

Biogeosciences Discuss., author comment AC3
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Reply on CC1

Kumar Nimit

Author comment on "Ideas and perspectives: Ushering the Indian Ocean into the UN Decade of Ocean Science for Sustainable Development (UNDOSSD) through marine ecosystem research and operational services – an early career's take" by Kumar Nimit, Biogeosciences Discuss., <https://doi.org/10.5194/bg-2020-492-AC3>, 2021

Response to bg-2020-492-CC1

The ideas and perspectives given by Nimit have potential with important implications for the sustainable use of the Indian Ocean's resources. However, we strongly advise that some major revisions are made before the article can be considered for publication. Significant changes can be made to improve the structure of the article and to add details to the arguments, which in some cases are lacking the appropriate level of information. These adjustments would reinforce the findings that are already given in the article but are not currently explicit enough. Further, we find some minor adjustments, mostly related to spelling and grammar that will improve the communication of the paper.

R: Thank you. The responses to your comments are marked with R.

Major Criticisms

▪ Structure

Overall, we find that the structure of the article lacks signposting and there is only a limited use of subtitles. Therefore, it is difficult for the reader to follow the key arguments. Additional subtitles would organise the information more clearly, defining all the important information.

For example, the main body of work entitled "Marine Ecosystem Research and operational Services (MERS)" could be divided into smaller sections to divide up key arguments. Further, there is no conclusion, which is essential to collate each of these arguments into an overarching finding.

Each of these sections could then benefit from introductory topic sentences to highlight the key message being presented.

R: Thank you. The submissions in this category (Ideas and Perspectives) are expected to be short, as per the journal guidelines. Nevertheless, the possibility to reasonably provide subsections will be explored in the revised manuscript.

- **Definitions**

Before addressing specific sections of the article, an important criticism is that 'operational' or 'operating' services are not clearly defined for the reader. It is essential to give a clear explanation of this key term in this specific context.

R: Thank you. This will be made clearer in the introduction section.

- **Abstract**

Whilst the abstract does outline some key points made in the paper, such as the need to consider more operational services like Coral Bleaching alerts and SCUBA-assisted advisories, as opposed to only fishery information, it does not include key information that we would usually expect from an Abstract. Firstly, the abstract states that the paper will be a review. However, the main results or concluding arguments from such a review are not presented. The purpose and aims of the paper should be more explicit and subsequently the results to these aims must also be made clear. Secondly, whilst some background information is given, the abstract does not allude to the rationale of the paper and the importance of the findings, which we would argue are fundamental to supporting the perspective being presented. A clearer progression from background information, purpose and review to a conclusion would clarify why new operational services should be considered. Thirdly, a handful of examples of issues are presented in the abstract, the significance of the selected examples are unjustified and it is unclear on reading the paper what the major issues and minor issues are.

R: Thank you for pointing out the word 'review' that created the confusion. The same will be avoided in the revised manuscript. The manuscript type is 'Ideas and Perspectives' and the abstract has been prepared to suit the same.

- **Introduction**

The introduction contains a lot of important information. Unfortunately, the significance of these statements are somewhat lost due to poor structure. Like the abstract, improving the structure of the Introduction would give the arguments presented in this perspective a more explicit motive. Specifically, we would recommend that the introduction follows an inverted pyramid structure; starting with widely applicable background and contextual information and ending with more specific and narrowly targeted points. This structure will guide the argument and emphasize the importance of this perspective and inform the reader of the scope, which we also find should be more explicit. For example, the introduction already begins with the wider context of the Indian Ocean, mentioning population growth, highlighting how many lives depend on the resources of the IO and addressing the multiple cultures that inhabit IOR countries. Further detail could be given here as it would be interesting to explore the specific differences between the populations that inhabit IOR countries and use the IO. In addition, more detail should be given to the specific threats that target marine ecosystems, to highlight the specific issues that need to be overcome for the sustainable and equal use of the IO. Together, these added details would enable the reader to understand to what extent impacts in the IO affect people's everyday lives and therefore the importance of the perspective.

The introduction could also include introductory information about the current

environmental and ecological conditions of the IO. Whilst the introduction states that the IO is poorly studied and there is little information available, existing literature should still be outlined. For example, details on other uses of the IO rather than fishing like the extent of tourism. Or published information on the threats specific to the IO like evidence of coral bleaching events. Perhaps fundamental facts like the climatic cycles, weather and temperature changes, salinity or nutrient information, to highlight both the physical as well as a social factors that make the IO unique from other oceans. Again, this information would highlight why advocating sustainable use of the IO is so important.

If the preceding information is considered, this final recommendation may not be necessary as they will be implied: we suggest explicitly outlining your research question or purpose.

Finally, the hypotheses state that “the best possible approach to win the community attention (and to invoke the responsible ownership of resources) is to engage the communities with the operational ecosystem related services” and it is unclear how the rest of the article proves or disproves this hypothesis. Although there are a few mentions of how communities can get involved with operational services, a separate paragraph or section to explain the outcomes for this hypothesis would clarify the findings.

Usually we would expect to see a brief section to summarise the methodology next. This does not need to be extensive but as this paper explicitly states that it is a review, how the review was conducted needs acknowledgement. For example, how were the papers selected for review? Was it systematic?

R: As aforementioned, apologies for the confusion created due to the word review. This manuscript follows the guidelines of an 'Ideas and Perspectives' type of submission, abiding to which attempt will be made to incorporate your suggestions in the revision.

▪ **Marine Ecosystem Research and operational Services (MERS)**

The main section of the work could be improved by adding more details and relevant information to the arguments. For example, the use of satellites is covered in depth, however there is little information to explore how they can or have been used as an operational service. Developing the application of these tools is more appropriate for the hypothesis in question. Similarly, the main section of work tends to focus on technologies and problems for the Indian Ocean. Instead, the main focus should be on specific operational services and why they are important, followed by what kind of data/technology is required to put this operational service into action. Simply put - your recommendations. For example, rather than focussing on the problem of plastic pollution, the focus should be on the operational service of plastic detection, why it is necessary and how it can be achieved.

A critique is developed against the lack of information available for the Indian Ocean. To shine light on the areas of information that could be helpful for the sustainable use of the IO's resources, it would be interesting to detail the kind of information that has been useful in other ocean basins for operational services.

In general, more case studies and greater referencing would elevate the article as a whole.

R: Thank you. These topics will be dwelled in detail as much permissible for this article type.

▪ Use of a Figure

At present, this article does not contain any figures or imagery. However, a figure that synthesises the problem (sustainable future use of the IO) alongside the solutions (use of various operational services) could be very beneficial to summarise all of the ideas and highlight the core ideas being presented.

R: Thank you. This has been also recommended by an anonymous reviewer and a summary figure shall be incorporated in the revision.

Minor Criticisms

There are several adjustments that could be made to facilitate legibility and to improve the important messages within the piece.

Firstly, we do not find it necessary to include “An early career’s take” in the title as it is not relevant to the findings in the paper.

Secondly, we think that both the introduction and main body of text could benefit from the support of additional references. For example, in the introduction the statements on population pyramids profiles of IOR countries and IOR marine ecosystems under threat statement should be qualified by references.

Alongside these adjustments, we find several grammar issues that should be remediated, which are listed below. We also suggest using a grammar checker to find any further errors.

Line	Mistake	Correction
30	“Majority of the IOR countries have either expansive <i>of</i> stationary population pyramid profile, with limited land resources”	Replace ‘of’ with ‘or’
34	“consumerism is poised to extend to larger <i>part</i> of the population”	Replace ‘part’ with ‘parts’
36-37	“It is thus important to ensure that the resources in	Needs rewording, for example:

this unique, land-locked from the north ocean, are harnessed in harmony with the sustainability and with the equal opportunities”

“In this unique and land-locked from the north ocean, it is important to insure that the resources are harnessed sustainably and there is equality of opportunity”

45 “This paper *hypothesize*” “hypothesizes”

82 “With more than two *decade* of uninterrupted observations” “decades”

87 “The research can then support to the operational services” Remove “to”

112-113 “Human activities can be nuisance to the marine environment in many ways and sound is one of the ways”

Could be worded better, for example: Many human activities can be a nuisance to the marine environment and can cause impact in several ways, such as through sound

122 “Plastic adversely *impact* the marine...” “impacts”

R: Thank you. The revision includes additional references and corrections of grammar/language as suggested by you as well as reviewers.

Please also note the supplement to this comment:
<https://bg.copernicus.org/preprints/bg-2020-492/bg-2020-492-AC3-supplement.pdf>