

SEA LEVEL RISE IN EUROPE: GOVERNANCE CONTEXT AND CHALLENGES	Section	Comment	Status	Author's response	Last update (date)
Referee 1					
Q1	Introduction	This reads more like a summary of the report, not really as an introduction. Could you maybe introduce the key risks and governance challenges when it comes to Sea-Level-Rise?	Done	I have edited the introductory section. I introduced a general sentence on key risks and reference to the impacts paper from the SLR KH. Also, added our terminology on governance challenges.	April 2
Q2	5.2.1 "Geopolitical context in European Sea Basins"	<p>This report is about SLR governance. It would make this sub-chapter on the geopolitical context more interesting and relevant to the subject of the report, if the geopolitical context was link to the issues of Sea-Level-Rise and adaptation measures (e.g. how the geopolitical context such as cooperation mechanisms, existing conflict(s) or the development of strategic sectors, will be affected or affect SLR governance and the implementation of adaptation measures?). This sub-chapter highlights certain policy documents per basin, introduced as "key policies documents. In the Mediterranean Sea you mentioned the "2021 European Neighbourhood Policy", in the Baltic Sea it's the Interreg Baltic Sea region program (which is first and foremost a financial instrument), while in the North Sea you mentioned the "North Sea Region 2030 Strategy", why not mentioning the European Baltic Sea Strategy, or the other Interreg programs in place in all sea basins?</p> <p>In the Black Sea it is the Black Sea Synergy initiative as "the EU's key regional policy framework for the region in force since 2007" while regional actor would mention, the Bucharest declaration or the Common Maritime Agenda.</p> <p>The EU marine security strategy as a geopolitical policy instrument might be worth mentioning...</p> <p>As a result the choice of the key policy documents presented per basin pose question...</p> <p>If the intention is to bring a geopolitical perspective, instead of introducing certain policy documents, I would suggest focusing this sub-chapter on the key actors at play including regional organizations, considering you have another chapter dedicated to governance where you are listing key policy documents (table1)?</p>	Done	<p>Policies added: Common Maritime Agenda; EU Marine Security Strategy (general); Adriatic and Ionian Seas: EU Strategy for the Adriatic and Ionian Region – EUSAIR; EU Strategy for the Baltic Sea Region – EUSBSR; Initiative for the sustainable development of the Blue Economy in the Western Mediterranean – WestMED, and Common Maritime Agenda for the Black Sea - as suggested by the referee, giving a more comprehensive and standardised overview of the policy instruments per basin.</p>	Feb 12
Q3	5.2.2 Economic context in European Sea Basins	<p>Table1: It would be nice to have the source of the statistic mentioned.</p> <p>Regarding the Black Sea, the numbers stated for the weight of the Oil and Gas industry mentioned might be out-of-date following the Russian-Ukraine war... Is the statistic mentioned from 2022-2023?</p> <p>In table 2, the description of the situation of the NE Atlantic Ocean is a little surprising and would better fit the Mediterranean coast description... Mentioning the total population of the 4 countries of the region is not pertinent as it does not relate specifically to the NE Atlantic coastline.</p>	Done	Source added, data on oil and gas deleted.	March 1st

Q4	5.3 Coastal governance	<p>The choice of introducing this chapter by the UNCLOS as key governance frameworks currently in place to tackle the impacts of climate change (ligne 295) is surprising as the United Nations Convention on the Law of the Sea does not include any reference to climate change (see Armstrong C. 2023[1]). Only the very recent agreement of the new Biodiversity Beyond National Jurisdiction (BBNJ) treaty, reached in November 2023, include clear reference on climate change and marine environment protection. At this stage the effectiveness of this instrument is unknown. It is even more surprising that no mention is made of the Agenda 2030 and the SDG 13, the Paris Agreement, or the European Green Deal. One would expect it is, a minima mentioned, in table 3 (ligne 325) When introducing the regional sea conventions (RSC) (ligne 316), the text would benefit if the different types of agreement with UNEP were mentioned (UNEP-administered / UNEP-Non administered / Independent [2]), not all RSC are "part of UNEP", some simply cooperate with.</p> <p>Table 4: update MSP status of Romania</p> <p>Ligne 412: the example of France is very approximate; the country is generally referred as a vertical type of territorial management even more regarding marine space. The country has specific regional and local documents to tackle climate adaptation and more specifically SLR as a climate risk (e.g. "plans de prévention des risques littoraux" and strategic sea basin documents). "Conservatoire du littoral" cannot be cited as the "central public authority in charge of coastal management", different administrations have competences regarding coastal adaptation measures tackling SLR risks.</p>	Done	<p>BBNJ mentioned, as well as the Agenda 2030, the SDG 13, the Paris Agreement, and the EU Green Deal. The table n. 3 has been updated with the inclusion of new documents incorporated into the text. The different type of agreement with UNEP was clarified in a footnote. Table 4 updated with the MSP of Romania as of November 2023. Example France reviewed.</p>	March 1st
Q5	5.3.4 Coastal adaptation financing arrangements	<p>A note on private finance, green bonds would have been welcomed.</p> <p>See also:</p> <p>European Union, European Economic and Social Committee (EESC), Expert for the Opinion: "Financing the transition to a low-carbon economy and challenges in financing climate change adaptation (NAT/778)", 2020. Koundouri, P., et al., 2022. Financing the Joint Implementation of Agenda 2030 and the European Green Deal. 2nd Report of the SDSN Senior Working Group on the European Green Deal. Available: https://resources.unsdsn.org/financing-the-joint-implementation-of-agenda-2030-and-the-european-green-deal</p>	Done	<p>added a sentence and references on the potential of private finance instruments for coastal adaptation</p>	April 4
Q6	5.4 Complexity and challenges	<p>Paragraph line 644-650: Can you justify your statement when you said: "Most countries are adopting a low-regret approach and considering SLR estimates that occur in all projections independent of climate and emission scenarios - i. e., between 0.15 and 0.35m by 2050, 2050 including Albania, Croatia, Cyprus, Denmark, France, the Netherlands, Norway, Portugal, Spain, Ukraine." ?</p> <p>Looking at the 2050 SLR projections, IPCC scenarios don't foresee an increase of more than .35cm (it is generally around 20 cm) which can explain why governments are not planning for above .35 SLR by 2050 (see https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool)</p> <p>Could you define "low-regret" approach?</p>	Done	<p>I have added the reference for the statements made in this paragraph. The statement quoted by the reviewer is simply a summary of how many countries are planning, based on survey results. There is no argument that they should be planning for more in 2050. Under uncertainty, there is potential for (investment) regret or maladaptation, depending on how the future unfolds. Planning for SLR amounts that occur in almost all projections is low-regret. This statement on low regret is also made in relation to the earlier statement in this paragraph - i.e. most countries are planning for more certain amounts of slr in 2050, fewer countries are planning for slr in the long-term or considering high-end or accelerated slr at the end of the century</p>	February 13 2024

Q7	5.4.3 Equity and Social Vulnerability	<p>A very interesting chapter with added value!</p> <p>Table 6 is very interesting. Could we also have measures with positive justice factor (such as NBS)?</p> <p>It would be welcome to also have as, part of the text, an introduction and an explanation of the adaptive response typology (source?).</p> <p>Box 8 and 9 should also be referenced in the text.</p> <p>Line 934: Could you define distributive justice?</p>	Done	Concept of distributive justice already present. To Giulia/Elisa: typologies already explained in chapter 4; to check if in literature there is positive justice implications when adopting SLR adaptation measures (notably NBS and cultural heritage). Mention to the boxes added.	Feb 12
Q8	General	<p>The report would benefit from an actual concluding part instead of a summary of “ key developments per basin” which would also summarize the key elements of chapter 5.4.</p> <p>The report needs revision as it contains many approximations and questionable statements.</p> <p>The sub-chapter on geopolitical context seems a bit disconnected to the subject of the report.</p> <p>An introduction including the key risks, challenges and governance issues related to Sea-Level-Rise would be welcome.</p>	Done	Sub-chapter on geopolitical context summarized.	April 4
Q9	General	<p>Properly refers website pages: author of the article or website name / year. You could also use a footnote</p> <p>[1] . The United Nations Convention on the Law of the Sea, global justice and the environment, Cambridge https://www.cambridge.org/core/journals/global-constitutionalism/article/united-nations-convention-on-the-law-of-the-sea-global-justice-and-the-environment/0E40CF82CD994E02D22AC72A96C8FD9A</p> <p>[2] https://www.unep.org/topics/ocean-seas-and-coasts/regional-seas-programme/regional-seas-programme</p>	Done	Proper references checked	March 1st
Kate Larkin - handling editor					
Q10	General	<p>I congratulate the lead and co-authors of this manuscript that is of high quality and is well inside the journal's scope and a very relevant addition to the Special Issue for the European Knowledge Hub on Sea Level Rise’s Assessment Report. In assessing the similarity report, it is clear that this manuscript draws upon a previous paper by Bisaro et al., 2020 (Env. Science and policy vol. 112, October 2020). Whilst some reference is added to this paper, the authors are encouraged to add reference to the Bisaro et al., 2020 paper, where it is relevant. For example, lines 460-464 of the submitted manuscript should be directly attributed to Bisaro et al., 2020 (as already done for lines 467-468). Similarly, the clear similarity of lines 512-513 and 518-520 to Bisaro et al., 2020 should be referenced as such.</p>	Done	Added	April 4, 2024

Q11	General	<p>Some minor technical corrections are as follows: English language: Line 27: Change 'Regional frameworks reviewed consist in Regional Sea Conventions' to 'Regional frameworks reviewed are derived from Regional Sea Conventions....'</p> <p>Line 36: Change 'The chapter finds that for across all basins,...' to 'The chapter finds that for all basins,...'</p> <p>Line 54: Change 'The concluding section we discuss' to 'In the concluding section we discuss...'</p> <p>Box 9: Change 'At the governmental sphere,...' to 'In the governmental sphere,...'</p>	Done	All suggestions added	December 2023
Q12	General	<p>Line 395: Change 'Environment Report (CMCC, 2021)(Miljøtilstand.nu)' to 'Environment Report (CMCC, 2021; Miljøtilstand.nu)'</p> <p>Line 524: Remove the first parenthesis and change '(e.g. NL, Spain (López-Dóriga et al., 2020)' to 'e.g. NL, Spain (López-Dóriga et al., 2020)'</p>	Done	All suggestions added	December 2023
Q13	Sec. 5.4.1 Time Horizon and uncertainty	Box 5: the box text states at the end 'Fig. box.2:' whilst the caption states Box 5. Please check and correct.	Done	Fig. Box 2 refers to the second figure within the box 5. The caption 'box 5' is correct.	December 2023
Q14	Sec. 5.4.1 Time Horizon and uncertainty	Check the resolution (Figure 1 resolution looks poor on the online manuscript version)	Done	Sent file to Elisa/Better resolution added in the new version of the document	February 13, 2024
Q15	Sec. 5.2.1 and 5.3.2	<p>Authors are encouraged to consider adding a reference to the EC Blue Economy Report 2023 when referring to existing and emerging sectors of the EU Sustainable Blue Economy approach: https://oceans-and-fisheries.ec.europa.eu/news/european-blue-economy-report-2023-economic-crisis-takes-toll-doesnt-stop-growth-2023-05-24_en</p> <p>There does not appear to be a reference to the content of Table 1 and Table 2, Table 3. What are the sources, and can these be added to the caption (as done for Table 4 and others)? Also check the Boxes although there are some references already integrated, so adding further sources may not be necessary.</p>	Done	EC Blue Economy Report 2023 added. References to the table 1, 2 and 3 added as well.	February 13, 2024
Q16	Sec. 5.2.1	In general sections 5.1-5.2 giving the geopolitical and socio-economic context are very interesting but long with the manuscript taking 11 pages until it starts with coastal governance. Depending on external review comments, the authors are encouraged to consider condensing sections 5.1-5.2 to be slightly shorter since there is very little reference to Sea Level Rise (the main topic of the manuscript) before page 11.	Done	Section on geopolitical context made more concise	March 15
Referee 2					

Q17	General	<p>My comments are offered with the caveat that I can only opine on issues relating to the North Sea.</p> <p>In general, it is a difficult document to navigate. It would be easier for the reader if the authors clearly articulated the common European/global problems, and perhaps discuss how current horizontal and vertical governance structures help solve them or are barriers to resolving them. As the document stands, all these structures are discussed simultaneously, together, which makes it hard to understand what works.</p> <p>In addition, the authors should consider discussing policy instruments, their benefits and shortcomings, in a more structured way. As it stands, norms and normative approaches are discussed interchangeably with soft law instruments and voluntary initiatives.</p> <p>Last, tools and resources, or lack thereof, are discussed in fairly generic terms, which makes it hard to learn something about their effectiveness.</p>	Done	We have changed the section to make it more clear	March 14th.
Q18	Section 5.2.1	<p>There should be a clearer articulation of the nature and structures of governance. Specifically regarding the governance of the North Sea basin, I am missing the acknowledgement that there is currently no formal North Sea Basin strategy, it is work in progress. On page 5, a voluntary initiative, the North Sea Region 2030 Strategy, is referred to as a key policy for the EU, which is not factually correct. This is a voluntary initiative across regions around the North Sea, including UK and Norwegian regions, which are not part of the EU. The 2030 NSR Strategy is not anchored on any EU policy.</p> <p>When discussing the socioeconomic context there are a lot of statements which are not backed by evidence. They thus read more as claims or opinions rather than facts.</p>	Done	Statement that currently there is no formal North Sea strategy added. Statements regarding the North Sea Basin strategy addressed. Statements of the socioeconomic context without references were deleted. Thus, now, all of them are backed by evidence.	March 14th.
Referee 3					
Q19	General	<p>The chapter presents a review of progress in Europe on the governance of adaptation to SLR, by describing the geopolitical and socio-economic context of SLR governance, EU policy priorities, the status of regional and national frameworks and specific governance challenges.</p> <p>A main objective/research question is missing.</p>	Done	This is not a scientific paper (does not have a research question). The objective of the chapter is presented in the introduction.	April 4
Q20	Introduction and section 5.2	<p>The chapter starts with describing the geopolitical and socio-economic characteristics and context of the different European sea basins. This is done in a general, but good way. However why did the authors start with this general description. For me it would have made sense to start with an introduction of how they understand SLR/coastal governance for example as an analytical model and/or as a model of transition/intervention. When the chapter had started with a definition SLR/coastal governance and relevant analytical themes/concepts of SLR/coastal governance (such as equity, vulnerability, justice etc.) it would have given the authors a framework which would have made it possible to present a more focused analysis of relevant geopolitical and socio-economic developments from a SLR/coastal governance perspective and to understand the enabling and constraining conditions of the institutional context, geopolitical developments, relevant EU and national policies and how to govern the uncertainties related to SLR in a just, fair and democratic way.</p>	Done	We now provided a general definition of 'coastal governance' in the introduction, highlighting why we are approaching the topics, but it would be important to address this specific part: 'for example as an analytical model and/or as a model of transition/intervention'. SB: I think introducing the definition is sufficient. The definition provides the 'descriptive' framework we need to describe the state of coastal governance in Europe. Our research objectives do not require a 'prescriptive/normative' framework, i.e. model of transition, of SLR governance.	April 4

Q21	Section 5.3	Section 5.3 coastal governance gives a good overview of coastal policy frameworks and objectives relevant for SLR both on the international and national level.	No action needed		
Q22	Section 5.4	Section 5.4 presents interesting building blocks how to govern economic and societal activities and developments given the uncertainties of SLR. My suggestion would be to develop with these building blocks a governance approach presented at the beginning of the chapter.	Done	This was approached in the introduction.	
Q23	Section 5.5	Section 5.5 presents key developments per basin. It would have been interesting not only to mention what policies are in place and whether countries have reported about SLR, but also to identify the enabling and constraining on the level of a sea basin to govern SLR and what the possibilities are of transboundary cooperation.	Done	This was partially addressed in section 5.6 (conclusion)	
Handling Editor: Kate Larkin					
Q24	General	General: The Chapter is long and not always easy to navigate. The Introduction particularly is too long (up to 11 pages) with some content considered superfluous to the core content of the Chapter. In some sections the structure could be enhanced to more clearly articulate the common challenges in Europe/globally and bringing in examples of solutions, tools and resources.	Done	Section reduced.	April 4
Q25	Introduction and Geopolitical context	Introduction: Reduce length and re-focus This is currently too long (11 pages), with too much emphasis on geopolitical context and socio-economic characteristics, at times leaning towards negative impressions. Proposed updates: Shorten the introduction, include a definition of SLR/coastal governance (RC3), and reach a more concise and balanced description on geopolitical context e.g., more focus on major EU efforts to nurture positive cooperation in the region (not mainly based on NATO reports), more reference to key geopolitical policy instruments e.g., EU marine security strategy and more focus on introducing the key risks and governance challenges when it comes to Sea-Level-Rise, also assessing and increasing where relevant references to Regional Sea Strategies e.g., European Baltic Sea Strategy, Black Sea Synergy initiative, and trans-boundary cooperation. There are some specific suggestions for the North Sea basin from RC2);	Done	Section of geopolitical and socio-economic shortened.	April 4
Q26	Geopolitical context	Wording e.g., competitiveness, rivalry and conflicts: Since this is first-and-foremost a European document, I suggest changing the expression “Russian-Ukraine conflict” to “Russia’s war of aggression against Ukraine” following the wording used by EEAS/EC, and consider rewording references to competitiveness/rivalry e.g. “rivalry played out in Western Sahara between Morocco and Algeria”, as there are also other viewpoints and facts on this matter;	Done	No more reference to the Russian-Ukraine conflict. Mentions on conflicts were removed.	April 4
Q27		Numbers, relevance thereof and evidence used in the text (e.g., section 5.2.2.) and in Figures and Tables (content captions and references in the text - see editor and referee comments), request to add more evidence on socioeconomic content (RC2);	Done	References added.	March 15th.
Q28		EU science diplomacy: The EU is very active in science diplomacy across EU Member States and Associated countries and this could be referred to in terms of SLR governance and through connecting researchers as broad as possible on a neutral basis;	done	inserted a sentence and referenece in the Conclusions section	April 4
Q29		English language (grammar etc) check this throughout – see Editor comments from 20th December 2023	done	English checked	April 4