

Interactive comment on “Effect of Water Surface Area on the Remotely Sensed Water Quality Parameters of Baysh Dam Lake, Saudi Arabia” by Mohamed Elhag et al.

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Comments and Suggestions for Authors

The manuscript entitled “Effect of Water Surface Area on the Remotely Sensed Water Quality Parameters of Baysh Dam Lake, Saudi Arabia” by Elhag et al. presents a study based on the hypothesis that changes in surface area can affect water quality in Baysh Dam Lake. To evaluate this hypothesis, authors have used remotely estimated water surface area, water quality indices, and several statistical data mining techniques such as PCA and NN. The results presented in the manuscript show an overall increase in water quality parameters (Chlorophyll, turbidity, and nitrogen concentration) with sur-

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face area. Consequently, the conclusion confirmed these results by stating proportional relation between lake's water quality and surface area. In my opinion, the methodology and analysis presented to test the hypothesis are strong to reach to a solid conclusion. Therefore, I would recommend it for publication.

General comments: 1. The hypothesis of change in water quality with surface area is only applicable if there is no inflow and no outflow to/from the lake. Hence, the change in water level is only due to either evaporation or precipitation. Please explain. 2. Field data collection and validation are missing in the article. Please clarify. 3. Author relates surface area to each water quality index obtained by Sentinel-2 MSI. An average of all pixels (~8 km² of lake area) was considered as a potential match up of remotely estimated lake water surface area. Result shows an obvious increase with increase in water inflow (or lake' water level/surface area). Is it possible to divide the lake into different regions (based on water input/outputs) before applying analysis? 4. Basically, no green algae produce toxic gases, but cyanobacteria. Please check it.

Technical comments: Line 35 organic material not organic martial Line 37 organic material not organic martial Line 82 algae instead of Algae Line 82-83 "oxygen dissolving eutrophication process" Line 84 5 kilometers instead of 5 kilo meters

Yours sincelely,

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