#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	35537	29	0	0	0	0	Overall, I found this chapter draft well-researched, appropriately referenced, and articulating sensible conclusions that should indeed be reaching a wider audience. But my main criticism is that the chapter in many places underplays the seriousness and enormity of the threats posed by climate change to many small island coasts, particularly by implying that these are adequately represented by atoll-island coasts (which is untrue). I suggest that the main source of this is a misinterpretation of the paper by Webb and Kench (2010) which stated neither that its findings were representative of all island coasts nor that island coasts were anywhere able to resist the effects of future sea-level rise. Specific instances of this are given below. (Patrick Nunn, University of New England)	The reviewer suggests the threats posed by climate change to small islands are underplayed in the FOD. We believe the chapter does present a realistic assessment of the literature on observed and projected impacts to climate change. We have found little literature on shoreline changes on 'high' limestone or volcanic islands in contrast to those on atoll islands that are dealt with in the SOD 29.3.1.1 and 29.6.1.
2	37556	29	0	0	0	0	The chapter is developing well, but seems to me to be missing three substantial discussions (see below). (Jonathon Barnett, University of Melbourne)	See responses 3, 4, 5 below.
3	37557	29	0	0	0	0	First, the articlation of the risks climate change poses to people in the islands and the things that they value is missing. So, for example, there is very little on food security, not much on health, very little on livelihhods, or economic growth. The content of chapters 11, 12, 13 and 19 could be the way in which to categorise these things. Another option would be to make a table that summarises the risks identified across all the Natonal Communications and NAPAs from the AOSIS group. This would logically go at the start of section 29.6. (Jonathon Barnett, University of Melbourne)	We agree there is little on food security and economic growth (the literature on 'observed' impacts is very limited on these sectors). The health section has been expanded and is included as 29.3.3.3 and 29.5.5 in the SOD. Note also the NAPAs are not peer-reviewed with a clear evidence trail. They have been completed to various levels of quality. Instead of summarizing the risks documented in the NAPAs we have highlighted that a research gap exists in that we do not have comprehensive understanding of the risks from climate change for small islands.
4	37558	29	0	0	0	0	Second, there is now a good body of research on the cultural implicatons of climate change on islands - that is literature which considers the risks climate change poses to culture, the way climate change messages are mediated by culture, and the ways in which culture enables (and constrains) adaptation. This is important to consider, since it exists, it matters, and a fair bit of the social science research of this kind is conducted in islands. This could be a big text bok, or integarted into the hopefully new section about risks (see above), and in 29.6.2. Here are a few references that discuss this: Lazrus, H. 2012. Sea Change: Island Communities and Climate Change, Annu. Rev. Anthropol. 2012. 41:285–301 ; Adger, W., Brown, K., Barnett, J., Marshall, N. and O'Brien, K. 2012. Cultural dimensions of climate change impacts and adaptation, Nature Climate Change, in press. ; Adger, N., Barnett, J., Chapin, F. and Ellemor, H. 2011. 'This Must be the Place: Under-Representation of Identity and Meaning in Climate Change Decision-making', Global Environmental Politics 11(2): 1-25 ; Rudiak-Gould, 2010, The Fallen Palm: Climate Change and Culture Change in the Marshall Islands, VDM Verlag ; Rudiak-Gould, P. 2012. Promiscuous Corroboration and Climate Change Translation: A Case Study from the Marshall Islands. Global Environmental Change 22(1):46-54 ; Farbotko and Lazrus, 2012, The first climate refugees? Contesting global narratives of climate change in Tuvalu, Global Environmental Change, 22(2): 382–390. among others. (Jonathon Barnett, University of Melbourne)	The comment on culture enabling and constraining adaptation is accepted and this issue is included in 29.6 'Adaptation and the Mangament of Risks' which includes most of the cited references. There is however little on this topic that fits into 'observed' impacts.
5	37559	29	0	0	0	0	Third, there is not much here on adaptive capacity, given the earlier chapters that discuss this it seems necessary. This might go as a section in 29.6. It is worth noting that many of the sources of adaptive capacity are also distant in origin: aid, rents, remittances….. Take for example the composition of Tuvalu's GDP. (Jonathon Barnett, University of Melbourne)	There is now a defined category on adaptive capacity in section 29-6 (Adaptation and Management of Risks) though we do not develop the point that aid and remittences are also transboundary (distant in origin) factors. The climate change connection is however elusive.
6	37560	29	0	0	0	0	The section on food is a bit terse, climate change poses risks to food systems and this is true on islands too: see Ziervogel, G. and Ericksen, P. 2010, Adapting to climate change to sustain food security, WIRES Climate Change, vol 1: 525-540 ; Barnett, J. 2011 'Dangerous Climate Change in the Pacific Islands: Food Production and Food security', Regional Environmental Change 11(1): 229-237. ; ADB 2011 Food Security and Climate Change in the Pacific: rethinking the Optons ; Bell, J et al., 2009, Planning the use of fish for food security in the Pacific, Marine Policy 33(1): 64–76 (Jonathon Barnett, University of Melbourne)	The reviewer is correct to identify the limited consideration of food systems and food security. The deficiency has not been addressed adequately in the SOD but will have to be in the FGD. Note also response to 3 above.
7	37650	29	0	0	0	0	General Comment. I would concur that threats to islands have been overblown (certainly in the media). I think the chapter has gone to considerable effort to address this, and it is very well done. That said, care needs to be taken in going too far the other way. For many atolls, at least, the cascade of effects (negative impacts ocean and coastal fisheries, agriculture, water resources greater likelihood of extreme events, etc.) is going to make the situation increasingly untenable. In a broader sense, for some islands it is hard to see the picture of not only exposure and sensitivity but adaptive capacity as being rosy. (John J. Marra, NOAA)	We believe we have made a fair assessment of the published literature. We also agree that 'for some islands it is hard to see the picture of not only exposure and sensitivity but adaptive capacity as being rosy'. Interestingly there are some alternative views on this expressed by later reviewers.
8	38284	29	0	0	0	0	Looking at figures and tables made for the different chapters, there are similarities (e.g. magnitude of temperature and rainfall changes, impacts on ecosystems...) between chapters because they have they deliver similar information, but for different regions. (Guillaume Simioni, INRA)	Formatting consistency of figures and tables across chapters is a matter for the TSU and will be done for the FGD, but was not done in the FOD.
9	38285	29	0	0	0	0	Having a similar layouts (i.e. same styles and legends, symbols, columns, colors, ...) accross the chapters, would help the comparison between regions. Not sure it is important, especially if the readership is different from one chapter to another. It's just a suggestion. (Guillaume Simioni, INRA)	See response 8 above.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
10	38666	29	0	0	0	0	Overall I think this Chapter has been developed well since I saw the ZOD. At least for the small islands in the western tropical Pacific, the chapter could benefit from using climate observations and projections developed by the Regional and Country Reports of the Pacific Climate Change Science Program published in 2011 (http://www.cawcr.gov.au/projects/PCCSP/publications.html). This project has, for example, undertaken much work in developing homogenous temperature and rainfall series which are available from their web portal (http://www.bom.gov.au/climate/pccsp/) which represents a significant advance and would be a useful model (i.e. retrieving and sustaining high-quality observations) from small islands in other parts of the oceans. I also think that the chapter could benefit further from referencing several specific chapters in the Bell et al (2011) Vulnerability of Tropical Pacific Fisheries.....book, e.g. Chapter 3 Ganachaud et al which covers ocean climate changes of critical importance to many tropical Pacific islands; Chapter 7 Gerkhe et al covering freshwater fisheries habitats etc (Janice Lough, Australian Institute of Marine Science)	The reference to Bell et al. 2011 is included in the FOD. This same reference and some of the papers that have appeared as journal articles subsequently are also referenced in the SOD. The climate/ocean projection papers are a matter primarily for WG1.
11	39084	29	0	0	0	0	Introduction The general aim of this report is to review and assess the information relating to climate change impacts, adaption and vulnerability produced since the last assessment report. In this chapter the authors address these issues as they relate to the small island states. They point out that there has been “a tendency to generalise about the potential impacts on small islands and their adaptive capacity”, and strive to redress this situation, while re-iterating frequently voiced concerns and discussing a number of additional climate change-related themes that have emerged recently. The chapter proceeds to achieve these goals by summarising coverage of the major concerns from previous assessments. It then notes the observed and projected impacts of climate change on small island states, including observations of inter- and intra regional transboundary impacts. It enumerates the steps taken towards adaptation and management of risks and the interaction between adaptation and mitigation, and points out the danger of adaptation turning into maladaptation. It ends by pointing out research and data gaps that need to be addressed. Overall, the authors have produced a more than satisfactory result. There is a need to ensure a sound thematic development of the chapter. This is discussed below. There is also a small number of suggestions for inclusions or alterations that one would like to put forward. The following paragraphs provide a general critique of the structure, content, scope and thematic development of this chapter. More detailed observations and suggestions are presented according to sections and line numbers further below. Structure This work is logically (and aptly) arranged, starting with an introduction, which is followed by previous conclusions, before new considerations are introduced, and ending with what is lacking. Language and readability The nature and quality of the language used must be dictated by the requirement that the document should be accessible to decision-makers from a range of governmental and private sectors as well as the professions. To ensure readability for all, the language must be kept plain and sufficiently non-technical. This chapter generally meets these requirements. In the rare few instances, it was felt that the language was becoming stiff and too technical. These have been pointed out. The overall readability is good. In one or two instances, it was felt that it could be impaired by the inclusion of too many references. Suggestions for alternative presentation of such information has been made where appropriate. Scope (Note abbreviated system to page and line referencing used below: e.g. Page 2 line 27 is denoted P2.27) The objectives of this chapter are to provide an assessment of impacts of climate change and the responses to it in the case of small island states. As pointed out in Chapter 1 (P2.27ff) of this First Order Draft, there has been a historical “broadening of emphasis in assessing climate change impacts, adaptation and vulnerability to address ..... institutional, social, cultural and value-related issues”, and (P5.13ff) “ Three important characteristics in the evolution of WG2 reports are ..... ii) an increasing focus on human beings, their role in managing resources and natural systems and the social impacts of climate change.” More significantly, (P5.16ff) “the continuing focus of WG2 on impacts, adaptation and vulnerability has extended the assessment of climate change challenges from the physical, ecological and economic systems to include institutional, social and cultural issues.” While these new themes have received some attention in this chapter, the authors may like to consider whether this was sufficient. Content The chapter contains a fairly comprehensive coverage of all the themes and issues relating to CCIAV for small island states.	See response 11.1 above to the general thrust of the comment. Note (1) the FOD focusses on sustainability and resilience as two core themes and in the SOD they are integrated into the section on adaptation and risks (29.6); (2) The references to Singh are not included in the SOD-this is an oversight. In 29.7.2 reference is to Dorman (2009, 2011) on renewable energy in Fiji.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
11.2	39084	29	0	0	0	0	A notable exception seems to be the subject of regional and national policies and strategies on adaptation and mitigation and related topics. This topic has been included in the case of Africa (Chapter 22, P39.40ff). National Adaption Plans of Action (NAPAs) exist for individual small island states (e.g. Samoa, Vanuatu in the Pacific) and it is felt that they deserve a reference. In addition to the NAPAs, the Pacific Island Countries also have Energy Policies at both the regional and national levels. These are relevant to mitigation, and also deserve a mention (see, e.g. Singh, A., 2012. Renewable energy in the Pacific Island Countries: resources, policies and issues. Management of Environmental Quality: An International Journal. 23(3) 254-263. and Singh, A., 2012. Biofuels and Fiji's roadmap to energy self-sufficiency. Biofuels. 3(3) 269-284.) Towards a holistic development of the WG II AR 5 report This report is presented in two parts: Part A lays down the thematic and conceptual bases (as well as covering the global and sectoral aspects of climate change) and Part B applies the themes and concepts developed in Part A to various regions of the globe. For the whole report to be developed holistically, it is clear that the themes developed in Part A must be applied uniformly across Part B. While each chapter can be developed in isolation of other chapters, an obvious requiremet is that all chapters are built on the same thematic and conceptual foundations.. Put another way, the chapters in Part B must be built on the same thematic and conceptual foundations as those laid down in Part A. To ensure that this is indeed happening, one must ideally cross-link the chapters and ensure that the ideas developed in the former part of the report are indeed being applied in the latter. In the case of Small Islands, sustainable development is a very pertinent issue, and thus the material of Chapter 20 (Climate resilient pathways: Adaptation, Mitigation and Sustainable Development) is especially relevant. Particular sections of relevance are i) Section 20.2.2. (Links between Sustainable Development and Climate Change) (P6.15-32) ii) Section 20.5 (Toward Climate Resilient Pathways) (P22.10ff) iii) Reference to Shared Socio-economic Pathways (SSPs) (Box 20.3 and Figure 20.3) iv) Reference to transformational changes (see Chap 20 sec 20.4.2 P17.35ff, Table 20.3), with a view to assessing migration/re-settlement as transformational adaptation for the small islands. It is appropriate to refer to some of these themes in the present chapter with a view to assessing how they apply here. (Anirudh Singh, University of the South Pacific)	
12	40248	29	0	0	0	0	Referrence to Meditteranean small islands is very limited. Suddenly in page 26, line 18, Cyprus and Malta appear. I believe the report would be more balanced if Mediterranean islands, with their particularities was included (eg no accurate estimate of how and what sea-level-rise etc) (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	Reference to Mediterranean added into section 29-3-3-4 on migration and resettlement de Haas, 2011). However, few significant references were found for inclusion in the section on adaptation and risks
13	40839	29	0	0	0	0	Some examples (Fongafale Island, Funafuti atoll, Tuvalu for example, but also Tarawa in Kiribati) are developed both in sections relating to natural processes ("inundation associated with high tide conditions" in section 29.3.1.1, lines 21 to 27 and "hydrology and natural resources" in section 29.3.2.2, lines 39 to 41) and in sections dealing with the human drivers of island evolution (section 29.3.3.1, line 6 and lines 25 to 28). As a consequence, it does not always appear very clearly whether a given fact (inundation, e.g.) has natural, human or combined causes. Although it is very difficult to distinguish natural and human-driven causes in observed evolutions, as highlighted in other parts of this chapter, perhaps it could be useful: (1) to use different examples to describe natural and human-influenced processes, concentrating on "natural sites" to describe natural evolutions and on densely populated areas to described human-driven evolutions, (2) not to use urban/main centres examples in the section 29.3.1; (3) to compare, where data are available (Kiribati), the evolutions observed in natural and highly populated areas. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	We agree it is 'very difficult to distinguish natural and human-driven causes' and this is stated in several parts of the chapter including new 29.3.4 in the SOD.
14	40845	29	0	0	0	0	Globally in the whole chapter, and more particularly in section 29.3.3., little importance is given to the fishery sector even though it plays a major role both in food supply and in GDP through fishing licences benefiting to foreign countries (e.g. Maldives, Seychelles, Kiribati, etc.). Fisheries are mostly apprehended through both the CFP (section 29.3.3.3.) and fish abundance (section 29.3.1.3.). However, in some island states, the vulnerability of the fishery sector contributes significantly to the vulnerability of the whole country and/or the vulnerability of the population is partly/largely due to the diminution of fishing in lifestyles. There are some interesting ideas in the following reference although the authors do not focus on small island cases: Badjeck M.C., Allison E.H., Halls A.S., Dulvy N.K., 2010. Impacts of climate variability and change on fishery-based livelihoods. Marine Policy, 34:375–383. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	The chapter has to emphasize 'climate change' impacts and adaptation. The Badjeck reference is not included in the SOD as Bell et al. 2011 provides more comprehensive Pacific island coverage.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
15	40851	29	0	0	0	0	Concerning the impacts of pollution due to macro-debris in small islands (to be included in section 29.3.1.3. on coral reefs or in section 29.3.3.1. on Settlements and infrastructure), a recent paper by Richards and Beger (2011) documents the example of Majuro, Marshall Islands. The references are the following: Richards Z.T., Beger M., 2011. A quantification of the standing stock of macro-debris in Majuro lagoon and its effect on hard coral communities. Marine Pollution Bulletin, 62: 1693–1701. Another paper highlights the links between pollution and human health in Bermuda: Jones R., Parson R., Watkinson E., Kendell D., 2011. Sewage contamination of a densely populated coral 'atoll' (Bermuda). Environ Monit Assess., 179:309–324. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	After literature review including the ones recommended by the reviewer there are none relevant to small islands that discussed the impact of climate change on marine macro debris and in turn the impacts on coral reefs and fisheries. It is going to be an important emerging issue though for small islands and may need to be addressed in the next IPCC report.
16	41277	29	0	0	0	0	Chapter generally reads well as a FOD. Appreciate the new sections added in this draft. My first impression on reading the chapter is that its main focus is on the Pacific Islands with some mention of the Caribbean and very very little mention of the Indian Ocean Islands. While I recognise the authors can only review existing published, peer reviewed literature I would urge you to seek and dig deep for more examples from the other regions (Caribbean and Indian Ocean). (Gillian Cambers, Secretariat of the Pacific Community)	References on the Caribbean and Indian Ocean islands have been found on various topics, allowing a better balance between regions. Nevertheless, it is a fact that peer-reviewed literature appears to be more abundant on the Pacific than on other regions.
17	42729	29	0	0	0	0	The work of the Pacifc Climate Chnage Research Program is highly relevant to parts of the chapter but not cited.See: http://www.cawcr.gov.au/projects/PCCSP/ and the pulicattions listed there. Some selected papers to consider are: Brown, J. R., S. B. Power, F. P. Delage, R. A. Colman, A. F. Moise and B. F. Murphy (2011), Evaluation of the South Pacific Convergence Zone in IPCC AR4 climate model simulations of the 20th century, Journal of Climate, Volume 24 (6), 1565-1582. Irving D, Perkins S, Brown JR, Sen Gupta A, Moise A, Murphy B, Muir L, Colman R, Power S, Delage F, & Brown JN (2011). Evaluating global climate models for the Pacific Island region. Climate Research, Volume 49, Issue 3, pages 169-187. doi:10.3354/cr01. Brown, J., Moise, A., Delage, F. (2) Changes in the South Pacific Convergence Zone in IPCC AR4 future climate projections. Submitted to Climate Dynamics, February 2011. Nguyen, K. Katzfey, J., McGregor, J. 2011. Global 60 km simulations with CCAM: Evaluation over the tropics. Climate Dynamics. Accepted 10.09.11 Perkins, S. 2011. Biases and model agreement in projections of climate extremes over the tropical Pacific. Accepted by Earth Interactions. Perkins, S., Irving, D.B.,Brown, J.R., Power, S.B., Murphy, B.F., Moise, A.F., Colman, R.A., Delage, F.P. 2011. CMIP3 ensemble climate projections over the western tropical Pacific based on model skill. Accepted by Climate Research.- (Penny Whetton, Commonwealth Scientific and Industrial Research Organization - Marine and Atmospheric Research)	The literatures suggested by the reviewer are mainly on climate change science while chapter 29 is on CC impacts. These should be covered in Working Group 1 chapters 9,11 or 12.
18	42847	29	0	0	0	0	Congratulations on a highly objective and tightly woven chapter. Some of the conclusions regarding the attribution of climate factors are likely to be controversial, but they match our observations in the Pacific and Indian Ocean Islands (Sofia Bettencourt, World Bank)	Noted with thanks
19	44568	29	0	0	0	0	Executive Summary: Extreme impacts – It appears very strange to us that a reference to the SREX Chapter 3 box on Small Islands is made in the Chapter ES, but nowhere in the underlying chapter. The assessment basis for the statements appearing in the ES should be found in the underlying chapter text. (Thomas Stocker, IPCC WGI TSU)	The ES has been modified significantly and the reference to the SREX has been removed
20	44569	29	0	0	0	0	Section 29.4.1 and 29.4.2: Projected changes in dryness - To the extent that is possible, please update the assessment here to ensure consistency with the relevant WGI AR5 chapters and the SREX Chapter 3. (Thomas Stocker, IPCC WGI TSU)	New material is included in 29.4.2 and 29.4.3 in the SOD (29.4.1 and 29.4.2 in the FOD) with a drynerss index as only one of several climate variables considered.
21	48486	29	0	0	0	0	Thank Thank you for the opportunity to comment on the IPCC WGII AR5, Chapter 29, Small Islands. Overall, I concur with the content and believe it will be a valuable tool in addressing the threats to small islands vulnerable to climate change. For this chapter, I believe more information should be shared regarding progression in research, adaptation, capacity building, and technological resources among many of the small islands. Given the vast amount of challenges small islands encounter, in many ways, they are ahead of developed countries in their resiliency planning and implementation. In American Samoa, for example, the Territory has made vast improvements in raising climate change awareness, building a framework for climate change adaptation (with the community), and passed policies to support sustainable alternatives to energy and development. Their political system, like many other small islands, ranks climate change as a high priority and works with the community in building resiliency. My recent experience working with developed countries, I have seen a lack of political support and cautionary and prolonged movements towards change. Also, in this chapter, examples from Fiji and Solomon Islands are used frequently. I believe expanding on the overall content and using examples from other islands would be valuable in providing a more accurate review. (Lauren Wetzell, Bay of Plenty Regional Council)	This is a general comment. We believe we have used 'examples from other islands' that are in peer reviewed literature.
22	49258	29	0	0	0	0	Vulnerability and adaptive strategy of small islands against climate change is greatly varied among physical types (high or low islands or atolls) as well as socio-economic situations (urban (capital) or rural). This point is raised at the top of Executive Summary and repeated in the text, but should be highlighted with more comprehensive manner. Summary of island typology together with a map with names of key islands wouldl help the readers to understand the diversity of small islands. (Hajime Kayanne, University of Tokyo)	In general we concur and have emphasized these differences a little more within the constraints of the chapter. Figure 29.1 has been added to describe typical tropical island typology and Table 29.3 deals specifically with Pacific Island types.
23	49260	29	0	0	0	0	Overall I would like to say that this is a very good and comprehensive overview of the issue of CC effects on islands and the work that has emerged in the post AR4 time period. The chapter authors are welcome to contact me for any clarification etc. (John Richard Campbell, University of Waikato)	Noted. Campbell is now a contributing author to the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
24	49261	29	0	0	0	0	There seems to be little acknowledgement in this chapter of the role of subsistence food and other activities in many small island countries which are very important aspects of their economies and play an important role in sustaining resilience (especially in the Pacific region). For example, subsistence food security can be a hedge against the vulnerability of commercial economic activities (agriculture or other). Informal sector activities are also important in this respect. Subsistence conomies also seem to be neglected in assertions of the vulnerability of island states because of their small economies. Because these activities are often excluded from many metrics of development and vulnerability they are often overlooked as vehicles for sustaining resilience. (John Richard Campbell, University of Waikato)	In general the authors share the view that the subsistence economies of islands can contribute much to resilience in these communities. We attempt to remedy this in the SOD. The main constraint, however, is the availability of published, peer-reviewed sources that explicitly make the link between subsistence activities in SIS and resilience (whether resilience is defined in the context of climate change, climate variability or other).
25	49262	29	0	0	0	0	In terms of balance, and perhaps reflecting my comments above about agriculture is the tendency to neglect the non-coastal elements of small islands, the majority of which are not atolls but high islands of various elevation and land area. Such events as increased tropical cyclone wind speeds, high intensity rainfalls and drought incidence all have implications for these areas which are often important for agricultural production among other things. (John Richard Campbell, University of Waikato)	We have tried to ensure that the perception of imbalance is remedied in the SOD, by including additional, relevant, non-coastal examples, to the extent that the published literature would allow.
26	49263	29	0	0	0	0	Perhaps the chapter could include a brief section on contemporary lives and livelihoods in small island states so as to give some indication of the base line upon which CC impacts may impinge upon the communities of small islands states. This would identify the continuing important role of local resources, subsistence and informal economies and the elements that are at risk -- food security (there is very little in the chapter about agiculture -- even the hydrology and water resources section (29.3.2.2) omits this critical area), land security, health security etc. Campbell (2006) discusses food security as an extremely important factor in traditional systems of resilience. This would provide the basis for the first point in the executive summary which is called 'distinguishing small island states.' This could be extended to include small island communities and small island livelihoods or there could be specific sections in the executive summary covering these points also. (John Richard Campbell, University of Waikato)	The point is noted but the development of such a 'base line' is constrained by page length and the chapter template. The distinguishing characteristics of small islands are summarized briefly (including in Table 29-3) and are no longer in the ES.
27	51878	29	0	0	0	0	1) Overall -- In preparing the 2nd-order draft, the chapter team should prioritize making each section of the chapter a polished, comprehensive treatment of topics considered. From these sections, the chapter team is then encouraged to maximize the utility of its findings, ensuring that they are robust, compelling, and nuanced. Themes to consider informing in constructing findings include decisionmaking under uncertainty, risks of extreme events and disasters, avoided damages, and limits to adaptation. To these ends, the chapter team has prepared a very solid 1st order draft. To inform further chapter development, I provide general and specific comments below. (Katharine Mach, IPCC WGII TSU)	Noted, with thanks.
28	51879	29	0	0	0	0	2) Highlighting key findings -- In developing the 2nd order draft, the chapter team should aim to highlight key findings across chapter sections, using calibrated uncertainty language to characterize its degree of certainty in these conclusions. In this way, a reader of the chapter will be able to understand how the literature reviews and syntheses in the chapter sections--the traceable accounts--support the conclusions of the chapter, especially those presented in the executive summary. (Katharine Mach, IPCC WGII TSU)	Noted and the authors have attempted to do so to the extent that it is feasible, logical and supported by the published evidence.
29	51880	29	0	0	0	0	3) Usage conventions for calibrated uncertainty language -- Where used, calibrated uncertainty language, including summary terms for evidence and agreement, levels of confidence, and likelihood terms, should be italicized. In addition to incorporating these terms directly into sentences, the author team may find it effective to present them parenthetically at the end of the sentence or clause. Casual usage of the reserved uncertainty terms should be avoided, as has been flagged in some specific comments throughout the chapter. (Katharine Mach, IPCC WGII TSU)	Noted. We have not found it easy to use 'calibrated uncertainty language'. Much of the literature we refer to reflects 'casual usage'. We have italicized levels of confidence and likelihood terms in the SOD but perhaps not to the level the TSU would like.
30	51881	29	0	0	0	0	4) Specificity of described observations and projections -- The chapter team has done a very nice job of ensuring specificity in describing observed and projected impacts, while still presenting information succinctly. The indications of the types of information available and of issues with generalization in the literature are helpful for the reader. I encourage the author team to continue ensuring specificity: indicating relevant time periods, geographic areas, etc. for observations; indicating relevant time frames, scenarios for climate change or socio-economic development, geographic regions, or other assumptions for projections; and characterizing key driving factors where ranges of outcomes are presented. (Katharine Mach, IPCC WGII TSU)	Noted with thanks.
31	51882	29	0	0	0	0	5) Conditional constructions -- The chapter team has also done a nice job of using conditional constructions that explicitly separate a given physical change from its corresponding conditional impact. The chapter team is encouraged to continue using such constructions, also separately characterizing the degree of certainty for the physical change and conditional impact where appropriate. (Katharine Mach, IPCC WGII TSU)	Noted and developed further in the SOD.
32	51883	29	0	0	0	0	6) Figures -- Figures represent an important and effective vehicle for clear communication of assessment and corresponding key findings. The chapter team is very much encouraged to continue developing figures to complement the robust assessment already present in the chapter text. (Katharine Mach, IPCC WGII TSU)	In fact we saw the lack of figures (only 3) as one of the weaknesses in the FOD. This has been rectified in the SOD with four new figures.
33	51884	29	0	0	0	0	7) Coordination across the Working Group 2 contribution -- In developing the next draft of the chapter, the author team should consider treatment of topics not only in this chapter, but also across the report as a whole. For each topic, the chapter team should ensure that treatment here is reduced to the essence of what is relevant to the chapter, with cross-references made to other chapters as appropriate, also minimizing overlap in this way. (Katharine Mach, IPCC WGII TSU)	We acknowledge our failure to do this in preparation of the FOD. We have made some cross-references to other chapters in the SOD but there are practical reasons that make it difficult as chapter texts and figures keep being modified during preparation of the drafts.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
34	51885	29	0	0	0	0	8) Harmonization with the Working Group 1 contribution to the AR5 -- At this stage of chapter drafting, the author team should carefully consider the working group 1 contribution. Wherever climate, climate change, climate variability, and extreme events are discussed, the chapter team should ensure that their treatment is harmonized with the assessment findings of working group 1. (Katharine Mach, IPCC WGII TSU)	Similar to the previous response (33).
35	52591	29	0	0	0	0	1. Chapter structure • The structure of the chapter appears to construct an argument that impacts from climate change on small islands are not as severe as reported, rather than provide a review of existing literature. • The chapter remains unclear as to the projected impacts for islands from different sea-level rise scenarios, particularly low-lying atolls. Is this information not available? • Lack of linkages between structure for SIDS chapter and other chapters in the report • Absent of methodology section to explain how chapters were analysed and synthesized 2. Coverage • Would like to see more quantification of and description of the type of loss and damage projected, however, if research does not exist, then it is clearly to be indicated in the report that further research is needed. 3. Gaps • More information quantifying the loss and damage projected for SIDS due to the impacts of climate change would be helpful, if available • Need for more understanding on ocean acidification, impacts and current and projected impacts • There need to be balance and synthesis in relation to statements of facts and observation • Numerous broad statements backed by philosophical arguments and not scientifically based evidence. Specific comments below. (Malia Talakai, AOSIS)	Several issues are raised in these comments. We believe we have provided 'a review of the existing literature' and provided a 'balance and synthesis in relation to statements of fact and observation'. We note there is very little scientific literature relating to 'impacts for islands from different sea-level rise scenarios' or 'quantification of and description of the type of loss and damage projected' [from climate change on small islands]. We accept that more quantification would be helpful and that the linkages between chapter 29 and other chapters in the WG2 assessment need to be developed. We have done this to a limited extent in the SOD (See 33 and 34 above).
36	52612	29	0	0	0	0	1. Cross chapter issues: No cross references made to other chapters so it would be important to do this, in particular, as it relates to issues and themes discussed in other chapters. (Malia Talakai, AOSIS)	Such cross-chapter references could improve the contents of chapter 29, but given the word limit and given that all issues covered relate to almost all other chapters, there will be a limit as to how much cross-chapter reference can be included in the chapter. References are made to Chapter 11, WG 1, Chapt 13, Box CC-CR, Box CC-OA.
37	52879	29	0	0	0	0	Recent National Communications are a rich source of information; this seems to have been overlooked (John Hay, University of the South Pacific)	We agree NCs are a rich source of information but our emphasis is on refereed journal sources rather than government reports and 'grey' literature.
38	52880	29	0	0	0	0	There should be more discussion of resilience, at both conceptual and practical levels, to balance the discussion of vulnerability (John Hay, University of the South Pacific)	We believe we have achieved such balance in the SOD.
39	52881	29	0	0	0	0	A source of relevant information (including case studies) is UNISDR and UNDP, 2012: Disaster Risk Reduction and Climate Change Adaptation in the Pacific: An Institutional and Policy Analysis. United Nations International Strategy for Disaster Reduction (UNISDR) and United Nations Development Programme (UNDP), Suva, Fiji, 90pp. (John Hay, University of the South Pacific)	Similar comment to 37 above re government/agency reports and 'grey' literature.
40	52882	29	0	0	0	0	Following reference (synthesis and case studies) highly relevant given large number of reference to small islands: Climate Change and Tourism: From Policy to Practice, By Susanne Becken and John Hay; Published June 14th 2012 by Taylor and Francis/Routledge - 280 pages (John Hay, University of the South Pacific)	We failed to include this appropriate reference in the SOD- an oversight.
41	52883	29	0	0	0	0	Following referecne is relevant: Battaglini, E., Bonte, M., Hay, J.E., Pratt, C. and O. Warrick, 2012: Acting Today, for Tomorrow: A Policy and Practice Note for Climate and Disaster Resilient Development in the Pacific Islands Region. World Bank, Washington, D.C, 28pp. (John Hay, University of the South Pacific)	Similar comment to 39 re agency reports and 'grey' literature.
42	52884	29	0	0	0	0	Following reference is relevant: Becken, S., Hay, J.E. and S. Espiner, 2012: The Risk of Climate Change for Tourism in the Maldives. In Island Tourism Development: Journeys towards Sustainability, CABI, Wallingford, Oxford, UK. (John Hay, University of the South Pacific)	Similar to 41 above.
43	52885	29	0	0	0	0	Following reference is relevant: Hay, J.E. and N. Mimura, 2010: The changing nature of extreme weather and climate events: risks to sustainable development. Geomatics, Natural Hazards and Risk, 1(1), pp 1–16. (John Hay, University of the South Pacific)	Similar to 40 above - oversight to include reference.
44	52886	29	0	0	0	0	Following reference is relevant: Hay, J.E., 2007: Impacts of Sea-Level Rise on SIDS and other Low-lying Areas. GEO4 Ice & Snow. UNEP/GRID-Arendal. (John Hay, University of the South Pacific)	Similar response to 39 re agency reports
45	53688	29	0	0	0	0	When presenting projected impacts, please include the time frame, scenario, and other assumptions. This is done in most instances but is missing in a few, including in the Executive Summary. (Kristie L. Ebi, IPCC WGII TSU)	It has not been possible to do this in all cases because the reference material does not always include detailed time frames and scenarios.
46	53689	29	0	0	0	0	Please check consistency of statements with those in the relevant sectoral chapters, such as food systems, coastal zones, and human health. (Kristie L. Ebi, IPCC WGII TSU)	We have not done this particularly well mainly because of the fluidity in the chapter content during drafting.
47	54029	29	0	0	0	0	Table 29-1: The data provided here maybe more effectively communicated if presented as a series of figures. (Yuka Estrada, IPCC WGII TSU)	Table 29.1 has been retained. It may be updated for the FGD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
48	54572	29	0	0	0	0	GENERAL COMMENTS: I would like to thank the authors for their work on the FOD. When considering the expert review comments received on your chapter and the next round of revisions, I suggest several overall priorities. (1) Keep in mind that the preparation of the SOD is the time to ensure that each section of the chapter presents a comprehensive treatment of relevant literature, and that the Executive Summary presents findings that capture the key insights that arise from the chapter assessment. (2) This is also the time to focus on distilling the chapter text, not just fine-tuning wording but editing with a critical eye to improving quality by making discussions succinct and synthetic, while still being comprehensive. (3) Cross-chapter coordination is also important at this stage, as it should now be possible to identify topics that overlap with other chapters and to coordinate with other chapter teams to minimize that overlap. (4) Cross-Working Group coordination is important as well, and relevant chapter sections should cross-reference chapters from the other Working Groups, particularly in the case of statements about changes in mean or extreme climate conditions that are assessed in the contribution of Working Group I. (5) Continue to look for opportunities for the creation of figures that synthesize across results from the literature. (Michael Mastrandrea, IPCC WGII TSU)	We have not done this particularly well mainly because of the fluidity in the chapter content during drafting.
49	54573	29	0	0	0	0	EXECUTIVE SUMMARY: Thank you for developing a very nice draft of the Executive Summary for the FOD. For the SOD, I would recommend considering ways to modify the existing paragraphs to present an assessment finding in bold with calibrated uncertainty language, followed by additional nonbold sentences providing further explanation and context, as well as line of sight (a draft of which you already have provided) to supporting chapter sections where the traceable account appears. In at least some cases, the bold topics that currently appear could be modified into sentences in this context. (Michael Mastrandrea, IPCC WGII TSU)	We have updated the Executive Summary to emphasize assessment findings in bold with calibrated uncertainty language followed by non-bold language with further explanation and context.
50	54574	29	0	0	0	0	TRACEABLE ACCOUNTS: The author team has made a good start to providing traceable accounts for assessment findings and highlighting the location of those traceable accounts in the Executive Summary. Some specific comments follow where improvements could be considered. In general, I would recommend the author team continue to strengthen the linkage between support in the chapter text and assessment findings in the Executive Summary. In this context, I suggest providing some explanation of the calibrated uncertainty language used in the Executive Summary in the corresponding chapter section(s) where the traceable account appears for each finding, for cases where this is not done already. For example, in situations where confidence is not high, it would be useful to understand why the author team has made this judgment (e.g., is there a lack of robust evidence?, are there multiple perspectives in the literature?). In situations where confidence is high or likelihood language is employed, what is the evidence that forms the basis for these assignments? Succinct descriptions in the chapter text of this type will both highlight the basis for ES findings and help explain the author team's assessment of the literature. We in the TSU are available to discuss these issues as well if that would be of use. (Michael Mastrandrea, IPCC WGII TSU)	The comments made here about 'traceable accounts' provided valuable guidance for developing the ES in the SOD. We believe we have done this in the ES in the SOD.
51	54903	29	0	0	0	0	Literature permiting, the chapter team is encouraged to add more cases to support their findings. Moreover, it would be useful if the enabling or detering factors, drivers etc., are explicitly stated where ever possible. (Monalisa Chatterjee, IPCC WGII TSU)	Point noted. We have attempted to do this but much of the literature we refer to is not explicit. This is a point raised in our text several times.
52	54904	29	0	0	0	0	The author team should update the reference list and remove citation inconsistencies between in text citations and full citations given in the reference list. Please see supplementary document named WG2AR5-Chap29_Reference Checks.pdf at https://ipcc-wg2.gov/AR5/author/FOD/SuppMat (Monalisa Chatterjee, IPCC WGII TSU)	Yes, this has been done.
53	51886	29	2	28	0	0	Executive Summary -- There are 2 considerations the chapter team may wish to consider in revising the executive summary. 1st, the bold text at the start of each paragraph ideally would be developed into a full-sentence key finding, with calibrated uncertainty language assigned. 2nd, the chapter team should ensure that a line-of-sight reference to the supporting chapter section(s) is provided for all statements and/or paragraphs. (Katharine Mach, IPCC WGII TSU)	Agreed. See response to comment 49.
54	35380	29	2	30	0	0	Summary. Apart from a few points of detail which I raise below, this summary and the chapter as a whole seem to present a good balance of the key issues for small islands, including one that was new to me (as a professional working in this field), namely “local impacts: distant origins”. Confining the coverage to tropical islands (unlike AR4) may have made the issues slightly more homogeneous, though the classification presented in Fig 29-3 is there to warn that not all the issues apply equally to all islands. (Tony Weir, University of the South Pacific)	Thank you for the general endorsement. New Fig 29-1 and new Table 29-3 further highlight the range of island types in 'small islands'.
55	35538	29	2	30	2	32	There is a perennial problem with terminology around "small" islands, namely that "small" cannot be objectively defined. Better to say "smaller" islands, thereby defining a subset of all islands and capturing the essential characteristics of the "small" islands discussed in this chapter. Same problem here with "limited" size (why not say simply "size"?), "small" populations and "poor" land resource bases. Surely the last two can be defined only with reference to land area? (Patrick Nunn, University of New England)	The suggestion to refer to "smaller" islands rather than "small" islands is worth considering but for the time being the authors are constrained by the IPCC WG2 Bureau designated "Small Islands" title for the chapter with all its nuanced implications e.g. not only SIDS in the tropics. Furthermore there is no consistent definition of small islands in the published literature and the term smaller islands is not commonly used.
56	51887	29	2	30	2	38	A line-of-sight reference should be provided, even for this introductory text. (Katharine Mach, IPCC WGII TSU)	This first statement in the FOD ES is not included in the SOD ES.
57	47165	29	2	31	2	31	What is meant by a "poor land resource base?" Does that relate to land quality, or limited resources for population densities or what? (Keith Nichols, Caribbean Community Climate Change Centre)	The phrase has been removed as the entire paragraph has been re-worked.
58	41278	29	2	33	2	33	Inconsistency in location of island regions - here you mention the southern, central and western Pacific Ocean, which is fine. But on page 4, line 48, you only mention the southern and western Pacific, which leaves me wondering where Federated States of Micronesia and Republic of the Marshall Islands fit in since these are in the Central North Pacific? (Gillian Cambers, Secretariat of the Pacific Community)	This is a difficult one as there is no space for a map of the location and regional context of the small islands we discuss. In practice we use terms like 'western' etc following the usage in the particular article we are citing in the text. The 'regions' are not consistent across authors.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
59	36304	29	2	40	2	40	The meaning of "Small islands have long length of relative its size" can be unclear to some readers. The meaning will be clearer if the comparison is relative to continuous continents. (Steven Chan, Newcastle University)	The wording has been changed in new section 29.3.3.4 to 'the high ratio of coastline to land mass'.
60	35381	29	2	42	2	45	The book by Patrick Nunn "Climate, Environment and Society in the Pacific during the last millennium" (Elsevier, 2007) is a comprehensive review of the impacts of sea level change, at least for the region and period mentioned in its title, and certainly deserves a reference somewhere in the text [perhaps sec 29.3.3?] . (It is not in the list at the end of the chapter). One feature highlighted by Nunn is the impact of sea level fall around 700 years ago, to which he attributes much social change (e.g. migration inland). (Tony Weir, University of the South Pacific)	The reference is not included in the chapter as the emphasis is on 'observed' and 'projected' impacts rather than historical changes.
61	51888	29	2	43	2	43	I believe that using "to" on this line instead of "and" would retain meaning closer to that of the original SREX finding. (Katharine Mach, IPCC WGII TSU)	The phrase has been removed as the entire paragraph has been re-worked.
62	49259	29	2	44	2	45	I agree that "Observed impacts of past sea-level rise on small islands are note well documented". However, response of island landform to sea level history in the past several thousand years have been well documented and provide important information on future response, and thus should be referred to somewhere in the text. (Hajime Kayanne, University of Tokyo)	Agreed but the chapter emphasis is on recent 'observed' impacts to climate change especially where there is detection and/or attribution, not on historical changes.
63	35539	29	2	48	2	51	I suggest low confidence is too conservative. I think the word "destruction" is inappropriate; how about "loss of habitability"? The last two clauses are incorrect in my view; why should future "destruction" be confined to only those islands presently experiencing erosion and inundation or those where human impacts have had major effects ... and not others? These seem to be arbitrary divisions. Elsewhere in this chapter, the effects of sea-level rise under a 4 degree warming (Nicholls work) are mentioned, but this (and other upper-bound projections) involves at least another one metre of sea-level rise this century. Are the authors certain that such magnitudes of sea-level rise (and the attendant extremes) will not affect island coasts that are not currently experiencing erosion or inundation (such as those studied by Webb and Kench, 2010), because I think that is a baseless assumption. (Patrick Nunn, University of New England)	This paragraph has been removed in the SOD
64	51889	29	2	48	2	51	Where this topic is addressed on page 8 of the chapter, the chapter team indicates that this finding does not pertain to low-lying islands such as atolls. It may be clearest to provide a similar clarification here. (Katharine Mach, IPCC WGII TSU)	The sentence has not been retained and the paragraph has been removed in the SOD
65	53690	29	2	48	2	51	Any conclusions about in the longer term? (Kristie L. Ebi, IPCC WGII TSU)	The causes of why there will be 'widespread destruction of islands in the next few decades' are not well documented in the scientific literature. This whole section has been deleted in the more stream-lined ES in the SOD.
66	52592	29	2	49	0	0	This sentence is problematic. First, it bases the conclusion on whether or not sea-level rise will cause widespread destruction of islands in the next few decades on observed impacts of sea-level rise alone (which is not well documented), and does not appear to include consideration of projected impacts. Second, the conclusion is framed to emphasise the point that most islands will not be destroyed in the next few decades, while downplaying that there may be islands that will be destroyed, and many islands that may be severely impacted. The possible destruction of any nation in the next few decades should be highlighted as a significant cause for concern for policy makers. Finally, the conclusion does not address longer time scales, which given the cumulative nature of GHG emissions and existing patterns of GHG emission should be included, or the reason for its absence noted. (Malia Talakai, AOSIS)	We realize that this is a controversial statement that is based primarily on 'observed impacts' described in the substantive text referred to in italics at the end of the sentence. This whole section has been deleted in the more stream-lined ES, but is dealt with in detail in a new section 29.3.4 (detection and attribution) in the SOD.
67	54575	29	3	3	3	4	The section referenced here should be 29.4.1 (29.4.1.1 does not exist in the current draft). In addition, the constraint of landward movement of mangroves is not discussed in this section directly, although this point is made elsewhere. Please update the line of sight to the traceable account. (Michael Mastrandrea, IPCC WGII TSU)	This section does not appear in the ES in the SOD.
68	35540	29	3	4	3	6	The last sentence in this paragraph is correct in my view, but also undermines the certainty implied in the sentence on page 2 (lines 48-51). See previous comment. (Patrick Nunn, University of New England)	We do not fully agree that this sentence undermines the certainty implied (page 2, lines 48-51) which is a 'low confidence' statement. However, this section does not appear in the ES in the SOD.
69	42161	29	3	11	0	0	Working with MAGICC-SCENGEN v5.3 software, model projection SRES A1B, Mauritius shows a decrease in rainfall by year 2100, which is a contradiction to what is stated in line 11. (Premchand Goolaup, Mauritius Meteorological Services)	We need a full reference for this comment but the whole section has been deleted from the ES in the SOD.
70	54576	29	3	12	3	12	The section referenced here should be 29.4.1. (Michael Mastrandrea, IPCC WGII TSU)	Agreed and changed in SOD.
71	54577	29	3	12	3	13	It would be useful to provide examples here of factors other than precipitation that are important in determining supply and quality of potable water. (Michael Mastrandrea, IPCC WGII TSU)	The whole section has been deleted from the ES in the SOD.
72	54578	29	3	17	3	19	The negative impact of large ocean swells is fairly easy to deduce, but it might be useful to mention the negative impacts on human health related to airborne dust more explicitly. (Michael Mastrandrea, IPCC WGII TSU)	This is possible with respect to health issues such as asthma, respiratory tract illnesses etc, but generally the literature cautions against attribution to a single factor (in this case airborne dust).

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
73	35382	29	3	27	3	37	While improved sub-regional climate projections would be welcome, much adaptation action can and should be taken on the basis of the clear findings of AR4, namely that extreme climate events such as tropical cyclones, floods and droughts will become more severe and/or more frequent. Thus, we already know the form of most physical impacts of change, even if there is some uncertainty about the magnitude. Therefore a key part of climate adaptation is to ensure that island communities are resilient in the face of such events now. From there it is a much smaller, easier and less costly step to ensure resilience against climate change. The text in this para makes it sound as though all action (adaptation) should wait until we have 100% certainty about the precise magnitude of future climate change. That is the excuse for inaction favoured by the US and OPEC governments. But, as AOSIS repeatedly point out, by the time all the science is perfected, Kiribati and similar countries may be uninhabitable. (Tony Weir, University of the South Pacific)	We agree, and most certainly regret this interpretation of the message we attempted to convey in the paragraph. The authors were simply pointing out the frequent "blurring" in the literature between observed and projected impacts, and consequently the possibility of low confidence in some of the projections. We fail to see how anything in the paragraph (or anywhere else in the chapter) could be construed to suggest that island countries should await "100 % certainty" before implementing adaptation strategies.
74	51890	29	3	27	3	37	A line-of-sight reference should be provided for this paragraph. (Katharine Mach, IPCC WGII TSU)	Agreed, this has been completed.
75	54579	29	3	27	3	37	It would be useful to include a line of sight reference to where these general points are discussed in the text, e.g., 29.3.1, as well as where the vulnerability assessment of fisheries is discussed (29.4.1). (Michael Mastrandrea, IPCC WGII TSU)	Again we agree and have complied with the request.
76	54580	29	3	33	3	34	Generally, I suggest using "low confidence" in the context of the reporting of an actual projection, rather than when the intent is to communicate that robust projections do not exist. "Low confidence" is intended to communicate some level of confidence (albeit low), rather than lack of confidence. In this case, I would recommend stating that there is "limited evidence" regarding the scale of future impacts, for the reasons already stated. (Michael Mastrandrea, IPCC WGII TSU)	Noted and we agree. However we did not make the change in the SOD ES. Will need to do so in the final iteration (the FGD).
77	51891	29	3	40	3	41	It would be helpful to clarify slightly what is meant by this statement; is the author team indicating that it has low confidence in all available indicators, because none provides a complete picture of island vulnerability? (Katharine Mach, IPCC WGII TSU)	The ES has been modified significantly and this paragraph has been removed
78	54581	29	3	40	3	42	As above, I would recommend replacing "low confidence" here, as again this is more a comment on the quality of these metrics and the lack of confidence in their results. In this case, another option might be to express this as "high confidence" that none of the existing indicators provide a complete picture of vulnerability. I would also suggest clarifying further what is meant by the essence of small islands. (Michael Mastrandrea, IPCC WGII TSU)	The ES has been modified significantly and this paragraph has been removed
79	54582	29	3	42	3	45	This is closer to the usage of "low confidence" I have in mind. In this case, it seems you are saying that the author team has low confidence in the effectiveness of wholesale transfer of adaptation options. I would recommend making this slight adjustment in wording to make the point clearer. (Michael Mastrandrea, IPCC WGII TSU)	Noted and we agree. However we did not make the change in the SOD ES. Will need to do so in the final iteration (the FGD).
80	35541	29	3	47	3	53	I agree with this summary but suggest the authors temper the implication that islanders are all today well attuned to the perception of hazards and have bodies of folk wisdom that aid optimal responses to these. Because, while there are well documented examples of these situations, the inroads made by modern (mostly western) knowledge into indigenous adaptive capacity is huge on most islands in my experience and has definitely increased vulnerability. Most publications have focused on the exceptions rather than the common situations.G8 (Patrick Nunn, University of New England)	The reviewer's comment may well be correct but the author team have to assess the literature and it is our view that we provide balance on this aspect of the literature.
81	51892	29	3	50	3	52	Where the author team mentions greater frequency of hazards, it would be beneficial to clarify the relevant "dimension"--over time or space? That is, is the chapter team indicating that adaptive capacity is greater for regions with high frequency of hazards, or for a given location when it is experiencing a period of high-frequency hazards? (Katharine Mach, IPCC WGII TSU)	The issue is discussed as the last theme in the SOD ES with a traceable account to 29.3 and 29.6
82	51893	29	4	1	4	6	A line-of-sight reference should be provided. (Katharine Mach, IPCC WGII TSU)	Now addressed in third topic in SOD ES with traceable account.
83	54583	29	4	1	4	6	Please provide line of sight references to chapter sections where the traceable account for this finding can be found. In addition, it is not clear that the use of "likely" here is based on quantitative evidence on which to base a probabilistic statement. In this case, a confidence assignment may be more appropriate. (Michael Mastrandrea, IPCC WGII TSU)	ES has changed significantly to improve clarity and to increase traceability. Line of sight references have been added.
84	35542	29	4	3	4	4	Avoid "deteriorating" because this is valuative. Better to say "unsustainably managed"? (Patrick Nunn, University of New England)	We believe the word 'deteriorating' is clearer than that recommended by the reviewer.
85	35383	29	4	4	4	6	A caution is needed here that blind pursuit of short-term economic growth (e.g. by clearing mangroves to make room for aquaculture) is likely to be maladaptation (Tony Weir, University of the South Pacific)	The wording has not changed in the SOD ES. Mangroves are not considered here.
86	53691	29	4	5	4	6	Depends on how this is done. (Kristie L. Ebi, IPCC WGII TSU)	The wording has not changed in the SOD ES item three.
87	35543	29	4	11	4	13	I agree with this statement but am concerned that "development plans" will be interpreted by most readers as referring to national plans (even regional ones like the Pacific Plan). I suggest that "development plans" are more than this, something that should be made explicit by the addition of "at regional, national and sub-national levels" after the phrase "development plans". (Patrick Nunn, University of New England)	Paragraph has been removed as entire ES has been significantly re-worked
88	54584	29	4	11	4	13	It would be worth including reference to 29.6.4 here to provide line of sight for this statement. (Michael Mastrandrea, IPCC WGII TSU)	Paragraph has been removed as entire ES has been significantly re-worked
89	51895	29	4	15	4	15	If possible, it would be beneficial to indicate the evidentiary basis of the converging views--is there now further information or documentation that has led to further agreement? (Katharine Mach, IPCC WGII TSU)	Sentence has been modified in SOD ES but the detail suggested by the reviewer is not included.
90	51894	29	4	15	4	19	A line-of-sight reference should be provided. (Katharine Mach, IPCC WGII TSU)	The ES has changed substantially since the FOD and a line of sight has been added to each paragraph
91	54585	29	4	15	4	19	Please provide line of sight references to chapter sections where the traceable account for this finding can be found. (Michael Mastrandrea, IPCC WGII TSU)	The ES has changed substantially since the FOD and a line of sight has been added to each paragraph
92	35384	29	4	18	4	18	All forestry, and not just coastal forestry, links adaptation and mitigation. (But the authors may want to emphasise coastal forestry as some small islands have no other kind , e.g. atolls!) (Tony Weir, University of the South Pacific)	Word "coastal" has been removed.

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93	54586	29	4	23	4	25	In general, assignment of a level of agreement is paired with an assignment of a level of evidence (limited, medium, robust), which seems possible in this case. Further, as elsewhere in the Executive Summary, it may be possible to use these as a basis for an assignment of confidence, to enable clearer comparability across assessment findings. (Michael Mastrandrea, IPCC WGII TSU)	We have paired the level of agreement with a level of evidence.
94	37382	29	4	24	0	0	This comment appears to be a view from the writing team and not a synthesis of the literature, and I wonder whether it might be considered prescriptive by some readers (Colin Woodroffe, University of Wollongong)	We have paired comment and the level of agreement with a level of evidence and indicated a line of sight with traceable accounts in the relevant section.
95	53692	29	4	25	4	25	Evidence to go with agreement statement. (Kristie L. Ebi, IPCC WGII TSU)	We have paired the level of agreement with a level of evidence and indicated a line of sight with traceable accounts in the relevant section.
96	53693	29	4	26	4	28	Also need to address climate change (local practices may not be adequate). (Kristie L. Ebi, IPCC WGII TSU)	We agree that not all local practices or past experience may be adequate in the face of projected climate change. We believe that this message is communicated with greater clarity in the SOD.
97	35385	29	4	30	4	34	I strongly agree that community engagement is the key to successful adaptation, especially in small islands. Please make sure that this message is retained, even if the words change slightly (Tony Weir, University of the South Pacific)	Noted. We agree. While we have restructured the ES substantially, we have underscored the point elsewhere in the chapter, but explicitly in Section 29.8, paragraph 7.
98	52593	29	4	39	0	0	Paragraph casts doubt on whether or not the very existence of some atoll nations is threatened, without citing any supporting literature. Paragraph also implies that the existence of some atoll nations could be threatened, but emphasizes the point that this is not the case for all. Any nation threatened nation is of concern (Malia Talakai, AOSIS)	We respectfully disagree. These introductory remarks are supported by the limited literature and text presented in section 29.3 and specifically section 29.3.1.1. In addition, we explicitly state that "It is important to note that the concerns of vulnerability from inundation to ongoing incremental sea-level rise in low-lying islands (especially atolls) provided in AR4, remains unchanged" (SOD page 6, lines 25-27).
99	36311	29	4	39	4	40	Please avoid using words like "very"; "very" adds little to information of the sentence, and makes the discussion sounds unprofessional and rhetoric. (Steven Chan, Newcastle University)	Agreed but through an oversight the 'very' emphasis has been retained.
100	51896	29	4	39	4	45	It would be helpful to provide citations for some of the opening assertions given here. (Katharine Mach, IPCC WGII TSU)	We agree and have endeavoured to do so in the SOD.
101	51897	29	4	42	4	42	Where the author team uses the phrase "there is no doubt," it should also consider if calibrated uncertainty language would be helpful to characterize this degree of certainty. (Katharine Mach, IPCC WGII TSU)	This is a helpful recommendation which we accept but due to an oversight we failed to implement it in the SOD.
102	41279	29	4	44	4	45	Do we have enough evidence to say for sure that "impacts will be ameliorated by the extent and effectiveness of adaptation (Gillian Cambers, Secretariat of the Pacific Community)	We certainly believe that we do, that is precisely why we stressed the importance of the "effectiveness" of the adaptation strategies (See new 29.6.2. and 29.6.4).
103	51898	29	4	47	4	49	It would be helpful to briefly indicate in which chapters other islands are considered. (Katharine Mach, IPCC WGII TSU)	We have not done this; it would be time consuming given the number of examples we use in the text.
104	38667	29	4	48	4	48	Add in "central" Pacific as defined earlier. (Janice Lough, Australian Institute of Marine Science)	We have not done this but probably should have, though there is no consistent regional division of the ocean. See also response to comment 58 above.
105	41280	29	4	51	4	53	This sentence is difficult to read, so suggest you phrase it as a positive e.g. "Although small island nations are extremely diverse in terms of their political, social, cultural, geographical and economic characteristics, there has been a tendency to generalise etc.etc." (Gillian Cambers, Secretariat of the Pacific Community)	The suggested change in wording was not adopted in the SOD through an oversight.
106	51899	29	5	23	5	23	As a minor point, "projected for 2100" may be clearer than "in 2100." (Katharine Mach, IPCC WGII TSU)	We agree and have substituted the suggested language in the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
107	49264	29	5	43	5	43	I'm not sure if this is the right point to bring this up but I think we need to be careful in assuming that islands are inherently vulnerable. For example, TAR is quoted here regarding the 'low adaptive capacity' of small island states. The empirical basis for such a widespread notion is difficult to determine. Islands are not inherently vulberable places, though they may well be exposed to (increased) potential for harm as a result of climate change. But, apart from having a high coastline: land area ratio, their socio-economic characteristics are not significantly different from other places. In 1988 Bayliss-Smith et al. reflecting to one of the most intensive research projects on human-island interactions (an 18 month, multi-disciplinary project in Eastern Fiji), stated: "In the context of islands, we further differentiated in our approach from the standard wisdom of the day, as incorporated in the early programmatic statements of MAB, by focusing our attention on two misconceptions about islands. The first concerns the supposed vulnerability of islands to external impacts. In fact, when viewed as societies rather than as ecosystems, the small islands of eastern Fiji have shown themselves to be exceptionally resilient." (p. 282-283). "We … conclude that social and economic processes on islands are not distinctively different." (p. 283). Other references to these issues include Barnett and Campbell (2010: 159-165) and Campbell (2009) [Islandness: Vulnerability and Resilience in Oceania. Shima. International Journal of Research into Island Cultures. 3(1): 85-97]. An important factor is that contemporary levels of vulnerability are nearly all brought about by processes of colonialism and development which have seen traditional aspects of adaptive capacity (i.e. resilience) eroded and new forms of exposure introduced (see Figure 2 in Campbell, 2009). Many of the arguments that islands are inherently vulnerable are circular. This doesn't deny that island communities might be adversely affected by climate change, but does draw attention away from some proposition that the fault lies in their internal vulnerability rather than expposure to externally generated threats (one of which is climate change). (John Richard Campbell, University of Waikato)	The reviewer notes that islands are not 'inherently vulnerable' and that they do not necessarily have 'low adaptive capacity' and then goes on to cite two references. Such views are not held by all researchers. Note however in this case the text reference is to the TAR in 2001 and the original statement there.
108	41281	29	6	9	6	12	These two sentences are extremely intersting and I think need more development in the relevant section with more specific examples of how this is taking place. (Gillian Cambers, Secretariat of the Pacific Community)	Noted. We have attempted to do so in the present draft.
109	53694	29	6	19	0	0	Please ensure consistency with WGI and relevant chapters in WGII. (Kristie L. Ebi, IPCC WGII TSU)	We have endeavoured to do so throughout the process but have not always been successful in including cross-checked details in the SOD.
110	49265	29	6	19	6	0	A general note on sections 29.3 and 29.4: The Australian Bureau of Meteorology Study of Pacific Climate change does not seem to be included. perhaps it came out before the draft was submitted. Just in case here are the details -- Australian Bureau of Meteorology and CSIRO (2011) Australian Bureau of Meteorology and CSIRO, 2011. Climate Change in the Pacific: Scientific Assessment and New Research. . (John Richard Campbell, University of Waikato)	This reference is welcome, and is included in the SOD (though classified as 'grey' literature). Some of the journal papers derived from that reference are also included in the SOD.
111	40843	29	6	21	0	0	Section 29.3. - Curiously, the impacts of tropical cyclones - that are likely to be more intense in the future in some regions - both on coral reefs (causing either reef mortality through coral breaking or intense siltation due to soil transfer to reef flats in mountainous islands or reef growth where storm waves "clean" reef flats by removing the silt that accumulated over the past decades) and beaches (causing either intense erosion as observed in the Lesser Antilles and south-western Indian Ocean Islands (Reunion, Mauritius, Rodrigues, e.g.), or shoreline accretion and/or island elevation, as recently shown by S. Etienne (2012) in French Polynesia (cyclone Oly, Februray 2010)) are not included in this section. And yet, at least in some areas, tropical cyclones are likely to play a major role in future island evolution and adjustment to sea-level rise. Those islands that would raise and adjust to sea-level rise would be less vulnerable to flooding, saline intrusion, fresh groundwater degradation and biodiversity loss than others. So, it seems important to include tropical cyclones impacts in the sections 29.3.1.1., 29.3.1.2. and 29.3.1.3. Cited reference: Etienne S., 2012. Marine inundation hazards in French Polynesia: geomorphic impacts of Tropical Cyclone Oli in February 2010. Geological Society, London, Special Publications, 361 : 21-39. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	This is a valuable observation, and we regret the omission. In the SOD we have a specific new section dealing with the impacts of tropical cyclones and extra-tropical cyclones (29.5.1).
112	51900	29	6	21	6	24	The chapter team may wish to indicate explicitly here how it is handling, within the context of its assessment, the unclear distinction in the literature. (Katharine Mach, IPCC WGII TSU)	Whilst accepting the comment we do not go any further in the SOD to 'explain' why this is the case.
113	51901	29	6	24	6	24	It would be potentially beneficial to clarify what is meant by "drivers of change." Does the author team mean physical/climatic variables and events that may be changing due to climate change? (Katharine Mach, IPCC WGII TSU)	We believe that the meaning of the term "drivers of change" is self evident, once it is read in the context of the remainder of the sentence. For ease of reference the full sentence reads "The key climate and ocean drivers of change that impact small islands include variations in air and ocean temperatures, ocean chemistry, rainfall, wind strength and direction, sea-levels and wave climate and particularly the extremes such as tropical cyclones, drought and distant storm swell events".
114	41282	29	6	26	6	26	You mention here that tropical cyclones are among the key drivers of change but I see very little mention of them in this chapter. Are you relying on the SREX 2012 Report to cover this, if so it should be referenced in specific place. (Gillian Cambers, Secretariat of the Pacific Community)	We agree, and have tried to remedy this apparent deficiency in the SOD. A tropical cyclone figure (29.4) has been added in the SOD.
115	52599	29	6	28	0	44	This is limited to consideration of temperature rise of only 2 degrees C. If this is because there are no projections for greater temperature rise, this should be noted as a need for further research given (1) the impacts at 2 degrees Celsius will be far reaching, and the current emissions reduction pledges are likely to lead to over 3 degrees Celsius, and business as usual will likely lead to over 6 degrees Celsius. (Malia Talakai, AOSIS)	The sentence has not been changed in the SOD but details of Nicholls etc are included in 29.4.2.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
116	38668	29	6	33	7	39	Given that several subsequent sections also highlight/discuss sea-level rise impacts, I am not sure whether Section 29.3.1.1 should be a separate section. Maybe it would be useful to include a table which lists the main climate change factors (e.g. SLR, warmer temperatures, ocean acidification, changing rainfall etc) and their relative importance for the small island sectors (e.g. fisheries, coasts, human health etc) - this may provide a means to unify the overall findings of the chapter. (Janice Lough, Australian Institute of Marine Science)	We have considered doing this, though the relationships between 'drivers' and 'impacts' is rarely clear-cut. Section 29.3.1.1 has been expanded to include inundation and shoreline change as well as SLR. It also discusses observations, not projections and or implications of continued SLR that are considered in 29.4.
117	36312	29	6	35	8	27	Measured sea level rise seems to contrast with island area being stable or increasing. I can see how it is possible, but it is not explained clearly, and may sound counter-intuitive to readers. (Steven Chan, Newcastle University)	Drawing conclusions that sea level change at the rates currently measured leads to predictable patterns of shoreline response in small islands is simply not possible at this time. By reviewing the most recent information and data available at this time the Chapter is attempting to show the poor correlation between known drivers (such as SLR) and expected impacts (such as erosion). The point is this, there needs to be greatly improved efforts to measure and understand the links between drivers and impacts. We highlight this lack of research in the SOD.
118	35544	29	6	36	6	39	Small islands are not inherently vulnerable because most populations are coastal and have limited opportunities for resettlement. They are vulnerable because they have high insularity indices (ratios of coastline to total land area) compared to other landmasses. High insularity means that by default most people live on the "coast" and there are not many options for relocation. But insularity indices also allow you to distinguish within the family of small islands. Atoll islands have the highest insularity indices, but larger "small" islands have lower ones meaning that typically a smaller proportion of the total population lives along the coast and there are options for in-island relocation. I feel this point is important to make, especially where many non-specialists tend to think of "small islands" as all the same. The only reference I know to insularity indices is the 2006 chapter by Nunn et al. in the book edited by Nick Harvey "Global Change and Integrated Coastal Management" (Springer). (Patrick Nunn, University of New England)	The wording in the SOD has been changed. While we are unable to accommodate the detail provided by the reviewer owing to space constraints, we have endeavored to capture the essence of the comment in the restructured text. We are not aware of any published literature that reports on reef recovery rates since this bleaching event occurred.
119	52600	29	6	38	0	0	This line appears to underemphasise the impacts of climate change on islands. For example, while stating that the change in the availability of commercial tuna will be negative, with implications for government revenue and island food security, it is not clear what the implications for government revenue and island food security will be. Presumably, they will also be negative, but the factual implications should be clearly stated. Ie. If Government revenue will decline, this should be stated. (Malia Talakai, AOSIS)	In fact this line is in 29.4.2. Projected Impacts for Islands based on Existing SRES Scenarios. The word negative has been included.
120	35545	29	6	38	6	39	A separate issue here is use of the word "resettlement", which implies to many and is used most commonly to mean a wholesale uprooting of a segment of the population and its (involuntary) movement elsewhere, commonly to another landmass altogether. I consider the term "resettlement" undesirable because of these connotations and suggest that throughout Chapter 29, the term "relocation" is substituted, principally because it better captures the whole range of such adaptation options, including those at its more benign end that include moving existing coastal settlements a little inland/upslope. (Patrick Nunn, University of New England)	Accepted. In the SOD 'relocation' has replaced 'resettlement' (see 29.3.3.3).
121	37517	29	6	46	6	53	Perhaps relevant at this point to provide an example of regional variability in sea level e.g.in the Chagos which appears to have been stable over the last 20 y? See Dunne RP et al (2012) Contemporary sea level in the Chagos Archipelago, central Indian Ocean. Global Planetary Change 82-83:25-37 (Barbara Brown, University of Newcastle)	Paper has been included as requested (see SOD 29.3.1.1. Sea Level Rise, Inundation and Shoreline Change).
122	46751	29	6	48	6	51	Include reference to Sallenger et al. 2012. Hotspot of accelerated sea-level rise on the Atlantic coast of NorthAmerica. Nature climate change, online: 1-5. (Maria Caffrey, National Park Service and University of Colorado, Boulder)	Sallenger et al 2012 is an interesting paper in reference to SL variability and increased rates. However, it is mostly relevant to the mainland Atlantic coast of the US and thus is not immediately linked to tropical Small Islands.
123	37992	29	6	48	6	53	It is implicit given that rates of SL rise are not uniform, but for completeness it is important to also mention regions which have seen lower than average increases - this is equally important to later assessments of variability in island susceptibility (Chris Perry, University of Exeter)	In regards to available small islands literature the variability of rates in the Caribbean (including negative rates of SL) have been reported (Sutherland et al 2008), likewise the net relative SL change in Torres Island Vanuatu (tectonic subsidence) has also been highlighted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
124	35546	29	7	1	7	6	The high rates in the western Pacific 1993-2009 are not best explained by ENSO, and I would be wary of making that connection here. I would certainly not retain the last sentence as an illustration of a medium-term phenomenon. Conversely, it may be important to note in this paragraph that the high rates in the western Pacific are likely to fall (normalise) in the next 10-20 years as the PDO enters a new state, then rise again 30 years or so hence, and so on. I would also emphasise in this paragraph that these rates are examples of the effects of medium-term noise about a long-term trend that is upwards. (Patrick Nunn, University of New England)	This is an interesting comment and one on which there is not universal agreement. A quote from Becker et al 2012 "In addition, in situ tide gauge measurements (Wyrtki, 1985; Mitchum and Lukas, 1990), satellite altimetry (Merrifield et al., 1999), and modelling results (Busalacchi and Cane, 1985) have shown that the El Niño-Southern Oscillation (ENSO) phenomenon has strong impact on the interannual variability of sea level in that region. In the PIR, El Niño/La Nina events correspond to sea level lows/highs of ~20– 30 cm compared to normal conditions." Other literature similarly highlights the importance of ENSO as a driver of short term SL variability. The PDO is mentioned as a contributing factor and the details of this phenomena are more appropriately left to WG1. Finally the language of the section on SL has been adjusted to reflect the reviewer's concerns.
125	41283	29	7	2	7	2	In some cases, e.g. Pacific, this short record (1993-2011) is based not only on altimetry records, but also on tide guage records. (Gillian Cambers, Secretariat of the Pacific Community)	Reference to satellite altimetry alone has been removed. However, this paragraph highlights recent high rates in the literature post-AR4.
126	37383	29	7	4	7	6	Sea level rseponse to ENSO is regionally variable and there are parts of the central Pacific where the sea surface is higher during El Nino (rather than lower). This was studied in detail by Wyrtki -- see his many papers, such as Wyrtki, K., 1985. Sea level fluctuations in the Pacific during the 1982-83 El Niño. Geophysical Research Letters, 12: 125-128. (Colin Woodroffe, University of Wollongong)	The sentence; "ENSO for example, has a strong influence over mean sea level in the tropical western Pacific region decreasing sea levels during El Niño (~ 30cm) and increasing sea level during La Nina (~ 30cm) (Becker et al., 2012)" has been removed.
127	41284	29	7	8	7	19	Niña is spelt wrongly in this paragraph (Gillian Cambers, Secretariat of the Pacific Community)	Corrected throughout.
128	49831	29	7	8	7	19	These figures are exczggerated because they emphasize the earliest least reliable data. The South Pacific islands have no change in recent sea level after GPS levelling eqipment was installed see Gray V R http://scienceandpublicpolicy.org/south_pacific.html. (Vincent Gray, Climate Consultant)	This is a comment. The reference is not peer reviewed literature and is not included.
129	52887	29	7	8	7	19	Please consider the following summary of information in Lander and Khosrowpanah (2004): During the major El Niño of 1997 the sea level fell approximately 1ft (0.30m) below its long-term average, and during the La Niña years that followed (1998-2001), the sea level rose to levels nearly 1ft (0.30m) above its long-term average. Thus the net difference of the sea level between the El Niño minimum in December 1997 and the La Niña high stands of the sea level during the summers of 1999, 2000, and 2001 was approximately 2 feet (0.61m). This is substantial, considering that the normal range between the daily high and low astronomical tide is on the order of 4ft (1.22m). The long-term rise of sea level due to global warming is estimated to be on the order of 4 or 5 inches (100 or 127mm) per century. This is small compared to the ENSO-induced changes in sea level of 2 feet (0.61m) over the course of a year or two, making it difficult to retrieve the long-term signal. Lander, M.A. and S. Khosrowpanah, 2004: A rainfall climatology for Pohnpei Island. Water and Environmental Research Institute of the Western Pacific, University of Guam, Mangilao, Guam, 56pp. (John Hay, University of the South Pacific)	There are many exmples in the literature that deal with the fluctuations in sea level between different phases of ENSO. The scale of changes reported here are not exceptional and are found not only in the western Pacific but also in the eastern Pacific eg at Kiritimati.
130	41285	29	7	16	7	19	To what time period do these Caribbean changes relate? (Gillian Cambers, Secretariat of the Pacific Community)	The section referring to Sutherland et al 2008 has been rewritten to be more explicit.
131	37384	29	7	24	0	0	The topography of the island would be a better way of expressing this than the comment land height to mean sea level. MSL itself is not an important datum in this context (Colin Woodroffe, University of Wollongong)	An improved image explaining tropical island typology has been added (Fig 29.1) and see also new Table 29-3 in the SOD.
132	35547	29	7	34	7	37	With all due respect to Webb, whose work I admire, unless these citations to Webb 2006 (and Webb 2007 elsewhere) are placeholders for to-be-published work, they should not be included because they are not peer-reviewed, which will inevitably attract criticism. Rather than use the example of Abaiang, you could use Lata and Nunn (2011, Climatic Change) on the Rewa Delta in Fiji, from which the same phenomena are described. (Patrick Nunn, University of New England)	Reference to Webb's SPC/SOPAC studies have been omitted in the SOD. The Lata and Nunn (2012) paper has been included to highlight the intrinsic vulnerability of delta environments in small islands (see SOD 29.3.1.1).
133	40840	29	7	34	7	37	The Abaiang case study (Kiribati) emphasizing the role of human-induced shoreline change in island exposure to inundation would perhaps be more relevant in section 29.3.3.1 as it has no link with tectonic vertical subsidence. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	The paragraph in question has been adjusted to better reflect the extenuating circumstances which can act cumulatively with CC stress and increase vulnerability.
134	40844	29	7	44	0	0	In sections 29.3.1.1. to 29.3.1.4., the interrelations between coral reefs, reef islands, mangroves and seagrasses could perhaps be explained in greater detail: (1) to highlight interdependences (for example, the protective role of mangrove swamps for fringing reefs where soil erosion is high; the protective roles of mangroves and coral reefs for coastal human settlements) and feedback effects (positive effects of mangrove protection on coral reefs, e.g.), (2) to show that these ecosystems have complementary functions (seagrasses, mangroves and coral reefs all protect coastal areas from storm wave destruction) and (3) to emphasize the high variability of physical processes and coastal evolution depending on island position, coastal exposure, etc. In atoll island, it would probably be interesting to distinguish the ongoing processes operating on lagoon and ocean shores respectively. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	The reviewer's comments are appreciated but space to elaborate these more general ecological concepts is just not available. Also the Coastal Chapter may have a better opportunity to consider such relationships in more detail.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
135	40841	29	7	44	7	45	Lines 44-45 correlate sediment supply contributing to shoreline resilience with adjacent living reef systems. Now, in some cases (coral islands that have formed on large continental platforms such as the Seychelles Bank, e.g.), the sediments that contribute to island progradation and/or resilience can be inherited from ancient coral reefs dated from the Pleistocene period. Some islands that have very limited and even dead Holocene coral reefs are still accreting due to the transfer to the coast of inherited sediments, such as Bird Island in the Seychelles (Cazes-Duvat V., Paskoff R., Durand P., 2002. Évolution récente des deux îles coralliennes du banc des Seychelles (océan Indien occidental), Géomorphologie, 3 : 211-222). Moreover, some atoll islands that are still accreting have no or very limited living coral reefs, which suggests that sediments inherited from older times may play a role in their evolution. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	The intention of the paragraph was not to attempt to describe all sedimentary processes. It was to highlight those islands where living reef ecosystems are important and to show the subsequent exposure to climate change stress.
136	38670	29	7	44	7	50	I think the main point to make here is that sustained production of calcium carbonate structures is the foundation for tropical coral reef ecosystems and the many thousands of reef-associated organisms (especially reef fish etc which are of prime importance to many small islands). Recent studies (e.g. De'ath et al, 2009; Tanzil et al 2009; see also additional coral growth studies described in Lough JM and Cooper TF (2011) New insights from coral growth band studies in an era of rapid environmental change. Earth-Science Reviews 108: 170-184) have provided evidence of recent slowing and setbacks in growth rates which appear to be primarily responses to warming temperatures and setbacks in growth due to coral bleaching events. Fabricius et al (2011: Losers and winners in coral reefs acclimatized to elevated carbon dioxide concentrations. Nature Climate Change doi: 10.1038/NCLIMATE1122) provides graphic illustrattion of the simplification of coral reef community structure with ocean acidification levels projected for the end of this century. (Janice Lough, Australian Institute of Marine Science)	Whilst the review by Lough and Cooper (2011) is excellent it is not easy to include this information in section 29.3 which is on 'Observed Impacts of Climate Change'. The review paper covers a wide range of studies but actual attribution of changes in coral growth rates to known climate change stress remains difficult to discern beyond what is already included in Chapter 29. Likewise, Fabricius et al (2011) describes what changes may occur to reef species under climate change - it does not deal with current observed impacts; thus it is not included in this section.
137	37994	29	7	44	8	3	The emphasis of this section is on what may happen to reef structures and sediment supply - with examples of ocean chemistry effects on one coral species and on coralline algae mentioned. This section is, to my mind, a little misleading because it suggests that a change in one coral species calcification rates will equate to a more general decline in reef-building potential. There are several points here that been to be made clearer: 1) that reef structural development is the sum of more than simply coral calcification (albeit a key driver) - other (biological) destructive process will also determine the balance between carbonate production and erosion and thus net reef growth potential; 2) that regardless, it is rare that a single coral species will build the whole reef - infact Porites are rarely the dominant reef-builder on reefs; and 3) from an island resilience perspective it is very unclear at present how these coral/CCA changes will mediate sediment supply. Other sediments may be produced in greater abundance in the future, even if coral and CCA production declines, and these may take on a more important role in island/beach construction (foraminifera, Halimeda, molluscs etc) - there are many examples of islands and beaches built mainly be these consitutents. I think a few more caveats and acknowledgements of the complexity are needed in here. (Chris Perry, University of Exeter)	This is good feedback and the guidance is appreciated. Perhaps the paragraph in question is an over simplification but it is composed of literature which is island relevant and available in our time window. It also concludes "Given the critical role reefs play to sediment supply and wave energy mediation in carbonate shoreline systems any disturbance in reef productivity or structure can be expected to influence shoreline processes". However, the Section has been reworded and material to highlight the complexity or reef "ecosystems" and importance of species such as foraminifer have been added.
138	38669	29	7	44	8	3	The discussion of carbonte systems here overlaps strongly with section 29.3.1.3 - need to ensure consistency and also with "coral reefs" sections in Chapters 5, 6 and 18. (Janice Lough, Australian Institute of Marine Science)	The overlaps noted by the reviewer are no longer present in the SOD where FOD sections 29.3.1.1 and 29.3.3.2 have been collapsed into a single section titled: Sea level Rise, Inundation and Shoreline Change.
139	39085	29	7	44	8	54	Language is too technical. Please use simple everyday English wherever pobbile.. Also explain the science (e.g. dissolved CO2 produces acification which in turn bleaches the coral reefs(?) (Anirudh Singh, University of the South Pacific)	Agree that the reading is "dense" i.e. a large volume of information in a small number of words. However, we believe this is not scientifically complex language and has been written to be understandable to the majority of readers.
140	37993	29	7	46	7	50	Whilst these two studies are important and widely citied examples of declining calcification rates at regional scales, it is important that this section is balanced. For example, along the Western Australian coast, Cooper et al. (2012) Science 335: p. 593 - did NOT observe a decline in calcification rates in the same species of corals examined elsewhere. In other words recent trends are non-uniform. This study also implicates SST over aragonite saturation state as a key drive of 20th C trends. (Chris Perry, University of Exeter)	As discussed in comment 135 the complexity and need for more research has been better highlighted.
141	37519	29	7	49	7	49	Tanzil et al (2009) actually only showed this result at 3 out of 8 sites around Phuket, Thailand. (Barbara Brown, University of Newcastle)	Change made and additional reference added.
142	51902	29	7	49	7	50	As a small point, it could be useful to indicate the specific years relevant to the 20 year period. (Katharine Mach, IPCC WGII TSU)	Details and wording has been changed as above (comment 141)
143	41286	29	7	50	7	50	Should be Turks and Caicos Islands (Gillian Cambers, Secretariat of the Pacific Community)	Has been modified.
144	37645	29	8	0	9	0	Considerable attention is given to treatment of thermal stress, whereas relatively little is given to acidification. Perhaps a more balance could be achieved by additional information pertaining to acdificaiton – potentially a huge issue that dwarfs thermal stress. Paragraph starting on line 40 is all about bleaching, only a portion of the last sentence on line 53 and 1-2 mentions ocean acidification… better balance of treatment of thermal stress and acidification. (John J. Marra, NOAA)	This section of the chapter deals with 'observed'impacts. Ocean acidification is covered in our reference to the cross chapter Box CC-OA.
145	42582	29	8	5	0	0	In regard to the shoreline response, we should emphasize that shoreline retreats always happen in the coasts where many people are concentrated to live in, and that sometimes small islets where almost nobody lives in are expanding. (Hiromune Yokoki, Ibaraki University)	There are a number of recent papers and studies on shoreline change and these have been used see - 29.3.1.1. I. Erosion (and accretion) can occur on both 'urban' and 'un-inhabited' islands though erosion is more apparent on the former.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
146	52594	29	8	5	0	16	lines 5-16. The conclusions reflected in the draft omit the complexity identified in the studies cited. For example, the draft highlights Webb and Kench (2010) found that 86 percent of the islands studied had seen their land area remain stable or increase over the 20-60 year timespan. However, Webb and Kench specifically state that focusing on net changes masks the dynamic nature of change. They found that 50% of the islands exhibited ocean shoreline erosion, which was in most cases balanced by accretion in other parts of the island. As they state, “Persistence of reef islands does not necessarily equate to geo-morphic stability and the results also show that despite small net changes in island area most islands have experienced larger gross changes.” The dynamic nature of atolls would seem of relevance to policymakers as they struggle to make coastal development decisions and manage local systems of land tenure. (Malia Talakai, AOSIS)	Section 29.3.1.1 in the SOD addresses the reviewer's comments.
147	35548	29	8	5	8	20	The first paragraph reviews post-AR4 work on reef-bounded sand islands but, because it is left in isolation (rather than balanced by accounts of other island coasts), it implies this is the prevalent situation along island shorelines, notwithstanding the caveat in the last sentence of the paragraph, which leads into the great leap from such islands to all islands on lines 18-20. The summary of Rankey's work is inaccurate; I do not read "dynamic equilibrium" in it, but rather variability of shoreline change, including lots of rapid erosion (unlike Webb and Kench's work). The sentence on lines 18-20 is not supported by the literature and should be modified. There should a paragraph of at least equal length to that on lines 5-16 reviewing recent work on island shorelines that are indeed eroding (which appears to me to be the most common situation). Examples of literature include Mimura (ed) 2008 book on Asia-Pacific Coasts, Ford on Majuro (2012), Dickinson (2009, GSA Today) on Tuvalu, and what about all the work on Hawaii (like Kane 2012 in Journal of Coastal Research)? And Locke (2009, Geographical Journal) cites lots of reports of shoreline erosion in Kiribati. (Patrick Nunn, University of New England)	We have considered the reviewer's comments and have made some changes to the paragraph in the SOD (penultimate paragraph 29.3.1.1) but our basic analysis is unchanged. References to Ford and Locke are included in the SOD.
148	40842	29	8	6	8	8	It would be very interesting to distinguish/compare the results obtained in 'natural' and human-influenced islands as this study is based on a very high number of islands. In the same idea, it could be interesting to show that recent human developments have led, depending on locations, either to the acceleration of coastal erosion (negative interference with natural processes) or to island progradation (for example where causeways were built and land reclamation operated). (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	Agreed this is an interesting comment. Following Webb & Kench 2010 a number of other studies have been published and it may become possible to better undertake such an analysis in the future as the empirical evidence and spatial distribution of studies grows.
149	37995	29	8	6	8	9	The Webb and Kench paper is a very interesting and important one to quote here, but one of the key observations from that dataset was that whilst island areas might not have changed much in many of the cases examined, migration across the reef platforms did occur - one might conclude from this that the islands (as landforms) are quite resilient in these case, but there would, of course, be major socio-economic implications as islands become increasingly unstable. (Chris Perry, University of Exeter)	Section 29.3.1.1. has been updated in the SOD to reflect the reviewer's comments.
150	51903	29	8	7	8	8	It would be helpful to explicitly indicate the percent that has increased. Also, is it correct to assume that the remaining 14% have decreased? (Katharine Mach, IPCC WGII TSU)	Section 29.3.1.1. has been updated in the SOD to reflect the reviewer's comments.
151	35386	29	8	8	8	8	Since many of the islands were unstable, it is more accurate to say that Webb & Kench found that these islands either had remained stable or had increased in their total land area (with erosion in one part offset by accretion in another). (Tony Weir, University of the South Pacific)	Section 29.3.1.1. has been updated in the SOD to reflect the reviewer's comments.
152	51904	29	8	10	8	10	"Unlikely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Unlikely replaced with "not likely"
153	39086	29	8	10	8	16	Explain the conclusion in everyday language. Is this called shoreline resilience? (Anirudh Singh, University of the South Pacific)	Every effort has been made to keep the language as simple as possible however it must be recognised this is a technical document and perhaps the Summary for Policy Makers will address some of these concerns.
154	35549	29	8	24	8	27	I do not think the second part of this sentence, which highlights uncertainty about causes of shoreline erosion is needed. No studies of shoreline change can attribute cause with certainty, but the tone of this sentence seems to me likely to plant uncertainty about the probable link between sea-level rise and island shoreline erosion in readers' minds. This is akin to the popular reaction to the Webb and Kench paper, which was neither what that paper stated nor what I understand the authors believe. (Patrick Nunn, University of New England)	This is the conclusion of that paper and it resonates with many of the current studies of shoreline processes in small islands. We are unaware that there is any certainty based on empirical evidence and replicated experimental analysis that sea-level rise alone is presently causing erosion, not withstanding the Bruun effect. We believe the conclusion is objective and is a reflection of the available literature.
155	41287	29	8	24	8	27	One of the things the paper by Cambers did show was that over the 15 year period there were elevated rates of erosion in those islands impacted by a higher number of hurricanes and I think that this is an important finding to bring out, and it does not appear in this sentence. This also relates to the comment on Page 6, line 26, in that I see an absence of discussion about the cyclone/hurricane extremes in this draft and in my experience they are an extremely important driver of physical change in small islands. (Gillian Cambers, Secretariat of the Pacific Community)	Some additional text from Cambers 2009 has been added to reflect the reviewer's suggestion. Figure 29-3 has also been added to deal with the issue of tropical storms.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
156	40249	29	8	27	8	28	Erosion in Cyprus has been estimated and it monitored. The first integrated study on erosion control took place during early 90s, a study "Integrated Zone Management for Cyprus" was focused on erosion control (Carried out by the Delft Hydraulics and the Coastal Unit of Public Works of Cyprus). The reports are available in hard copies. Relevant articles: X.I. Loizidou, N.G. Iacovou "The Cyprus experience in coastal zone monitoring as a basis for shoreline management and erosion control". Proceedings of MEDCOAST '95, Tarragona, Spain. / X. I. Loizidou, N. G. Iacovou "Human activities, coastal erosion and shoreline management in an island country. Case Study: Cyprus". Proceedings of MEDCOAST '99 – EMECS '99, 9-13 Nov. 1999, Antalya, Turkey. Most of literature is in Greek, however I attach relevant articles and info. I am willing to translate data and articles if needed. Check also the case study on Cyprus of EUROSION http://ec.europa.eu/ourcoast/download.cfm?fileID=1168 (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	Many thanks for this reference. Whilst there was much interesting information the report does not elaborate the links to climate change or sea level rise. In fact the report points out that sea-level (at the time of the report) was not being measured and that most beaches suffered from multiple uses, engineering and in some cases intensive aggregate extraction. Whilst erosion is undoubtedly an important issue, management issues may be the immediate priority.
157	53695	29	8	30	0	0	Please ensure consistency with chapters 6 and 30. (Kristie L. Ebi, IPCC WGII TSU)	We have considered some issues of consistency but have been concerned about the fluid nature of both ours and other chapter texts.
158	52595	29	8	32	0	0	Is there literature quantifying the dependence of island communities on coral reefs? (Malia Talakai, AOSIS)	We do not know of literature on quantifying the dependence of small island communities on coral reefs.
159	35550	29	8	32	8	38	This paragraph understates the issue in my view. Given that reef ecosystems remain major sources of food for coastal dwellers, the issue is not about wellbeing, which might suggest to the reader that there are alternatives available, but about survival. (Patrick Nunn, University of New England)	We respectfully disagree with the reviewer's comment. We have not replaced 'Well being' as there are indeed alternatives for survival. 29.3.1.2. discusses coral bleaching - communities livelihoods shifted to other resources (to maintain their well being) until the reefs recover.
160	37518	29	8	32	9	26	No mention here of the effects of rising sea level on coral reefs where now we do have some evidence for certain parts of the world that bear out the predictions of Buddemeier RW and Smith SV (1988) Coral Reefs 30:867-878 that shallow reef flats may benefit from initial rises in sea level - see Brown BE et al (2011) Coral Reefs 30:867-878 (Barbara Brown, University of Newcastle)	Our chapter has not considered this detail which is covered in the coral reef Box CC-CR
161	39087	29	8	40	8	41	Explain the relationship between ocean CO2 concentrations, acidification and reef calcification in one or two lines. (Anirudh Singh, University of the South Pacific)	Our chapter has not considered this detail which is covered in the coral reef Box CC-CR
162	41289	29	8	40	9	2	There is some research being done by CSIRO and others that shows that the thermal tolerance of corals is reduced in response to ocean acidification and I do not see any mention of this here. It might be worthwhile digging into this because I think this should be brought out in this chapter. (Gillian Cambers, Secretariat of the Pacific Community)	Our chapter has not considered this detail which is covered in the coral reef Box CC-CR and ocean acidification Box CC-OA.
163	51906	29	8	40	9	2	The author team should also consider and, as appropriate, cross-reference the assessments of chapter 6 and 30, as relates to this paragraph. (Katharine Mach, IPCC WGII TSU)	We have included reference to the coral reef and ocean acidification boxes (CC-CR, CC-OA) which are cross-chapter boxes, including chapter 29.
164	51905	29	8	42	8	42	It would be beneficial to indicate more explicitly what is meant by "impacts consistent with a regional decline"--for example, bleaching events at a rate through space and time that is exceeding recovery rates? (Katharine Mach, IPCC WGII TSU)	Detail is not considered in Chapter 29.
165	35116	29	8	43	0	0	A sentence needs to be added about the Caribbean-wide bleaching event of 2005, which is referenced in the References section (Eakin et al., 2010). I suggest adding: 'In 2005, high ocean temperatures in the tropical Atlantic and Caribbean resulted in the most severe bleaching event ever recorded in the basin. Over 80% of corals bleached and over 40% died at many sites. The most severe bleaching coincided with waters nearest a western Atlantic warm pool that was centered off the northern end of the Lesser Antilles.Comparison of satellite data against field surveys demonstrated a significant predictive relationship between accumulated heat stress (measured using NOAA Coral Reef Watch's Degree Heating Weeks) and bleaching intensity. ' (Michael James Crabbe, University of Bedfordshire)	We have included reference to the coral reef and ocean acidification boxes (CC-CR, CC-OA) which are cross-chapter boxes, including chapter 29.
166	39088	29	8	43	8	46	Too many bleaching examples. It may be appropriate to quote one or two examples in the text and place the rest in a table. (Anirudh Singh, University of the South Pacific)	The text has been shortened because of reference to the coral reef Box CC-CR.
167	41288	29	8	45	8	45	Does the 100% mortality mean there was no recovery after the event? (Gillian Cambers, Secretariat of the Pacific Community)	The reference is correct though we do not know what has happened subsequently.
168	42164	29	8	49	8	50	Good facts on coral bleaching aroung Rodrigues (Premchand Goolaup, Mauritius Meteorological Services)	Noted. No action required.
169	35117	29	9	4	0	0	Change to: '...and acidification. However..... (Michael James Crabbe, University of Bedfordshire)	Text has been changed in SOD.
170	41290	29	9	4	9	4	Do you mean "Islands" or "Coral reefs" have limited response options to thermal stress? (Gillian Cambers, Secretariat of the Pacific Community)	Text has been changed in SOD.
171	35551	29	9	4	9	5	The idea that reef resilience is enhanced in the absence of additional stressors seems the wrong way to put the issue. Surely it is reef vulnerability that is increasing with additional stressors (such as those this chapter has mentioned in many places). (Patrick Nunn, University of New England)	Sentence has been revised in SOD.
172	37996	29	9	4	9	5	Presumably this sentence is about the limited response of the reefs around islands, not the actual islands themselves? Perhaps needs rewording. (Chris Perry, University of Exeter)	See comments 167-171 above.
173	51907	29	9	13	9	13	"Likely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Wording has been changed.
174	35387	29	9	19	9	20	"...an imperative for small island communities to protect natural shoreline systems from direct human interference". Yes, this is an important conclusion. It applies not only to reefs (as stated in lines 14-15) but also to mangroves (which should be stated explicitly in sec 29.3.1.4 but isn't!). (Tony Weir, University of the South Pacific)	Unclear what the reviewer is requesting here.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
175	51908	29	9	20	9	21	It would be helpful to specify the relevant time frame for the described decline and degradation. (Katharine Mach, IPCC WGII TSU)	The literature does not cover that detail.
176	51909	29	9	21	9	22	The author team might wish to clarify if, where, and/or when this effect on species composition has been observed to date. (Katharine Mach, IPCC WGII TSU)	This has been done to the extent possible given the detail (or lack of it) in referenced papers.
177	48483	29	9	27	0	0	<New information to demonstrate global warming impacts on coral reefs occurring now, oppose to prediction in years 2020-2050>. "Increase in frequency and severity of mass bleaching and mortality events as a consequence of global warming has been predicted to occur about in the years of 2020 to 2050 (Hoegh-Guldberg 1999; Done et al. 2003). More severe events, such as that in 1998, could devastate coral reefs because of the recovery time (up to several years) from each event (Sheppard 2003). The bleaching of a multi-species coral community in the back reef pools of American Samoa appears to be the first subtidal multi-species bleaching event occurring regularly every summer due to increase in temperature and irradiation. Bleaching has been observed consecutively for five years. These events may provide insights into the future for coral reefs as a predictable opportunity to study annual bleaching events and test possible mitigation strategies long before annual summer bleaching becomes common on coral reefs around the world." [adapted from, Fenner, D., and S. Heron. 2009. Annual summer mass bleaching of a multi-species coral community in American Samoa. Proceedings of the 11th International Coral Reef Symposium, FL, 7-11 Jul 2008. Session no. 25.] (Lauren Wetzell, Bay of Plenty Regional Council)	We have included reference to the coral reef and ocean acidification boxes (CC-CR, CC-OA) which are cross-chapter boxes, including chapter 29.
178	40250	29	9	29	0	0	Reference to Posidonia Oceanica is very important to be included in this paragraph. (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	This is referenced in 29.5
179	53696	29	9	29	0	0	Please ensure consistency with chapter 5. (Kristie L. Ebi, IPCC WGII TSU)	This has not been done systematically
180	46752	29	9	29	10	15	Section 29.3.1.4: The author discusses loss of mangroves, however there have also been a number of studies that suggest mangroves could migrate to higher latitudes with warmer temperatures. Whilst, the number of mangrove forest many decrease on the islands, it might be worth mentioning that their range will not shrink, but could actually expand on the mainland. (Maria Caffrey, National Park Service and University of Colorado, Boulder)	This is a fair point, but we do not know of literature on small islands that considers such geographical expansion.
181	35388	29	9	36	9	36	Mangroves are threatened even more directly by human activity, than by sea level rise - not least clearing them for firewood, timber, aquaculture, farmland, urban or squatter settlement, etc. , which have already decimated the area under mangroves. (Refer: Donato et al, Nature Geoscience, 4, 293-297 (2011). Such "development" is maladaptation in light of the "imperative for small island communities to protect natural shoreline systems from direct human interference" cited on p9, lines 19-20 (Tony Weir, University of the South Pacific)	This is also a fair point and one that we attempt to address when dealing with detection and attribution 29.3.4.
182	51910	29	9	36	9	36	For an unfamiliar reader, it would be helpful to clarify the mechanism through which mangroves are most sensitive to sea level rise. Is the described threat due to physiological sensitivity (salt tolerance), increased inundation, soil erosion, etc.? (Katharine Mach, IPCC WGII TSU)	Both references in FOD discuss mangroves are sensitive to increased inundation and changes in soil elevation. Further detail cannot be included because of space restrictions.
183	39089	29	9	36	9	52	Too technical for the non-scientific reaadership. (Anirudh Singh, University of the South Pacific)	We do not believe the detail is too technical.
184	35552	29	9	46	9	48	The Webb (2007) reference is not peer-reviewed and is not needed to make the point. (Patrick Nunn, University of New England)	Reference has been deleted in SOD
185	41291	29	9	51	9	51	it is usually referred to as "Martinique in the Caribbean" (Gillian Cambers, Secretariat of the Pacific Community)	We have made the change as suggested by the reviewer.
186	51916	29	10	1	10	1	"Likely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	No the term is not being used in the formal sense, but rather is used by the author.
187	38671	29	10	1	10	15	The Fabricius et al (2011) study of ocean acidification impacts is also relevant to sea grasses. (Janice Lough, Australian Institute of Marine Science)	Have not used this reference as we endeavour to cite 'small island' literature. Also see box CC-OA.
188	51911	29	10	7	10	7	"Likely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	No the term is not being used in the formal sense, but rather is used by the author.
189	51912	29	10	9	10	9	It would be helpful to specify more precisely what is meant by "observed." Was this result determined through a model or field experiment? Presumably the study authors did not literally observe sea level rise by 20 cm? (Katharine Mach, IPCC WGII TSU)	We have not included the detail the reviewer requested.
190	53697	29	10	20	0	0	Please ensure consistency with chapter 4. (Kristie L. Ebi, IPCC WGII TSU)	Mention of more frequent hurricanes has been removed but more intense retained.
191	46753	29	10	27	10	27	"...in conjunction with more frequent and intense hurricanes..." we do not have strong enough evidence to say that hurricanes will become more frequent. It is fine to say that we expect them to be more intense, but there is conflicting evidence about frequency (see Knutson et al. 2010. Tropical cyclones and climate change. Nature Geoscience, 3: 157-163. I realize that the author here is just repeating what has been observed, but this sentence makes it sound as though frequency has increased. There is no comclusive evidence that it has (we simply don't have a long enough record to say so) - even in Florida. (Maria Caffrey, National Park Service and University of Colorado, Boulder)	Mention of more frequent hurricanes has been removed but more intense retained.
192	51913	29	10	27	10	29	For this statement, it would be helpful to indicate the relevant time frame for the observed change. Also, has both the frequency and intensity of hurricanes been documented for this system? It may be useful to cross-reference relevant findings on cyclones from the working group 1 contribution to the 5th assessment report. (Katharine Mach, IPCC WGII TSU)	We have now kept to the WG 1 findings and mention of more frequent hurricanes has been removed but more intense retained.
193	51914	29	10	32	10	35	For these statements, the author team may wish to specify the relevant time frame. (Katharine Mach, IPCC WGII TSU)	Time frame added where available.
194	36313	29	10	39	10	39	Can Taiwan be considered a "small island"? This is confused by the fact small island is not precisely defined in the chapter. (Steven Chan, Newcastle University)	Taiwan is not a small island by the 'definition' given given in 29.1 . The reference to Taiwan has been removed.
195	51915	29	10	41	10	41	It would be useful to specify the timeframe for the described shift in altitude. (Katharine Mach, IPCC WGII TSU)	Time frame added where available.
196	53698	29	10	46	10	48	11 (Kristie L. Ebi, IPCC WGII TSU)	We do not understand what is being suggested.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
197	38672	29	10	50	10	50	"Marion Island" - here and elsewhere, where referring to a specific island, please give some indication of location (e.g. Southern Indian Ocean). (Janice Lough, Australian Institute of Marine Science)	The location of Marion Island has been added.
198	41292	29	11	1	11	6	Is there any literature to show the imapct of such altitudinal changes in tropical islands? (Gillian Cambers, Secretariat of the Pacific Community)	A new reference to altitudinal changes has been added.
199	40251	29	11	9	0	0	Info on precipitation in Cyprus: TRENDS IN PRECIPITATION AND TEMPERATURE IN CYPRUS DURING THE 20TH CENTURY AND AT THE BEGINNINGS OF THE 21ST CENTRURY http://www.moa.gov.cy/moa/ms/ms.nsf/DMLcyclimate_en/DMLcyclimate_en?opendocument The decrease in the amount of precipitation was remarkable. While the average annual precipitation in the first 30-year period of the century was 559 mm, the average precipitation in the last 30-year period was 462 mm, which corresponds to a decrease of 17%. On the other hand, the average annual temperature in Cyprus, both in urban and in rural areas, presented an increasing trend. The greater increase in temperature in the towns is due to the urbanization effect, however, the fact that an increase is also observed in rural areas, it is indicative of the general increase in temperature in our area as well as globally. In Nicosia the average annual temperature increased from 18.9°C in the first 30-year period of the century to 19.7°C in the last 30-year period, an increase of 0.8°C. Cyprus Meteorological Service (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	We need a peer reviewed publication before we can cite this information which we can only find on a website.
200	53699	29	11	9	0	0	Please ensure consistency with WGI and relevant chapters in WGII. (Kristie L. Ebi, IPCC WGII TSU)	We did not do this for the FOD, but we did do it for the SOD, but only partially (see response 33).
201	35389	29	11	20	11	21	It is indeed important to note these human-induced stresses on fresh water reserves. (Tony Weir, University of the South Pacific)	Agreed.
202	36314	29	11	22	11	22	Comma is missing after "In the Caribbean". (Steven Chan, Newcastle University)	The sentence has been changed in the SOD.
203	52596	29	11	25	0	0	The following sentence, “[t]he situation of water availability in the Caribbean is likely to deteriorate unless astutely managed,” appears to link the decreasing water supply to management decisions. However, the previous sentence seems to imply that the decreasing water supply will be the result of decreasing rainfall, which will necessitate careful management to respond to a decreasing resource. Greater clarity would be helpful. (Malia Talakai, AOSIS)	Yes, agreed. The sentence is not included in the SOD.
204	36315	29	11	25	11	26	Is the 0.18 mm per year change statistically significant and large enough to cause considerable change to the mean rainfall? In other words, what is the percentage change? (Steven Chan, Newcastle University)	The 0.18mm/yr change is observed (1900-2000) 'using monthly CRU gridded rainfall records averaged over the Caribbean'. The projected is based on GFDL C2.1 using AR4 A1B scenario. The critical two sentences from the reference (p 258) are: ‘Indeed rainfall has decreased 0.18 mm/year in the period 1900-2000 and is projected to continue decreasing at a similar rate in the next 100 years. The r^2 linear trend fit is relatively small (0.28 observed, 0.14 projected) so inter-decadal variability of rainfall exceeds its long-term change.' The wording in the SOD is similar to that in the FOD.
205	42165	29	11	27	0	0	In Mauritius the availability of fresh water is going through increasing stress with a projected annual decreasing rainfall of 0.20 mm per year (Premchand Goolaup, Mauritius Meteorological Services)	We are unable to find a published, peer-reviewed reference to support the reviewer’s assertion (‘projected annual decreasing rainfall of 0.20 mm/yr) linked to increasing water stress in Mauritius.
206	51917	29	11	27	11	27	"Likely" -- The author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Yes. And we need to find a reference for the whole sentence if it is to be included in the SOD. The sentence has been deleted.
207	35390	29	11	29	11	41	Modelling confirms that it takes ~1 year for the freshwater lens of an atoll to recover from salt water inundation (refer: Terry J P and Chui T F M, 2012. Evaluating the fate of freshwater lenses on atoll islands after eustatic sea level rise and cyclone-driven inundation: a modelling approach. Global and Planetary Change 88-89: 76-84. DOI: 0.1016/j.gloplacha.2012.03.008). The social (human) impacts of this are very important for atoll communities and need to be stated explicitly: as sea level rises sufficiently for such inundation to occur more frequently than ~1 time per year, Pacific atolls become uninhabitable - long before their complete submergence by sea-level rise - owing to irrecoverable groundwater salinisation seriously reducing the availability of fresh water. (refer: Terry & Chui [above] and T Weir & Z Virani, “Three linked risks for development in the Pacific Islands: climate change, disasters and conflict”, Climate and Development, vol 3, pp193-208 (2011)). (Tony Weir, University of the South Pacific)	Thank you for the two references that were not included in the FOD. They are included in the SOD.
208	40252	29	11	29	11	41	Saline intrusion in Cyprus is attributed to overpumbing of groudn water for agricultural reasons. In some areas there is a drop of more than 30 m in ground water levels the last 30-40 years (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	Thank you. Reference needed; anecdotal evidence cannot be included.
209	36316	29	11	37	11	41	Remove " ' " after "lens". The meanings of "express" and "king" are unclear. If "king" means large, "large" is probably preferred word to use. (Steven Chan, Newcastle University)	Replaced 'express' with 'pond'. 'King' tides is a common term used for very high tides in the Pacific. The new wording in the SOD is: ‘ ‘the lens may pond at the surface’.
210	41293	29	11	39	11	39	"the lens may 'express' at the surface" - suggest rewording - it is not clear what you mean. (Gillian Cambers, Secretariat of the Pacific Community)	Replaced 'express' with 'pond' (see 209 above).
211	35553	29	11	40	11	41	The Webb references are not peer-reviewed and are not needed here. We have been asked to avoid grey literature in AR5. Locke (2009, Geographical Journal) and Dickinson (2009, GSA Today) would probably suffice if another citation was deemed necessary here. (Patrick Nunn, University of New England)	Agreed. The Yamano reference alone should suffice. The Webb references have been deleted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
212	40852	29	11	44	0	0	In section 29.3.3., it would be interesting to include agricultural practices and their evolution over recent decades, showing: firstly, that they can threaten vital resources such as fresh groundwater, as illustrated by Van der Velde et al., 2007, in Tongatapu, Tonga; secondly, that they can be impacted by the development of modern lifestyles, which in turn reduces island community resilience/independence and soil quality, as shown by Deenik and Yost (2006); thirdly, that homegardening can usefully be encouraged by donors, as shown by A.J. East and L.E. Dawes, 2009 - Cited references: Van der Veldea M., Greenb S.R., Vancloostera M., Clothierb B.E., 2007. Sustainable development in small island developing states: Agricultural intensification, economic development, and freshwater resources management on the coral atoll of Tongatapu. Ecological Economics, 61: 456-468. Deenik J.L, Yost R.S., 2006. Chemical properties of atoll soils in the Marshall Islands and constraints to crop production. Geoderma, 136: 666–681. East, A.J., Dawes L.A., 2009. Homegardening as a panacea: A case study of South Tarawa. Asia Pacific Viewpoint, 50(3): 338-352. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	We initially had a small section on agriculture and land use in an early draft. But there were few references that dealt with climate change and agriculture and land use on small islands. The references included in the review comment do not deal with observed climate change impacts.
213	53700	29	11	44	0	0	Please ensure consistency with chapters 8, 10, and other relevant chapters. (Kristie L. Ebi, IPCC WGII TSU)	This was not done for the FOD and has only been partially successful in the SOD (see 33).
214	40846	29	11	48	0	0	In sections 29.3.3.1. (Settlements and infrastrcuture) and 29.6.2.2. (Addressing risks), a major driver of island community vulnerability is the rapid and recent change in demographic trends, lifestyles and resource management, which therefore constitute main levers for risk reduction. It could perhaps be dealt with in greater detail. For Indian Ocean islands, see: Le Masson V., Kelman I., 2011. Disaster risk reduction on non-sovereign islands: la Réunion and Mayotte, France. Natural Hazards, 56: 251-273. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	A fair point on which we agree, though explicit reference to the relationship with climate change is not evident in the cited reference. The more general point is discussed in 29.6.1.
215	49266	29	11	48	11	48	Traditional patterns of settlement were not coastal in many parts of the PIC region where, for defence purposes, and in Melanesia avoidance of malaria, communities often occupied higher locales. The move to the coast was often encouraged by colonial governments and missionaries so they could have better access to/control over the local people. The following have some references to traditional settlement patterns: Ferdon, E. N. (1993). Early Observations of Marquesan Culture 1795-1813. Tucson, University of Arizona Press. Kirch, P. V. and D. E. Yen (1982). Tikopia: The Prehistory and Ecology of a Polynesian Outlier. Honolulu, Hawaii, Bishop Museum Press. Even on atolls traditional settlement patterns were different from the present -- eg. Spenneman (1995) p.26 'In traditional settlement patterns, populations were concentrated on the safest island on an atoll, in the southern Marshall Islands that is located on the western fringe. Today, Majuro's population is concentrated on the exposed eastern islands. Environmentally, the present spatial organization of urban Majuro is clearly unsuitable, as it unnecessarily exposes the residents to storm surge hazards.' [Spennemann, D. H. R. (1995). Dreading the Next Wave: Non-Traditional Settlement Patterns and Typhoon Threats on Contempoaray Majuro Atoll, Natural Hazards Research: p.1-35.] (John Richard Campbell, University of Waikato)	The sentence has been modified in the SOD to accommodate these comments as well as the following review comment.
216	35554	29	11	48	11	49	This is not correct. I suggest landscape is the principal cause of infrastructure and development being located in coastal zones. (Patrick Nunn, University of New England)	See comment 215 above.
217	47166	29	11	50	11	51	I would suggest that "all development and settlement on atolls" is essentially 'shore development' not to take away from the fact that Small islands such as those of the Eastern Caribbean are essentially coastal , as well. (Keith Nichols, Caribbean Community Climate Change Centre)	The first three sentences have been reworked to satisfy this comment and the two preceding ones, though the word coastal rather than shore has been retained.
218	52597	29	12	5	0	0	The rational for including this paragraph is unclear. (Malia Talakai, AOSIS)	The reaction to this paragraph is interesting as demonstrated by this and the two following review comments.
219	47167	29	12	5	12	6	Many of the environmental stresses that have been attributed to Tuvalu, the Marshall Islands and Maldives are in..... Does that imply that Tuvalu etc are the source of the problems? (Keith Nichols, Caribbean Community Climate Change Centre)	This sentence, indeed the whole paragraph, has been re-written to get rid of any ambiguity.
220	37563	29	12	5	12	12	excellent point. This begs a discussion about where the research effort needs to be directed - to understanding more about outer islands. (Jonathon Barnett, University of Melbourne)	There is very little about 'outer island' environments and climate change in the literature. We do however make reference to work in the Solomon Islands and Vanuatu.
221	35391	29	12	6	12	6	[South] Tarawa in Kiribati is another case of severe environmental stress. (Tony Weir, University of the South Pacific)	Yes we agree and cite 'South Tarawa' in the next sentence.
222	51918	29	12	10	12	1	For this statement, the author team should avoid formulations that could potentially be interpreted as policy prescriptive. (Katharine Mach, IPCC WGII TSU)	Yes, we accept that it may appear that way. The sentence (in the SOD) is now prefaced with 'They argue that…'
223	41294	29	12	11	12	11	Unfortunate typo - treat instead of threat! (Gillian Cambers, Secretariat of the Pacific Community)	Yes, agreed it is unfortunate. Thanks for pointing this typo out. It is corrected in the SOD.
224	41807	29	12	14	0	0	This issue of 'coastal squeeze' is usually discussed in the context of ecosystem change, but is equally important for the tourism sector as beaches are a vital economic asset for resorts and destinations. This is discussed by Scott et al. (2012) Sea Level Rise Impacts on Coastal Resorts in the Caribbean. Journal of Sustainable Tourism. 20 (6). 883-898. (Daniel Scott, University of Waterloo)	Our reference to Schleupner and Martinique and coastal squeeze demonstrates the first part of the reviewer's comment. Thank you for the Scott et al., 2012 reference. It is now included in 29.3.3.2.
225	51919	29	12	23	12	25	The logic of this statement is not immediately clear to me. Settlements in the least vulnerable locations were abandoned? (Katharine Mach, IPCC WGII TSU)	Agreed. The sentence is convoluted and does not make sense. It has been re-written in the SOD, and the whole paragraph has been moved to a more appropriate place in the SOD.
226	35555	29	12	28	12	29	As on page 8 (24-27), there is no need to discuss the difficulty of ascribing causation here. (Patrick Nunn, University of New England)	This whole section on observed impacts has as a suffix 'detection and attribution relating to climate change'. Hence the emphasis on the problem of 'attribution'. See also new section 29.3.4 in the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
227	51920	29	12	33	0	0	Section 29.3.3.2. For this section, the author team may wish to consider and cross-reference WG2 chapter 10. (Katharine Mach, IPCC WGII TSU)	This is now 29.3.3.1 and has been re-written
228	41806	29	12	33	13	2	section 29.3.3.2 - This section does not meet the review criteria of being comprehensive of the literature relevant to this region. As the tourism sector is highly salient for this region (as the chapter emphasizes in it useful conceptual Figure 29-3) the CLAs might find the following citation rich critical reviews of the international tourism sector useful in the SOD preparation: Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232) and the much more comprehensive book that this summary review is based on Scott, D., Gössling, S., Hall, C.M. (2012) Climate Change and Tourism: Impacts, Adaptation and Mitigation. London: Routledge. Also, a more specific review of the implications of climate change for tourism in SIDS was provided to the UNWTO report at RIO+20. It is based on the above comprehensive reviews and summarizes most of the relevant literature that would be useful for this section. I am happy to provide the chapter if the UNWTO report is not yet released: Scott, D. (2012) Impacts and Challenges of Climate Change in Small Island Developing States. In: Challenges and opportunities for tourism development in small island developing states. Madrid: United Nations World Tourism Organization. (Daniel Scott, University of Waterloo)	This is now 29.3.3.1 and has been re-written by the reviewer who is now a 'contributing author'.
229	41808	29	12	35	0	46	The literature that examines implications of changes in climate resources for tourism (globally as well as regionally for areas covered by this chapter - North America to the Caribbean for example) are discussed in Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232). The same critical review examines the available literature on 'climate preferences of tourists' (including coastal/beach tourism, importance of climatic variables and key thresholds) and larger surveys of tourists in North America and European markets that are important for the Caribbean and Indian Ocean islands. The risk of exceeding 'too hot' threshold in the Caribbean has been shown to be low and is not the threat to changes in tourism demand that changes in climatic conditions in market countries (US, Canada, EU) is. (Daniel Scott, University of Waterloo)	This is now 29.3.3.1 and has been re-written by the reviewer who is now a 'contributing author'.
230	35556	29	12	35	12	46	This paragraph struggles in my view to convince the reader that "climate change affects tourism performance". Surely tsunami or civil unrest are far more potent factors. That said, tourism in the Maldives is heavily focused on dive tourism, and dive magazines do note effects of coral bleaching that influence tourist interest in visiting such places (see Becken chapter). (Patrick Nunn, University of New England)	The issues here are addressed in the new paragraphs of 29.3.3.1 including that of dive tourism.
231	36317	29	12	35	12	46	The overall message of the paragraph seems unclear. Is perception of climate change more important the actual change in effecting tourism? And what causes perception changes and are they related to the actual changes themselves? (Steven Chan, Newcastle University)	This comment has not been followed up in detail because it would require more space than we have allowed for this section on tourism.
232	41809	29	12	42	0	0	moderate effect on destination choice' - This statement needs to be supported. Econometric modeling by by Bigano et al, Berrittella et al, Lyons et al, Hamilton et al. and Eugenio-Martin et al suggest it will impact destination choice. Moreno (2010) and Rutty and Scott (2010) do show that Europeans would still seek the Med as a destination (for non-climatic as well as climatic reasons), but that does not necessarily translate to small islands which are much further. (Daniel Scott, University of Waterloo)	A fair comment that is addressed in the new 29.3.3.1.
233	51921	29	12	42	12	42	It would be helpful to clarify why (through what mechanism) the effect would be "only moderate." (Katharine Mach, IPCC WGII TSU)	The wording in this section has been changed in the SOD.
234	41810	29	12	44	0	0	The complexity of the impacts of climate change on destination perceptions and the implications for travel decisions are discussed in detail in Gössling, S., Scott, D., Hall, M.C. (2012) Consumer Behaviour and Demand Response of Tourists to Climate Change. Annals of Tourism Research, 39 (1), 36-58. (Daniel Scott, University of Waterloo)	These are briefly covered with appropriate references in 29.3.3.1.
235	41812	29	12	48	0	51	Much more discussion about the impact of sea level rise and beach erosion is available. See the following for a review Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232), but also specific studies such as: Scott et al. (2012) Sea Level Rise Impacts on Coastal Resorts in the Caribbean. Journal of Sustainable Tourism. 20 (6). 883-898; Buzinde, C.N., D. Manuel-Navarrete, D. Kerstetter, and M. Redclift, 2010: Representations and adaptation to climate change. Annals of Tourism Research, 37(3), 581-603; Buzinde, C.N., D. Manuel-Navarrete, E.E. Yoo, and D. Morais, 2010: Tourists' perceptions in a climate of change: Eroding destinations. Annals of Tourism Research, 37(2), 333-354. (Daniel Scott, University of Waterloo)	This is now 29.3.3.1 and has been re-written by the reviewer who is now a 'contributing author'.
236	41811	29	12	49	0	0	coastal erosion are the result of coral bleaching' - need to clarify this statement. The decline/mortality of coral reefs can alter sediment supply, but to suggest bleaching is involved in all erosion is misleading (as it reads now). (Daniel Scott, University of Waterloo)	The wording in this section has been changed in the SOD.
237	41295	29	12	49	12	51	Assume the coral bleaching case refers to Bonaire and the coastal erosion to to Barbados? If this is what the study said then add 'respectively to to end of sentence on line 51. (Gillian Cambers, Secretariat of the Pacific Community)	The wording in this section has been changed in the SOD.
238	41813	29	12	51	0	0	Consider qualifying the statements by Uyarra et al. 2005, as the findings differ by island (one which focuses on dive tourism, the other on beach tourism) and the survey question posed to tourists was rather extreme (all beaches eroded). (Daniel Scott, University of Waterloo)	The wording in this section has been changed in the SOD.
239	41814	29	12	52	0	53	For further discussion on the impacts of climate change on water and tourism, including some case studies such as Barbados, see also Gössling, S., Aall, C., Ceron, J.P., Dubious, G., Hall. M.C., Lehmann, L.V., Peeters, P., Scott, D. (2012). Tourism and Water Use: Supply, Demand and Security – An International Review. Tourism Management, 33, 1-15. (Daniel Scott, University of Waterloo)	The wording in this section has been changed in the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
240	35392	29	12	54	12	54	Desalination is used on many of the tourist islands of the Maldives, which would otherwise be uninhabitable. It is viable only because tourist's money can pay the high financial cost – island communities could not do so without considerable outside assistance. (Refer: paper from Maldives Water Authority in SOPAC database at http://www.pacificwater.org/userfiles/file/Case%20Study%20B%20THEME%201%20Maldives%20on%20Desalination.pdf ; LA Webb can advise on status of this paper). (Tony Weir, University of the South Pacific)	The wording in this section has been changed in the SOD.
241	40253	29	13	2	13	2	Desalination in Cyprus: production of water with conventional desalination plans, so increase in fossil fuel consumption and in CO2 (carbon foot print of the island) (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	Thank you for the comment. We have no reference for this example to be cited.
242	51922	29	13	5	0	0	Section 29.3.3.3. For this section where appropriate, the author team may wish to consider and cross-reference WG2 chapter 11. (Katharine Mach, IPCC WGII TSU)	This was not done for the FOD, but has been in the SOD.
243	53701	29	13	25	13	25	Which anthropogenic factors? (Kristie L. Ebi, IPCC WGII TSU)	A range of factors is implied, but are not specified in the SOD.
244	51923	29	13	27	13	27	It would be helpful to clarify more exactly what is meant by "these problems." (Katharine Mach, IPCC WGII TSU)	There seems to be something missing before this sentence. In fact review comments 244, 245 and 246 indicate that this whole paragraph needs looking at. This has been done in the SOD.
245	51924	29	13	29	13	29	It would be beneficial to clarify if the described increases in disease rate characterized on this line have been linked or formerly attributed to climate variability or climate change. (Katharine Mach, IPCC WGII TSU)	See comment 244.
246	51927	29	13	30	13	31	It would be useful to clarify a bit further the mechanism through which cholera and ciguatera are expected to increase due to climate change. (Katharine Mach, IPCC WGII TSU)	See comment 244.
247	53702	29	13	30	13	31	Other publications? (Kristie L. Ebi, IPCC WGII TSU)	There is some grey literature (including the Russell reference). So far refereed journal articles on this topic have eluded us, but we do refer to Chapter 11.2.4 and 11.2.5 in this section in the SOD.
248	41296	29	13	33	13	36	This sentence relates to threats to public health due to saline intrusions relating to rising sea levesl. It seems to contradict page 11, line 29-33 which indicates that there is negligible impact to freshwater lenses as a result of a sea level rise of 1m. I know you are quoting what different authors and research work say - but I think in this chapter you need to discuss and make the linkage where one piece of evidence apparently contradicts another. (Gillian Cambers, Secretariat of the Pacific Community)	We have adjusted the text in the SOD in a manner that we believe now addresses the reviewer's concern.
249	38673	29	13	44	13	53	Llewellyn (2010, in references and cited later) should also be introduced here. (Janice Lough, Australian Institute of Marine Science)	This whole paragraph has been reviewed and rewritten in line with the comments here and those in 250,251,252,253,254. The Llewellyn reference has also bee included in the new text.
250	35393	29	13	45	13	45	Ansdell (2009) is not in the reference list at end of chapter. (Tony Weir, University of the South Pacific)	See comment 249.The Ansdell reference is not included in the SOD text.
251	51925	29	13	47	13	47	Where the author team uses the word "reported," it would be helpful to clarify if this reflects lab or field experiments or if it refers to more anecdotal reporting. (Katharine Mach, IPCC WGII TSU)	The text has been redrafted to address the reviewer's concern. Several new references are included.
252	35394	29	13	48	13	48	"This study". Which study? (Tony Weir, University of the South Pacific)	See comment 249 -251. 'This study..' has gone in the SOD.
253	51926	29	13	48	13	48	The author team should clarify which study is meant by "this study." It should also ensure that the statement was not taken direct from the mentioned study. (Katharine Mach, IPCC WGII TSU)	See comment 249 and 252.
254	36318	29	13	48	13	50	It is not clear what the "this" in "One of the objectives of this study" is referring to. Is the CFP study mentioned us just one study (hence "this)? (Steven Chan, Newcastle University)	See comment 249.and 252.
255	52878	29	14	3	14	3	Please include the references for Hay et al., 2006, 2009 (John Hay, University of the South Pacific)	We have included Hay et al., 2009
256	51928	29	14	10	0	0	Section 29.3.3.4. For this section where appropriate, the author team may wish to consider and cross-reference WG2 chapter 12. (Katharine Mach, IPCC WGII TSU)	We should have but did not do this, relying instead on the original references.
257	52888	29	14	10	0	0	Section 29.3.3.4. Migration and Resettlement Relevant study is "Sea level rise and the Freely Associated States: addressing environmental migration under the compacts of free association" Columbia Law School, 2012 http://www.preventionweb.net/english/email/url.php?eid=27901 (John Hay, University of the South Pacific)	Thank you for this reference by Briana Dema on the relations between Marshall Islanders, Palauans, and FSM and the US through the Free association compact. It is included in the SOD.
258	53703	29	14	10	0	0	Please ensure consistency with chapter 12. Also, please see the Foresight report on migration and global change. (Kristie L. Ebi, IPCC WGII TSU)	We have done this but have not included the 'Foresight' report.
259	35557	29	14	10	14	11	The title of this section "Migration and Resettlement" is not sufficiently focused in my view. There is too much overlap. Suggest using throughout this chapter "relocation" (see comment on p 6), and retitling this section "Relocation and Migration" or "Relocation and Resettlement" to show you are talking about the gamut of such adaptive responses. (Patrick Nunn, University of New England)	We accept the comment. The section is now titled 'Relocation and Human Migration' in the SOD.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
260	49267	29	14	10	14	42	This section tends to compare extreme or politicised notions of environmental exiles with more sanguine studies that suggest climate change influences on migration may be limited. There is however some middle ground that acknowledges environmental drivers of migration and this needs to be addressed. Many of the critiques of climate induced migration are based on historical analogues in which evacuees typically return home after an extreme event when conditions return to 'normal'. However, climate change creates the possibility of things not returning to normal, making return to damaged sites dangerous and somewhat irrational. Moreover, avoiding settlement at risk areas is a basic tenet of hazard management. Campbell et al. (2007) [Campbell, J.R., Goldsmith, M. and Koshy, K. (2007) Community Relocation as an Option for Adaptation to the Effects of Climate Change and Climate Variability in Pacific Island Countries (PICs) Final report for APN project 2005-14-NSY-Campbell. Asia Pacific Network for Global Change Research, Tokyo. 59pp.] conducted an indepth survey on community relocation in PICs and found over 50 out of 86 instances of community relocation (as compared with individual migration decisions and movements) that were initiated by environmental degradation. These were mostly relatively long-distance relocations, but also include some short distance ones. Roger McLean (1976) wrote about the relocation of the community from Taqu (Qaliqali) on kabara in 1936 to a site, a few km to the north, now known as Naikelaga, and there are numerous other cases. Campbell et al. (2009) document the multiple movements of the village of Biausevu on Viti Levu in Fiji, Tonkinson (1977) reports on the two-step relocation of Ambrymese to Efate in Vaniuatu. In addition are the relocations from former Gilbert and Ellice Islands Colony to northern Fiji (Rabi and Kioa) and from Gilberts to Western province, Solomon Islands. Many of these short and long-distance relocations in PICs have been very problematic, even after several generatiions (Campbell, 2010a, b). A key aaspect that is often overlooked and misunderstood by external observers is the critical importance of land in most PIC cultures and this has implications both for those relocating and those making land available for migrants [Campbell, J.R. (2010) Climate-Induced Community Relocation in the Pacific: the Meaning and Importance of Land, pp57-79 in McAdam, J. (ed.), Climate Change and Displacement: Multidisciplinary Perspectives. Hart Publishing, Oxford.]. From this perspective considering migration and relocation as adaptive options is a long-term process which should be done proactively rather than reactively. [Campbell, J.R. (2010) Climate Change and Population Movement in Pacific Island Countries, pp 29-50 in Burson, B. (ed.). Climate Change and Migration in the South Pacific Region: Policy Perspectives. Institute of Policy Studies: Wellington. (John Richard Campbell, University of Waikato)	This extended comment raises several issues. The first sentence does capture our intention of comparing two groups of studies. But we have not attempted to cover the 'middle ground' referred to. The historical perspective that emphasises the importance of land and problems both in the short- and long-term with relocation does need to be covered in the SOD. One of the problems is that several good references fall into the 'grey literature', though the two references at the end of the comment are included in the SOD.
261	52598	29	14	12	0	0	This section appears to compare different studies, media reports, and different phenomena, without explanation or critical analysis. The section seems limited in the literature covered on this issue. The section does not cite any studies where communities have been displaced because of climate change – is this because none exist? The section also looks at projected migration, and confounds observed impacts with projected impacts. • For example, the draft states, “In fact the last country, Tuvalu, has been the subject of many media reports most of which have suggested that rising sea levels will result in substantial land loss or indeed the disappearance of Tuvalu, though this has been disputed by Farbotko (2010) and Mortreux and Barnett (2009).” This implies that Mortreux and Barnett dispute the scientific projection that sea level rise will result in substantial land loss, however, their study focuses on the perceptions of climate change risk held by Tuvaluans and the potential problems associated with planning for large-scale migration as a policy measure. While it does identify the need for more research in to the impacts of sea level rise on Tuvalu, it makes no attempt to quantify the likely impacts. Additionally, their conclusions on the likelihood of migration from Tuvalu is contingent on domestic and international policy responses. They state, “But there is nothing inevitable about climate- induced catastrophe in Tuvalu; deep cuts in emissions such that the rate of change is slowed, coupled with a systematic and well resourced suite of adaptation strategies can together enable island social–ecological systems to adapt such that negative demographic outcomes can be avoided (Barnett, 2005).” As the draft is currently written, leaves the impression that some scientists have concluded that sea level rise under any scenario will not result in significant loss of territory. (Malia Talakai, AOSIS)	We are not aware of any studies (except in grey literature) where communities have been displaced because of climate change. Yes we agree that the comment about Tuvalu does give the impression stated which was not our intention (see also comment 264). We are not aware of any 'attempt to quantify the likely impacts' of climate change on Tuvalu. Reference to Tuvalu in the FOD context has been removed from the SOD section on relocation and human migration.
262	35558	29	14	12	14	13	This section plunges into talking about the relocation of whole-island populations off island, which I would argue is an extreme situation, likely to be far less common that relocation within island by the end of this century. Suggest the paragraph is restructured accordingly, and includes at its start a paragraph talking about island coasts before moving on to whole islands. (Patrick Nunn, University of New England)	This is a fair comment though the literature we have referenced does not cover relocation within-island or within-state. Much of the original FOD text has been re-written for the SOD.
263	35559	29	14	12	14	20	The preoccupation with atoll islands, which are a distinct minority of the world's inhabited islands, seems unnecessary. In sentence 2, "this is especially the case" should be rewritten "this is only the case". The reference to the obscure work by Jarvis seems quite unnecessary. (Patrick Nunn, University of New England)	The whole paragraph has been deleted from this section in the SOD.
264	41123	29	14	15	14	17	Mortreux and Barnett (2009) do not dispute that rising sea levels may result in land loss in Tuvalu. The article disputes claims that out-migration is currently happening as a result of climate change, and suggests that large scale migration as a singular adaptation strategy for Tuvalu overlooks the needs, values, and interests of Tuvaluans. Consider re-wording the first part of this sentence 'Tuvalu has been the subject of many media reports most of which suggest that Tuvaluans are migrating en masse as a result of sea level rise, though this has been disputed...' (Colette Mortreux, University of Melbourne)	Point taken from one of the paper's authors. The whole paragraph has been replaced, without mention of Tuvalu, in the SOD.
265	35395	29	14	18	14	20	On the other hand, historian Paul Darcy cites several cases from the 1700s in the Caroline Islands (now FSM) where the remnants of an islands population had to relocate to another island following a severe cyclone. (Refer: Darcy P. 2006. The People of the Sea. University of Hawai’i Press: Honolulu). (Tony Weir, University of the South Pacific)	There are several other instances of relocation in response to typhoons and hurricanes but not to climate change. Also we have a new section on impacts of tropical and extra-tropical cyclones (Figure 29-4).
266	47168	29	14	22	14	22	(‘impact’ or ‘adaptation) Has science considered 'direct and indirect' impacts? (Keith Nichols, Caribbean Community Climate Change Centre)	The two concepts are different. We do mean 'impact' and 'adaptation' in this case. See next comment, 267, by reviewer.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
267	35560	29	14	22	14	23	Historically, before island people (as those elsewhere) came to regard their coastal homes as permanent, relocation was clearly an adaptation option in the face of environmental changes, rapid and less so. The 2007 book by Nunn (Climate, Environment and Society in the Pacific, Elsevier) is full of examples. The bemusement expressed in this sentence is unneeded, as is that in lines 37-39 below. (Patrick Nunn, University of New England)	We feel it is important to point to the multiple causes of relocation and to emphasise this given the interest in climate change 'refugees' migration and resettlement.
268	37646	29	14	22	14	28	29.3.3.4. Migration and Resettlement states “But in recent years a new literature has been spawned relating to climate change migrants from small islands. Such a consequence has frequently been seen as an equity or human rights issue or ’a moral imperative’ (Aminzadeh, 2007) that deals with the ‘biopolitics of displaced bodies’ (Bastos, 2008) and the need to provide ‘new homes for climate change exiles’ (Byravan and Rajan, 2006). An additional reference for your consideration. Burkett, M. (2011). In search of refuge: Pacific Islands, climate-induced migration, and the legal frontier. Asia Pacific Issues, 98, 1–8. (John J. Marra, NOAA)	Thank you for the reference. Unfortunately we failed to include it in the SOD.
269	49268	29	14	33	14	0	The permanent relocations from Tuvalu and Kiribati are not problem free (especially those from Kiribati) where issues around land and the concerns of original owners remain unresolved. See Campbell (2010) (John Richard Campbell, University of Waikato)	Thank you for drawing our attention to the issues around land and ownership. Much of the literature does not address this aspect. This whole section together with that in the ‘adaptation’ section have been re-written.
270	35396	29	14	37	14	32	A literature survey by Campbell et al (2005) found that of 86 reported cases of forced (involuntary, long-term) relocation in the Pacific Islands between 1920 and 2005. Of these relocations, just under half (37 cases out of 86) were driven by natural hazards and disasters; with the rest mainly because of ‘development projects’ or armed conflict. . (Refer: Campbell J, Goldsmith M and Koshy K, 2005. Community relocation as an adaptation to the effects of climate change and climate variability in Pacific Island Countries (PICs) final report for APN project 2005-14-NSY-Campbell, University of the South Pacific: Suva.) Unforced migration from small outer islands to the ‘capital’ in Kiribati and Fiji has been extensive in the last 20 years, and driven mainly by opportunities for education and paid employment (refer: T Weir & Z Virani, “Three linked risks for development in the Pacific Islands: climate change, disasters and conflict”, Climate and Development, vol 3, pp193-208 (2011) , and Locke, J., 2009, ‘Climate change-induced migration in the Pacific Region: sudden crisis and long-term developments’, Geographical Journal 175, 171–180.) (Tony Weir, University of the South Pacific)	We accept multiple causes of relocation and tried to emphasis that point in the text. Thank you for the two references, both of which we have now seen and are included in the SOD.
271	53704	29	14	45	0	0	Please ensure consistency with WGI and relevant chapters in WGII. (Kristie L. Ebi, IPCC WGII TSU)	This has been done.
272	36325	29	14	54	15	2	For the sake of the readers, what are the typical areas of these small islands. One may also gives examples of GCM land sea mask plots to illustrate their absence of the small islands. Also regional climate (RCM) and mesoscale models with grid box sizes of 1-100 square km can resolve some of the islands now. While RCM and mesoscale models are not part of AR5, they may worth mentioning in the report. (Steven Chan, Newcastle University)	Space has not allowed us to include a diagram showing the decreasing GCM grid box in relation to typical island size. RCMs such as PRECIS are mentioned in the SOD text.
273	37647	29	15	5	15	6	states “In most small islands long term quality controlled climate data is generally sparse,…” This is an important point, that warrants greater emphasis, perhaps even elevation to executive summary. I would respectfully suggest the section on Observations and Monitoring in Chapter 1 of Keener, V., Marra, J.J., Finucane, M.L., Spooner, D., Smith, M.H. [Editors] (2012). Climate Change and Pacific Islands: Indicators and Impacts. Report for the 2012 Pacific Islands Regional Climate Assessment (PIRCA). Honolulu, Hawai‘i, USA., might be of assistance in this regard. (John J. Marra, NOAA)	We have added the Keener et al reference.
274	36310	29	15	9	15	10	Considering some island nations are reasonably close to each other, is a regional projection backed by statistical downscaling on a representative location in the region sufficient? (Steven Chan, Newcastle University)	Text has been added to indicate that It should be if the islands are sufficiently close.
275	38609	29	15	13	0	0	A reference to Wheeler, David (2011): Quantifying Vulnerability to Climate Change: Implications for Adaptation Assistance at http://www.cgdev.org/content/publications/detail/1424759 will be useful in section 29.4.1 on Projected Impacts for Islands. (Susmita Dasgupta, The World Bank)	We have checked the reference but prefer a refereed journal publication.
276	45156	29	15	13	0	0	Section 29.4.1 - this section and in fact the whole chapter seems to be unaware of recent work under the Pacific Climate Change Science Program, delivering analyses for Pacific SIDS - a 530-page 2-Volume technical report titled “Climate change in the Pacific: scientific assessment and new research”, Vol 1 is an overview of past and future climate change in the western tropical Pacific, and Vol 2 is 15 country-specific chapters on past and future climate change, coupled with 15 country-specific brochures - see http://www.cawcr.gov.au/projects/PCCSP/ (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	The reference has now been included.
277	51929	29	15	13	0	0	Section 29.4.1. If supportable based on the literature, the author team may wish to provide subsections within this section, according to categories of impacts. (Katharine Mach, IPCC WGII TSU)	We have considered adding subsections according to categories of impacts but have not done so because of space limitations.
278	38674	29	15	13	15	26	Also Table 29-1 (Page 48) and Figure 29-2 (Page 51): I am somewhat concerned that the four "small island regions" as used here may be losing some important spatial differences in especially rainfall projections in the Pacific and Indian Oceans. Although I have not seen the new multi-model projections from CMIP5, my understanding is that the broad-scale changes in rainfall over the oceans are similar to those of IPCC-AR4 (see, for example, Meehl GA et al (2012) Climate system response to external forcings and climate change projections in CCSM4. Journal of Climate 25: 3661-3683). These indicate that the near-equatorial regions of the tropical oceans are likely to get wetter and the subtropical high perssure belts drier. These important spatial differences are lost in considering projections for the Indian Ocean as a single region and dividing the Pacific into north and south. (Janice Lough, Australian Institute of Marine Science)	Have included the small scale spatial differences within regions based on the updated information from Working Group 1.
279	49832	29	15	15	15	20	The SRES Scenarios are all obsolete. They have rediculously high "projections" for GDP change. But the real error is the persistent absurd belief that emissions are harmful to the climate (Vincent Gray, Climate Consultant)	We respectfully disagree with the reviewer’s observations, based on our understanding and assessment of the published literature. The SRES scenarios are still being used in the literature and our assessment is of the literature since 2007.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
280	51930	29	15	16	15	16	The logic implied by the juxtaposition of "remains valid" and then the table from the 4th assessment report could be clarified. One option would be to provide some post-AR4 citations. Or the author team could simply refer to the RCP and projection data provided in section 29.4.2. (Katharine Mach, IPCC WGII TSU)	Have provided reference to RCP projections for reference.
281	42163	29	15	16	15	17	MAGICC-SCENGEN v5.3 gives a higher projected temperature by year 2100. (see attached document) (Premchand Goolaup, Mauritius Meteorological Services)	We will need a published peer reviewed reference before we can cite this work.
282	42162	29	15	19	15	19	Using the MAGICC-SCENGEN v5.3 software, model projection SRES A1B, for Mauritius shows a decrease in rainfall of about 19.77% by year 2100 using base line 1980-1999. Projection were not done for the Islands Rodrigues, St Brandon and Agalega, but observed data shows a slight decreasing trend as well though there is lot of variability from year to year. (Second National Communication of the Republic of Mauritius to the UNFCCC, Nov 2010) (Premchand Goolaup, Mauritius Meteorological Services)	We would evaluate the reference and use if it was in the peer reviewed literature.
283	41297	29	15	28	15	44	I find the omission of the Australian Bureau of Meteorology, CSIRO 2011 Climate Change Science in the Pacific: Scientific Assessment and New Research somewhat strange since this study was independently peer reviewed, and it does provide projection information for the individual Pacific small island nations at the country level based on the GCMs and downscaling. In addition, it provides rainfall projections for the individual countries, instead of the ones quoted in this section which mention averages for the entire Pacific which are somewhat misleading for rainfall particularly. This also influences the statement on page 31 line 14 - the study mentioned in this comment has specifically developed projected changes for individual countries - not just the pacific as a whole. (Gillian Cambers, Secretariat of the Pacific Community)	The reference has now been included.
284	37385	29	15	32	0	0	It is surprising that the major reports by CSIRO, lead author Kevin Hennessy - see http://www.cawcr.gov.au/projects/PCCSP/publications.html, are not considered peer reviewed literature (Colin Woodroffe, University of Wollongong)	The reference has now been included.
285	51931	29	15	32	15	44	The author team may wish to consider and cross-reference chapters 6 and 30 for this material. (Katharine Mach, IPCC WGII TSU)	Yes we have done this but to a limited extent only.
286	53705	29	15	36	15	36	Please define CM. (Kristie L. Ebi, IPCC WGII TSU)	Done.
287	51932	29	16	1	16	2	It would be helpful to clarify if the described raising of finances refers to domestic raising of funds? (Katharine Mach, IPCC WGII TSU)	The text has been revised to clarify the point.
288	36319	29	16	4	16	17	While climate change will likely have an agricultural impact in the Caribbean, how important is agriculture relative to tourism? (Steven Chan, Newcastle University)	Will need a reference to be able to address this issue.
289	51933	29	16	21	16	22	It would be preferable to clarify further what is meant by "reduction of the greenhouse gases emissions in a more economic and regional world." (Katharine Mach, IPCC WGII TSU)	The text has been updated to clarify the meaning.
290	35397	29	16	28	16	28	SRES scenario A2 is a high emission scenario (compare line 21, same page). (Tony Weir, University of the South Pacific)	The error has been corrected.
291	38675	29	16	38	16	39	Specific reference to Lehodey et al (2011) Chapter 8 in Bell et al (2011) should be made - this suggest marked changes in the distribution of different Pacific tuna fisheries with ongoing climate change - not all of which are negative. (Janice Lough, Australian Institute of Marine Science)	A more recent 2012/13 reference by Bell, Lehodey et al has been added to support the point made.
292	52602	29	17	0	0	0	Its unclear why this is a separate section, and not included under either observed impacts, or projected. (Malia Talakai, AOSIS)	It is already included as a sub-section under projected impacts.
293	37564	29	17	0	17	0	A graph of projected ranges of sea-level rise is something that this chapte has traditionally lacked, but it is very relevant and it would be great if one could be included. (Jonathon Barnett, University of Melbourne)	It would be nice to include such a diagram but we have not done this for the SOD. Maybe for the FGR.
294	53706	29	17	1	17	12	This material also is covered in chapters 1 and 21. Please ensure consistency and condense as appropriate. (Kristie L. Ebi, IPCC WGII TSU)	This has been done but only to a limited extent.
295	51934	29	17	6	17	7	The author team should clarify that the development of socio-economic storylines (SSPs, etc.) is an ongoing process, with a design such that each RCP can correspond to more than one SSP. (Katharine Mach, IPCC WGII TSU)	This has been done as far as possible.
296	51935	29	17	7	17	8	The current wording of this statement could imply similar magnitudes of uncertainty at regional and local scales. It might be helpful to clarify that understanding at regional scales can often be more robust than projections at individual locations. (Katharine Mach, IPCC WGII TSU)	This has been covered in the new text re- regional v station data.
297	52601	29	17	18	0	40	This section contains factually incorrect statements. First, SIDS have not advocated that GMST increase should be limited to not more than 1.5 degrees C by the year 2100. Rather, the position of the Alliance of Small Island Developing States (AOSIS) is that global average surface temperature increases should be limited to well below 1.5° C above pre-industrial levels. The position of AOSIS is not time bound by 2100, and moreover, it is “well below” 1.5 degrees Celsius. This error is compounded at lines 31 -32, by equating (the incorrect AOSIS position) of no more than 1.5 degrees Celsius) to <2 degrees C, which is not the same. (Malia Talakai, AOSIS)	This is important point for clarification of the exact language used with regard to "well below" or "not more than " 1.5 degrees C. The text has been corrected.
298	51936	29	17	20	17	33	"likely" -- This term is used on a number of lines in this passage (lines 20, 25, 27, 28, 31, and 33). If the term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Agreed. Have removed term.
299	51937	29	17	21	17	26	On lines 21, 23, and 26, the author team uses the phrase "about a X degree C increase." It would be preferable to indicate the magnitude of temperature increase more precisely, as the decimal increase for the indicated region. (Katharine Mach, IPCC WGII TSU)	We deliberately do not want to be overly precise quoting temperature projections to 1 decimal place.
300	51938	29	17	29	17	29	As a minor point, 8.0 on this line should be 6.0. (Katharine Mach, IPCC WGII TSU)	8.0 has been changed to 6.0.
301	51939	29	17	33	17	41	The author team may wish to consider and cross-reference the working group 3 contribution to the 5th assessment report on material relevant to these statements. (Katharine Mach, IPCC WGII TSU)	We have checked Working Group 3 but there is no relevant text to quote yet.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
302	52603	29	17	47	0	48	Its unclear why this section frames its introduction by mentioning possible positive effects of transboundary processes, yet it appears that most reports impacts are negative. It would seem appropriate to first mention the reported impacts, but also to note the possibility of positive impacts. (Malia Talakai, AOSIS)	We have reworded the introductory text to emphasize the fact that these transboundary effects (as far as we can discern from the published literature) are largely negative.
303	36320	29	18	15	18	27	Aren't hurricanes major threats to high waves and coastal erosion in Caribbean? (Steven Chan, Newcastle University)	We have now included a specific new figure (Fig 29-4) that deals with TC impacts and ETC impacts on small islands.
304	51940	29	18	25	18	27	The author team may wish to consider and cross-reference the findings of the working group 1 contribution to the 5th assessment report regarding changes in significant wave height. (Katharine Mach, IPCC WGII TSU)	Have complied.
305	37487	29	18	29	18	33	The unusual event in late 2008 is particularly worthy of note and had impacts across much of the west Pacific. I have seen a report entitled 'La Nina King Tide Disaster report Manus Province' about its effects on Manus, PNG, by the Office of the Controller and Provincial/District Administrator, but it does not seem to have an official publication citation. This event caused widesprad devastation on atolls in the Carteret Islands area - and researchers John Hunter and Scott Smithers were there and experienced it. At this stage I do nit think their reults have been published, although a paper on the impacts was presented at the Int. Coral Reef Symp in Cairns a few weeks ago. (Colin Woodroffe, University of Wollongong)	Reference has been made to Hoeke (submitted) that covers the event.
306	37644	29	18	37	18	39	Section 29.5.1.1.1, “All of these instances serve to show ‘the potential importance of swells to communities on distant, low-lying coasts, particularly if the climatology of swells is modified under future climate change’ (Vassie et al., 2004: 1095).” Perhaps additional information is warranted, given the statement in the executive summary page 3, lines 19-21 “Given the likely poleward shift in the main northern and southern hemisphere extra-tropical storm tracks it is possible that there will be a decline in the magnitude and frequency of such swell events in the future (SREX Chapter 3).” In light of a statement in Chapter 5 [5.2.2.1.2], page 6 and 7) line 31-33 “Thus the role of changes in the intensity and shift in the geographical location of extratropical cyclones on ocean waves and storm surges requires further studies.” Is it also possible that there will be an increase in the magnitude and frequency of such swell events in the future? (John J. Marra, NOAA)	While we are generally supportive of the reviewer's comment, we have no basis for speculating about increases in the frequency and intensity of these swell events. There is some data in the SREX that suggests a decrease. We have however indicated that this is an area that deserves further research.
307	42848	29	18	42	0	0	Dust and fog from mainland Africa are also reported to have intensified over Sao Tome and Principe since the 1980s during the December-February season, causing disorientation amongst fishermen who traditonally navigated by sight of the islands. See World Bank (2011) Project Appraisal Document of Sao Tome and Principe Adaptation Project, Annex 8, which states the results of an as yet formally published study as follows: "The general observed trend towards increased aerosols concentration and squalls during December-February (mini-Gravana season) for the past two decades is likely to result from several factors. Stronger southerly and southeast trade winds may increase aerosol transport from mainland Africa. Similarly, increases in sea surface temperature and surface southerly winds may also induce local increases in atmospheric moisture near the surface. The increase in aerosol concentrations can also lead to smaller increases in surface temperature than at altitude, causing humidity to accumulate in surface layers, and potentially leading to more clouds, fog and rainfall. This theory requires further research, but actual fog observations for STP are lacking." http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2011/05/15/000333038_20110515234306/Rendered/PDF/613720PAD0P111055B00public050120110.pdf (Sofia Bettencourt, World Bank)	While the reported increase in dust and fog over Sao Tome and Principe (and their effect on fishers) since the 1980's may be true, we have examined the World Bank document and can find no substantive evidence of actual research that supports the claim.
308	47169	29	19	15	19	48	Reference could also be made to the Lionfish invasion in the Caribbean or elsewhere (Keith Nichols, Caribbean Community Climate Change Centre)	We have now made reference to the lionfish invasion in the Caribbean, which is well documented. While there is no evidence at this time that the invasion is climate-related, research confirms that the predatory habits of the lionfish cause increased algal cover on corals, thus reducing the resilience of the latter. The invasion therefore may increase the susceptibility of corals to the adverse impacts of climate change (e.g.bleaching).
309	38610	29	20	37	20	43	A reference to Wheeler, David (2011): Quantifying Vulnerability to Climate Change: Implications for Adaptation Assistance at http://www.cgdev.org/content/publications/detail/1424759 will be useful especially in section 29.6.1 on Addressing Current Vulnerabilities and Adaptation Gaps. (Susmita Dasgupta, The World Bank)	Having reviewed this paper we decided that it did not add to the array of literature already cited on the multiple indicators of vulnerability, it presents a different set of indicators and comes up with a different outcome.
310	49269	29	20	37	22	3	There are some problems with vulnerability that are yet to be adequately addressed by the literature. The first is the question of scale - nation vs community. Most discussion of vulerability in the literature is based on the state, but most 'exposure units' are at sub-national level. In most cases climate change effects are likely to be experienced at the small scale of settlements (villages for example in PICs). but there is very little work available that examines community level exposures to climate change effects, and socio-economic processes, that contribute to vulnerability (see Warrick, 2009 and Dumaru, 2010 for examples of primary research on these issues. Note Warrick's PhD thesis (2011) provides a comprehensive study of vulnerability in a small Pacific island community [http://researchcommons.waikato.ac.nz/bitstream/handle/10289/5828/thesis.pdf?sequence=3]). Yet, it is at this scale that vulnerability will be manifested in losses from climate change. By the same token, adaptation is mostly going to be necessary at the same scale. There is an urgent need for building in-depth understanding of effects, exposures, vulnerabilities/resiiences at the local level. This will require commitment to long-term community based research. (John Richard Campbell, University of Waikato)	Section has been recast recognising the importance of community level vulnerability assessment, but also the lack of vulnerability assessments at that level.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
311	42849	29	20	39	0	0	Despite the difficulties of comparison amongst SIDS, vulnerability indeces can still be very useful to compare relative vulnerabilities and risks across areas of the same island, or within islands of the same nation. See the example of Kiribati Adaptation Program Phase II in Elrick, C. and Kay, R. 2009. Mainstreaming of an Integrated Climate Change Adaptation Based Risk Diagnosis and Response Process into Government of Kiribati: Final Report. Report prepared for the KAP Project, Phase II. Coastal Zone Management Pty Ltd, Perth.http://climate.gov.ki/pdf/KAPII/KAPII%20-%20Mainstreaming%20of%20an%20Integrated%20CCA%20Based%20Risk%20diagnosis%20&%20response%20process%20-%20Government%20of%20Kiribati%20-%20Jan%202010.pdf The syndromes (or stresses) approach cited in page 21, paras 12-18 appear highly theoretical and of limited practical application (Sofia Bettencourt, World Bank)	We have reflected on the reviewer's comment and have decided to not use another indicator, but rather to talk about the limits to current indicators. All focus on the present - not on future changes - especially not on rapid change or on change at the margins e.g. 6+ degrees.
312	35561	29	20	48	21	10	These 2 paragraphs can be reduced in size considerably (Patrick Nunn, University of New England)	This has been done.
313	37565	29	20	48	21	18	There is a point about method to be made here - which is that given the particu;arities of islands (place matters) generalised top-down models, and indexes, wont help to understand the vulnerabilities of islands, and the most appropriate means of adaptation. I am cv dumping on you here I know, but..... Barnett, J. 2010. 'Climate Change Science and Policy, as if People Mattered', in O'Brien, K. St.Clair, A. and Kristofferson, B. (eds.) Climate Change, Ethics and Human Security. Cambridge University Press, Cambridge: 47-62. (Jonathon Barnett, University of Melbourne)	Done - reference included and text added to show lack of studies which reflect local concerns and priorities
314	52604	29	21	0	0	0	Unclear justification for rejecting use of indices of vulnerability to climate change and embracing use of syndromes. Unclear if Table 29.3 was produced by Newton (if not, what is source of table?). Source for Figure 29-3 is unclear. (Malia Talakai, AOSIS)	Done - have deleted section on syndromes and replaced with text showing lack of comprehensive analysis of vulnerabilities and adaptation on islands
315	45157	29	21	8	0	0	Park et al - this seems to be accessing the wrong reference and making a very partial appraisal of what was carried out: see Park, S., Howden, M., and Crimp, S. (2012). Informing regional level policy development and actions for increased adaptive capacity in rural livelihoods. Environmental Science and Policy 15, 23-37. It emphasised that their "three-stage participatory approach is more able to satisfy the demand for decisionmaking processes relating to the allocation of climate change adaptation resources to be transparent and based on scientific evidence, as well as delivering outcomes that are in the public's interest. Output from the Environmental Vulnerability Climate Change sub-index was considered inadequate to effectively inform the development of policies and adaptation actions to reduce vulnerability in rural livelihoods." (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	Revised text and removed Park et al in this context, and added in in relation to new attempts to link local with national evaluations
316	51941	29	21	8	21	10	Could calibrated uncertainty language from the guidance for authors (for example, summary terms for evidence and agreement or levels of confidence) be used here to characterize this conclusion? (Katharine Mach, IPCC WGII TSU)	Done - see comments 310-315
317	43797	29	21	12	21	18	The work by Petschel-Held et al. (1999) has been developed further in terms of typical patterns of vulnerability (Jäger et al. 2007). These typical vulnerabililty patterns, also called Archetypes of vulnerability, describe recurrent constellations of environmental and socio-economic conditions that generate vulnerability. One of these archetypes refers to "Small Island Developing States" (Jäger et al. 2007: 318) which may provide further stimulus for understanding the multiple character of vulnerability and related adaptation requirements. (diana sietz, Wageningen University)	In relation to 310-315 above, the section on syndromes has been deleted.
318	53707	29	21	12	21	18	Additional explanation would be helpful. (Kristie L. Ebi, IPCC WGII TSU)	In relation to 310-315 above, the section on syndromes has been deleted.
319	35562	29	21	23	21	31	I am not convinced by the arguments in this paragraph and regard them as providing a dangerously simple tool for non-specialists. The interpretation of Ford's work on Majuro is very narrow. Why not suppose that the coasts that have become urbanised are simply those that were initially more exposed? I would almost exclude this paragraph on the grounds it does not add much. (Patrick Nunn, University of New England)	An alternative explanation has been added - leaving the conclusions more open to interpretation. "This could suggest that either the coastal areas that are eroding were initially more exposed, or that human activity in coastal areas and interventions in coastal ecosystems are exacerbating erosion associated with sea level rise. "
320	42581	29	21	34	0	0	The text says "four" non-climate stressors, but there are only three elements shown in the paragraph. (Hiromune Yokoki, Ibaraki University)	Deleted the word non-climate
321	51943	29	21	34	21	34	It seems that perhaps 3 categories of stressors are presented instead of the mentioned 4? (Katharine Mach, IPCC WGII TSU)	Deleted the word non-climate
322	53708	29	21	34	21	35	Only three non-climate stressors are listed. (Kristie L. Ebi, IPCC WGII TSU)	Deleted the word non-climate
323	51942	29	21	43	22	44	Is perhaps a bit confusing that the figure introduced directly after the categories of non-climate stressors actually uses the categories presented several paragraphs previously. One option would be to indicate how the categories of stressors relate to the types of syndromes. Another option would simply be to make this sentence the start of the subsequent paragraph. (Katharine Mach, IPCC WGII TSU)	Deleted syndromes figure
324	35563	29	21	46	21	47	I don't think Figure 29-3 is needed. It is not island-specific and, by attempting to generalise about islands per se, fails to acknowledge their massive diversity which means that exceptions to almost every case can be identified . (Patrick Nunn, University of New England)	Deleted syndromes figure
325	37562	29	22	0	4	0	These summary points could be more attention-grabbing, and there is maybe a couple too many of them (the first one seems a bit unnecessary) (Jonathon Barnett, University of Melbourne)	This refers to page 2 (not page 22 as typed). Executive summary has been reworked.
326	38611	29	22	6	0	0	Section 29.6.2 on Practical experiences of Adaptation will benefit from The Economics of Adaptation to Climate Change case study conducted by the World Bank in Samoa, available at http://climatechange.worldbank.org/sites/default/files/documents/EACC_Samoa.pdf (Susmita Dasgupta, The World Bank)	Thank you for the reference. We have not included it because of its 'grey' status.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
327	52605	29	22	8	0	12	Unclear why the vulnerability of islands to climate change is described as an “assumption.” What is source or reason? (Malia Talakai, AOSIS)	Text has been revised to make it more clear.
328	35564	29	22	10	22	11	The Barnett reference is hardly a primary source for the point being made. Many islander anthropologists have written far more about this, including Asesela Ravuvu and Rusiate Nayacakalou. And Raymond Firth on Tikopia. (Patrick Nunn, University of New England)	Agree. Additional recent references have been added but they are largely based on Barnett and Campbell. Older references are not included.
329	37648	29	22	10	22	12	Section 29.6.2 states “Experiences of effective adaptation are increasingly being documented, these include: building adaptive capacity; developing novel mechanisms for managing risks; working collectively; and finding ways to address long term socio-ecological changes.” Perhaps additional information is warranted. It is my sense that, at least with respect to adaptation, good examples are lacking. (John J. Marra, NOAA)	This section needed re-wording as these examples are described later. The section has been reorganised to include details.
330	53709	29	22	15	0	0	This section could include discussion of the extent to which traditional knowledge would be adaptive if climate change was rapid and extensive. (Kristie L. Ebi, IPCC WGII TSU)	Have put in reference to Campbell's work which recognises that traditional skills can be lost due to globalisation, development etc…. And hence may not withstand other social changes occurring in parallel with climate change.
331	40854	29	22	15	23	11	The following paper gives complementary elements on the ability of local communities (Solomon Islands) to observe environmental change and on how their perception influences resource management. Lauer M., Aswani S., 2010. Indigenous Knowledge and Long-term Ecological Change: Detection, Interpretation, and Responses to Changing Ecological Conditions in Pacific Island Communities. Environmental management, 45:985–997. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	Agreed, read and cited
332	49270	29	22	15	23	25	Regarding TEK there is a need to distinguish what might be called purposeful adaptations from those which are incidental. An example is the role of reciprocity among members of kinship groups which may have numerous explanations most of which are unlikely to be environmental, yet reciprocity plays, and traditionally played a much bigger, a very important role in sustaining food security. It may be difficult to promote incidental adjustments if the context in which they originally emerged has now changed. The problem is that such adaptations are among the most effective. (John Richard Campbell, University of Waikato)	Agreed, text changed
333	35565	29	22	18	22	28	This paragraph needs to be better thought out. The Mercer and Gamble studies do not really converge, given the history and traditions (and languages) of the peoples on whom they focused. And in talking about indigenous people's perceptions of meteoric/weather changes, the point is obscured that the credible examples are all short-term and refer only to climate variability not climate change. (Patrick Nunn, University of New England)	Paragraph revised with Lauer and Aswani paper added to improve flow and context.
334	40847	29	22	18	22	28	The question of the combination of Western and indigenous knowledge in capacity building and risk reduction is a major issue usefully illustrated for French overseas territories by the recent study completed by V. Le Masson and I. Kelman cited above. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	Read and cited
335	45495	29	22	19	22	22	The discussion on the particular significance of traditional calendars to island societies may be further developed by the inclusion of examples from Cape Verde, Vanuatu and Tuvalu referenced in Nakashima et al 2012. Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. Paris, UNESCO, and Darwin, UNU (p. 92, section "Traditional Calendars"). Link: http://www.ipmpcc.org/wp-content/uploads/2012/06/Weathering-Uncertainty_FINAL_12-6-2012.pdf (Hans Dencker Thulstrup, UNESCO)	Not cited - adequate peer reviewed literature already included
336	40853	29	22	23	25	0	The following reference brings complementary elements on island community past adaptation strategies to environmental constraints and climate hazards: Bridges K.W. , McClatchey W.C., 2009. Living on the margin: Ethnoecological insights from Marshall Islanders at Rongelap atoll. Global Environmental Change, 19: 140–146. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	Read and cited
337	53710	29	22	24	22	28	Are there any counter examples? (Kristie L. Ebi, IPCC WGII TSU)	Yes, counter examples found and included
338	35566	29	22	30	22	37	The Rasmussen study contained lots of insights, but was also quite naive in its conception in my view. Asking a question through interpreters and writing down the answer as though it is the only one in such traditional contexts can lead to considerable misunderstanding, and I suggest this entire paragraph be deleted on the grounds it contributes nothing to the overall argument. If it is retained, then the bit about elevating concrete floors and building aerodynamic houses as preparedness for tropical cyclones should be deleted or at least critically commented on. Neither are interpreted correctly in my view. (Patrick Nunn, University of New England)	Text changed to reflect multiple interpretations
339	45496	29	22	30	22	37	The Solomon Islands reference (Rasmussen, 2011) relating to traditional practices supporting adaptation may be supplemented and further developed by the inclusion of examples relating to traditional weather forecasting and food production/storage in the Marshall Islands, Vanuatu, Tonga and Tuvalu referenced in Nakashima et al 2012. Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. Paris, UNESCO, and Darwin, UNU (p. 93-95, sections "Weather and Extreme Event Forecasting" and "Food production and Storage"). Link: http://www.ipmpcc.org/wp-content/uploads/2012/06/Weathering-Uncertainty_FINAL_12-6-2012.pdf (Hans Dencker Thulstrup, UNESCO)	Not cited - adequate peer reviewed literature already included - although some peer reviewed references from this paper have been included in the SOD.
340	35398	29	22	36	22	36	Traditional Pacific Island buildings, though easily destroyed in a cyclone , are also much easier and cheaper to rebuild afterwards than modern buildings, since they are made of local “bush” materials. That is why they are more resilient. (Compare p30 lines 41-43). Modern construction, properly done, gives houses that are harder to destroy in a cyclone, which is why the Fiji Hurricane Relief fund sponsors them. However, it is not uncommon in developing countries (inc PICs) for the construction details to be inadequate (e.g. reinforcing rods left out), in which case the “modern” houses are even more easily destroyed. (Tony Weir, University of the South Pacific)	Done. Text added to show house resilience is dependent on the quality of the construction - irrespective of the style of construction used.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
341	49271	29	22	37	22	37	You could add to this paragraph that Campbell (1984) (excerpt -- pp 50-59 sent to WG2) [Campbell, J.R. 1984. Dealing with Disaster. Hurricane Response in Fiji, Pacific Islands Development Programme, Honolulu/Government of Fiji, Suva. 209pp]) documents a range of factors that render traditional housing in Fiji more resilient than contemporary styles -- this is applicable to many other parts of the region. See also Campbell (2006). (John Richard Campbell, University of Waikato)	Agree with point - but there are more up to date references that have been used.
342	36321	29	22	50	22	53	It sounds counter-intuitive that satellite data are useful to understand culture bonds. More explanation may be needed. (Steven Chan, Newcastle University)	Done - added extra explanation
343	53711	29	23	16	23	16	I-Kiribati? (Kristie L. Ebi, IPCC WGII TSU)	Added in extra text to explain that i-kiribati are people from kiribati
344	52606	29	23	18	0	21	Unclear how creation of an artificial island may be an opportunity to islands. No evidence cited. Confusing in context of an overarching theme of the chapter that most islands are not threatened by sea-level rise, so artificial islands would not be needed. (Malia Talakai, AOSIS)	Couldn't find the reference so deleted the idea about artificial islands, and moved the issue of perception to the earlier section
345	40849	29	23	18	23	20	The last sentence of the section 29.6.2.1. does not seem clear to me: in which way do "artificial islands" created from "ocean waste" may provide "new opportunity for islands"? (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	Reference about artificial islands deleted. The issue of perception has been moved to an earlier section.
346	40254	29	23	25	23	25	add "and the Mediterranean" (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	Done.
347	42850	29	23	28	0	0	See also examples of participatory risk management used in Kiribati (same reference as above) (Sofia Bettencourt, World Bank)	We have not used reference to the World Bank report.
348	52889	29	23	28	0	0	Section 29.6.2.2. Addressing Risks - the following reference is relevant - ADB, 2006: Climate Proofing: A Risk-based Approach to Adaptation. [prepared by Hay, J.E., R. Warrick, C. Cheatham, T. Manarangi-Trott, J. Konno and P. Hartley] Asian Development Bank, Manila, 191pp. (John Hay, University of the South Pacific)	We have used instead an ADB 2009 reference and added in other more recent references to this section.
349	53712	29	23	42	23	43	Is this always true? What are the assumptions with respect to maladaptation? (Kristie L. Ebi, IPCC WGII TSU)	Issue dealt with but all assumptions not canvassed.
350	52607	29	23	43	0	52	This section seems to base its conclusion on one study. Seems to attribute poor land development decisions to the presence of insurance, and then cast doubt on the value of insurance generally. (Malia Talakai, AOSIS)	While it presents an interesting challenge to the role of insurance for adaptation on small islands - more research is needed to verify its conclusions about mal-adaptation. Not included in SOD.
351	51944	29	23	49	23	49	"likely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	Agreed and deleted 'likely'.
352	51945	29	23	50	23	51	For this statement, the author team should avoid formulations that could be potentially interpreted as policy prescriptive. (Katharine Mach, IPCC WGII TSU)	Agreed - removed the word 'is' and replaced with 'is one of a set of options'.
353	45497	29	23	53	24	8	The discussion on risk-spreading may be further developed through the inclusion of an example of how traditional agricultural tenure patterns - and the underlying kinship system - in the Torres Islands (Vanuatu) contribute to local adaptative capacity. See Nakashima et al 2012. Weathering Uncertainty: Traditional Knowledge for Climate Change Assessment and Adaptation. Paris, UNESCO, and Darwin, UNU (p. 58, 3rd para). Link: http://www.ipmpcc.org/wp-content/uploads/2012/06/Weathering-Uncertainty_FINAL_12-6-2012.pdf (Hans Dencker Thulstrup, UNESCO)	This report was not used - however the section has been supplemented with other peer reviewed literature.
354	52608	29	24	0	0	0	Unclear why this section includes a discussion of speculative discourse. Unclear why the research that in a world of 4 degrees Celsius sea levels may rise by 0.5m and 2.5m is not included in the section on projected impacts. What will be the impacts at the higher end of sea-level rise? The central question is not addressed - is migration necessary? - because the existing land is no longer habitable. This section also severely oversimplifies forced displacement across sovereign borders (if required) and does not cite any of the literature on this issue. (Malia Talakai, AOSIS)	The authors of the chapter do not have good evidence that sea levels will rise by 0.5 to 2.5m on all islands, and that there will be a generic impact. The text has been edited to show that there are gaps in our understanding of the science, but that we cannot yet name definitive statements about this. Reference the second point, additional literature has been added.
355	52611	29	24	0	0	0	Box 29-1: Emphasis against forced displacement seems speculative and based on arguments, rather than based on evidence, e.g. are there examples where communities voluntarily left land, where there was evidence that they could have adapted? (Malia Talakai, AOSIS)	This is because there is no strong evidence of climate-induced migration. As a result the text remains somewhat speculative.
356	35567	29	24	6	24	8	This last sentence is hugely important and the point it makes needs to be more prominent. In my view there is "not a chance" but a certainty that community-level adaptation will be spread by such exemplars, probably far better than it can ever be from the top down. There needs to be at least one additional sentence discussing the value of Locally Managed Marine Areas, which have been conspicuously successful, citing the work of Johannes, Aalbersberg and perhaps the neat 2008 book chapter by Erika Techera. (Patrick Nunn, University of New England)	We have revised this section to add in text about LMMAs, and have added in the Techera (2008) reference on LMMAs
357	40255	29	24	11	0	0	Participation and community based adaptation needs a strong knowledge base, otherwise local people usually refuse any "innovative" approach. One effort of capacity building and skill development targeted to local authorities and local societies throug a solution oriented approach is LITUSGO (www.litusgo.eu). More effort on capacity building and practical information should be given with well structured approaches, focus in the active involvement of local stakeholders. (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	We checked this website but couldn't find any publications other than a non-peer reviewed final report. This has not been included in the SOD.
358	40256	29	24	11	0	0	Problems with stajeholder involvement and traditional practices and constrains have a different form in the Mediterranean than the ones on Druadrua or Fiji. Check att 3 for a summary of problems. (POLYXENI LOIZIDOU, AKTI PROJECT AND RESEARCH CENTRE)	See response to 357 above.
359	35568	29	24	11	24	26	I think the heading is correct, but it really refers only to the first three sentences. The Dumaru and Daly and Gero studies are all somewhat different in that they develop the traditional model of "donor engaging communities and telling them how to do what the donor thinks needs doing" approach, which has been unsuccessful in the past. A comparable study to Warrick that could be mentioned is that of Terry and Khatri in the 2009 Journal of Cleaner Production. (Patrick Nunn, University of New England)	In the SOD the Daly paper has been moved to the section on traditional knowledge, this section has been divided into paragraphs showing both community-led and externally-led but community supported actions.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
360	53713	29	24	11	24	26	This seems to be similar to 29.6.2.1. (Kristie L. Ebi, IPCC WGII TSU)	The Daly paper has been moved to the section on traditional knowledge (29-6-2-1), and new references have been added focused specifically on community based adaptation. This section has also been divided into sections showing both community-led and externally led but community supported actions
361	35399	29	24	13	24	26	A Pacific Island paper drawing general lessons from a group of adaptation projects in Fiji (of which that reported by Dumaru 2011 is one) is L Limalevu, B Aalbersberg, P Dumaru and T Weir , “Community Adaptation in a Small Island Developing Country”, Tiempo 77, 16-19 (October 2010) [also on web at http://www.tiempocyberclimate.org/newswatch/feature100723.htm]. (Tony Weir, University of the South Pacific)	Read and cited in SOD.
362	35400	29	24	13	24	36	Among those “lessons” is the importance of working with the community in accordance with their own priorities for sustainable community development (as noted in line 15). Another is the importance of drawing on relevant technical expertise (e.g. engineers) to avoid technical mistakes such as water piping with too much friction or not enough head (both of which I have come across on unsuccessful adaptation projects) . This is part of the “multi-stakeholder approach” cited in lines 25-26 – a concept which could benefit from a little more elaboration in the text. (e.g. Other stakeholders cited by Limalevu et al include local government and traditional community leaders.) (Tony Weir, University of the South Pacific)	Agreed. The section has been restructured to show the importance of multiple stakeholders i.e.. in relation to landslide risk in Haiti (Anderson, 2010) and DRR in the Caribbean.
363	51946	29	24	17	24	17	For this statement, the author team may wish to consider if it would be preferable to use a word more qualified than "unequivocally." (Katharine Mach, IPCC WGII TSU)	Changed to 'actively'.
364	35115	29	24	29	0	0	"29.6.2.4. Addressing Long-Term Climate Impacts, and Migration" For some reflections around the international law and protection of those displaced to another country from the low-lying states, see f ex Kolmannskog 2009, The Point of No Return, Refugee Watch, issue no 34. There is also an upcoming publication: Kolmannskog 2012, Climate Change, Environmental Displacement and Int'l Law: Controversies, Consensus and Cosmopolitan Legality, Journal of International Development. In this paper there is some information about a recent initiative: The Nansen Initiative. Norway and Switzerland have given state pledges in the UN to start a state-driven consultation process to arrive at a consensus about some principles to protect people displaced by natural disasters across across borders. In this paper there is also some discussion of the role of the climate agreement: Paragraph 14(f) of the Cancun Agreements invites parties to enhance adaptation by undertaking “[m]easures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels.” (Vikram Kolmannskog, Norwegian Refugee Council)	Klmannskog 2010 to Gemenne, 2011 have been read and cited in the SOD.
365	35401	29	24	31	24	33	Most of the projected impacts of climate change are worsening of existing climatic hazards such as cyclones, floods and droughts. Therefore It is not “speculation” but simple logic that says that a community which can now cope with occasional climate hazards such as floods and cyclones is more likely to be able to cope with similar hazards in future than a community which cannot cope with them now. The main exception to this is saltwater inundation (see my comments on p11, lines 29-41). Other exception to this (e.g. p25 line35) are second-order effects. (Tony Weir, University of the South Pacific)	This is a difficult one to address. Climate models do not confirm that climate change will mean a progressive worsening of current conditions and those models are very weak for small islands. Given this uncertainty we prefer to err on the side of caution, but the text has been edited to try and make this point more clearly.
366	51948	29	24	31	24	36	For the "speculation," "evidence," and "assumption" described on these lines, could calibrated uncertainty language from the guidance for authors be used to characterize the state of understanding? Summary terms for evidence and agreement and levels of confidence may be most appropriate (Katharine Mach, IPCC WGII TSU)	Yes, language has been changed to meet IPCC specifications.
367	51947	29	24	35	24	49	"likely"/"unlikely" -- These terms are used on lines 35, 39, 47, and 49. Where either term is used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of these reserved likelihood terms. (Katharine Mach, IPCC WGII TSU)	Yes, language has been changed to meet IPCC specifications.
368	35569	29	24	38	24	40	"Is likely to cause severe problems" is a bit of an understatement. Surely "relocation" not "migration" in second sentence. (Patrick Nunn, University of New England)	Deleted 'is likely to' and replaced with 'will'; deleted 'migration' and replaced with 'relocation'.
369	53714	29	24	38	24	40	How does this apply to the above discussion on traditional knowledge, etc.? (Kristie L. Ebi, IPCC WGII TSU)	We are not sure about the implications of this comment.
370	37488	29	24	44	0	0	I think the high tides referred to occurred in 2008. The report I refer to in my comment on page 18, line 29, indicates that the exceptionally high tides began on 7 December 2008 (Colin Woodroffe, University of Wollongong)	Changed to 2008
371	49272	29	24	49	24	53	While there is considerable internal voluntary migration in PICs, it is nearly all rural to urban. While currently urban populations account for around only 23 percent (based on 2008 SPC data) it is growing (Connell and Lea, 2002). One of the outcomes of this has been the growth of 'squatter' or informal settlements which are highly vulnerable to such events as tropical cyclones, floods and droughts among others. Current patterns of urbanisation in the region (where planning is limited or poorly implemented) are likely to increase the vulnerability of migrants to climate change (or even existing regimes of climate variability) and as such may be seen as maladaptive. (John Richard Campbell, University of Waikato)	References reviewed and cited.
372	35402	29	24	52	24	53	Moving within a community’s own lands is indeed much the easiest. Many of the Fijian villages I know (especially those near flood-prone rivers) have one or more “old” village sites ~1 km away from which their ancestors moved when it flooded once too often (usually within the past 200 years. (For some 20th century examples see Campbell J, Goldsmith M and Koshy K, 2005. Community relocation as an adaptation to the effects of climate change and climate variability in Pacific Island Countries (PICs) final report for APN project 2005-14-NSY-Campbell, University of the South Pacific: Suva.) (Tony Weir, University of the South Pacific)	Text modified to reflect this reviewer's comment.
373	35570	29	25	1	25	3	delete "for example in the case of 4 degrees warming" - superfluous in this context. (Patrick Nunn, University of New England)	Text deleted

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
374	37566	29	25	7	0	0	There is another point about migration that is a bit lost here, which is that some kinds of migration can be adaptations - freeing up labour mobility can really help reduce vulnerability 0 apoint made in afew places, like the recent UK Government Foresight report on environmental change and migration, a few chapters in this book: Jane McAdam (ed.) Climate Change and Displacement: Multidisciplinary Perspectives. Hart Publishing, Oxford ; Barnett, J. and Webber, M. 2010. Accommodating Migration to Promote Adaptation to Climate Change, Background Paper to the 2010 World Development Report. World Bank Policy Research Working Paper 5270. The World Bank: Washington. ... (Jonathon Barnett, University of Melbourne)	Added a new sentence. Some studies discuss some kind of migration as a form of 'adaptation' where the most vulnerable migrate to reduce their vulnerability (Barnett, J and Webber, M 2010). Reference cited in SOD.
375	37561	29	25	9	0	0	Section 29.6.3 could be relabelled to include the word 'limits' and the possibility of limits to adaptation could be discussed in a para or two: for example there is little that can be done to adapt reefs under conditions of high warming and ocean acification, or to adapt low islands to high sea-level levels. (Jonathon Barnett, University of Melbourne)	Limits included in sub-head, and new text added to discuss limits as opposed to barriers
376	35571	29	25	9	25	40	Well structured but I would add as barriers - (1) focus of community-level decisionmakers on short-term climate variability rather than longer-term climate change, (2) the emphasis on "development" over "sustainability" in many island states (notwithstanding the rhetoric), and (3) the role of religious beliefs/interpretations of particular phenomena/futures (as in the Mortreux and Barnett study, already cited). (Patrick Nunn, University of New England)	Item 1 is already included and 2 and 3 addressed with new text and references cited.
377	52609	29	25	11	0	26	Conclusion that external barriers to adaptation are equal to endogenous factors not supported by evidence cited. (Malia Talakai, AOSIS)	Text has changed making this point no longer relevant
378	41298	29	25	12	25	40	use of the same example again (Kiribati) is repetitious (Gillian Cambers, Secretariat of the Pacific Community)	Agreed - second use of Tarawa atoll deleted
379	49797	29	25	14	0	0	You may want to reference the following article related to cultural and resource barriers in Kiribati: Kuruppu N. (2009) Adapting water resources to climate change in Kiribati: the importance of cultural values and meanings. Environmental Science & Policy 12(7), 799-809. (natasha kuruppu, Institute for Sustainable Futures)	Reference has been added.
380	42851	29	25	28	0	0	Kiribati has invested heavily on awareness and local consultation (see documents library on the subject at http://climate.gov.ki/library.html (Sofia Bettencourt, World Bank)	No peer-reviewed literature was found, however the line relating to the use of infiltration galleries in Kiribati has now been removed.
381	45498	29	25	28	25	40	The reference to Lata and Nunn, 2012, states that in "the case of Fiji [...] researchers found that spiritual beliefs, traditional governance mechanisms, and a short term approach to planning were barriers to adaptation", however no specific reference or detail is provided. The success over the past decade of programmes such as the Fiji Locally Managed Marine Protected Area Network have demonstrated the importance of traditional governance mechanisms in coastal and marine management - and would appear to refute the validity of the citation as a general statement on traditional governance in Fiji. (Hans Dencker Thulstrup, UNESCO)	Text has changed to show the balance between importance of community buy-in and recognition of traditional governance. But we also note the limitations that occur with community-led adaptation and use of traditional governance.
382	49273	29	25	28	25	40	An important barrier to adaptation in many PIC communities is not so much ignorance of climate change, though understanding is variable, but local priorities that consider other issues to be more pressing. These include such things as subsistence and commercial incomes, education and even political voice. While these remain pressing climate change is not to the forefront. It is for reasons such as this that researchers such as Warrick (2011) consider sustainable development as the best for of adaptation as it builds, and importantly builds on existing, local capacities, including adaptive capacity. See also Barnett and Campbell. (John Richard Campbell, University of Waikato)	Good point. The text has been changed to reflect this comment.
383	42852	29	25	43	0	0	The views of Boyd et al (2009) and Shipper and Pelling (2010) are not necessarily contradictory to the need to mainstream adaptation in development plannning - they are just constraints that need to be considered during the process of mainstreaming. Mainstreaming is of critical importance for the simple reason that in its absence, adaptation initiatives can easily be undermined by contrary sectoral policies. In addition, it is only by mainstreaming adaptation into the priorities of various sectoral Ministries that Government staff are given a mandate (and budget) to implement adaptation. If it is kept outside of national development and economic planning, it will continue to be treated as externally-funded (project based). (Sofia Bettencourt, World Bank)	Good point. The text has been changed to reflect this comment.
384	52890	29	26	13	0	0	Section 29.7. Adaptation and Mitigation Interactions: The following reference has a diagram (Fig 8.2) and case studies that are relevant to this section - Climate Change and Tourism: From Policy to Practice, By Susanne Becken and John Hay; Published June 14th 2012 by Taylor and Francis/Routledge - 280 pages (John Hay, University of the South Pacific)	We have not been able to include this additional material and diagram.
385	52610	29	26	15	0	17	Statement that there is little moral imperative for small islands to reduce GHG emissions is confusing. Every emission of GHG counts and in light of the impacts on small islands from increased impacts, there would seem a scientific imperative for small islands to reduce emission to keep global average temperature rise well below 1.5 degrees Celsius. The introduction of unsupported assumptions and moral views seems out of place. (Malia Talakai, AOSIS)	We have reviewed the comment, but are satisfied that the text is a fair indication of the reality.
386	51949	29	26	15	26	18	The author team may wish to further qualify the description given here to be more exactly precise. For example, "negligible," "not responsible," and "most" could all be slightly qualified to be exactly accurate. (Katharine Mach, IPCC WGII TSU)	See response to comment 385
387	35572	29	26	16	26	18	Sentence 2 needs rephrasing. I sense island people feel huge moral urges to act. It seems unduly cynical to say that some have done so only because of the co-benefits and synergies. (Patrick Nunn, University of New England)	See response to comment 385
388	49274	29	26	32	26	36	This discussion of capacity neglects subsistence capital and assets and local/traditional knowledge. The four fold categorisation of island types also neglects the role of the subsistence ecomnomy which is common throughout the Pacific, especially on outer islands. (John Richard Campbell, University of Waikato)	Some changes in wording have taken place as a result of this comment.
389	53715	29	26	52	26	54	Internal transportation costs can be quite large in countries such as Mali. (Kristie L. Ebi, IPCC WGII TSU)	Text has been revised in light of comment.
390	49275	29	27	1	27	1	The reference to subsistence here has a negative inference (see comments above (page 0 line 0; page 26 line 32) about significance of subsistence economy as a form of resience. (John Richard Campbell, University of Waikato)	This section has been revised and the reference to subsistence deleted.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
391	51950	29	27	3	27	5	Could calibrated uncertainty language from the guidance for authors (for example, summary terms for evidence and agreement or levels of confidence) be used here to characterize this conclusion? (Katharine Mach, IPCC WGII TSU)	The section has changed substantially and the comment is no longer valid.
392	35573	29	27	7	27	12	The point might also be made here that, as in the past, not all adaptation has a discernible cost. Many island communities are astonished to learn that the international community measures adaptation in dollar terms, and this has undoubtedly compromised the ability of island communities to adapt in some instances. For example, settlement relocation, shoreline protection, drainage systems, coastal revegetation are all strategies that coastal island communities once did for themselves "free of charge", but I suggest far fewer would today. (Patrick Nunn, University of New England)	This is a big issue that we do not consider in any detail.
393	42853	29	27	7	27	12	This paragraph appears to be out of place in a section that discussses mitigation and adaptatoon links is - suggest moving it. (Sofia Bettencourt, World Bank)	We believe the paragraph is not out of place in the context of the FOD.
394	51951	29	27	8	27	11	For this projection as appropriate, it would be preferable to indicate the relevant scenario of climate change or socio-economics. (Katharine Mach, IPCC WGII TSU)	Agreed but the detail would take up too much space. Some information is included in 29.4.
395	35574	29	27	15	28	54	I suggest this section follows Metz too closely. The three "examples" are arbitrary, they result in a rigidly structured approach that readers might regard as exclusive, whereas in fact there are other sectoral examples (water, health/disease, livelihoods/resources spring to mind) that are at least equally important. I suggest a less structured approach, not using examples but more generic arguments that are illustrated by short examples where required. (Patrick Nunn, University of New England)	The three areas mentioned are just examples that have some literature.
396	51952	29	27	19	27	19	It is not completely clear how the synergies described for category 4 are different from the interactions described in categories 1 and 2. (Katharine Mach, IPCC WGII TSU)	The text has been changed and streamlined in the SOD.
397	46754	29	27	23	27	46	Section 29.7.2.1: This section should also mention how forest fires could change in the future. Based on the paleo record for islands, such as Hispaniola, others have found that fires have increased during naturally warmer periods in the past. (Maria Caffrey, National Park Service and University of Colorado, Boulder)	An interesting example but we do not have a specific reference.
398	47170	29	27	25	27	25	Some small islands are considered all coastal particularly those of the Eastern Caribbean. But for the purposes of administration a narrower band is defined as the area on which coastal resources management will be effected. (e.g. Saint Lucia's Coastal Zone Management Policy and Action Plan). The real issue is that for small islands these shore areas are impacted by all anthropogenics activities in from upper watersheds to and including these shore and marine areas in temporal scales that are much shorter that for larger islands or continental land masses. To effectively treat these externalities, the source of these impacts must be addressed, which requires an integrated approach to the management of the use of resources. (see the 'Islands Systems Management' approach defined by Nichols et al (not peer reviewed).) (Keith Nichols, Caribbean Community Climate Change Centre)	We accept the view here and believe we have indicated the value of an 'integrated' approach.
399	36322	29	27	25	27	46	While islands may have coastal areas that are large relative to their area, but the total area of coastal zones is still small compare to other non-island nations; in terms of total area, how large is coastal area for islands in a relative sense to non-islands? The above issue needs to be clarified before island coastal zones can be considered effective motivations to climate change. (Steven Chan, Newcastle University)	When comparing countries or jurisdictions in terms of their vulnerability to climate change, in so far as it effects the whole country, the important consideration in this regard is not the area itself but the ratio of the coastal area to the land mass. Strictly speaking, population density in the coastal area should also be a factor in this regard.
400	51953	29	27	29	27	29	It may be helpful to clarify what the term "bio shields" means. (Katharine Mach, IPCC WGII TSU)	Bioshields' has been retained in 29.7.2 in brackets with a direct reference to the source.
401	42854	29	27	40	27	46	The example is not quite appropriate since retreat is also an adaptation option, and in many cases it is vastly more cost-efficient than coastal protection. This was concluded in Samoa and Eastern Japan following their respective tsunamis. Moreover, retreat does not need to be involuntary or have dire socio-economic consequences. In Sao Tome and Principe, for example, the strategy selected under the Adaptation Project (citation above) is to encourage the location of future infrastructure (schools and roads) away from high risk areas, thus gradually promoting the growth of settlements towards higher elevation. (Sofia Bettencourt, World Bank)	Reference to this sentence is not included in the SOD version.
402	51954	29	27	46	27	46	"likely" -- If this term is being used as calibrated uncertainty language, it should be italicized. Otherwise, the author team should avoid casual usage of this reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	See response to comment 401
403	35403	29	28	27	28	27	Wade H, Johnston P and Vos J. 2005. Pacific Regional Energy Assessment 2004: regional overview report vol 1. SPREP: Apia, Samoa is A particularly good reference on the importance of energy efficiency in PICs. (Tony Weir, University of the South Pacific)	Thank you for the reference. We already have refereed journal references on Fiji.
404	48485	29	28	37	0	0	<to demonstrate progression> Operating one of the largest off-grid solar power systems in the world and the largest solar-system installed the South Pacific, Tokelau will be first country to become completely energy sufficient by the end of the year 2012. During periods of prolonged cloud clover, the battery banks will be recharged with coconut-oil run generators. [source, Chapman-Smith, B. NZ company helps Tokelau switch to solar, NZ Herald. 27 Jul 2012, accessed: http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10822385]. (Lauren Wetzell, Bay of Plenty Regional Council)	The observation is interesting but the reference is not sufficeintly robust to be included in this chapter.
405	41815	29	28	41	0	54	section 29.7.2.3 - Could similarly benefit from consideration of broader relevant literature reviewed in Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232), (Daniel Scott, University of Waterloo)	This section has been reduced. The Scott reference is included in 29.3.3.
406	41816	29	28	43	0	0	This value of tourism's contribution to ACC has been updated and peer reviewed in Scott, D., Peeters, P. Gössling , S. (2010) Can tourism deliver its aspirational greenhouse gas emission reduction targets? Journal of Sustainable Tourism, 18 (3), 393 – 408. (Daniel Scott, University of Waterloo)	This section has been reduced. The Scott reference is included in 29.3.3.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
407	35404	29	28	43	28	45	The impact of a tax on international aviation depends on what happens to the revenue from it (like all other taxes). AOSIS has suggested that if such a tax does come into force, its revenue should be used to fund adaptation in SIDS, precisely to offset the maladaptive impacts cited in line 45. (Tony Weir, University of the South Pacific)	No references suggested for this comment.
408	41819	29	28	44	0	0	There is a literature which has directly examine the potential impact of aviation taxes / levies on costs and demand to long-haul destinations, including papers specifically on small islands. These should be consulted for this section. They are reviewed most recently in Scott, D., Gössling, S., Hall. (2012) International Tourism and Climate Change. Wiley Interdisciplinary Reviews – Climate Change, 3 (3), 213-232), (Daniel Scott, University of Waterloo)	This section has been reduced. The Scott reference is included in 29.3.3.
409	36323	29	28	44	28	45	The meaning of "mitigation isolation" is not clear. Is it referring countermeasures to reduce carbon emission (e.g. air travel)? (Steven Chan, Newcastle University)	This section has been reduced in the SOD and the comment is no longer relevant.
410	41817	29	28	46	0	48	Please clarify the wording of this sentence on ecosystem services, costs and sustainable tourism. (Daniel Scott, University of Waterloo)	This section has been reduced in the SOD and the comment is no longer relevant.
411	41818	29	28	51	0	0	I don't see Gossling and Schumacher (2010) work as a 'contrast' at all. Both the previous reference (and many others that examine the links between GHG emissions and sustainble tourism) and these authors argue that the tourism sector (operators and tourists themselves) should pay to promote sustainable tourism, estpecially where the tourism sector (operators and tourismts) benefit directly from environmental services sustained by these investments. (Daniel Scott, University of Waterloo)	Replaced the words "In contrast" by "In this regard"
412	51955	29	29	5	29	7	For this statement, the author team should ensure that the formulation used would not be interpreted as potentially policy prescriptive. Additionally, could calibrated uncertainty language be used to characterize the described "clear consensus"? Summary terms for evidence and agreement or levels of confidence may be most appropriate. (Katharine Mach, IPCC WGII TSU)	We do not consider the present formulation to be policy prescriptive. We however accept the suggestion relating to the use of calibrated uncertainty language, and have reformulated the relevant portion of the text.
413	36324	29	29	13	29	16	One of the overarching themes of the chapter is the need to avoid wholesale transfer and policies to different islands. That clashes with the lack of economy of scales (29.7.2) and lack of resources to implement measures due to small economy sizes of the island nations. Where can the balance be made to make? The last question remains unanswered for the chapter. Are their studies and discussions exist to the question? Is IPCC reports be the place to discuss such political issues? (Steven Chan, Newcastle University)	(i) We do not share the view that a conflict exists between the need to avoid wholesale transfer of policies to different islands, and the lack of economies of scale on islands. Neither do we agree that the latter is a necessary pre-condition to the former, as implied by the reviewer; (ii) IPCC reports are not the appropriate forum for discussion of "...political issues" though our mandate allows us to discuss policy relevant matters.
414	39090	29	29	26	0	0	Box 29-1 Resettlement and migration: Adaptation or maladaptation? Relate the migration discussed here to transformational adaptation (Discussed fully in Chapter 20). Discuss, e.g., the example of President Anote Tong of Kirbati, who has been ,advocating migration from Kiribati. He has recently become interested in buying a large patch of land in Vnaua Levu, Fiji, ostensibly for re-settlement purposes. This strategy is not new to Kiribati, which re-setttled its people from the (Phosphate depleted and environmentally destroyed) island of Banaba on Rabi Island in the North of Fiji many years ago. (Anirudh Singh, University of the South Pacific)	We have included a new paragraph to indicate that while there are serious challenges associated with resettlement, premature foreclosure may be maladaptive where local circumstances show the option to be potentially efficacious.
415	53716	29	29	26	0	0	Please ensure consistency with chapter 12. Also, please see the Foresight report on migration and global change. (Kristie L. Ebi, IPCC WGII TSU)	Refer to preceding comment., which also responds to the concern raised about consistency with Chapter 12.
416	46755	29	29	26	29	39	Perhaps include a discussion of the term "climate refugee." I realize that this is a widely debated term, but perhaps introduce it and cite a couple papers with conflicting opinions about it. (Maria Caffrey, National Park Service and University of Colorado, Boulder)	We are not persuaded that a discussion of the relevance of so-called climate refugees is merited here. Neither can we locate any published, empirical studies on the subject in the context of small islands, thus any conclusions we draw are likely to be anecdotal and speculative.
417	49276	29	29	26	29	39	Box 29-1. There are several sections that include migration that I have commented on (29.3.3.4; 29.7.1). These comments also apply to the proposed box (perhaps there is room for consolidation). There is a tension between 'foreclosing' on other adaptation options and ignoring the possibility that long-term, in some locations, some form of migration may be inevitable. A middle path is needed. On the one hand it would be wasteful, and potentially endangering for communities, if migration was not considered early as an option, and there is little doubt that relocation of entire communities will require a very proactive as opposed to reactive approach. On the other hand, premature, or even unnecessary relocation, is also highly problematic as indeed it may cause other possibilities for adaptation to be ignored. (see Campbell 2010a and 2010b for some of the discussion on this issue). (John Richard Campbell, University of Waikato)	See # 414 above which makes reference to the inclusion of an additional paragraph that responds directly to the reviewer's observations.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
418	41299	29	29	43	29	45	The sentence states with no reference that CCRIF has been successfully implemented. I would caution against this and suggest you just say "implemented" since if you look at the original objectives of this parametric insurance it has not been 100% successful. (Gillian Cambers, Secretariat of the Pacific Community)	Noted, but we hold the view that the CCRIF has been successfully implemented, even if not 100%, as implied by the reviewer. Successful implementation can only be reasonably measured in the context of the original objectives of the initiative. The CCRIF has so far met all of its original objectives, which were threefold: "1. To cover the post-disaster liquidity gap faced by governments between immediate emergency aid and long-term redevelopment efforts; 2. To enable governments to receive money quickly, with the amount being calculated objectively; and 3. To minimize the burden on governments to provide exposure information, prior to coverage being initiated, and loss information after a disaster." (Van Nostrand and Nevius, 2011: 234). The full case study appears in Van Nostrand, J.M. and J.G. Nevius, 2011. "Parametric Insurance: Using Objective Measures to Address the Impacts of Natural Disasters and Climate Change". Environmental Claims Journal, 23(3-4), 227-237. See also the CCRIF website: http://www.ccrif.org/. However we have decided to delete the word 'successfully' from the text.
419	42855	29	29	43	29	52	The Caribbean Catastrophe Risk Facility only funds sovereign (and not private) insurance. Hence, it is not a good example to cite with respect to the imposition of unaffordable premiums to communities. Facility premiums are funded by Caribbean Governments or, in cases they cannot afford them, by IDA credits. Private property insurance does have many flaws (including affordability amongst poor communities) but when correctly applied it should not promote moral hazard (e.g. households settling in high risk areas would simply be denied insurance or charged higher premiums as a form of dissuation). (Sofia Bettencourt, World Bank)	We have removed the source of possible ambiguity to reflect clearly that the operation of CCRIF relates to governments and not directly to communities or individuals.
420	35405	29	30	6	30	19	Adaptation in a Small Island Developing Country", Tiempo 77, 16-19 (October 2010) [also on web at http://www.tiempocyberclimate.org/newswatch/feature100723.htm]. That paper points out that engagement of the whole community (village) is needed, and to secure this in some Pacific societies may require separate consultation with such subgroups as women or youths, because protocol means that in a meeting of the whole village they will not offer views different from those of the older men, but in fact women's priorities maybe different (and often more practical). Similar cautions were raised in Samoa by K Sutherland, B Smit, V Wulf, and T. Nakalevu, Vulnerability in Samoa, Tiempo, 54, 11-15 (2005). (Tony Weir, University of the South Pacific)	We consider that our text, as presently written, underscores the importance of wide stakeholder engagement, whether the initiative is being undertaken in the Pacific or any other small island region. We consider that our earlier observation with respect to Tiempo remains valid.
421	53717	29	30	6	30	19	Much of this was covered earlier. (Kristie L. Ebi, IPCC WGII TSU)	We have sought to remove the redundancy and overlap with the other adaptation sub-sections of the chapter.
422	35576	29	30	6	30	33	I think these paragraphs miss the point that most island communities have aspirations ("development") that they regard as more important than long-term adaptation to climate change. The other issue is that there is a lot of reference to what governments like, whereas the reality is that it is communities on many islands that make most decisions about environmental futures. (Patrick Nunn, University of New England)	Nothing in the text in these two paragraphs insinuates or implies that island countries do not have development aspirations, or that there should be focus away from pressing short-term challenges (see for example page 30, lines 45-51). Equally, it is the authors' judgment that the notion that "..the reality is that it is communities on many islands that make most decisions about environmental futures" cannot be considered a universal generalisation for all islands. While this may be so in the Pacific, it is seldom the case in the Caribbean. We have made no adjustment to the original text.
423	35575	29	30	13	30	14	Mamanuca Islands (Patrick Nunn, University of New England)	Completed.
424	51956	29	30	25	30	25	"likely" -- Casual usage of this reserved likelihood term should be avoided. (Katharine Mach, IPCC WGII TSU)	Have complied.
425	51957	29	30	28	30	28	It would be preferable to indicate more specifically what is meant by "make good sense." (Katharine Mach, IPCC WGII TSU)	We have modified the language for greater clarity.
426	53718	29	30	35	30	43	Much of this was covered earlier. (Kristie L. Ebi, IPCC WGII TSU)	We have sought to remove the redundancy and overlap with the other adaptation sub-sections of the chapter
427	49277	29	30	41	30	43	This reference to Samoan housing tends to repeat info that is included in section 29.6.2.1. I'm not sure that the housing referred to is donor driven. In general in PICs there has been an attempt to rebuilt disaster resistant dwellings after major extreme events. (John Richard Campbell, University of Waikato)	We have made an adjustment to the text based on the observations of the reviewer.
428	48484	29	30	46	0	0	<supplemental information> Various sustainable 'green' buildings are in development in American Samoa. These designs support technologically sound strategies that surpass current norms for energy and water conservation, waste management/recycling, storm water management, and indoor air quality. These developments build local capacity (and economy) by using local workforce and local materials when possible. Future proposals include training programs and hazard resilient strategies. [resource, former Environmental Planner for the American Samoa Department of Commerce] (Lauren Wetzell, Bay of Plenty Regional Council)	We consider that our original response is still valid, in light of the absence of published supporting material.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
429	35577	29	30	46	30	48	A lot of journalese in this sentence - "are real" and "sidelined". Rephrase. (Patrick Nunn, University of New England)	We have redrafted the text as a direct response to the reviewer's concern.
430	41300	29	30	46	30	48	Suggest add overpopulation or dense human settelement to the list on line 48, since I think this is the main cause of the development challenges in Kiribati. (Gillian Cambers, Secretariat of the Pacific Community)	We have complied.
431	51958	29	30	47	30	47	It would be preferable to indicate more specifically what is meant by "where the threats of climate change are real." (Katharine Mach, IPCC WGII TSU)	We have modified the language in the redrafted text.
432	51959	29	30	48	30	51	Could calibrated uncertainty language from the guidance for authors be used to characterize this conclusion and agreement among scholars? Summary terms for evidence and agreement and levels of confidence may be appropriate. Additionally, casual usage of the term "likely" should be avoided, as it is a reserved likelihood term. (Katharine Mach, IPCC WGII TSU)	We have complied.
433	35406	29	30	49	30	51	Not only scholars but also practitioners (community field workers) agree that the success of an adaptation project depends on understanding the other stresses on the community. (Tony Weir, University of the South Pacific)	We have complied.
434	37567	29	31	0	31	0	There is another point to be made here which is the same as that made on page 4 line 36 - research needs to engage with local people to learn what is important to them, and how they are adapting (this relates to one of the points I made earlier about engaging more with the literature on climate change and culture in islands). (Jonathon Barnett, University of Melbourne)	Agreed. The point first made earlier will be inserted here i.e. That research needs to engage with local people to learn what is important to them and how they are adapting.
435	37649	29	31	0	32	0	Research and data gaps, pages 31 and 32. Others for consideration include: Many Pacific Islands lack long-term, high-quality data on rainfall, stream flows, waves, and ecosystems. The decline of basic climate and hydrological monitoring is undermining our ability to detect and anticipate climate changes and their impacts. Monitoring has to be elevated to a high priority research activity and given sufficient funding. The separation of intrinsic climate variations from anthropogenic forcing represents a key area for future research. Additional research is needed on the effectiveness of adaptation strategies for Pacific Islands and their communities, as well as the capacity to sustain adaptation efforts over the long term at both the institutional (funding and expertise) and community (training and implementation) levels. There is a general need to improve our ability in presenting the synergistic relationships between climate change and other large-scale anthropogenic stressors (e.g., changes in land use, invasive species introductions, commercial fishing) and social and ecological responses to their combined impacts. (John J. Marra, NOAA)	The importance of the data gap caused by the general lack of long-term monitoring is important. We intended to include this but it has been left out as an oversight.
436	38612	29	31	1	0	0	Absence of location-specific digital elevation dataset with high spatial resolution and relatively recent land cover/use data with high spatial resolution are serious bottlenecks for any quantitative analysis of small islands, a data gap worth mentioning in Section 29.9 on Research and Data Gaps. It should also be noted that the correspondence between many of the global spatial datasets, for example SRTM and GLWD, are not always in complete agreement due to differences in scale, so geographical areas of small islands in these datasets do not completely match. (Susmita Dasgupta, The World Bank)	This is now included as the first of three research gaps.
437	40850	29	31	1	0	0	Section 29.9. - Some proposals for future research: (1) In all regions (Caribbean sea, western and central Indian Ocean, central and southern Pacific ocean, Mediterranean),it seems urgent to develop comparative studies between "natural" and "human-influenced" islands (at various levels), firstly to better apprehend the diversity of existing situations and secondly to allow the isolation of the impacts of climate change and climate variability from those associated with human activities. Such a strategy should be coupled with the establishment of "observatories of change in island environment" that would allow comparisons between regions and islands. Long-term observation would probably make it possible, on the one hand, to distinguish climate change impacts, climate variability impacts and human-induced impacts, and on the other hand, to better understand their interrelations ; (2) in future studies, it would probably be useful to reconstruct the trajectories of vulnerability of small islands, because analysis in terms of trajectory allow the identification of the factors that are at the roots of island/population vulnerability and of its variability through time. It also enables the understanding of their linkages and of feedback effects, which is necessary to identify levers for vulnerability reduction - concerning such approaches, see the case studies of Rodrigues Island, the Solomon, and Tuvalu, as developed in the following papers: (a) Bunce M., Mee L., Rodwell L.D., Gibb R., 2009. Collapse and recovery of a remote small island - a tale of adaptative cycles or downward spirals? Global Environmental Change, 19: 213-226; (b) Fazey et al., 2011, cited page 37, line 10; (c) Yamano et al., 2007, cited page 48, line 37; (3) there is probably a need to better understand the contradictory effects of lifestyle change in small islands: in which way, to which extent and in which specific conditions does external dependance increase or reduce island community vulnerability? (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	This is a fair comment and it is implied but not made explicit in our research gaps.
438	52891	29	31	1	0	0	Section 29.9. Research 1 and Data Gaps: The following reference is relevant to this section, and to other sections: Hay, J.E. and N. Mimura, 2006: Supporting Climate Change Vulnerability and Adaptation Assessments in the Asia-Pacific Region – An Example of Sustainability Science. Sustainability Science, 1(1), 23-35. (John Hay, University of the South Pacific)	The reference is comprehensive but we need to be selective given the length constraint.
439	35578	29	31	1	32	10	Suggest bullets are numbered, also that two additional gaps are highlighted, either separately or within those listed. 1. Confusion of climate change and climate variability, particularly in the context of adapting to the latter believing it to be the former. 2. The lack of understanding by donors (in particular) and governments/regional agencies of the pathways of effective environmental decisionmaking in many island countries, especially archipelagic ones, which results in adaptation funds being given to governments rather than communities. See Nunn, 2009, cited already. (Patrick Nunn, University of New England)	The first point is accepted and the second is considered in detail in 29.8.
440	45158	29	31	11	0	0	Maybe in general but see PCCSP work noted under section 29.4.1 (Mark Stafford-Smith, Commonwealth Scientific and Industrial Research Organisation)	At the time of preparation of the FOD we were unsure about the status of the two volume Pacific Climate Change Science Program publication. They have now been referenced although they fit into the 'grey' category. Journal publications by the same authors have also been referenced.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
441	38676	29	31	14	31	33	Again, suggest refer back to Bell et al (2011) and the Pacific Climate Change Science Programme - at least for the Pacific, both these studies attempted to get down to climate change and impacts at the country level for many Pacific Islands. (Janice Lough, Australian Institute of Marine Science)	We agree both publications are impressive and they have been referred in the SOD as well as some papers by the same authors in the journal 'Climatic Change'.
442	51960	29	31	25	30	41	The author team may wish to revisit the use of the word "need" in these 4 bullets, as well as in the 1st bullet on page 32. It would be preferable to use formulations that avoid potential interpretations of policy prescriptiveness. (Katharine Mach, IPCC WGII TSU)	Thank you for pointing this out. Our group has to date seen this section as Research Needs and Data Gaps' rather than 'Research and Data Gaps'. We have not changed the wording in the SOD as we believe these are 'needs'.
443	38613	29	31	25	31	26	As an applied researcher on coastal vulnerability in changing climate, I beg to differ with the statement "generally climate-model projections of temperature and sea-level have been satisfactory." (Reference: line 25-26, page 31 (Susmita Dasgupta, The World Bank)	Noted, but we believe that our statement is supported by the extensive literature on temperature and sea-level rise projections. While the rates of change may vary from model to model, the trends are consistent and most of the projections generally fall within the same range of magnitude.
444	42856	29	31	25	31	29	Add to the list aerosol concentration, and fog (Sofia Bettencourt, World Bank)	While in principle there is no objection to the suggestion, the intention is not to attempt to include an exhaustive "shopping list" list. It is for this reason that we prefaced the sentence with the words "These include.....". In any event, many of the coupled atmosphere-ocean GCMs already include aerosols. There are also other variables (apart from aerosol concentration and fog) such as evaporation and runoff that are equally critical and might be included, were there no space constraints.
445	40848	29	31	30	31	33	The diversity of small island political status (independant countries/overseas territories with varying status) seems interesting to investigate as being one of the main factors of island vulnerability. (Virginie DUVAT, University of la Rochelle-CNRS (National Centre for Scientific Research) UMR LIENSs 7266)	We agree and believe we have acknowledged this in the SOD eg. in Table 29-3.
446	53719	29	31	30	31	33	Is this research? (Kristie L. Ebi, IPCC WGII TSU)	Need to re-phrase to become research. There is a need for specific research in small islands socio-economic, cultural and governance architectures and their linkages to help determine what kind of adaptation replications they could work with. The comment also appears in the SOD, though it should have been deleted.
447	49278	29	31	41	31	46	Perhaps the point should be made here that there is a need for 'in-depth community based research' at the community level (rural and urban). Such research is likely to be most beneficial where it examines climate change exposure, vulnerability/resilience and adaptation along with disaster risk reduction and sustainable development and also incorporates participatory methodologies. (John Richard Campbell, University of Waikato)	We have incorporated this point on several occasions in the earlier text.
448	35407	29	32	1	32	5	Sustainable development in the Pacific Islands cannot be achieved without taking climate into consideration – in particular climate extremes. For example a new bridge that washes away at the first flood is not "sustainable" . (Refer: IPCC SREX) (Tony Weir, University of the South Pacific)	We have incorporated this view in the text in a number of places.
449	41301	29	32	1	32	5	There seems to be little mention in the chapter of sustainable development and all the work islands have done with sustainable development plans and committees. Perhaps it is worth digging into the literature to see if there is more discussion of the two agendas because this seems to be the way in this chapter is heading i.e that the climate change agenda has to be more attuned to the development agenda. (Gillian Cambers, Secretariat of the Pacific Community)	We feel that the question of 'sustainable development' is a little underdone in the text, but the chapter has to cover many aspects.
450	52892	29	32	13	0	0	Frequently Asked Questions - there are many other topics worthy of a FAQ, such as "Given the areal extent of small islands, relative to the resolution of GCMs and other models, do scenario-based approaches to V&A assessments have any advantage over approaches that focus on present-day vulnerabilities and risks? (John Hay, University of the South Pacific)	Yes we agree, but we have prioritsed our FAQ given space and other constraints.
451	35579	29	32	15	32	26	This first sentence of FAQ 29.1 is misleading. Some islands built from unconsolidated sediments are in what Woodroffe called dynamic equilibrium at present - not a surprise - but most islands are not of this kind and most of these are unequivocally registering the effects of climate change at present. On line 20, it states that sea-level rise has not been attributed as a primary cause, but then neither has anything else. The evidence is interpreted by most scientists working in this area as pointing to sea-level rise. There are very real dangers in making statements such as those highlighted, especially in an FAQ which is bound to be scrutinised by more readers than the rest of the chapter. (Patrick Nunn, University of New England)	We believe the minor changes we have made to this FAQ are justifiable. Observed impacts of climate change on small islands remain inconclusive. See 29.3.3.4 and Fig 29-2.
452	38677	29	32	15	32	26	Again, specific information is now available for at least some islands in the Pacific regarding for example ocean warming etc (Janice Lough, Australian Institute of Marine Science)	FAQ have been re-written.
453	51961	29	32	18	32	18	It may be preferable to specify "anthropogenic climate change" or "short-term climate variability" to ensure clarity here. (Katharine Mach, IPCC WGII TSU)	Comment has been rviewed but no action taken.
454	36309	29	34	21	34	23	"Falkland Islands" are not correctly capitalised. (Steven Chan, Newcastle University)	These changes have been made in the SOD reference list. It was a problem in Refworks.
455	36306	29	35	18	35	20	"Kiribati" is not correctly capitalised. (Steven Chan, Newcastle University)	These changes have been made in the SOD reference list. It was a problem in Refworks.

#	ID	Ch	From Page	From Line	To Page	To Line	Comment	Response
456	36307	29	35	21	35	23	"Kerguelen" is not correctly capitalised. (Steven Chan, Newcastle University)	These changes have been made in the SOD reference list. It was a problem in Refworks.
457	36308	29	35	41	35	43	"Thailand" is not correctly capitalised. (Steven Chan, Newcastle University)	These changes have been made in the SOD reference list. It was a problem in Refworks.
458	36305	29	36	52	36	53	"Bermuda" is not correctly capitalised. (Steven Chan, Newcastle University)	These changes have been made in the SOD reference list. It was a problem in Refworks.
459	51962	29	48	0	0	0	Table 29-1. As possible given differences between scenarios used, it would be beneficial to update this table with information from the working group 1 contribution to the 5th assessment report or with citations published since the 4th assessment report. (Katharine Mach, IPCC WGII TSU)	Yes we agree. Updates were to be provided by the TSU but this has not happened yet.
460	51963	29	48	0	0	0	Table 29-2. For the mangrove entry, should the data point be -60 instead of -6? For the coral cover entry, are the data points given actually for total coral cover--and not for the change in cover? (Katharine Mach, IPCC WGII TSU)	6 percent is correct for mangroves. The coral cover refers to percent change in coral cover not total cover. The table has now been expanded to include further details.
461	51964	29	49	0	0	0	Table 29-3. Is the description given for "mass tourism" always the case? (Katharine Mach, IPCC WGII TSU)	Table 29.3 deleted, does not appear in the SOD.
462	51965	29	49	0	0	0	Table 29-4. It would be preferable to provide examples for the types of economies, to illustrate the assessment provided here. (Katharine Mach, IPCC WGII TSU)	We have not done this; space constraints.
463	54030	29	49	0	0	0	Table 29-4: Source? (Yuka Estrada, IPCC WGII TSU)	Table contributed by Rolph Payet. Regret have not identified source but must do so before FGD.
464	35408	29	50	0	0	0	Figure 29-1 appears to wrongly (!) imply that the coast of Papua New Guinea is not vulnerable to sea level rise. (Tony Weir, University of the South Pacific)	Original Figure 29.1 has gone from the SOD.
465	51966	29	50	0	0	0	Figure 29-1. It would be helpful to indicate how vulnerability as depicted in this map has been quantified. Are all of the mentioned factors (population density, elevation, etc.) included--and how? (Katharine Mach, IPCC WGII TSU)	See 464 above.
466	49279	29	50	50	0	0	Figure 29-1. It would make sense to redraw this map, perhaps with the Atlantic eastern boundary moved to enable the Pacific ocean and the shaded area indicating "vulnerable island region" to be seen as a single unit. This may be the standard global map for IPCC (?), but perhaps this chapter could use a modified map as many of the small islands of concern are in the Pacific Ocean. (John Richard Campbell, University of Waikato)	See 464 above.
467	51967	29	51	0	0	0	Figure 29-2. It would be useful to indicate how the Central Pacific region characterized here compares to the North and South Pacific used in table 29-1. (Katharine Mach, IPCC WGII TSU)	FOD Figure 29-2 is from WG1; It appears as SOD Fig 29.4.
468	54031	29	51	0	0	0	Figure 29-2: This is a very similar figure as Figure 25-1. To ensure consistency across chaper, cross-chapter coordination (Yuka Estrada, IPCC WGII TSU)	See 467 above.
469	54032	29	52	0	0	0	Figure 29-3: An explanation (provided in the main body of the text p 21 line 49 –p 22 line 3) should be also included in caption. (Yuka Estrada, IPCC WGII TSU)	FOD Figure 29-3 is not included in the SOD.