

<u>Peer Review</u>: Modeling groundwater contributing areas to Florida springs: spatiotemporal variability and pumping effects on springshed boundaries

Cortney R. Cameron¹

Collaborators: 4 reviewers

Accepted by 3 of 4 reviewers

Funding Information

This study did not receive any specific funding.

Conflicts of Interest

The author declares no conflicts of interest.

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Reviewer Summaries

Todd Jarvis

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

Describing the processes associated with delineating springsheds.

How do you think this research will contribute to the field?

There are not many examples of overlapping and changing springshed boundaries in the literature.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

The statistics section does not fit. It reads like the statistics were forced into the study to justify the study. It is not clear why the statistics are important. It is not clear why Figure 5 adds value to the analysis.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

Explain the statistics for the layperson and why the use of statistics makes a convincing case for use and interpretation. Are statistical analyses important to the future studies, if so, how?

Is there anything else you think the authors need to fix in their article to be fit for publication? No

Do you have any concerns about the ethics of this research? No

Based on your review, what should happen next?

This paper requires minor revisions but does not need further peer review

Would you like to be listed as a Collaborator on the final publication?

No, I do not want to be listed as a Collaborator

Christopher Dutton

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

No

What did the authors do a good job with?

I thought the piece was well written. Figures were beautiful.

How do you think this research will contribute to the field?

I think that it is an important piece of research that will help contribute to how we define springsheds.



Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

I thought it was fine. Just a few minor comments throughout.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

There is just a bit more clarification needed for properly interpreting some of the findings.

Is there anything else you think the authors need to fix in their article to be fit for publication? I made a few suggestions that I hope will improve the manuscript.

Do you have any concerns about the ethics of this research? No.

Based on your review, what should happen next?

This paper requires minor revisions but does not need further peer review

Would you like to be listed as a Collaborator on the final publication?

No, I do not want to be listed as a Collaborator

José Barquín Ortiz

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

I do not think so!

What did the authors do a good job with?

The study is relevant for Florida's freshwater spring conservation. Delineating springsheds is rather difficult, but one of the frist steps that needs to be achieved on an effective spring conservation program. The authors explore different modelling scenarios to delineate springsheds and identify overlapping and core spring areas.

How do you think this research will contribute to the field?

The research will help to develop more accurate springshed delineations and could support others on resolving this issue elsewhere

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

More information needed on all the modelling steps and on model description.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

The discussion needs a bit more of order and limit their reach to the analyses they have carried out. **Is there anything else you think the authors need to fix in their article to be fit for publication?** No, I provided more specific comments in the digital version of the manuscript.

Do you have any concerns about the ethics of this research?

Not at all.

Based on your review, what should happen next?

This paper needs major revisions and another round of peer review



Todd Kincaid

Initial Submission

Do you have any conflicts of interest that could bias your ability to provide an independent review?

no

What did the authors do a good job with?

Well written. Nice approach and effective graphics.

How do you think this research will contribute to the field?

This paper broadens the understanding of springsheds within the professional community and with the public. Hopefully, it will help guide the State toward better springs protection efforts.

Regarding the study design and methods, what do the authors need to fix or improve upon to be fit for publication?

I'm likely bias here, but I would prefer to see these same analyses performed using potentiometric data directly or some statistically derived potentiometric datasets - such as the method we used in Kincaid and Meyer, 2013. I am generally distrustful of models.

Regarding the analysis and interpretation of their findings, what do the authors need to fix or improve upon to be fit for publication?

Some more explanation of the statistics presented would be very helpful. The interpretation presented in the discussion regarding the need to focus protection efforts on the core springshed areas as opposed to the boundary areas, is not well supported. Suggest elaborating on that discussion more such that your reasoning is made more clear.

Is there anything else you think the authors need to fix in their article to be fit for publication?

There are a couple of minor grammatical issues that I've highlighted and check to make sure your citation to references is consistent with the corresponding text in the References section. Also make sure that all citations are indeed in the References section.

Do you have any concerns about the ethics of this research?

No

Based on your review, what should happen next?

This paper requires minor revisions but does not need further peer review

Would you like to be listed as a Collaborator on the final publication?

No, I do not want to be listed as a Collaborator