

For research article

Response to Reviewer 1 Comments

1. Summary

Thank you very much for taking the time to review this manuscript. Please find the detailed responses below and the corresponding revisions/corrections highlighted/in track changes in the re-submitted files.

2. Questions for General Evaluation

Reviewer's Evaluation

Response and Revisions

Does the introduction provide sufficient background and include all relevant references?

Yes/Can be improved/Must be improved/Not applicable

[Please give your response if necessary. Or you can also give your corresponding response in the point-by-point response letter. The same as below]

Are all the cited references relevant to the research?

Yes/Can be improved/Must be improved/Not applicable

Is the research design appropriate?

Yes/Can be improved/Must be improved/Not applicable

Are the methods adequately described?

Yes/Can be improved/Must be improved/Not applicable

Are the results clearly presented?

Yes/Can be improved/Must be improved/Not applicable

Are the conclusions supported by the results?

Yes/Can be improved/Must be improved/Not applicable

3. Point-by-point response to Comments and Suggestions for Authors

The authors performed a detailed investigation on the topic "The Impact of Plant Spatial Pattern on Nitrogen Removal in Water in Naolihe Wetlands in Northeast China." Using Naolihe wetlands as the study area, the authors observed the removal rates of three forms of Nitrogen (TN, NH₄-N and NO₃-N) from water. They noted that the main force of nitrogen removal was dependent on plants with the largest areas. However, the fragmentation of all plant patches resulted in a decrease in the nitrogen removal ability. The research work was detailed and quite impressive. However, minor language corrections are required before publishing. And there are some suggested revisions the authors can consider before publication. Specific comments are as follows

Comments 1: The authors mentioned that the "alkaline potassium persulfate digestion-UV

spectrophotometric method was used to determine the TN concentration of the samples; however, it would be important to cite the literature and briefly describe the process.

Response 1: Thank you for pointing this out. We agree with this comment. Therefore, we have added the literature and briefly described the process. Seen Line 169-181, page 4. "The testing process was first to use a mixture of potassium persulfate and sodium hydroxide in a volume ratio of 4:1, add some ultrapure water to prepare a digestion solution, and the water samples were then separately digested in digestion liquid for measuring the TN concentration using a TU-1901 UV visible spectrophotometer. At 120-124 °C, an alkaline potassium persulfate solution converts the nitrogen of nitrogen-containing compounds in the sample into nitrate. The absorbance A₂₂₀ and A₂₇₅ were measured using UV spectrophotometry at wavelengths of 220nm and 275nm, respectively. The corrected absorbance A was calculated using the following formula, and the TN (measured in N) content was directly proportional to the corrected absorbance A (HJ 636-2012) ().
$$A = A_{220} - 2A_{275}$$

Comments 2: The authors reported the impact of the patch area but did not clearly state how the patch area was calculated or determined. They also report the impact of patch fragmentation but give no image or illustration of the different fragmentations of plants. Similarly, they observed the impact of plant shape but there is no depiction or illustration about the different shapes of plants in this study. Kindly provide these missing details.

Response 2: We have provided these missing details, Seen L 215-220, P 5. "In each segment, the sum of the number of pixels and the area of pixel (1 m*1 m) in all patches of a plant was taken as the total area of that plant. Due to the continuous occupation of wetlands by farmland, there was very obvious fragmentation of plant patches, and the increase in various plant patches (Fig. 2b) led to a mixed pattern of different plant patches." In addition, when completing the map, the figure was very messy for spatial distribution map of 8 plants due to mixed pattern of different plant patches, therefore, the figure on plants distribution map was not mentioned in the text. However, the calculation results of 5 spatial indices (area and shape) for 8 plants in 10 segments were described and discussed in the text. Seen L292-316, P 7. "The calculation results of 5 spatial indices (area and shape) for 8 plants in 10 segments were as follows: the rank of plant's area (mean ± 1STD) of all sections was DA (18.93±10.70 km²) > PA (14.77±12.31 km²) > ZL (8.34±5.24 km²) > CH (7.12±5.81 km²) > TO (6.04±3.37 km²) > N-N (2.93±3.36 km²) > WS (1.45±1.11 km²) > CA (1.07±1.03 km²); The DA and the PA have the largest areas (DA: 31.2%; PA: 24.3%) (Fig. 2a). The rank of number of patches (mean ± 1STD) of all sections was TO (9314±4693) > PA (7970±3949) > DA (7786±3932) > CH (6969±4908) > ZL (6434±3622) > N-N (4350±3842) > CA (2495±2133) > WS (2354±1816); All plant patches have severely fragmented (Fig. 2b). The rank of LPI (mean ± 1STD) of all sections was DA (0.26±0.08) > PA (0.21±0.12) > ZL (0.11±0.06) > CH (0.09±0.04) > TO (0.08±0.02) > N-N (0.03±0.03) > WS (0.02±0.01) > CA (0.01±0.01); the DA and the PA have some larger patches (Fig. 2c). The rank of ED (mean ± 1STD) of all sections was CA (0.21±0.02) > TO (0.17±0.01) > N-N (0.17±0.03) > WS (0.16±0.01) > CH (0.13±0.02) > ZL (0.12±0.02) > PA (0.11±0.02) > DA (0.09±0.02); the DA and the PA have minimally mixed with other plants (Fig. 2d).

The rank of PED (mean $\pm$ 1STD) of all sections was DA (16.79 $\pm$ 11.29) > PA (15.70 $\pm$ 10.06) > TO (11.00 $\pm$ 7.76) > ZL (10.71 $\pm$ 6.47) > CH (10.13 $\pm$ 7.91) > N-N (4.60 $\pm$ 3.75) > WS (2.78 $\pm$ 2.82) > CA (2.28 $\pm$ 2.77); the DA and the PA have stronger internal patch connectivity (Fig. 2e). The rank of FD (mean $\pm$ 1STD) of all sections was TO (0.79 $\pm$ 0.05) > PA (0.78 $\pm$ 0.05) > CH (0.77 $\pm$ 0.06) > ZL (0.77 $\pm$ 0.06) > DA (0.77 $\pm$ 0.06) > N-N (0.76 $\pm$ 0.06) > WS (0.76 $\pm$ 0.06) > CA (0.75 $\pm$ 0.07); There was no significant difference in the shape of different plant patches (Fig. 2f).".

Response to Comments on the Quality of English Language

Point 1: Page 2: Kindly revise "The many studies" to "Several Studies.

Response 1: Yes, we have modified it. Seen L 114, P 3. "have been addressed in several studies"

Point 2: Page 2: Kindly revise "removal nitrogen in water" to "remove nitrogen in water"

Response 2: Yes, we have modified it. Seen L 114, P 3. "removal of nitrogen in water have been addressed in several studies."

Point 3: Page 2: Kindly revise "The main scientific problems to be solved in this study are as follows:" to "The objectives of this study are as follows:"

Response 3: Yes, we have modified it. Seen L 124-125, P 3. "The objectives of this study were as follows:"

Point 4: There are several grammatical and language errors, the authors are encouraged to check and if possible employ the service of a native speaker.

Response 4: We have modified the paper. We polished full text according to the website specified by the journal editor.

5. Additional clarifications

[Here, mention any other clarifications you would like to provide to the journal editor/reviewer.] No

For review article

Response to Reviewer X Comments

1. Summary

Thank you very much for taking the time to review this manuscript. Please find the detailed responses below and the corresponding revisions/corrections highlighted/in track changes in the re-submitted files. *[This is only a recommended summary. Please feel free to adjust it. We do suggest maintaining a neutral tone and thanking the reviewers for their contribution although the comments may be negative or off-target. If you disagree with the reviewer's comments please include any concerns you may have in the letter to the Academic Editor.]*

2. Questions for General Evaluation

Is the work a significant contribution to the field?

Reviewer's Evaluation



Response and Revisions

[Please give your response if necessary. Or you can also give your corresponding response in the point-by-point

response letter. The same as below]

Is the work well organized and comprehensively described?	★ ★ ★ ★ ★
Is the work scientifically sound and not misleading?	★ ★ ★ ★ ★
Are there appropriate and adequate references to related and previous work?	★ ★ ★ ★ ★
Is the English used correct and readable?	★ ★ ★ ★ ★

3. Point-by-point response to Comments and Suggestions for Authors

Comments 1: *[Paste the full reviewer comment here.]*

Response 1: *[Type your response here and mark your revisions in red]* Thank you for pointing this out. I/We agree with this comment. Therefore, I/we have....*[Explain what change you have made. Mention exactly where in the revised manuscript this change can be found – page number, paragraph, and line.]*

“[updated text in the manuscript if necessary]”

Comments 2: *[Paste the full reviewer comment here.]*

Response 2: Agree. I/We have, accordingly, done/revised/changed/modified.....to emphasize this point. *Discuss the changes made, providing the necessary explanation/clarification. Mention exactly where in the revised manuscript this change can be found – page number, paragraph, and line.]*

“[updated text in the manuscript if necessary]”

4. Response to Comments on the Quality of English Language

Point 1:

Response 1: (in red)

5. Additional clarifications

[Here, mention any other clarifications you would like to provide to the journal editor/reviewer.]