4	box	The discussion of discounting should be expanded in the context of climate change-induced sea level rise since these impacts will occur over a long time period. With long-lived policy it is rarely a matter of attaching a discount rate to benefits and costs and comparing present values. This is because at any positive discount rate, present values 50 years or so down the road will be relatively small compared to current impacts. In the case of sea-level rise, the costs of doing something in the near term will typically exceed the heavily discounted benefits of doing something in the far term.	The original draft provided to the FAC had a longer discussion, which included various reasons for different discount rates. Much of that discussion was deleted to make this chapter shorter. The reviewer's argument for more discussion is valid, but EPA had previousy considered that argument but decided that the need to make the document shorter outweighed the benefits of providing a longer discussion. In essence, this chapter assumes the discounting problem and tries to show how it affects how sea level rise is logically incorproated into decisions--the reviewer's comment would have us also explain more of the why's of discounting.
479	9	4	box	Not an economist. My experience has been that when poorly cited properties become threatened the owner who got the thirty years out of his risky venture, turns around and sells for an even bigger return on his investment. Does this reset the clock for the new owner who has spent million+ for a property that has already been through its expected life?	No change made here, aside from clarifying the text for the non-economist.
480	9	4	box	A typical approach to this is to not discount at all but that is usually unsatisfactory theoretical. There are two discounting approaches that should be advocated in addition to no discounting. Time declining discount rates have been described by Newell and Pizer in the Journal of Environmental Economics and Management. Also, Nordhaus, in the most recent issue of the Journal of Economic Literature describes the Ramsey equation in the context of the Stern Review. The Ramsey equation accomodates economic growth in the choice of discount rates.	We added references to these studies to the footnote documenting basis for different discount rates.
481	9	6	17,18	But will the public support be there?	No change made. The next sentence already acknowledges that the expectation of shore protection may be wrong. Any discussion on public support here would be tangential. The author of Chapter 5, however, has revised that chapter to ensure that the report does not glibly assume that public support for shore protection will stay the same.
482	9	6	17-23	Cordes and Yezer (Land Economics) find that Army Corps decisions and work did not have effects on coastal development. I'm not sure if I believe the result is universal, but it is there in the literature.	Added text on this study, another that Cordes co-authored, and relevant analyses from the Heinz Center analyses of erosion. Also updated reference list to include these relevant studies.

#	Chapter	Page	Line	Comment	Response
483	9	7	4-15	This section combines the discussion of rolling easements with set backs with confusing results. The sentence beginnig, "For example" seems to state that setbacks are a type of rolling easement. That does not follow and I don't think that was intended. I presume that this section intends to suggest rolling easements as an alternative to mandated setbacks that might trigger takings claims. If so, I believe this section should be reworked to more clearly say that. If that is not so, then I am really confused as to what its point is.	Points clarified. The two sentences about setbacks had originally been in a footnote. Someone relocated them to the main text, creating the confusion the reviewer mentions. Moved the sentence back to the footnote.
484	9	8	fig 9.1	What about adverse impacts to the wetlands?	Figure is just illustrating what rolling easement is. [Chapters 4 and 5 address environmental impacts of sea level rise responses.]
485	9	8	Figure 9	The little fish saying "Much better" is gratuitous and will be taken as an editorial stance.	Edited as suggesed. (In the original article from which we borrowed this cartoon, it was the punch line of a joke set up in a different cartoon.)
486	9	9	16-22	The discussion on development controls is too broad and conclusory. The statement that tidal wetlands have been place off limits to development is just not true. It can be said that by the 1970s they were put off limits to unrestricted development but a heck of a lot of development has been-and continues to be-developed under the various regulatory regimes.	Clarified the rules on tidal wetlands along the lines suggested, including extensive citations to the rules. Also added a footnote on a North Carolina study estimating the current rate of wetlands loss, and cited Titus 1991 study which in turn references studies that support the original point.
487	9	9		The absence of NC's non-tidal wetlands in this chapters discussions is noteable and at the minimum should be disclosed and qualified as to why and or where such discussion is covered.	Added note to the table explaining that NC is omiited because it was omitted from underlying analysis in chapters 3 and 5. Those chapters each explain why NC is omitted from the wetland accretion and wetland migration analysis.
488	9	10	4	sea level rise rates may be much higher	No Change made. The context chapter explains our scenarios. We are just drawing upon them here
489	9	11	7	I would suggest a citation for the counties that keep shoreland farms undeveloped	Added footnote to 4 counties and referred to appendix.
490	9	11		This page generally talks about protecting coastal wetlands, but does not mention that actions like beach nourishment prevent breaches and washovers through the barrier islands. As a result, no sand is transferred to the bayside of the barrier islands upon which new wetlands can develop. As SLR progresses, breaching and washovers on unprotected barriers would increase, and thus new wetland substrate would be deposited to allow additional wetland development.	Added 2 sentences indicating that activities related to accretion may also need some lead time--and added footnote listing beach nourishment as an example.
491	9	12	1	I would suggest a footnote identifying these states.	Added parenthetical cross reference to chapter 10 where they should be enumerated
492	9	12	20	"…one can simply add more sand." - assuming sand is available at a reasonable cost.	Deleted "simply"
493	9	12	20	Add: "…sand, until it becomes too costly."	No change made. The point being made here is simply that the lead time is short. If concern was that we seemed to be endorsing beach nourishment, deleting "simply" should help.
494	9	12	24-4	beach replenishment adds sand that is transported to the back barrier bay by storm surge processes.	Environmental effect of beach nourishment is addressed in Chapters 4 and 5.
495	9	13	10	define dike	No Change made. Definition in both Overview II and glossary
496	9	13	2 & 3	Why would barrier island nourishment deepen the back bays?	Inserted reference to Chapter 4, and asked author to ensure that it is appropriately explained there.
497	9	14	3	Not sure I understand why Dikes, seawalls, beach nourishment, …are unlikely to cost more a few decades hence than today? Unless you are talking about relative cost, I would assume inflation increases.	Box says all costs are real. We will reiterate that point in the new table 1.
498	9	14	2-4	I disagree with the unsupported statement that the cost of dikes etc are unlikely to increase in the future. The cost of labor, material, energy and the acquiring the rights to do these things have been increasing. Take for example the cost of reconstructing the hurricane protection for New Orleans. It is orders of magnitude higher than the cost projected two decades ago.	citation: "The USACE uses a system called the Civil Works Construction Cost Index System (CWCCIS) to adjust cost estimates for their coastal engineering projects to account for inflation. The index includes both a historical and projected component. The recently revised (September 2007) factors for projections to the year 2025 suggest that USACE expects costs for dikes, levees, seawalls, beach replenishment (nourishment), and other coastal engineering devices to escalate only modestly - in nominal terms, they project increases in cost of about 2 percent per year. Most economic analysts would agree that rate is likely no more than the projected rate of inflation over that period, suggesting that USACE guidance is consistent with the statement in the draft that costs for these structures, in real dollar terms, may be roughly constant over the next two decades. We added citation listed below to support the assertion in text. U.S. Army Corps of Engineers, 31 March 2000, EM 1110-2-1304, Civil Works Construction Cost Index System (CWCCIS), tables revised 30 September 2007, available at: http://www.usace.army.mil/publications/eng-manuals/em1110-2-1304/toc.htm
499	9	14	7-8	This is OK for new infrastructure. What about costs of retrofitting older, existing structures now rather than later, say as part of needed repairs?	Inserted "(or rebuilding)"
500	9	15	10	The statement that abandonment will occur only if the cost of holding back the sea is too great is too broad and unsubstantiated. Recent experience suggests that insurability, habitiat change and capital risk issues also contribute to abandonment. See, e.g. New Orleans.	No change made. Within the context of this paragraph, the statement is accurate. The other conditions that reviewer makes are related to the same question (except for habitat issues and so far, abandonment for the sake of habitat has not occurred in the mid-Atlantic). We are talking about shorefront homes where the community is otherwise in tact. However we agree that the statement can be clarified, with references asdded.
501	9	15	20	Add: "…on whether and when to elevate."	Revised title to be more general.
502	9	15	18,19	and think about the uncertainty in slr projections. With higher rates of sea level rise, adaptation will need to be sooner rather than later	Original sentence had referred to a specific report but was edited to be more generic. Inserted the reference to IPCC report.

#	Chapter	Page	Line	Comment	Response
503	9	15	7, 8, 9	In addition to planned abandonment or owners not being able to hold back the sea, what about options which buy-out property in order to accomplish wetland/beach migration? Government could decide that the value of those wetlands to society is great enough to use some methods for acquistion of the lands - rolling easement, buy-out/lease back for a period of time, etc.	Reviewer is correct in the analytical sense. We did not change the text here, because it would get us into additional details and a potentially tangential discussion. The concept reviewer mentions is discussed in great detail in the Titus articles on rolling easements. The conclusions were that in today's climate, it is almost impossible to decide to promote an abandonment in a community where owners are willing to pay for their own shore protection-unless that we part of a long-term plan, though governmetn can block particular shore protection approaches such as seawalls. This is a very important issue for coastal zone mangement, but this is not the place for such a disccsion. The wetlands section 9.2 is probably a better place for this discussion. So far, the change has not been made because it seems to be at the margin, and we lack research to back up the point aside from the Titus articles. .
504	9	16	1-14	Distinction may need to be made between elevating structures to avoid periodic flooding and structures impacted by receding shoreline. Support infrastructure especially septic systems can not be easily replaced without having to install a sewer system. Likewise there are infiltration liabilities in a wastewater system due to future flooding or shoreline shifts.	Added sentence at the beginning to make it clear we are thinking about flooding. This is a simple case that many people face. If we had more space, we would also address the more complicated case. Other chapters do discuss septic systems and sea level rise.
505	9	16	3-6	I would include insurability on this list as well. Elevating may make flood insurance available but limit the availability/affordability of wind, fire and homeowners policies.	Time and resource constraints did not allow this topic to be fully researched for incoporation into the public review draft.
506	9	16	18,19	how are the outcomes to these activities sensitive to sea level rise?	The asnwer is given in the following paragraphs; this paragraph is a roadmap for what follows. Still, we should add a cross reference here to Chapter 8. We asked the Chapter 8 authors which section to cite, but they indicated that they were re-organizing their chapter and suggested that we revisit this issue when they are finished. All of the premises here logically must be documented in Chapter 8 if possible.
507	9	17	2	depending on the age of the map and the relative sea level rise, one foot of freeboard may only get the structure to the BFE	No change made. Reviewer may be correct, but it does matter for the purpose of the point being made here. However, the comment was referred to Chapter 8, which discusses floodplain management in more detail.
508	9	17	10	Requiring flood elevations …? Should we drop the word "flood"?	Typo fixed. Should say "floor".
509	9	17	21	Many insurance companies no longer sell home insurance in areas considered high risk, especially after severe hurricanes.	No change made. Discussed this with reviewer, who confirmed that she was thinking about wind insurance when she made the comment.
510	9	18	1	We heard in Lousiana in April '07 at the Envisioning the Future of trhe Gulf Coast Conference, that regardless of what US insurance companies and agencies do, the mostly European re-insurance companies accept increasing risk as certain and so re-insurance options are and will continue to change. This will force changes in US insurance.	Added "Federal" to subsection heading to make it more clear that this section is entirely devoted to federal flood insurance, where US Government is the re-insurer
511	9	18	2-3	Although at present, insurance companies don't consider sea level rise, they do react to the aftermath of strong hurricanes or other coastal storms. Therefore, SLR should be factored into the risks associated with coastal storm flooding, which will make these storms more destructive, even in the absence of changes in storm climatology.	No change made. The reviewer is simply stating that she is in favor of flood insurance rates including sea level rise, but does not offer any reasons beyond the reasons already discussed in this section. (We also note that the comment itself contains a nonsequitur: The fact that private insurance companies adjust their rates after a storm does not necessarily imply that flood insurance rates should include sea level rise.)
512	9	19		Section 9.7 findings add: "Using current flood risks as a basis, re-evaluate the additional flood risks due to the assumed SLR scenarios. The risks of SLR shouldn't be evaluated in isolation, but rather as added to those associated with storm-related flooding.	Dan Hudgens spoke to reviewer (on 1/2). She was speaking generally re: the flood insurance rate finding (located at end of section); her point was the need to stress that the storm-related flooding impacts/risk would be more severe. The last finding indicates the need to set flood insurance rates given the corresponding risk. As a result, the need for further study is already implicitly covered in this finding, since a study would be needed to ensure that the rates are reflective of risk. To address the commenters point that the storm-indiced impacts should be considered, we have revised the last sentence to specifically note "Rising sea level increases the potential disparity between rates and risks of storm-related flooding. "
513	9	20	4-6	Sentence is very awkard.	Revised so that structure is completely parallel to the previous sentence.
514	9	21	4	This is not how it works. See 11-1 lines 12-19	Reviewer made same point in comment 479. No change made here.
515	9	21	16	also consider vegetated buffers that have many environmental benefits and may allow for wetland migration depending on site conditions.	added vegetative buffer to list
516	9	24	9	The Nordhaus paper has been published in the Journal of Economic Literature.	Citation and reference in footnote updated.
517	10	0	Overall	As far as I know this gives a good summary of what, and how little, we are doing.	No response needed.
518	10	0	Overall	Chapter adequately answers the first question. It does not describe "adaptation options … being considered" or the tougher part, the specific implications of each option.	The prospectus of this report had originally included "What are the specific implications of the types of options considered in this chapter?" Other chapters provide this response. In addition, Section 10.2 of the report identifies the adapation options being considered at the federal, state, and local level. As described in this section, these governmentes are just now starting to consider adaptation options. As such, a comprehesive list of adapation options and impacts is not available.
519	10	0	Overall	No comments.	No response needed.
520	10	0	Overall	Chapter 10 provides a very effective and balanced consideration of the prospectus question.	No response needed.
521	10	0	Overall	Data types, sources, and analyses were competently handled in Chapter 10.	No response needed.
522	10	0	Overall	The conclusions and recommendations are adequately supported by evidence, analysis, and argument.	No response needed.

#	Chapter	Page	Line	Comment	Response
523	10	0	Overall	Unfortunately this chapter is rather brief. Suggest recognizing federal, state and local considerations related to the broader topic of "climate change", separately from sea level rise is difficult. Also see comment under "Space for additional comments that do not fit in the other categories".	No change made. This chapter must be considered as link between chapters 9 and 11, both of which are fairly extensive. It would be useful for someone to develop a complete compendium of all adaptation options, but it is not necessary for this report and resources are unavailable. SIte-specific examples are offerred in the appendices, where we did include all examples offerred by stakeholders. Chapters 9-11 present preparing for sea level rise within the context of other coastal policies, rather than climate change policies
524	10	0	Overall	People use adaptation to mean everything from biulding seawalls to buying insurance. The term should be defined in this section. Also, it is interesting that TNC is using the rolling easement program to save important ecosystems. More details on potential land values and easement values would be useful for others to consider this adaptation measure. And, a list of all possible adaptation measures used to date would be useful.	Clarified text that TNC attempted but did not actually purchase rolling easments. They found that all owners willing to sell a rolling easement were willing to provide a complete conservation easement as well. Otherwise, it is beyond our available time and resources to provide more details on land values and easement values in this chapter, which if focussed on what people are actually doing, rather than on the possible options.
525	10	0	Overall	The question of adaptation options is answered, concluding that adaptation mechanisms to alleviate impacts of sea-level rise to date are limited; however, more could be said on mechanisms being used but for other reasons. For example BMPs (Best Management Practices) for stormwater management are being instituted. An interagency BMP task force has been initiated in New York City to incorporate BMPs in the design of new capital projects. These measures meant for improved stormwater management may also help adapt to higher sea levels.	No change made. The reviewer is correct that many people would find it useful to have a chapter that discusses all of the activities that have anciliary benefits for addressing sea level rise. Doing so, however, is beyond what this report can do because one would have to consider almost every activitiy in the coast, ask whether it helps address sea level rise, and reject those that do not, to create the list of those that do. Instead, chapters 9-11 look at a limited number of issues and consider both existing activities and possible alternatives--so for those areas (e.g. wetland protection and home elevation) we do consider the effect of existing policies as well as alternatives to address sea level rise. This chapter would include an anciliary benefit for an issue addressed in chapters 9-11, but our focus is the conscious response to sea level rise.
526	10	0	Overall	A good education piece. Lays out that while historically very little actual response to sea level rise has taken place, it gives one a sense that many are standing at the threshold of possibly implementing some action. This is encouraging for others to begin thinking about taking action. Follows Chapter 9 effectively.	Added a clause to first paragraph to emphasize that point.
527	10	0	Overall	Chapter 10 does not draw conclusions and does not analyze options being considered. So, no data or statistical analyses used.	No response needed.
528	10	0	Overall	My impression is that many coastal organizations might be considering adaptation options to some extent. A benefit-cost analysis of these options, and whether they are consistent with the findings and recommendations of the rest of the report would be very interesting.	No change made. The reviewer is correct. This report can not provide such a cost/benefit analysis now, without a substantial study. We have forwarded this on to the authors of the research chapter.
529	10	0	Overall	See separate Knutti paper for additional topics/ideas. [Kevin Knuuti. PLANNING FOR SEA LEVEL RISE: U.S. ARMY CORPS OF ENGINEERS POLICY. This paper appears in the ASCE conference proceedings: "Solutions to Coastal Disasters '02" which was edited by Lesley Ewing and Louise Wallendorf.]	Author obtained paper and read it. A brief mention of the paper was added to page 5 line 11.
530	10	1	5	That preparing for the consequences of rising sea levels is the exception rather than the rule is well said!	No response needed.
531	10	2	8	"300 m of the shore" should be "1000 ft of the edge of tidal wetlands"	No Change. See response to same comment in appendix F.
532	10	3	13	In addition to landholdings eroding or becoming submerged, they may be subject to accelerated migration.	No change made. Reviewer's point seems accurate, but this is a topic sentence for what the paragraph discusses--and paragraph does not go int othat point. We have no additional infomration for elaborating on that point.
533	10	4	10	Not a factual statement. State managers, at least in Maryland, have begun to prepare for SLR. Since at least 2000, there has been a number of publications on the subject, Governor's Task Force met and made recommendations; in 2007 a Governor's Executive order established a Climate Change Commission; and considerable funds have been expended through Maryland's Coastal Zone Program have been directed to this topic. Not the least of which is many hundreds of thousands for LIDAR data. In short a great deal effort and dollars have gone into SLR issues.	Added the following: "But at least one state (Maryland) is starting to refine a plan for conservation that would consider the impact of rising sea level."
534	10	5	11	USACE policy of project benefit analysis lifespan of 25 to 50 years limits our ability to think further. However, it would be appropriate in many cases to do so where the project is actually expected to last longer than benefit analysis period as many/most USACE structures do. I am not aware of what requirements we have to deal with projects beyond their economic life. The local sponsor is presumably responsible to take them down/dismantle them. Projects that we maintain (such as Corps' reservoirs) would presumably be USACE responsibility in perpetuity, regardless of benefit analysis period.	Added mention to the Knuti paper here. We are discussing what people are actually doing, not the institutional barriers or limitations. We also considered how this point mighjt fit into the chapter 11. ... We also Spoke with Edmund O'Leary, Senior Regional Economist, Evaluation Branch, Corps of Engineers New England District on 1/15/08 who said that never in his 25 years at the Corps has any cost-benefit analysis gone beyond the lifetime of the project (i.e., he has never requested nor heard of instances were the Army Corps has considered economic impacts of a project beyond its lifetime).
535	10	5	3 to 11	More analysis would be welcome on why the Coastal Zone Management Act has not been more effective in limiting development in the most vulnerable low-lying areas--vulnerable already today, and more so in the future. Areas along the New Jersey side of the lower Hudson River have only more recently seen high rise residential development (e.g. Edgewater, NJ). In Queens, NY, the new waterfront community of Arverne-by-the-Sea is being built in stages--in partnership with the City's Department of Housing Preservation and Development. The CZMA encourages States to minimize flood and erosion hazards, yet it appears that development is not discouraged. Is it a matter of competing policies? The New York State Department of State Coastal Management Program issued 44 policies and provided for local Waterfront Revitalization Programs. New York City adopted its own City Waterfront Revitalization Program that more recently was revised from more than 50 policies to ten policies in all.	No change made. Chapter 10 references actions currently underway to address sea level rise. As such, a discussion of any difficulties in using the CZMA to address sea level rise issues is not applicable in this chapter. As the reviewer suggests, the state coastal management plans developed persuant to the CZMA are one of many state-level regulations affecting the use and development of the coastal area. Other state policies may promote development of important ecological areas; however, identification of such barriers to adapation are discussed in Section 11.3.2.
536	10	5	3 to 11	Adaptation to sea level rise is not being implemented when CZM consists of promoting heavier usage of the waterfront (even while also promoting less environmental degradation). A discussion of adaptation mechanisms may be enriched by considering the lack of effectiveness of the CZMA.	No change made. Like the previous comment, this comment would be more appropriately addressed in chapter 11, which does include a brief albeit more neutral discussion of sea level rise and CZMA.

#	Chapter	Page	Line	Comment	Response
537	10	6	8	May also consider referencing local governments in California addressing Climate change and sea level rise in their environmental review processes. See Results of Survey of County and City Planning ActivitesCalifornia the Golden State ... your jurisdiction require a CEQA analysis of the impacts of global warming on a proposed project (e.g., sea level rise)? ... www.calpin.ca.gov/information/ccl_question_results.asp	The focus of this chapter is mid-Atlantic, and we already have some discussion of CA. We will need to do more research to learn more and if the activities are unusually relevant, we will attempt to include them.
538	10	6	12	FYI - NY City together with the State University of New York at Stony Brook has been investigating the use of tidal flood gates at the Verizano Narrows and other points as a method for protecting infrastructure from storm surge (similar to London). The studies have been ongoing for over a year, but much more work needs to be done.	Added sentence. The only readily avaiable reference is a newspaper story--but several officials have conformed the reviewer's point. We are attempting to get a better citation, such as the SeaGrant report.
539	10	6	14	Add that New York City's PlaNYC 2030 plan includes an examination of adaptation options. See: http://www.nyc.gov/html/planyc2030/html/plan/climate.shtml	added sentence and citation
540	10	6	1, 2, 3	FYI - in NY a Sea Level Rise task force composed of state agencies and others has recently been created by the legislature and approved by the governor. It's charge is to recommend to the legislature and governor how the state should address SLR. The task force has not met yet, pending funding.	Added reference to pending bill. Could not find reference that the bill has been passed and signed.
541	10	10	10	Publicaton title is provided twice in the reference..	Fixed
542	11	0	Overall	The chapter does an excellent job of answering the question.	No response needed.
543	11	0	Overall	This chapter seems to view the prime institutional barriers as being governmental. That is fine as far as it goes but ignores other institutions and the barriers the erect. For example, the fact that corporations have a corporate purpose and a duty to maximize shareholder value is major barrier to certain actions as well as being a source of bias. The notion that such an entity can acquiece to shoreline retreat is to ignore its duties and objectives. Similar statements could be made for various conservation land owners, one that has undertaken to manage lands, say for rookery purposes, may not be legally nimble enough to agree to certain managment options. I think this section should be expanded to consider this class of institutal barriers. I also think that the governmental institutional barrier discussion should be refined to discuss the nature of some of the barriers.	Added paragraph making the point briefly, but more to explain why we do not address the private institutions. The author had insufficient time to expand the chapter as the reviewer suggests, though doing so would certainly provide important information.
544	11	0	Overall	Specifically I would suggest these include the narrow mission of agencies, the limits on their authorized activities (this may speak more to what programs and projects Congress is willing to authorize), funding (this would include executive branch budgets and Congressional appropriations matters, and finally agency cultures--which are at the heart of the bias issue. I feel this is necessary because it is too simplistic to say the Corps of Engineers favors structures that protect high value property over retreat. That is true but it doesn't get at the why question. They do that be cause that is what they are set up to do. Their mission (often a function of legally prescribed jurisdiction) married with their planning guidance, the project authorization and funding processs and finally their traditional areas of expertise are the building blocks of governmental institutional barriers.	Added 2 setences to make this point in the section on the Corps civil works. We would have liked to have done more with these comments.. These appear to be good ideas, but in the limited time we had to address each comment, we were unable to obtain documentation or fully think about the ramifications of what the reviewer is suggesting. . Still, if we had time to investigate the ideas that lie behind this critique, we would incorporate it more generally.
545	11	0	Overall	Good identification of programs that could change policy	No response needed.
546	11	0	Overall	Chapter 11 provides a thorough examination of institutional barriers to preparation for sea level rise.	No response needed.
547	11	0	Overall	The Chapter reflects a skillful handling of data types, sources, and analyses.	No response needed.
548	11	0	Overall	The conclusions and recommendations in this Chapter are adequately supported by analysis and argument.	No response needed.
549	11	0	Overall	From the discussion it should be qulified that the institutional barriers and biases discussion were governmental. There is an absence of coverage of financial and insurance institutions other than FEMA.	We qualified as suggested in responde to Davis comment 543. Also briefly researched insurance issue to determine whether a discussion of private insurance barriers would fit, but concluded that it probably would not because there is little known about private flood insurance.
550	11	0	Overall	One of the key issues for may wetlands is that governments and NGOs are making very large investments in current wetland systems. Mitigation and restoration uses the current sea level conditions and in many cases, the rarely have additional funds to consider needing to augment space or provide material for vertical accretion. The concern about a rising sea level can make such projects increasingly frustrating or divert needed funds from restoration with the expectation that it is throwing money away (similar to the arguement against beach nourishment.) The barrier for these projects is possible the need for information on how to keep a restored wetland viable in the face of rising sea level.	This comment mostly supports our chapter 9 anaysis of the issue, as opposed to identifying a barrier. To the extent that it identifies a barrier, it is lack of information, rather than the institutions. This should s being forwarded to the authors of the research chapter.
551	11	0	Overall	Appreciate that Chapter 11 outlines the institutional barriers to shoreline retreat. Appreciate paragraph on agencies enlisted in shoreline coordination, development and environmental protection (page 11-9, lines 13 to 16). Chapter 11 succeeds in noting the conflicts in federal programs that result in predominantly shore protection rather than shore retreat. The chapter also succeeds in giving a few examples of how different communities are already selecting long-term approaches e.g. Ocean City, MD (page 11-12) and where, how, and how not these choices make sense. The chapter responds to the prospectus question and clearly lays out issues and conflicts facing communities in light of the time it takes for coastal institutions to respond to sea level rise.	No response needed.
551b				The organizational headings are not always logical. Section 11. 3 on coastal development has a subsection on armoring v living shorelines, and a section on coastal development	Reviewer was correct; headings garbled in editing. Corrected now.
552	11	0	Overall	Very thoughtful Chapter and educational for those who are not familiar with the programs described and their interplay in promoting and/or discouraging development and priorities in responding to shoreline issues, particularly development related issues. Gives coastal managers thoughtful alternatives to consider.	No response needed.
553	11	0	Overall	NA. The appropriate approach to answering this question is qualitative, not quantitative.	No response needed.
554	11	0	Overall	The conclusions are appropriately supported by evidence and argument.	No response needed.

#	Chapter	Page	Line	Comment	Response
555	11	2	9	"… a federal preference for hard structures may prevent state officials from encouraging soft structures", or encourage locals to ask for hard structures despite state & local government opposition	Conversation with reviewer suggested that he was actually thinking about the federal cost share for protection tending to thwart the state policy promoting retreat. That idea is actually discussed a page later in the protection v retreat section. Therefore, no change made.
556	11	3	3	How developed? High population, urban areas, yes. A barrier shoreline with 10 houses?	No change made. This was a setup paragraph for what we discuss below--but the literature gives us no basis for a precise hard line that would apply in all circumstances. The higher the cost, the higher the benefits would have to be to justify protection--benefits usually correlate with level of development.
557	11	3	12	This section, titled State shore protection, appears to be all about beach nourishment. There is no discussion on amoring, soft shores, etc.	Added sentences on MD's program for private shore protection.
558	11	3	7, 8	I believe that in some shore protection projects, the COE can implement a "locally preferred plan" so long as the plan has an excess of benefits over costs, even if that plan is more costly than the shore structures plan.	This comment along with 555 led us to recast this paragraph away from a pure bias for protection and toward a more nuanced combination of preferences.
559	11	5	19, 1, 2	for this and other reasons, NY has said that the nationwide permits for bulkheads and erosion structures are not valid in special management areas in New York without our consistency review of the individual projects. The special management areas cover a large percent of the coast line.	Inserted comment nearly verbatim. Substantiating reviewer suggestion requires an explanation that puts together several different publisehd sources, which would be too complicted for this chapter. Instead, this comment was referred to App A and the text insertion cites Appendiix A.
560	11	6	6	Not sure this fits here, but paradoxically in Maryland some in Bay Program are approaching shoreline erosion topic from perspective that shorelines "need" living shoreline projects to prevent introduction of additional sediments into Bay water column that would reduce water clarity to the detriment of SAV.	Reviewer's intuition that this does not quite fit here was correct. The comment does, however, fit alongisde the comment 557. That is, the comment relates to the discussion of retreat v. protection. We have added text to support the reviewer's point, and referred the reader to Appendix F for additional details. The reviewer indicates that that he has personally witnessed agencies take the approach cited here--but does not have the written documentation that such approach ahs been taken. That particular argument has been made before, and there is documentation of it being made in the past, albeit not recently. That is a level of detail better explained in Appendix F.
561	11	7	4	State and local can have a very strong impact, especially with zoning and other regulations, determine public benefits and weigh against property tax loses.	No Change. Reviewer appears to be agreeing with the overall thesis of this paragraph.
562	11	7	14, 15, 16	The relationship between densities and federal funding for shore protection has been noted in NY. Communities that try to minimize density along the shore as a way of controling risk, are penalized when it comes to securing federal shore protection projects because the benefits don't add up. Conversely, communities that ignore appropriate land use measures to control development and risk at the shoreline are rewarded by high benefits in Corps projects.	Added sentence making the point, citing Appendix A. Referred this comment to Appendix A to explain this observation in more detail.
563	11	8	10	Not only uninsurable, prohibited.	Made the change.
564	11	9	3	I thought that the flood insurance program has had to draw from general funds to cover it's liability? If that's the case can we conclude that rates seem to reflect the risk?	Added a sentence to that effect, but three paragraphs above line on which reviewer commented, where the text discussed the subsidy question.
565	IV	0	Overall	No comments.	No action necessary.
566	IV	0	Overall	The brief examples of potential local scale affects in this section should spark the reader towards reading more detail about areas of interest in the Appendices. This section and Appendices will 'more then likely' gain the attention of local officials and possibly get them critically thinking about the future effects of 'relative' sea level rise.	No action necessary.
567	IV	1	20	Is there a reason for not including Appendices G & H? Note NC is discussed on page IV-16.	Revised to include G. Did not include F because it is a modeling study, not a local scale discussion.
568	IV	3	22, 23	Along the mainland shoreline on the Atlantic shore (south shore) the Town of East Hampton recently adopted an overlay district which prohibits shore protection structures in many areas of the Town's coast. Shoreline armoring is allowing in certain areas, but much they are prohibited along much of the open Atlantic within the Town.	Revised to only discuss existing shore protection. There is no discussion here of future shore protection, so did not incorporate this comment.
569	IV	6	Fig. 2	Last sentence in the figure caption; the department of state does not have a local planning department, and the department of state did not have a role in producing this map.	Figure no longer appears in Part IV, consistent with changes to Appendices.
570	IV	17	2	edit: ….relocate the coastal highway NC 12 and the Cape Hatteras….	change implemented
571	V	0	Overall	Part V is redundant in terms of the information regarding the mid-Atlantic region. However, this is to be expected if the region is to be put in perspective of potential changes along other coasts.	Agree. Editing has reduced the redundancy and shorted PartV.
572	V	0	Overall	Important to include. Sea level rise has national implications.	ok
573	V	0	Overall	In general, this chapter could be improved by including the most recent results of impact studies in different parts of the U.S. and provide more documentation for statements like "more likely," "very likely" … etc.	The scope of this report precludes including all recent results from other regions of the US. We provide documentation for use of "likely" terms in earlier chapters.
574	V	0	Overall	Sections V.2 and V.3 are somewhat repetitive with info in Chapter 2, but expands on that text to cover other coasts/settings. This text isn't lengthy, but it's worth a second look to ensure that the discussion is limited to what's needed to make subsequent points in the remainder of the chapter.	Agree. The text has been edited to reduce redundancy and length.
575	V	0	Overall	While interesting, this Chapter should be limited to a grand summary and 'highlighting' of the entire report. Much of the beginning part is repetitive. Repetition should be eliminated or the reader – like me – will have a tendency to 'skim' this chapter. Summarizing and 'highlighting' the important findings of this SAP – in slightly more detail than the Executive Summary & Key Findings - should be the sole goal of this Chapter. This does occur further into the chapter.	Agree. The text has been edited to reduce redundancy and length.
576	V	0	Overall	In that way, if a potential reader of this SAP is not sure whether to read the entire report, they could begin with this Chapter and be lead to specific chapters of interest to them (e.g. eliminate Sections V.2 & V.3 as – for the most part – repetitive.	Agree, links to specific chapters have been added to guide the reader to detailed discussions.

#	Chapter	Page	Line	Comment	Response
577	V	0	Overall	If the Chapter is shortened to provide a summary and highlighting of the SAP, perhaps put in parentheses the section where a detailed description of the summary can be found in the SAP – this occurs only in the second half of the chapter. This Part, particularly Section V.6 - V.7, could be titled, 'comparisons with previous assessment predictions'.	Agree, links to specific chapters have been added to guide the reader to detailed discussions.
578	V	0	Overall	Combine and condense sections V.2 and V.3. Indicate the % of U.S. shoreline in each of these categories, or show as maps.	Test has been combined. Generating new maps is beyond the scope of this study as it relies on existing materials.
579	V	1	10	…have increase**d** dramatically...	done
580	V	1	10	Change "…have increase dramatically…" to: increased	done
581	V	1	17	sand sources and sinks are not a physical process. They grow or decline as a result of physical processes	Agree, sand sources and sinks are "factors" that act in concert with the processes. The text has been modified to clarify.
582	V	1	22	change "...rates higher that those…" to: than those.	Agree. Fixed.
583	V	2	2	Sentence refers to the three factors, but I can't find what those are.	Fixed
584	V	2	9	The title refers to cliff and bluff shorelines, but depending on how you define bluff, the paragraph only discusses cliffs (hard rock shorelines). In NY our bluffs are composed of glacial till and are not composed of hard rock.	Agree. Text has been changed.
585	V	2	Fig. V-1	It is interesting to note that the Great Lakes are showing moderate to severe erosion problems even though they are not affected by rising sea level. How is this explained?	Great Lakes are not a part of this report, but erosion there is due to wave and wind action and changing lake levels.
586	V	3	9	Coastal bluffs should be included. They provide the sediment source for beaches and barriers.	Text detail has been added.
587	V	4	7	Coastal wetlands section should be expanded as emphasis now is only on five states (see comment(s) below on page V-4). Coastal wetlands can play a crucial role as an alternative to hardened shorelines if allowed to be maintained and/or restored.	Wetlands text has been added to and edited.
588	V	4	8	Insert Mangrove swamps as a type of Coastal wetland (other types can be listed as well) or add Mangrove Swamps as its own subsection. Mangroves are of special importance in the report as they act as buffers during storms, slowing wave action inland and reducing likelihood of marsh drowning.	Agree. Text has been added.
589	V	4	16	Projection - which is?	Agree, but that amount of rise was likely greater than the scenariors used in this report. Storms and turbulence are also likey to threaten reefs.
590	V	4	23	Past sea level rise events did kill coral reefs. Sea level rise is likely to affect light levels that reach the reefs, and impact those species that need higher light levels.	Agree that very rapid rise in sea level can cause die off in coral if coral growth can not keep pace with the rise or if other factors such as water temperature or increased turbidity increase greatly.
591	V	4	10, 11	Sentence indicating that "Most coastal wetlands of the US are in Louisiana, the Carolinas, Florida, and Alaska" should perhaps be broadened to encompass idea that while there is a major concentration of coastal marshes in these states, all other eastern seaboard states have coastal marshes as well. At a minimum there can be a slight change in wording and an added clause: While the greatest expanses of coastal wetlands of the U.S are in….and Alaska; a string of coastal marshes are found along the eastern seaboard from [the southern tip of] Maine to Florida. If appropriate, another approach can be used. Currently paragraph on Coastal wetlands begins with definition and geographical position in the landscape. Next describes the dominant locations and limits their mention to five states.	Agree. Text has been edited to expand the wetlands discussion.
592	V	4	10, 11	Instead the emphasis should be on how ubiquitous they are from Canada to Louisiana plus Alaska; that they formed in the glaciated Northeast in the last approximately 5000 years as sea level slowly rose in quiet protected embayments and behind barrier beaches, and they formed in the unglaciated region from New Jersey south on the eroded sediments of estuaries (Chesapeake and Delaware) or in the deltaic formations (Mississippi)...(Add references such as Redfield ____, Teal and Teal, 1969).	Due to limited space, we can not go into great detail about the origins and history of wetlands throughout the US. Some of this is included in chapter 3.
593	V	7	Fig. V.2	Map shows tide gauge data for stations with at least 50 years of data. In perusing COOPS/NOAA website, opportunity for reinstating stations that were discontinued. This would increase coverage and may be worth mentioning.	Agree. Expanded gauge coverage is a recommendation in Part VI.
594	V	7		Fig. V.2 Differentiate the colors more clearly.	ok
595	V	8	12	The Academic Press book on sea level rise by Bruce Douglas and colleagues has more updated information and is better than that produced by Emery and Aubrey (1991). In fact, major errors have been found in that 1991 publication.	Agree.
596	V	8	19	databases	ok
597	V	8	26	Period needed at end of sentence.	ok
598	V	9	9--20	Add as shown in section__Fig. ___ there is a paucity of available data on topographic contours beyond that given in the USGS topo sheets in shoreline areas where there are high density populations, e.g. NYC and Nassau County.	Comment does not fit into this paragraph, which is addressing USGS shoreline data. It is addressed in research chapter.
599	V	10	17	How is the Coastal Vulnerability Index (CVI) useful? I don't see how it really relates to this report. In fact, some of the factors used in this CVI have the wrong signs. For instance, low tide areas are more vulnerable to hurricanes than high tide areas, which is opposite of what is presented by Gornitz et al (1989) and used in the development of the CVI.	CVI is germane to this report and widely used as a planning tool by te NPS as well as in Canada.
600	V	10	20	"resulting from" instead of "due to"	ok
601	V	10	17, 18	Gornitz et al. 1989 and Gornitz et al. 1989, 1990 and 1994 cited on page V-10 but they are missing from the reference section that follows the chapter--See page V-26. Viven Gornitz can be reached at vgornitz@giss.nasa.gov.	OK
602	V	13	18	Which wetlands can sustain themselves by keeping pace with rising sea level? This is the important information that we need to know.	Wetlands response to SLR is discussed in Chapter 3.
603	V	13	22, 23	In addition to erosion, storms can also result in deposition on barrier island shores (overwash, breaches).	agree.
604	V	13		Provide basis for bolded statements "more likely," "very likely," etc.	done

#	Chapter	Page	Line	Comment	Response
605	V	14	8	**This statement is not based on science and is not factual. This indicates that there is a fundamental misunderstanding of coastal processes and geomorphology and that this report must be totally redone!** No data have been presented whatsoever in this report that indicates that the Outer Banks of North Carolina barriers are in danger of collapse and disintegration—this has been the assertions and speculations made (without data) by Stanley Riggs of East Carolina University.	The potential for collapse of the NC barriers is reported and discussed in Riggs' and Culver's papers. More discussion is in the Context and chapter 2.
606	V	14	25	This report does not reflect the present knowledge and understanding of coastal geomorphology. There are many key papers that are not even cited in this report, much less discussed in a scientific manner. No wonder it is implied that there has been no scientific progress made in the past 25 years.	If reviewer is aware of key refs other than his own that could inform this report, we would welcome receiving them.
607	V	15	2	Add: "…new data for the mid-Atlantic region."	done
608	V	15	4	It is stated that sea level rise impacts are sensitive to the rate of rise. This may be true for coastal wetlands, albeit the case has not been made herein. Certainly the case has not been made or even broached regarding barrier coasts.	There is considerable literature about wetlands and barrier islands being sensitive to SLR. Much is summarized and cited in the report.
609	V	15	11	Perhaps I missed it, but where in this report is it clearly shown that the area of dry land vulnerable to a 1 m rise in sea level rise is 2x vulnerable to a 50 cm rise, rather than 1.5 times as previously estimated. This is very important—there should be a box that lays out this case scientifically.	This is a finding from Chapter 1.
610	V	15	13	"resulting from" instead of "due to"	ok
611a	V	15	21	Where are the data that back up the assertion that sand required to maintain a stable beach increases more than proportionately with the rate of sea level rise?	Revised text to reflect that the new finding that shoreline retreat may increase nonlinearly with sea level rise may logically lead to a nonlinear increase in need for shore protection and replenishment.
611b	V	15	21	How is the U.S. mid-Atlantic coast different from the rest of the U.S. East barrier coast? There are a lot of bold statements made here, but I see little or no substantiation.	Context is that findings for mid-Atlantic may have implications for the rest of the nation, but nationwide assessment has not been conducted yet.
612	V	15		Chapter IV: Conspicuously does not mention non-tidal wetlands. (Albemarle/Currituck and Pamlico Sounds area..	Comment appears to be directed to Chapter 4, not Part IV.
613	V	16	2	Add: "…be protected at correspondingly greater expense."	Text no longer appears in this section.
614	V	18	15	Explain the huge difference from line 14.	Changed text to say that smaller number by Weggel et al. only considered existing development--consideration of recent and future development would likely increase estimates of total cost of shore protection
615	V	18	19-22	I question the assumption that the cost of providing more protection to more areas of the coast is linear. That does not square with my experience. I would at least want to see that assumption explained.	Section no longer makes this assumption.
616	V	18	21-22	Explain.	Section no longer makes this assumption.
617	V	19	17, 18	Not sure exactly what "living shoreline" refers to, but I was surprized to see that it is more expensive than a bulkhead?	Statement no longer appears in this section.
618	V	20	2	Probably not gradual. AS easy to get supplies run out the costs will increase rapidly.	Statement no longer appears in this section.
619	V	22	6	It would be good to show the wetlands that are not able to keep pace with the current rate of sea level rise and state the reasons for this situation. This is important information.	Discussion no longer appears here (see Chapter 3 for more on this topic).
620	V	23	13	It all comes down to a data problem when trying to determine the impact of sea level rise on wetlands and other low-lying shores in a sheltered wave environment. Only high quality data should be used in such an analysis, rather than relying upon data with such a huge range in vertical accuracy (15 cm to 6 meters) to come up with maps and tabular data.	Text no longer appears in this section (see Chapter 1 for more on this topic).
621	V	24	7, 8	Overview on National Implications did not explain adequately what is covered elsewhere in the report on paucity of data on topographic contour maps regarding shoreline elevations. USGS maps offer only the 10 ft contour lines and is the best that is available for some areas, and the most accurate, LIDAR technology, is available only on a very limited basis.	Fully agree on the need for better high resolution elevation data and the problems of "over interpreting" the current coarse data to make predictions of future impacts of sea level rise. This issue is discussed in the Context, chapter 1 and Parts V and VI.
622	V	26	19	Minor editorial comment: Citation should be M.G. Honeycutt, not M.R.	done
623	V & VI	0	Overall	Parts V and VI are effective at putting the report findings and recommendations into perspective. In particular, Part V is an excellent summary of the most critical issues and decisions to be made.	done
624	V & VI	0	Overall	I find Parts V and VI excellent, well-written sections of the report. I certainly think that the discussions in Parts V and VI provide essential perspective for the report.	Noted.
625	V & VI	0	Overall	I found Parts V and VI helpful in putting the report in perspective.	Noted.
626	VI	0	Overall	The recommendations for future effort are heavily weighted towards the physical and biological science. Little attention is paid to the social science monitoring and research needs.	Added a new bulleted item and accompanying text describing social science research needs.
627	VI	0	Overall	Fine as far as it goes but this is more strategy for doing more science than for integrating into decision making. I would urge more fully developing this to include a discussion of how the institutional barrier issues might be addressed or accomodated by this strategy	Added a new bulleted item and accompanying text describing social science research needs.
628	VI	0	Overall	Good strategy recommendations. If sea level rise rates accelerate there may be less time to plan and implement responses. The recommendations for baseline data, monitoring, observation systems, will allow for identification of and hopefully adaptation to ecosystem and other coastal changes.	Noted.
629	VI	0	Overall	Of the 12 primary recomendations, 10 advocate additional studies of a scientific nature. The other two address more social or applied aspects, but based on the decriptions, they seem relatively generic (especially compared to the specificity of the science studies) and could be seen as less actionable for decision makers. Are there no needs for better understanding the social science or behavioral aspects of sea-level rise (i.e., societal consequences and/or adaptation options that can overcome current impediments)? Perhaps this type of recommendation goes beyond the intent of the SAP. However, if I am a decision maker looking for steps I can take in response to sea-level rise, the funding additional scientific research seems to be the main thing to do.	Added a new bulleted item and accompanying text describing social science research needs.

#	Chapter	Page	Line	Comment	Response
630	VI	0	Overall	This is an excellent compendium, along with the addition of proposed new initiatives to understand, predict and act on issues related to the effects of not only relative sea level rise, but living along the shores of the US. It is an excellent compendium for research funding agencies to help prioritize funding areas.	Noted.
631	VI	0	Overall	However, I suggest that the authors of this SAP prioritize the many new and continuing research and data gathering proposals, and select only several as 'top priority' for research funding.	Prioritization is not within the charge of the SAP.
632	VI	0	Overall	While all of the suggestions for further research and data gathering in this Part are important, the initiatives listed on pages VI-9 thru 13 are particularly timely, and appear that they may be the most helpful towards actually implementing local and regional initiatives addressing relative sea level rise impacts in the time frame addressed in this SAP -- while the scientific community continues to gather time series data.	Noted.
633	VI	1	22	Not sure costal managers want "ready access to the data". Generally we don't have the time to sort through the data. We'd rather read the interpretations from the scientific community and determine how those might apply to the specific cases we deal with.	Text revised to place more importance on communicating results. However, a number of comments on the prospectus indicated that stakeholders wanted access to the data as well.
634	VI	2	Fig.	I believe the figure need the addition of studies of societal responses to both sea level rise and erosional changes. Virtually all the science proposed would study past responses to sea level changes (when people were not significantly interacting with the properties of the shores) or to provide information to managers, etc. about physical processes. How will people respond? Not just the stockholders who show up at public meetings now, but how will the general public respond as things change at the shore? Good social science, anthropology, sociology, economics, etc. is needed. The NRC report "Drawing Louisiana's New Map" noted this need for that area.	Added a new bulleted item and accompanying text describing social science research needs. Added new bulleted item and accompanying text describing the need for study of natural and human-influenced systems.
635	VI	2		How does this USGS science strategy really answer the questions that need to be answered about sea level rise impacts? They need to demonstrate what all these data will deliver. For instance, how will more wave gauges (even though all coastal scientists would like to have such data) help solve the question of quantitatively determining sea level rise impacts?	This chapter is not a USGS science strategy. It is a set of recommendations for research that can be undertaken by federal agencies, state agencies, academic institutions, non-governmental organizations, etc. Wave gauges are not suggested. Tide gauges are suggested as part of a monitoring program for sea-level changes.
636	VI	3	12	How is it going to be possible to really understand the behavior of barrier islands during previous interglacial periods when all that is left are scant remnants of the geologic past? Unfortunately this is like trying to describe an elephant from only some hair that has been left behind.	Text was revised to reduce emphasis on past shoreline changes.
637	VI	3	24	While some indicators of past sea level can be found on the coastal plains, how useful is this information for future quantitative predictions of the impacts of sea level during the present period of rise, which appears to be accelerating? This needs to be clearly stated in this report, not just providing references. The question is again what do we know and what don't we know. What can we learn from certain types of data and what is not possible from other types of studies? This report confuses all of these issues.	Text was revised to reflect the potential utility of using past shoreline positions to illustrate possible outcomes of long-term sea-level rise, rather than a source of quantitative data for making predictions of impacts.
638	VI	4	6 to 12	While I would like to believe that geologic studies are going to provide great revelations, I don't see how remnants can provide any quantitative guidance or even information on thresholds for barrier disintegration a la Sanders. This appears to be wishful thinking. The case needs to be made in this report or else this material must be deleted.	Text was revised to reflect the potential utility of using past shoreline positions to illustrate possible outcomes of long-term sea-level rise, rather than a source of quantitative data for making predictions of impacts.
639	VI	5	20	Satellite altimetry should be mentioned at this point because these data need to be used in coordination with tide gauge data (in addition to the section on page VI-7, line 17).	The text describes the necessity of having both tide gauges and satellite observations of sea-level.
640	VI	7	3	How useful is this IOOS data collection for sea level rise impacts? This must be clearly stated; otherwise, this section should be removed, regardless of the fact that coastal scientists like to have wave data for many reasons.	The text describes a number of observing systems that have potential applicability to sea-level studies. IOOS and other efforts include far more than wave data.
641	VI	10	4	Interrelationships among species, between habitats, and community data are needed as well.	Text was revised to include more explicit mention of habitats and biological processes.
642	VI	10	19	Where is CVI being used as a coastal planning and management tool? And, if so, how is it really being used? I think that the sections on CVI should be eliminated from this report as they are not really relevant.	In the U.S., The CVI technique is being used by the National Park Service to assist in formulating long-term plans (General Management Plans) as described in the Thieler et al. 2002 reference cited in the text. In Canada, the CVI studies of Shaw et al. (1998) cited in the text have been used to guide the development of detailed assessments in Atlantic Canada and elsewhere (e.g., studies listed at http://adaptation.nrcan.gc.ca/projdb/index_e.php?class=115).
643	VI	11	6 to 12	This section should be completely rewritten. In addition to many typos, it really does not say anything and certainly is not a good summary of what is known about coastal processes and geomorphology, especially with respect to sea level rise impacts.	Section revised.
644	VI	12	11- 19	Development of Decision Support Systems based primarily science- based tools is the ideal, however the discussion should also recognize that adequate or perfect science- analysis is rarely available in a timely manner for decision making, much less results clear and definitive for land use planning policy development and decision making. Guides and model decision support systems based on imperfect science likewise needs to be developed to at a minimum provide state and local governements useful tools to incorporate the issue into their processes.	Text revised to describe the necessity of transferring scientific information to social science and decision support efforts. The figure in the text includes feedbacks (arrows) showing the iterative nature of the process.
645	VI	13	5, 6, 7	Until the engineers begin to accurately value natural resources in the same terms as they value projects costs and benefits to infrastructure, we will be unable to get a true cost/benefit analysis and thus planning will be biased toward shore protection.	Noted.
646	VI	18	7	InSAR should be IFSAR	Both forms are common. See http://www.csc.noaa.gov/crs/rs_apps/sensors/ifsar.htm
647	VI	19	6	1st reference to LIDAR. Spell out.	Merriam-Webster's Dictionary defines "lidar."
648	VI	19	17	lidar SHOULD BE lidar	Merriam-Webster's Dictionary defines "lidar."
649	A	6	5	No cliffs on the north shore, just bluffs.	change made to text

#	Chapter	Page	Line	Comment	Response
650	A	18	22	Feasibility is not the criteria for permitting shore hardening structures. As discussed above, they are only allowed by state policy where it can be demonstrated that non-structural or soft-structural approaches will not work.	Revised text to indicate that "Shoreline structure, which by definition includes beach nourishment in New York State, are permitted only when it can be shown that the structure can prevent erosion for at least thirty years and will not cause an increase in erosion or flooding at the local site or nearby locations " Also inserted citation to state policies
651	A	19	7, 8, 9	As discussed above, East Hampton has adopted, and is now enforcing, a zoning overlay district that prevents shore armoring along much of their coastline.	Incorporated information and citation into text.
652	A	A.3		In the discussion on shore protection on LI, the author is probably correct about the likelihood of shore protection due to SLR based on past practices. However, it is troubling because there are several efforts underway on LI to slow or reverse the expectation that the shores will be protected. Certainly, I cannot say how successful they will be, and they certainly will take a long time, but none-the-less there are steps beginning. For example, there is currently an attempt to direct a major Corps of Engineers shore protection project away from 50 years of beach nourishment, to a combination of nourishment and land use measures. The goal is that at the end of the 50-yr project life, only land use measures would be in use. Elevation and buy-outs are being considered for the flood zones within the project area (page 18, lines 8 to 11 in this appendix) The Long beach project addressed in lines 6 to 9 did not go forward. The City of Long Beach decided they did not want the beach nourishment. East Hampton Town has recently adopted a zoning overlay district which prevents hard structures along many segments of their coast.	Added additional text to section to indicate the preference of the DOS staff to prmote land use managmenet over shore protection efforts.
653	A	A.3		Efforts are underway at the state level to improve performance on administering regulations that address shore protection structures. At least at the federal, state, and some local levels, the expectation that shore protection will occur is being questioned.	See response to 652.
654	A	6	9	Insert additional footnote for publication on historical marsh loss on Western portion of Long Island Sound (at Marshlands Conservancy in Westchester County) by Hartig et al. Reference and website is as follows: Hartig, E.K. and V. Gornitz. 2004. Salt marsh change, 1926-2003 at Marshlands Conservancy, New York. 7th Bienniel Long Island Sound Research Conference Proceedings. Available online at: http://lisfoundation.org/downloads/lisrc_proceedings2004.pdf. Accessed November 1, 2007.	citation will be added
655	A	9	2	Note that state has jurisdiction up to 300 feet beyond the wetland boundary (150' in NYC). For the most part, when permits are issued a minimum 75' buffer (less in NYC) is required within the conditions of the permit. Inquire if NYSDEC can require more buffer than 75' within the jurisdictional area.	This information has been added to the text as a footnote.
656	A	9	13 to 16	Russel Burke likely has a paper or article on diamondback terrapins that could be references as part of footnote #37.	added citation
657	A	18	12	Shoreline armoring is an option for property owners, but state policies require that they first evaluate non-structural approaches, and then soft structural approaches, and only if those can be shown not to be effective can they graduate to armoring. In many areas along the open coast, state Coastal Erosion Hazard Area regulations do prevent shoreline property owners from constructing shoreline armoring because of the impacts it would have on natural features, like dunes and beaches. Typically emergency permits are only issued to allow applicants to address the emergency. They may still have to go through a permit process once the emergency has abated.	Revised this section to clarify state policies are hard structures.
658	B	1	2	Change "...uptown Manhattan..." to "...downtown Manhattan..." As described by Gornitz et al. 2002, areas of risk are lower Manhattan.	changed text as suggested by commenter
659	B	1	14	Gateway National Recreation Area, not Center	name corrected
660	B	1	14	Change "Gateway National Recreation Center" to: "Gateway National Recreation Area"	name corrected
661	B	1	14	Examples of recreational lands should be revised. Howard Beach is a residential area not parklands. Spring Creek Park more commonly refers to a section under jurisdiction of New York City Department of Parks & Recreation (north of Belt Parkway). The section marked in atlases as Spring Creek Park (east of Spring Creek, GRNA) is rarely accessed, while the section west of Spring Creek is actually the Fountain Avenue Landfill undergoing remediation. It may be opened to the public in the future. Would keep mention of Floyd Bennett Field (active recreation) and then add Jamaica Bay Wildlife Refuge (for birdwatching and other passive recreation), Fort Tilden and Riis Park (for its boardwalk and bathing beach).	revised text as suggested by commenter
662	B	1	16	South Beach and Oakwood Beach commonly refer to specific low-lying residential areas in eastern Staten Island. NYC Department of Environmental Protection is planning "Bluebelts" in these repeatedly flooded residential neighborhoods; the Bluebelt Program would use remaining open space for stormwater management.	revised text as suggested by commenter
663	B	1	Fig. B-1	Better connection can be made between places identified in the text and their locations on the map (Fig. B-1).	Figure B.1 has been updated
664	B	2	Fig. B.1	Suggest removing Subway Island label and replacing with a label for other (better recognized) island marshes to the east--Big Egg Marsh, Little Egg Marsh or Yellow Bar Hassock.	Figure B.1 has been updated
665	B	2	Fig. B.1	Label for Floyd Bennett Field should be included as it is mentioned in text. Airports mentioned on page B-1 and B-3 can also be labelled on Fig. B-1. Hackensack Meadowlands can also be labelled (mentioned on page B-3)	Figure B.1 has been updated
666	B	3	3	To be more specific would recommend changing "Meadowlands Commission," to the New Jersey Meadowlands Commission (formerly the Hackensack Meadowlands Development Commission).	changed name as recommended by commenter
667	B	3	16, 17	Some of Queens drains into Jamaica Bay. Appears not to be covered here or in Table B.1	Added footnote to Table B.1

#	Chapter	Page	Line	Comment	Response
668	B	4	Table B.1	List of localities is fine but note that Tables B-1 and B-2 refer to Brooklyn and Staten Island, while Tables B.3 and B.4 use their County names, King's, and Richmond Counties.	Tables B.3 and B.4 have been updated to use the familiar NYC "borough" names
669	B	4	Table B.1	Queens is not included at all in Table B.1, and Brooklyn is missing from the lower portion of table. Page B-3 lines 16 & 17 state that Brooklyn and Queens portions drain into Long Island Sound are in Appendix A. Nevertheless portions draining into Jamaica Bay and would appear to belong in Appendix B.	Added footnote to Table B.1
670	B	5	10	Suggest naming several Staten Island marshes e.g. Arlington Marsh and Saw Mill Creek Park, Staten Island.	added marsh names as ssugested by commenter
671	B	5	15	Change "…Fresh Kills wetland..." to: "…Fresh Kills Park on the former Fresh Kills Landfill..." Note that the 405 hectares includes uplands.	revised text as suggested by commenter
672	B	6	6	Jamaica Bay section should include reference given in Appendix A, Long Island #37: Dr Russell Burke in regard to Jamaica Bay Wildlife Refuge diamondback terrapin project.	citation was inadvertently omitted from public review draft--will make change during final revision
673	B	6	7	Change "between" to "in": "Jamaica Bay, located in Brooklyn and Queens…"	changed text as suggested by commenter
674	B	6	25	Having been there recently, beach nourishment at Coney Island appears to have been completed since this was written.	text deleted
675	B	6	14, 22	See text of Footnote 15 on Page B-17: Hartig reference can stay as is; however, separate George Frame statement to match end of paragraph on Page B-6 as an additional footnote.	footnote no longer in text
676	B	7	20 to 22	Please complete the comparison--is it for the Hudson River?: "…features the greatest mixing of ocean and freshwater…"	added "Hudson River" for clarification
677	B	8	23	Again, may wish to refer to work by Dr. Russell Burke (see above, page B-6,7, line 6)	citation added
678	B	8	4 to 23	A little confusing where Jamaica Bay island information is discussed versus region. Change Line 7 from "The islands provide specialized…" to "Islands in Jamaica Bay and elsewhere in New York City and the vicinity provide specialized…" Move bulleted paragraphs around and list the first two (lines 9-14) last so that Jamaica Bay island fauna (lines 15-23) are described first, followed by North and South Brother Island descriptions and more.	revised text as suggested by commenter
679	B	8	4, 5	Change 1994 to 1999 in: "It is estimated that between 1974 and 1994, the smaller islands of Jamaica Bay lost nearly 80% of their vegetative cover.33" (Checked reference in Hartig et al. describing wetland losses from 1974, implying to end of study period in 1999.)	changed 1994 to 1999 as recommended by commenter
680	B	8	9 to11	Line 9: Change "...are located on…" to "...are or have been located on…" Unfortunately herons have, for the most part, abandoned Prall's and Shooter's Islands. While they are unlikely to return soon to Prall's Island as tree removal was conducted there in 2007 due to Asian Long-Horned Beetle infestation, restoration is underway to attract heron nesting in the future.	revised text as suggested by commenter
681	B	9	7	Some of Westchester County would perhaps be covered in Appendix A--where the shoreline faces Long Island Sound north of New York CIty. While stated that almost no land will not be protected in Westchester County, it should perhaps be noted that Westchester parklands is less likely to be protected. The Marshlands Conservancy in Rye, NY, is less likely to be protected under current park management. The marsh loss there has been 30% from years 1974 to 2000 (Hartig et al. 2004).	text no longer in document; comment no longer applies
682	B	9	18	Clarification needed that referring to beginning of paragraph, not previous sentence in: "However, some portions with heavy use…"	text no longer in document; comment no longer applies
683	B	9	16, 17	In: "The State Open Space Plan also identifies several coastal properties, known collectively as the Staten Island Blue Belt as priorites for preservation in this area. 1) Correct name is the "New York State Open Space Conservation Plan." 2) Many coastal properties named in the plan and located in Region 2 (New York City) are not part of the Staten Island Bluebelt Program, such as properties in Eastchester Bay, Harbor Herons Wildlife Complex, Harlem River, Jamaica Bay and more. 3) Bluebelt is one word.	Revised text to read: "The New York State Open Space Plan identifies several coastal properties in the area as priorities for conservation, including properties known collectively as the Staten Island Blubelt Program. Other priority coastal properties in the plan include properties located in Eastchester Bay, Harbor Herons Wildlife Complex, Harlem River, and Jamaica Bay in Region 2 (New York City)."
684	B	9	19 to 21	Helpful to be more specific at end of sentence: instead of "...for environmental reasons" state that abandoned landfills that were/are being made into parklands are very likely to be protected from erosion in order to ensure the integrity of landfill capping and remediation. Separate sentence to give full emphasis to the landfill issue and sea level rise may be worthwhile.	text no longer in document; comment no longer applies
685	B	10	Table B.2	Perhaps footnote #1 would be better placed at the end of the sentence.	Table deleted. Response no longer needed.
686	B	12	4	Hackensack Meadowlands is okay, but referred to only as the Meadowlands on page B-3 (see other comments on the Meadowlands). Note that New Jersey Meadowlands Commission dropped the word Hackensack from its title recently.	deleted "Hackensack" from name of Meadowlands
687	B	12	17	Unclear: "...isolated from sea level changes"	text no longer in document; comment no longer applies
688	B	12	9, 10	Change "Sawhill Creek Wildlife Management area" to "Saw Mill Creek Wildlife Management Area." Check if Sawmill Creek Wildlife Management Area includes both Bergen and Hudson County.	text no longer in document; comment no longer applies
689	B	13	16	Perhaps needs clarification--while nearly all people within New York reside in areas where the shoreline is likely to be protected, many live in higher elevation areas that are unlikely to be flooded.	text no longer in document; comment no longer applies
690	B	15	9 to 12	Check wording as it may be misleading. Required buffer around wetlands depends on permit conditions as obtained from NYSDEC. Jurisdiction is up to 300 feet outside NYC and 150 feet within NYC. Permits often given for construction activity within 75 feet outside NYC and 30 feet within NYC.	Revised text to read: "The required buffer around wetlands depends on permit conditions as obtained from NYSDEC. Jurisdiction is up to 300 feet outside New York City and 150 feet within New York City. New construction greater than 100 square feet (excluding docks, piers, and bulkheads) as well as roads and other infrastructure must be set back 75 feet from any tidal wetland, except within New York City where the setback is 30 feet." Comment about permits given within these limits is anecdotal, so it was not included.
691	B	16	6	…to adopt "or exceed" minimum state policy standards…	text no longer in document; comment no longer applies

#	Chapter	Page	Line	Comment	Response
692	B	17	Footnote 13	1) Change "New York City Parks department" to "New York City Department of Parks & Recreation" 2) In explanation at end of paragrph on refuge type, a misunderstanding remains. Jamaica Bay Wildlfe Refuge is the only wildlife refuge under national (federal) jurisdiction managed by the National Park Service, all others are managed by Fish & Wildlife Service.	changed name to parks department as suggested by commenter
693	B	17	Footnote 9	Why is website listed twice in footnote? Accessed November 1, 2007: http://www.nycgovparks.org/sub_your_park/historical_signs/hs_historical_sign.php?id=12864	footnote no longer in text
694	B	18	Footnote 17	Why is website listed twice in one footnote? Accessed November 1, 2007: http://www.nycgovparks.org/sub_about/parks_divisions/nrg/forever_wild/site.php?FWID=21	deleted duplicate text
695	B			Comments below are mainly regarding specific details some of which required more familiarity with localities described.	no response required
696	C	0	Overall	A unique seepage wetland, sea level fen, occurs within the mosaic of tidally influenced vegetation communities, located at the upland/freshwater swamp/tideland interface where fresh groundwater seepage discharges and occasional tidal inundation occurs. These communities provide significant wetland functions in the landscape as well as, habitat for biological diversity, supporting 18 rare plant species of which one is listed as State Endangered. Sea level fen is an ecological community recognized in the National Vegetation Classification System and is ranked as a G1, or critically globally imperiled, community.	Add new section following marsh and bay islands: Sea level fens. Sea level fens are a tidally influenced seepage wetland, located at the upland/freshwater swamp/tideland interface where fresh groundwater seepage discharges and occasional tidal inundation occurs. New Jersey has identified 12 sea level fens, encompassing 126 acres. This rare ecological community is restricted in distribution to Ocean County in New Jersey, between Forked River and Tuckerton, in an area of artesian groundwater discharge from the Kirkwood - Cohansey aquifer. Additional recent field surveys have shown possible occurrences in the vicinity of Tuckahoe in Cape May and Atlantic counties (Walz 2004). These communities provide significant wetland functions in the landscape as well as supporting 18 rare plant species, of which one is listed as State Endangered. Sea level fen is an ecological community recognized in the National Vegetation Classification System and is ranked as a G1, or critically globally imperiled, community. It is not clear what effect sea level rise may have on these wetlands. Fens do not tolerate nutrient-rich ocean waters, and therefore if a fen is at an elevation where it can become inundated by rising seas it may not persist.FN1 On the other hand, sea level rise could cause the natural seep (groundwater discharge) to migrate upslope and increase in volume at some locations, which would benefit fens.FN2
697	C	0	Overall	To date, New Jersey has approximately 12 sites encompassing a total acreage of 126 acres. This rare ecological community is restricted in distribution to Ocean County in New Jersey, between Forked River and Tuckerton, in an area of artesian groundwater discharge from the Kirkwood - Cohansey aquifer. Additional recent field surveys have shown possible occurrences in the vicinity of Tuckahoe in Cape May and Atlantic counties.	See response to comment 696
698	C	1	10	or **no** beach along...	Typo corrected
699	C	0	Overall	New Jersey has 12 identified sea level fen communities that are sensitive to the effects of sea-level rise. The following information is exerpted from the report: Walz, K., E. Cronan, S. Domber, M. Serfes, L. Kelly, and K. Anderson, 2004, *The Potential Impacts of Open Marsh Management (OMWM) on a Globally Imperiled Sea Level Fen in Ocean County, New Jersey* , prepared for the New Jersey Department of Environmental Protection, Coastal Management Office.18p. (Walz, Kelly, & Anderson, NJDEP, Office of Natural Lands Management; Cronan & Domber, NJDEP, NJ Geological Survey).	See response to comment 696
700	C & D	0	Overall	Data types, sources, and analyses are competently handled in Appendices C & D.	No response required.
701	C & D	0	Overall	Information provided below, may necessitate changes in the analyses provided in Appendices C & D.	Comment has been addressed in Appendices C and D.
702	C & D	C-22; D-25		In February 2004, the New Jersey Department of Environmental Protection adopted revised Stormwater Management Rules (N.J.A.C. 7:8). These regulations contain general principles for the development of stormwater management plans and stormwater control ordinances designed to reduce flood damage. They also provide minimum design and performance standards to address post-construction stormwater runoff quality impacts of major development and establish minimum design and performance standards to control erosion, and encourage and control stormwater infiltration and groundwater recharge.	Made revisions regarding NJ's Stormwater Regulations and ability of wetland areas to migrate inland in the 300-ft. special protection area.
703	C & D	C-22; D-25		Furthermore, the revised regulations provide special protection for Category One waters and their mapped tributaries within the same HUC 14 watershed. Category One waters are special waters requiring particular protection from measurable changes in water quality because of their exceptional ecological, recreational, water supply and fisheries significance, as well as other distinguishing characteristics. The regulations require a 300-foot special water resource protection area adjacent to these waters. Encroachment into the protection area is only allowed under limited circumstances where it is demonstrated that the functional value and overall condition of the protection area are maintained to the maximum extent practicable. In addition to the benefits attendant to the reduction of flood damage, the 300-foot special water resource protection area will serve to preserve areas suitable for the horizontal landward migration of certain coastal wetlands and certain open waters in response to sea level rise.	Made revisions regarding NJ's Stormwater Regulations and ability of wetland areas to migrate inland in the 300-ft. special protection area.
704	C & D	C-22; D-25		The Stormwater Management Rules may be viewed at http://www.nj.gov/dep/stormwater/. A map illustrating areas of New Jersey affected by the 300-foot buffers may be viewed at http://www.state.nj.us/dep/gis/digidownload/images/statewide/strmwtrupc1.gif.	Made revisions regarding NJ's Stormwater Regulations and ability of wetland areas to migrate inland in the 300-ft. special protection area.
705	D	D-13	7	…even **with** shoreline	Paragraph restructured to make it clearer what beaches could be lost even **without** shore armoring, as originally stated
706	D	D-32	Table	Note 3: …between **Delaware Bay Watersheds** and ...	done

#	Chapter	Page	Line	Comment	Response
707	E	6	11	It should also be noted that mainland bayside shoreline stabilization that prevents formation of new islands via shoreline erosion and ocean shoreline stabilization, beach nourishment, and breach repair that limits overwash and formation of new inlets prevents formation of new barrier islands and flood tidal delta islands (USACE, 1998). Interruption of these processes is probably more important than loss of existing islands which mother nature and the Corps (dredged material islands) didn't create to be permanent features. U.S. Army Corps of Engineers. 1998. Ocean City, Maryland, and vicinity water resources study- final integrated feasibility report and Environmental Impact Statement. U.S. Army Corps of Engineers, Baltimore District.	Paragraph added to make this point, relying on material submitted by reviewer.
708	E	8	19	Presumably this is referring to Carolina or Delmarva Bays. It should be noted that these geomorphic features occur abundantly throughout the Eastern Shore, although few are in a high quality natural condition. Many of the circular features along the Md. Coastal Bays shoreline presumably originated as Carolina Bays that are now drowned. Attached figure just for fun for Md. Coastal Bays; note that this leaves out most of the ones in tidal marsh.	Added text to indicate that these features occur along the eastern shore as commenter notes.
709	F	14	1	DNR has not collected LIDAR for the entire state. Use instead "Since 2002, government agencies in Maryland, led by the Maryland Department of Natural Resources, have collected LIDAR data for most of the state.	done
710	F	62	21	1000 feet of the edge of tidal wetlands.	Change not made, for two reasons. First, the limit applies to open water, tidal wetlands, and some nontidal wetlands that are hydraulically connected to the bay--so the suggested change would not be literally correct. Second, the text precisely defines the jurisdictional boundary 2 paragraphs later.
711	F	70	7	insert "for most of the state" after LIDAR	done
712	G	0	Overall	Discussion does not recognize there may be a shortage of available suitable sand sources for nourishment, more particularily along portions of the NC coast. Additionally predictability of substantial federal funds being available has become questionable along the Dare County and its municipalities beaches.	Added text regarding the shortage of sand sources and federal funds for Dare County in footnote.
713	G	1	13-15	Due to both natural shoreline dynamics, and ~~A~~as sea level rises, the North Carolina coast continues to evolve. Many ocean shores are gradually retreating, claiming shorefront homes and prompting officials to relocate the coastal highway 12 and the Cape Hatteras lighthouse to inland.	Change reflected in text
714	G	1	19/20	Link to footnote #1: Should qualify that the term "spring high water" are not applicable to the Albemarle-Pamlico estuary due to the absence of lunar tides. Such areas are identified as non-tidal wetlands.	Revised footnote per comment.
715	G	6	cont	The regional water table is rising all over eastern North Carolina. Dikes may isolate lands from flooding, but they will play little role in preventing the land from getting wetter due to SLR. Even the drainage ditches are becoming an ineffective means for draining some low-lying areas. There seems to be a fundamental misunderstanding of how SLR is changing eastern North Carolina. Once again, the planners' data should be excluded. In fact, this chapter has a lot of data which are poorly integrated. It reads like a data dump with no real conclusion other than "the extent to which these habitats can adapt to sea level rise, however, is unclear". I agree. So what is the point?	Removed planning study.
716a	G	6		Appendix G: The first sentence is a little silly. The coast of North Carolina has been changing since the Cretaceous when the passive margin formed.	Opening has been revised.
716b	G	6		Appendix G: The elevation data is interesting, but not new. The report has a simplistic vision of the hydrology of eastern North Carolina. In most cases, dikes will not "prevent dry land from becoming wet" (G-6).	The reviewer does not provide sufficient detail in order to implement a change. The text is intended for the lay reader, and thus an overcomplication by discussing complex hydrology is not warranted
717	G	7	2-4	Sentence/paragraph should consider recognition that the inlets are likely to open up as a result of SLR due to the dynamic process resulting from storm induced erosion. Historically major storm event have resulted in additional breaches.	Revision incorporated in paragraph (citing Zhang et al, 2004).
718	G	8	23	"Examples include bulkhead construction, other shoreline stabilization practices (including beach nourishment), and levee…." It not clear that the discussion is only about the estuarine areas (?). Beach oceanside nourishment does provide some protection for soundside estuarine areas.	Text referenced in this comment has been removed.
719	G	13	5-10	May be appropriate to recognize the North Carolina recalculates long-term erosion rates about every five (5) years to both better track the dynamic shoreline trends as well as regulate where structures may be permitted on the oceanfront.	Added following text "The NCDCM recalculates long-term erosion rates about every five years to both better track the dynamic shoreline trends as well as regulate where structures may be permitted on the oceanfront (NC DCM, 2005)."
720	G	14	16	This reader found some general confusion with references to chapters #2 & #6. Assume all refer to Riggs document referenced in footnote "xix" (?).	The convention in the report is to reference chapters of the report that the appendices are included with. No change made.
721	G	19	T-G.4	Table G.4: Suggest dropping reference to "spring high tide". (Term is not applicable to the Albemarle-Pamlico estuary areas. Such areas are identified as non-tidal wetlands.)	Table G.4 has been removed
722	G	20	13	Appears to have wrong footnote (#4). Would be more accurate to state that small communities and rural areas adjacent the estuarine areas of Albemarle and Pamlico Sounds have been experienced a substantial increase in property sales and infrastructure…. etc.	This footnote has been removed from original document
723	G	28	19/22	Spelling of Tyrrell County	Addressed in appendix.
724	G	29	2	Redundant sentence w/G-28, Line 12/22	Deleted redundant sentence at :G/29/2
725	G	30	20	Phase "Areas of Concern" should be "Areas of Environmental Concern". Likewise footnote #9 should be adjusted.	Addressed in appendix.
726	G	31	14-18	Awkward paragraph, semi-colons appear to be needed at least.	Reviewer's comment references a list of suggested management measures. No change needed. Since list does not include internal commas, use of semi-colons to delineate concepts is not necessary.

#	Chapter	Page	Line	Comment	Response
727	G	31	21-23	"Because Census data for population is based on ~~summer~~ year around residents, the estimates for many of the ocean coastal counties--especially Dare--would be greater if summer seasonal residents were included."	Corrected
728	G	33	2	: ….that might have some low land ~~such as a stream valley~~along historic/ancient drainage patterns."	Addressed in appendix.
729	H	10	12	Yes, diminished sand supply and storm erosion has threatened residential development and coastal habitat, but on Fire Island (and elsewhere on the south shore of LI) one cannot ignore the impacts of humans in accelerating erosion.	We have added text in the introduction of Section H.2 refering to the human impact on the Fire Island shore.
730	H	11	16	predicitng how storm breaches might evolve on Fire Island is complicated by human actions. Currently the feds and state have a plan to close all breaches. However this plan is evolving as part of the ongoing Corps study of the region.	Noted.
731	H	15	5	Suggest "…reflecting the formerly high rates …" The jetty does little to trap sand now, but historical photos would have indicated a high trapping rate.	This appendix was significantly revised and shortened. The discussion of the jetty's effect on sand trapping was removed.
732	H	15	20, 21, 22	Agreed that research is suggesting onshore transport of sand at site 2, but since longshore transport is westward, I'm not sure why that contribution of sediment isn't also adding sand to site 1?	This appendix was significantly revised and shortened. The discussion of onshore sediment transport was removed.
733	Glossary	2		Glossary- 2: Beachfill: Include term beach nourishment in definition. Note in sections appears to be used interchangable. Also see comment II-7: Line 13 & 19.	Glossary updated.