Dear Dr. Iris Eline Hendriks,

Thank you for giving us the opportunity to submit a revised draft of our manuscript titled "A review on coastal urban ecology: Research gaps, challenges and needs" to *Frontiers in Marine Science*.

We appreciate the time and effort that you and the reviewers have dedicated to providing your valuable feedback on our manuscript. We are grateful to the reviewers for their insightful comments on our paper. We have been able to incorporate changes to reflect most of the suggestions provided by the reviewers.

The main changes were made in section 4 in order to improve our manuscript, adding examples from the literature to generate a better understanding of the topic for readers, as both reviewers suggested.

We have used track changes option in our manuscript to show where the improvement were made.

We will add our responses to the reviewers’ comments and concerns point-by-point.

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EVALUATION 1

Q1

Please summarize the main theme of this systematic review.

Reviewer 1 | 10 Dec 2020 | 19:53

#1

I would say that it's a systematic map rather than a systematic review, but it covers research into coastal urban environments, showing the distribution of literature in this area in terms of topics, location, and urban ecology concepts. I expect the category of 'systematic review' has restricted what they have called the paper. Maybe it's fine. Note that the category of 3g below isn't really relevant to this though as it's not a systematic review in the sense of evaluating a specific intervention or research question etc. For 3k, a flow diagram is included but I'm not sure if it's PRISMA or not.

Response to Q1: Thank you for pointing this out. We agree with this comment. Therefore, we have complemented the section 4 (Results) in order to better explain information found.

In addition we decision tree was fused with PRISMA diagram information (Fig. 1)

Q2

Please highlight the limitations and strengths.

Reviewer 1 | 10 Dec 2020 | 19:53

#1

It is an interesting and worthwhile paper. The authors are correct in that the coastal aspects of cities have generally been ignored, even though many large cities and megacities are found in coastal areas – though this may reflect the fact that only small portions of large cities are actually coastal. This study is more of a systemic map (broad pattern of available literature) rather than systematic review (synthesising literature to answer a specific question, e.g. how effective is a form of intervention), and it would be useful to draw on some of the systematic mapping literature to support the method, e.g. https://link.springer.com/article/10.1186/s13750-016-0059-6. Bringing this literature in and noting that it is a systematic map would help to position the paper as more than a review.  
  
The most useful information is found in the figures. The text does a good job of summarising the key points – there is potentially more that could be said (especially around the topics) but the figures do cover a lot of info and I don’t think the paper needs to be extended. As noted below, I would say that the network aspects (Figure 8) don’t add much and could be removed – or reinforced in the discussion if considered important. The discussion could also highlight the geographical patterns and gaps more. At the end of the discussion it might be useful to have a list of key priorities for future work based on the map presented here. But overall the paper is quite concise and clear, and the figures are effective.

Response to Q2: Agree. We have modified section 4 to emphasize the point of this manuscript as a review more than a systematic map. We provided more examples from the literature to make sure readers understand generalities found in the literature.

Regarding Fig. 8, we decided to keep it in order to provide an objective representation of the relationship between paradigms, based on qualitative analysis instead of classification.

We have modified the last paragraph of the discussion to highlight key priorities for future work in coastal urban ecology.

Q3

Check List

Reviewer 1 | 10 Dec 2020 | 19:53

#1

a. Is the English language of sufficient quality?  
- Yes  
  
b. Is the quality of the figures and/or tables satisfactory?  
- Yes  
  
c. Does the title state that the manuscript is a systematic review, meta-analysis, or meta-synthesis?  
- Yes  
  
d. Does the manuscript include recent developments?  
- Yes  
  
e. Does the systematic review include a balanced, comprehensive and critical view of the literature in the field?  
- Yes  
  
f. Does this manuscript refer only to published data (unpublished or original data is not permitted for this article type)?  
- Yes  
  
g. Is research question of the systematic review clearly defined in terms of populations, interventions, comparators, outcomes, and study designs (PICOS)?  
- No  
  
h. Is the systematic review built on methods that are clearly defined to identify, categorize, analyze and report aggregated evidence on a specific topic?  
- Yes  
  
i. Is the search strategy adequate and appropriate to minimize bias and errors?  
- Yes  
  
j. Does this systematic review conform to the relevant guidelines (e.g. PRISMA, Campbell, Cochrane guidelines)?  
- No  
  
k. Is a PRISMA flow diagram included?  
- No  
  
l. Does the manuscript cover the topic in an objective manner and based on sound empirical studies?  
- Yes

Response to Q3: We agree with this. We have incorporated PRISMA diagram fused to our decision tree (Fig. 1). In addition, it would have been interesting to explore research questions defined in terms of PICOS. However, in the case of our study, we did not plan our methodology based on that since the beginning. In further work we will considerate this methodology.

Q4

Please provide your detailed review report to the editor and authors (including any comments on the Q3 Check List - please pay particular attention to questions f and g):

Reviewer 1 | 10 Dec 2020 | 19:53

#1

This is an interesting and worthwhile paper. The authors are correct in that the coastal aspects of cities have generally been ignored, even though many large cities and megacities are found in coastal areas – though this may reflect the fact that only small portions of large cities are actually coastal. This study is more of a systemic map (broad pattern of available literature) rather than systematic review (synthesising literature to answer a specific question, e.g. how effective is a form of intervention), and it would be useful to draw on some of the systematic mapping literature to support the method, e.g. https://link.springer.com/article/10.1186/s13750-016-0059-6. Bringing this literature in and noting that it is a systematic map would help to position the paper as more than a review.  
  
The most useful information is found in the figures. The text does a good job of summarising the key points – there is potentially more that could be said (especially around the topics) but the figures do cover a lot of info and I don’t think the paper needs to be extended. As noted below, I would say that the network aspects (Figure 8) don’t add much and could be removed – or reinforced in the discussion if considered important. The discussion could also highlight the geographical patterns and gaps more. At the end of the discussion it might be useful to have a list of key priorities for future work based on the map presented here. But overall the paper is quite concise and clear, and the figures are effective.   
  
My more specific comments are:  
  
Lines 40-41: “Cities have been constantly growing in number and size, forming large megacities with 10 million inhabitants or more (United Nations 2018).” This makes it sound like all cities are now megacities, rather than that some cities are now megacities. It would be worth noting how many megacities there are in 2020, perhaps? UN says megacities are >10 million people but other sources consider them as larger.

Line 45: 70’s = ‘70s.

Line 61: here and elsewhere, the paradigms need a distinguishing mark so that they are clear, e.g. paradigm in the city fall = paradigm ‘in the city’ fall. Or could use italics. Otherwise the paper becomes hard to read in places, especially distinguishing between the paradigms.

Line 78: structures as ports = structures in ports?

Line 80: during the last decades = during recent decades

Line 82-83: “Despite recent interest on vulnerabilities, research has mainly focused on geomorphological contexts.” This could use some supporting citations.

Line 95: how were ‘environment’ and ‘coast’ truncated? I see this is in the figure but would be useful to add here. So “urban ecology” was used but not “urban ecosystem” or just “urban eco\*”? Were studies counted multiple times - so if a study was on how pollution influences a coastal species, for example, was this included in two study models or just one?   
  
Line 102: typo on ‘examining’

Line 117: Is the ‘network analysis’ what is described in lines 117-120? Are that any papers that refer to this as network analysis as well that can be cited, as the term is used is different ways? It’s a measure of interrelationships between papers in this case?

Line 121-127: I’m not familiar with R so can’t comment on the specifics, though this seemed fine as far as I could tell. Could the bibliometrix package citation feature in the paragraph above, since this is relevant to the network analysis?

Line 168: “coastal benthic a” – is this a typo?

Line 195: “being this topic also taken” is not clear, maybe = this topic also appears [or is abundant] in the paradigm ‘for the city’… ‘added to’ perhaps means ‘in combination with’ or ‘alongside’, looking at figure 7?

Line 198-208: I’m not sure this network analysis (with Figure 8) adds much to the paper. If the lack of connections is important then this should be reinforced in the discussion. It may be useful to highlight that studies are disparate and do not link together much, and that there isn’t clear linkage or development between the three paradigms? I’m not sure why the studies are arranged in this way in the figure – presumably the X and Y positions don’t mean anything, it’s just to show different links?

Line 232: typo on ‘shortfall’. Also, what does a shortfall in ‘long-term dynamic perspectives’ mean?

Line 276-277: “considering more than 70% of cities in the world have between 500,000 and 1 million inhabitants” – could use a reference here.

Line 281: in what way are “false dichotomies for conservation” created by the focus on near-shore environments?   
  
Line 295: represents “the loss OF UNDERSTANDING of an integral…”

Response to Q4: We agree with these recommendations and have incorporated your suggestions throughout the manuscript.

Typos were corrected and specific comments to sentences were paraphrase in the same lines where it was pointed out. We hope that those changes are clear. If not, please mention it.

Other comments that are important to mention in detail:

- Line 95 comment was corrected in line 95-96 and 107-108

-Regarding network analysis, line 117 comment was corrected. Here we clarified that we made a descriptive analysis of the network instead of a network analysis.

- Thank you for the suggestion about Fig. 8. Although it might seem like Fig. 8 doesn't contribute much to the study, we feel its important to keep it because establish a sense of relationship among research in coastal urban areas. In addition, we think that given most of our manuscript is centred in tendencies based on classifications, its important to add an analysis that connects the information obtained between the paradigms. We also added two final sentences to section 5 that can complement the discussion about this importance.

About lines 281 and 295

QUALITY ASSESSMENT: no se puede responder a estos comentarios

Q5

Overall quality of methodology and summary

Q6

Significance to the field

Q7

Interest to a general audience

Q8

Quality of the writing

Q9

What is the level of revision required based on your comments:

Reviewer 1 | 10 Dec 2020 | 19:53

#1

Minor revisions

Response to Q9: We appreciate the time and effort that you have dedicated to providing your valuable feedback on our manuscript. We are grateful to your insightful comments on our paper. We have been able to incorporate changes to reflect most of the suggestions provided.

The main changes were made in section 4 in order to improve our manuscript, adding examples from the literature to generate a better understanding of the topic for readers. In addition to the comments, all spelling and grammatical errors pointed out have been corrected. We have used track changes option in our manuscript to show where the improvement were made.

We look forward to hearing from you and to respond to any further questions and comments you may have.

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EVALUATION 2

Q1

Please summarize the main theme of this systematic review.

Reviewer 2 | 28 Jan 2021 | 15:38

#1

This manuscript a well organized review of coastal urban ecology, focusing on situating them with the paradigms of ecology in, of, and for the city. The authors note that a key risk relates to the fact that lessons and recommendations of research are mainly from developed countries and large cities.

Response to Q1: We are grateful to your insightful comments on our paper.

Q2

Please highlight the limitations and strengths.

Reviewer 2 | 28 Jan 2021 | 15:38

#1

This is a good and thorough review of the literature. The primary limitation though is how the "results" and "discussion" is presented. Sections 4.1 and 4.2, for instance, would benefit by elaborating on what the literature is actually saying by using examples. The literature does not seem to really be engaged with aside from trying to put it into buckets and providing numbers and percentages. If I were unfamiliar with the topic, I would be left unsure about some of the key arguments. Examples from the literature is needed.  
  
The discussion, however, does engage with the literature. I'd suggest trying to work into the results a review of the literature that highlights what some of the work is. The discussion/conclusion can be used to discuss the limitations in the field the authors note and provide some suggestions for future research. These items

Response to Q2: Thank you for pointing this out. We have, accordingly, revised and complemented section 4 to emphasize this point. We provide more examples from the literature to give readers a better idea of generalities found. We understand the importance of improving this point to bring the literature closer to readers, especially those who are not familiar with the topic.

Q3

Check List

Reviewer 2 | 28 Jan 2021 | 15:38

#1

a. Is the English language of sufficient quality?  
- Yes  
  
b. Is the quality of the figures and/or tables satisfactory?  
- Yes  
  
c. Does the title state that the manuscript is a systematic review, meta-analysis, or meta-synthesis?  
- Yes  
  
d. Does the manuscript include recent developments?  
- Yes  
  
e. Does the systematic review include a balanced, comprehensive and critical view of the literature in the field?  
- Yes  
  
f. Does this manuscript refer only to published data (unpublished or original data is not permitted for this article type)?  
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- Yes  
  
h. Is the systematic review built on methods that are clearly defined to identify, categorize, analyze and report aggregated evidence on a specific topic?  
- Yes  
  
i. Is the search strategy adequate and appropriate to minimize bias and errors?  
- Yes  
  
j. Does this systematic review conform to the relevant guidelines (e.g. PRISMA, Campbell, Cochrane guidelines)?  
- Yes  
  
k. Is a PRISMA flow diagram included?  
No answer given.  
  
l. Does the manuscript cover the topic in an objective manner and based on sound empirical studies?  
- Yes

Response to Q3: We agree with this. We have incorporated PRISMA diagram fused to our decision tree (Fig. 1). Doing this becomes clearer to readers.

Q4

Please provide your detailed review report to the editor and authors (including any comments on the Q3 Check List - please pay particular attention to questions f and g):

Reviewer 2 | 28 Jan 2021 | 15:38

#1

Q 2 does this for me. Generally, I see this as a good review but aspects of literature need elaborated in the results. Providing more examples from the literature would help rectify this. It's well written, uses clear methods, and I like how the authors situate the review with Pickett's paradigms. It's well done, but some moderate revisions will be needed to add some clarity for the reader in the results and discussion section.

Response to Q4: Agree. We have modified section 4 to emphasize the point. We provided more examples from the literature to make sure readers understand generalities found in the literature.

Thank you for this suggestion. It would have been interesting to explore this aspect.

QUALITY ASSESSMENT: no se puede responder a estos comentarios

Q5

Overall quality of methodology and summary

Q6

Significance to the field

Q7

Interest to a general audience

Q8

Quality of the writing

Q9

What is the level of revision required based on your comments:

Reviewer 2 | 28 Jan 2021 | 15:38

#1

Moderate revisions

Response to Q9: We appreciate the time and effort that you have dedicated to providing your valuable feedback on our manuscript. We have been able to incorporate changes to reflect most of the suggestions provided. The main changes were made in section 4 in order to improve our manuscript, adding examples from the literature to generate a better understanding of the topic for readers. In addition to the comments, all spelling and grammatical errors pointed out have been corrected. We have used track changes option in our manuscript to show where the improvement were made.

We look forward to hearing from you and to respond to any further questions and comments you may have.