

Dear Dr. Khalid Hassaballah and Reviewers,

Thank you for your time and effort put into reviewing our manuscript titled “Sectoral Vulnerability to Drought: Exploring the Role of Blue and Green Water Dependency in Mid and High-Latitudes”, with ID number egusphere-2024-2726. We appreciate the constructive comments and are glad that the overall content and presentation were well received. We have addressed the few comments and suggestions provided and minor revisions have been made accordingly in the manuscript.

All revisions made in the manuscript are specified using Track Changes feature in Microsoft Word. Our detailed responses to the reviewers’ comments are outlined below and indicated in *blue italics*. Line numbers refer to the revised manuscript version, where all changes have been accepted.

We hope that you and the reviewers find our manuscript improved and suitable for publication in NHESS Special issue: Drought, society, and ecosystems (NHESS/BG/GC/HESS inter-journal SI).

Best Regards,

Elin Stenfors, PhD student

On behalf of the (co-)author team

## Reviewer 1

This is an exhaustive research work about the vulnerability to draught of forested cold climate regions from Europe. The most respondent are from southern Sweden (84%) and the others are detailed in supplementary materials. From a risk analysis, there are assessed the vulnerability factors and the final assessment underline the factors that seem to be generally impactful for all consumer groups of: blue water, green water and univesal water, respectively.

*Thank you for the time and effort put into reading and reviewing our manuscript. We appreciate your recognition of the comprehensive nature of our research and the insightful summary of our work.*

To be published with some minor revisions:

- Row 102 : pls. explain Cfb

*The sentence has been elaborated to describe Cfb as temperate oceanic climate (Line 102)*

- Fig. 4, to be zoomed in, there are many details, hard to follow

*Thank you for your comment. The figure has been updated to make it easier to follow by more clearly separating the factors into adaptive capacity, coping capacity, and susceptibility (Line 248)*

Fig. 6, axis to be explained, impact score vs?

*Thank you for your comment. Upon review, the figure was updated to show a more zoomed in version of the boxplots, to increase its readability. Plot axis titles have also been added (Line 280).*

- Table 2 to be centered

*The table has now been centered (Line 334).*

## Reviewer 2

Droughts are hydro-meteorological hazards that are thought to be strongly impacted by global climate change regarding their severity and frequency. For the efficient use of resources in mitigation/adaptation measures it is important to know where droughts have their largest impact. This contribution differentiates the vulnerabilities of different socioeconomic groups to droughts, based on their dependency on groundwater/streams/lakes or soil moisture. They analyze a survey among water-dependent sectors that was aimed at identifying and rating specific vulnerability factors for drought risk.

They first separate the respondents into green, blue and universal water consumers and then identified relevant vulnerability factors, respectively. After application of an impact score to assess the relative importance of the vulnerability factors they use statistical tests to find significant differences in ratings between the consumer groups.

They find that the importance of vulnerability factors differs among the consumer groups in particular concerning factors that relate to water supply and species characteristics. They propose universal vulnerability factors such as existing drought risk assessment, soil water holding capacity and the presence of wetlands, lakes and ponds. They finally argue that future drought risk assessments should incorporate specific vulnerability factors for the exposed consumer groups.

I think the this work has value regarding refining/designing future drought risk assessments and I agree with reviewer 1 that it should be accepted.

*Thank you for your comprehensive and thoughtful review of our manuscript. We are grateful for your clear summary of our approach and findings, and for recognizing the contribution our work makes toward refining future drought risk assessments.*

Yet, I have some minor points that the authors should consider:

- I had a hard time to figure out the sectors you have chosen and to what consumer group these belong. Figure 1 was not really helpful in that respect. It lacks the universal consumer group.

*Thank you for your comment. The included sectors and their corresponding consumer group is described in section 2.2. Data analysis, Line 160-166 and in Table 1 (Line 195-197) in the original manuscript. However, we have now elaborated on the text (Line162-163) and added a new figure showing the sectors included in each consumer group to further clarify the categorization. (Line 169-172)*

- Line 167: “two groups” but above you write about three groups. please clarify

*Thank you for identifying this typo. The text has now been revised to say “three groups”. (Line 173)*

- Line 404: This entire paragraph should go to results because nothing is discussed here.
- Line 412: This paragraph except for the last sentence should belong to the results.

*Thank you for your comments regarding the two paragraphs. The section has now been updated, to provide more discussion regarding some of our results, putting them into a broader scientific perspective. (Line 409-417)*