

Interactive comment on “Progressive eutrophication behind the world-largest super floating macroalgal blooms in the Yellow Sea” by Q. Xing

Anonymous Referee #1

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This paper intends to show the trend of eutrophication in the Yellow Sea in the past years, based on “a nutrient pollution index” as well as the satellite derived chlorophyll concentration. And the authors try to relate the trend with the floating macroalgal blooms. I feel that there are some new results, but some concerns exist. The comments are as follows.

1. The index of “AWCPI-NP” provides the main result or proof of this paper, so it would be needed to describe the index in much detail. In Eq(1) why is the “lower limit” used? The parameter of area “A” is from the “annual reports of SOA”, but it’s not clear how this parameter is derived or calculated (by SOA), e.g. by remote sensing or in situ sampling? The authors should also try to demonstrate that the index is qualified in /

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capable of characterizing the real pollution level of the Yellow Sea.

2. Is it appropriate to include the Bohai Sea in the study area ? If the authors thought the pollution material from the Bohai Sea would flow into the Yellow Sea, it would also be possible from the East China Sea to the Yellow Sea. If so, why is the East China Sea not included (in the analysis) ? And the “Large Yellow Sea” (P7031, L23; P7032, L13) seems not a word that is often used scientifically.

3. How is the Eq.(3) derived ?

4. P7036 L15-20: “. . . the eutrophication process in the Yellow Sea might lead to the macroalgal blooms.” I would say that eutrophication is one of the causes of the bloom, but the data shown in that paragraph didn’t prove that the eutrophication is the main or dominant cause (which the phrase ‘lead to’ implies). As pointed out by the author in the following lines that the Bohai Sea has a higher trophic status than the Yellow Sea, but the bloom didn’t occur in the Bohai Sea.

5. P7036 L21-23: “We can expect that the net nutrients flux. . .”. That argument seems like a pure guess (and thus meaningless), and the authors should avoid going too far away from the data.

6. P7037 L11-13: “The agreement . . . suggest that the progressive eutrophication drove the super MAB. . .”. P7037 L 19-21: “. . .suggests that the biomass in 2001-2012 was driven by the increase in nutrients.” I think the data cannot support the arguments. The correlation relationship by two items simply means that they have potential correlation, and it does not necessarily tell us that one thing “drives” another one.

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