

## ***Interactive comment on “Digital map of the Coral Triangle: An online atlas for marine biodiversity conservation” by Irawan Asaad et al.***

**Anonymous Referee #1**

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Overall I find this paper to be of high quality in terms of its description of a comprehensive and useful online atlas for the Coral Triangle. In terms of well-established definitions of "online atlas" as applied to ocean and coast, aka "coastal web atlases," the authors might refer to the definitive work of Wright, Dwyer, and Cummins (2011) and reference it accordingly (especially in lines 51-53). Wright DJ, Dwyer E, & Cummins V eds (2011) Coastal Informatics: Web Atlas Design and Implementation (IGI-Global, Hershey, PA), p 350.

With that in mind the authors may want to rethink their title, as a digital map by itself is not necessarily equivalent to an online atlas. Technical a digital map could even be a pdf file that is placed online for someone to look at and download. But this falls very much short of what the authors intend. An online atlas is made up of a \*series\* of live,

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**\*\*interactive\*\*** digital maps, as well as other resources (which could be static pdf files, downloadable data or data via web services, videos, etc.). Indeed, what the authors present is not just a single digital map, but an **\*interactive\*** online atlas allowing the user to make any number of digital maps (plural), as well as the useful web mapping **\*\*applications\*\*** for targeted uses, and involving more involved spatial analyses beyond the user choosing which layers to see on a map.

The data from which the user may create these maps is most excellent, as is the description of the various types and formats, as well as the technical details of the online atlas itself, especially as expressed in Tables 1 and 2. The figures are informative and highlight the very important contribution that this atlas will make to the marine conservation community by way of facilitating visualization and analysis of the most critical biodiversity features to consider (environmental variables, threats), the areas of biodiversity concern and conservation, and potential expansion of marine protected areas.

The paper could be improved by a brief statement or two much earlier in the paper as to the intended audience for the atlas (e.g., what particular organizations, governments, or initiatives). This might be most easily remedied by taking lines 209-223 and placing them in the introduction. These lines provide important history and context that should greet the reader earlier in the paper. And further, given the effort put into this atlas and its obvious power and utility, was it intended as a contribution to the Coral Triangle Initiative (e.g., Fidelman P, et al. (2014) Coalition cohesion for regional marine governance: A stakeholder analysis of the Coral Triangle Initiative. Ocean & Coastal Management 95(0):117-128). The paper does mention on line 72, the Coral Triangle MPA Network, so this might be equivalent. Perhaps make mention of these broader initiatives.

This atlas should most definitely be made known to the International Coastal Atlas Network, <http://ican.iode.org>, a program within the United Nations Intergovernmental Oceanographic Commission's International Oceanographic Data and Information Ex-

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change (IODE). And to that end, the authors might make a comment or two about features of the atlas that show its good design for conservation and resource management audiences. The authors should consider reading and citing: Kopke K & Dwyer N (2017) ICAN - Best Practice Guide to Engage your Coastal Web Atlas User Community. IOC Manuals and Guides 75, IOC/2016/MG/75, Intergovernmental Oceanographic Commission of UNESCO, Paris, 35 pp., <http://ican.iode.org/news/38-ican-cwa-user-interaction-guide>

With regard to the Conclusion, this might be folded into the Discussion above and called "Discussion and Conclusion" unless in conflict with the journal's guidelines. As it stands, the "Conclusion" is more of a "Summary" rather than a conclusion. It merely restates the abstract and does not provide "conclusions" in terms of the outcome of an actual spatial analysis or even a benchmark/performance/use case review of your atlas, nor any recommendations as to its use. Also this final section, especially if folded into a combined "Discussion and Conclusion" section would be strengthened indeed by some recommendations. Digital atlases often suffer from a "build it and they will come" syndrome. This atlas is much too good for that, especially with the quality data and web apps available. Might the authors consider suggesting that it should be part of the global Ocean Health Index effort, or perhaps supplements or boosts to any Conservation Intl, IUCN, or NIWA initiatives, membership in the ICAN and the broader efforts of the UN IOC IODE, or the GEO Marine Biodiversity Observation Network? How about a mention of the implications of this atlas for SDG 14 efforts and the upcoming UN Decade of Ocean Science? In other words, this reviewer is just suggesting some broader scope/broader utility statements for this paper beyond here is something wonderful that we built, to showcase yet another series of disparate datasets that were compiled.

With regard to minor technical suggestions: line 45 - references to works about GIS or internet/web GIS are in the hundreds now and the field changes rapidly. Given the emphasis of this paper on mapping and GIS for marine biodiversity conservation,

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there are much more appropriate references than Chang (2016) for an intro to GIS and Moretz (2008). Instead of or in addition to Chang (2016) I would suggest: Wright DJ ed (2016) *Ocean Solutions, Earth Solutions*, 2nd Edition (Esri Press, Redlands, CA), 500 pp. and Hamylton SM (2017) *Spatial Analysis of Coastal Environments* (Cambridge University Press, Cambridge) p 290. And instead of Moretz (2008), Moretz (2017): Moretz, D, In Shekhar S, Xiong H, Zhou Z eds (2017), *Encyclopedia of GIS*, 2nd Edition (Springer Intl, Cham, Switzerland), 1074-1081. line 87 - ArcGIS Pro 2.0 is a singular entity, not plural line 258 - "... technical assistance [in] developing this digital map" should be "... technical assistance in developing this online atlas."

I look forward to seeing this paper in print, and best wishes to the authors for continued success.

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