

Interactive
Comment

Interactive comment on “The Civitavecchia Coastal Environment Monitoring System (C-CEMS): a new tool to analyse the conflicts between coastal pressures and sensitivity areas” by S. Bonamano et al.

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The Authors wish to thank the Referee #1 for his useful suggestions that will contribute to improve the overall quality of the manuscript.

The authors' purpose was to write a manuscript which emphasized the capacity of the C-CEMS observational network as a tool to support the management of conflicts between anthropic uses and sensitive areas in the coastal marine area of Civitavecchia. The two proposed applications show that C-CEMS is able to analyze and predict

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these conflicts at high spatial and temporal resolution through the use of numerical models, that play a key role in the observational system. So the entire datasets coming from fixed stations, satellite observations, and in-situ samplings were employed in the numerical models to improve the initial and boundary conditions and to validate the simulations results. The authors found that these are the reasons that make the manuscript innovative and the use of C-CEMS more suitable compared to a classical method.

According with the reviewer comments the authors propose the following changes:

In “Introduction”

The authors are going to increase the scientific papers on MSFD and integrate the Marine Spatial Planning (MSP) Directive which plays a key role in the objectives of the manuscript. The WFD will be removed and the GES part reduced. The study area will be framed in the Mediterranean region and in the Western Mediterranean sub-region as indicated by MSFD giving a brief description of their physical and biological features. It is going to be better detailed the “central theme” which is to provide an effective tool (C-CEMS) that supports the coastal management and the conflicts between anthropic uses and sensitive areas. The authors will also emphasize the “sub themes” such as the convenience of the C-CEMS approach than the classical method and the use of the two C-CEMS applications (“Bacterial dispersion in bathing area” and “Dredged sediment dispersion on *Posidonia oceanica* meadows”) to show the usefulness of the observational network in pursuing the objectives of the MSP and MSFD directives.

In “Components of the C-CEMS”

This paragraph will be modified by eliminating the parts that are not functional to the objectives of the manuscript and reporting the links between the C-CEMS components. As regards the EO part, the authors used the MODIS and AVHRR data to analyze the temporal distribution of physical and biological variables since they cover the period of C-CEMS activity from its implementation. The authors do not consider MERIS obser-

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vations because its mission has been completed in April of 2012. The authors are also developing tools and methods for using the upcoming Sentinel-2a satellite (in orbit for a few months) to monitor coastal waters.

The detailed changes are going to be provided below:

- the Figure 2 is going to be modified and better argued in order to highlight the links between the C-CEMS components;

- “In-situ survey” will be re-elaborated showing the integration between physical and biological data collected by periodic in-situ surveys (at least once a month) and those in continuous acquired by water quality stations in order to validate the satellite observations;

- “Satellite observations” is going to be rewritten highlighting the data processing chain and the algorithms used to calculate the TSM and Chla;

In “C-CEMS applications”

In each case study it is going to be further detailed how the in-situ data and satellite observations are integrated into the numerical models.

In “Conclusions”

The title of this paragraph will be changed in “Discussions and conclusions” in order to keep well separated the results from the discussions. The new paragraph will be rewritten taking into account the objectives and the results reported in the manuscript.

These changes should be integrated with those required by Reviewer # 1, therefore the authors ask the Reviewer # 2 to give a comment about them, if necessary.

The authors are waiting for a reply by the reviewer.

Best regards

Interactive comment on Ocean Sci. Discuss., 12, 1595, 2015.

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