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# How to Peer Review for Academic Journals

ResBaz 2025



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# What we will cover today



- 1. Quick introduction and overview of the peer review process**
- 2. Providing a useful and constructive peer review**
- 3. Using a peer review template to structure your feedback**
- 4. Tips and recommendations**

# 1. Quick introduction and overview of the peer review process



Academia & Government

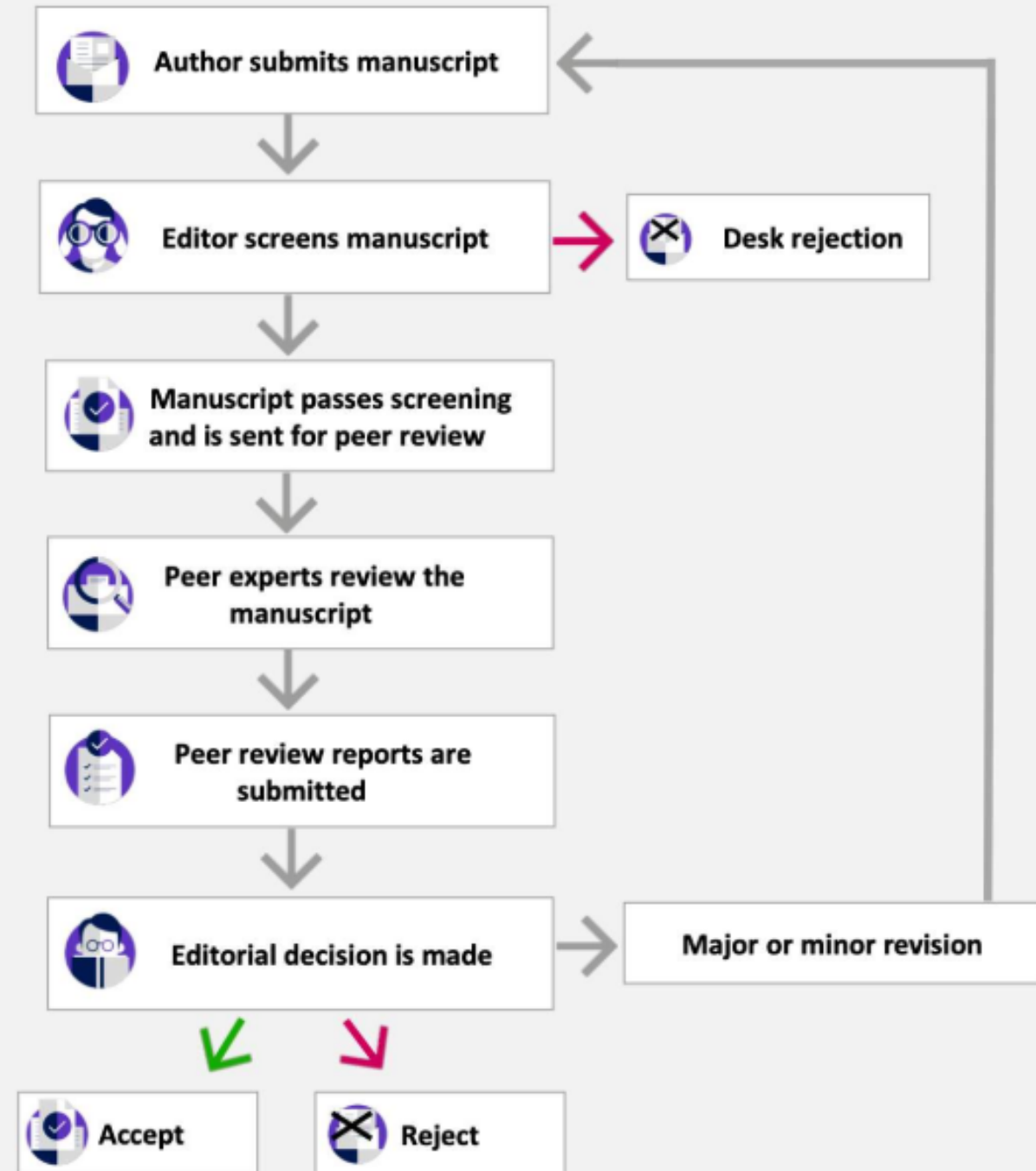
# Web of Science Academy

Online training supporting academics in conducting research with integrity.

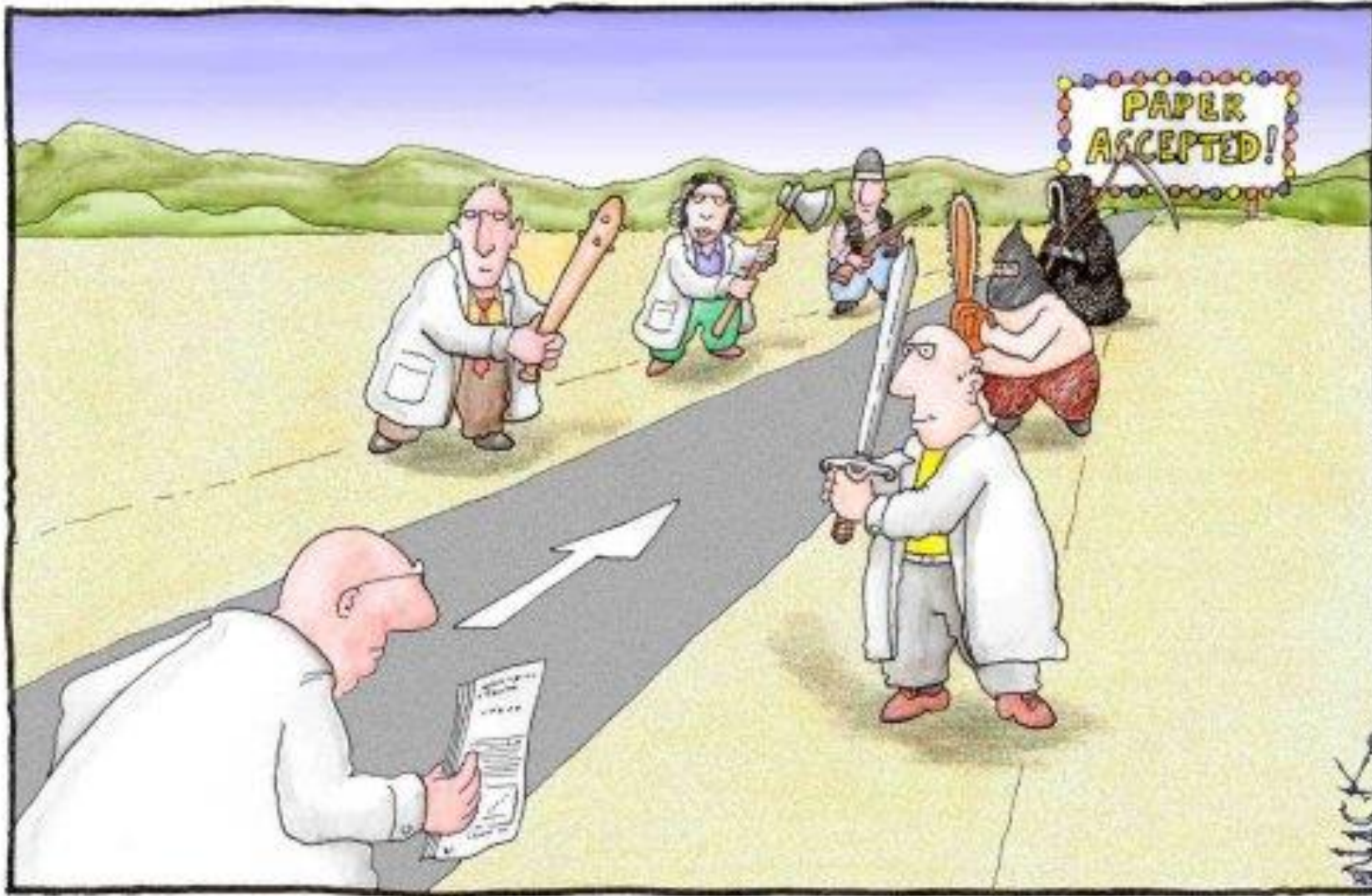
# The Peer Review process



Peer review is the quality-control process that allows us to trust and build on published research.







Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'



## **Poll question 1:**

**Have you peer reviewed for a journal?**

## 2. Providing useful and constructive peer reviews





## Before you start your peer review



- Check the journal's guidelines on the journal's website or linked to in the invitation to peer review email
- Log in to the review submission portal and look for any structured forms and make sure you have access to all supplementary files
- Set a time to complete your peer review before the deadline

# Peer Review guidelines



The Web of Science Academy has a peer review guidelines document.

The journal may also have their own guidelines or form with specific questions to help you with your peer review.

## Web of Science Academy Peer Review Guidelines

Section	Ask yourself these questions while reviewing each section	Review comments and notes
Introduction	<ol style="list-style-type: none"><li>1. Is it clear what is already known about this topic?</li><li>2. Is the research question or aims clearly outlined?</li><li>3. Is the research question justified given what is already known about the topic?</li></ol>	
Methodology	<ol style="list-style-type: none"><li>4. Is the study design appropriate to answer the aim?</li><li>5. Are the study methods valid and reliable?</li><li>6. Is there enough detail in order to replicate the study?</li><li>7. If applicable, is the process of subject selection clear?</li><li>8. Are the variables defined and measured appropriately?</li></ol>	
Results	<ol style="list-style-type: none"><li>9. Are the results stated clearly?</li><li>10. Is the data presented in a clear and appropriate way?</li></ol>	
Discussion and conclusions	<ol style="list-style-type: none"><li>11. Are the results discussed from multiple angles and placed into context without being overinterpreted?</li><li>12. Do the conclusions answer the aims of the study?</li><li>13. Are the conclusions supported by the results? If not, are they supported by references?</li><li>14. Are the limitations of the study fatal or are they opportunities to inform future research?</li></ol>	
References	<ol style="list-style-type: none"><li>15. Are the references relevant?</li><li>16. Have key studies been referenced or is a key reference missing?</li></ol>	
Title	<ol style="list-style-type: none"><li>17. Now that you know what the study is about, is the title informative and relevant?</li></ol>	
Abstract	<ol style="list-style-type: none"><li>18. Now that you've read the whole paper, does the abstract clearly summarise what the results and conclusions are and the methodology used?</li></ol>	
Overall	<ol style="list-style-type: none"><li>19. What did this study add to what was already known on this topic?</li><li>20. Is the article consistent within itself?</li><li>21. Is there anything that stands out in the author or funder statement(s) that makes you question the objectivity of the study?</li></ol>	



# Constructive feedback

Using the S.E.E method



- STATEMENT – clearly state where the issue is
- EXPLAIN – explain WHY it is an issue
- EXAMPLE – provide an example with evidence to support your statement and where possible provide a possible solution



# Introduction

What to look for in an introduction section of a manuscript.



- Is it clear what is already known about this topic?
- Is the research question or aims clearly outlined?
- Is the research question justified given what is already known about the topic?

#### Major points

#### Introduction

Lines 53 to 66: The authors have done a great job summarizing visual object perception in humans and primates discussing also representational dimensions (i.e. face – body, animate – inanimate) but they did not mention any previous research in dogs using univariate and multivariate approaches to investigate face and/or object processing. I suggest do add a section about previous research mentioning the articles named in the discussion and the following research the authors missed in their overview to provide the reader with an overview of the current state of research.

Bunford, N., Hernández-Pérez, R., Farkas, E. B., Cuaya, L. V., Szabó, D., Szabó, Á. G., ... Andics, A. (2020). Comparative Brain Imaging Reveals Analogous and Divergent Patterns of Species and Face Sensitivity in Humans and Dogs. *The Journal of Neuroscience : The Official Journal of the Society for Neuroscience*, 40(43), 8396–8408. <https://doi.org/10.1523/JNEUROSCI.2800-19.2020>

Szabó, D., Gábor, A., Gácsi, M., Faragó, T., Kubinyi, E., Miklósi, Á., & Andics, A. (2020). On the Face of It: No Differential Sensitivity to Internal Facial Features in the Dog Brain. *Frontiers in Behavioral Neuroscience*, 14, 25. <https://doi.org/10.3389/fnbeh.2020.00025>

Thompkins, A. M., Ramaiahgari, B., Zhao, S., Gotoor, S. S. R., Waggoner, P., Denney, T. S., ... Katz, J. S. (2018). Separate brain areas for processing human and dog faces as revealed by awake fMRI in dogs (*Canis familiaris*). *Learning and Behavior*, 46(4), 561–573. <https://doi.org/10.3758/s13420-018-0352-z>

## Example review

In this open peer review example you can see a major point around the references cited in the introduction which place the study into context within the current knowledge in the field. The reviewer suggests three relevant papers that the authors have missed, or potentially have been published since the authors started writing up their study as two of them are quite recent from 2020.





# Methodology

What to look for in a methodology section of a manuscript.



- Is the study design appropriate to answer the aim?
- Are the study methods valid and reliable?
- Is there enough detail in order to replicate the study?
- If applicable, is the process of subject selection clear?
- Are the variables defined and measured appropriately?

## Example review 1

In this open peer review comment you can see that the second point is around the need for more clarity around the number of subjects that joined the study and how many actually participated in the study. There are also points around needing more clarification in general to help understand the results and discussion better. More detail would also make the study more reproducible.

### Methods

Line 106-109: What are the three novel objects and more importantly please clarify if they were randomly assigned to mouth, paw or no interaction or if it was always the same object for each dog. If the objects were not randomized, it would be a limitation that needed to be discussed, since the objects not only differed in interaction type but also shape, texture and color, as stated by the authors.

Lines 143-145: As described by the authors, region of interest for study 2 were determined based on study 1. In the "Participants"-section (starting in Line 83) the authors report a sample of  $N = 15$  dogs, however considering Table 1 only  $N = 7$  dogs participated in both tasks. The authors should clearly state the final sample already in the participant section. If the authors did not exclude dogs participating in only one of both studies, they need to clarify the analysis approach for these dogs.

Lines 152-153: The authors should provide information why they chose the contrast [novel objects > faces] to identify object specific regions. Since they also had a condition with scrambled objects I would suggest the contrast [novel objects > faces + scrambled objects] to additionally control for low-level visual differences between faces and objects. Further, in line 160-161 (results) the authors then state that they also used the contrasts [all objects – faces] if dogs were not trained on objects, it would help if this was already specified in the methods section.

To the best of my understanding, the turbine simulations were performed in a 1600x1000x800 m domain using a 192x120x200 cell mesh. This gives a horizontal mesh resolution of 8.33 m and a vertical resolution of 4m. No mention of any local refinement zone is made in the paper for modeling turbines as actuator lines. A 4m resolution is too coarse for actuator line simulations and could be the reason for the over-prediction of power from the FAST simulations. Simulation best practices documented in other SOWFA publications should be used to set the the actuator line simulation. See, for example, <https://doi.org/10.1002/we.1747> for more details.

#### Other comments

The introduction section provides good references to previous body of work. However, the section could be stronger if the authors added some remarks about what was missing in the previous body of work and how the proposed work addresses these gaps or improves upon the previous body of work.

The methodology used in this work is covered in subsections 1.3-1.7, but could use more detail. The discussion of actuator disk model seems irrelevant to this paper as it is not used in the simulations. These sections mix literature survey and methodology description. Breaking literature survey and methodology into separate sections might help the flow of the paper and readability.

Details of the simulation setup are interspersed with methodology making it difficult to understand the exact setup. For example, it is unclear what Gaussian spreading width was used in the current simulation. Section 1.6 mentions the recommended value in literature, but it is unclear if that recommendation was adopted for the present work.

## Example review 2

In this open peer review example you can see that the reviewer has commented on the simulation setup. They suggest that the setup might be the reason why one of the simulations resulted in an over-prediction of power.

The bottom comment asks for more clarification and structuring different parts of the methodology section for readability.



# Results

What to look for in the results section of a manuscript.



- Are the results clearly stated?
- Is the data presented in a clear and appropriate way?

# Open review comment

## Validity of the findings

These comments relate to your results.

- Table 1. What data are these? Please give units. It might also be better to provide standard error rather than standard deviation.
- Are you able to provide any graphical information to show the range of times for each bird that performed each behaviour? E.g. box plots that show the range, median, quartiles and outliers of the behaviours measured at an individual flamingo level?
- Line 137 onwards. Are these results not simply repeated in the table?
- P values need to be presented as the test statistic, then the degrees of freedom and then the P value.
- Figures 1 and 2 are useful. They also show the units for all data, which would be helpful in the text (as per my comments above). Again, standard error bars might be more useful than standard deviation.

I think the results section is useful. But there seems to be repetition of data between Table 1 and what values are presented in the text. It would be good to have this section restructured so that you explain illustrative data in the text without repeating values are presented elsewhere. You should also consider not only presenting averages (again, as per my comments above)?

Here is a comment from one of the reviewers in regards to how the data is presented. The reviewer asks the author to illustrate time ranges for each behaviour. They also make specific suggestions as to how this information could be presented better.





# Discussion and conclusions

What to look for in the discussion and conclusion section of a manuscript.



- Are the results discussed from multiple angles and placed into context without being overinterpreted?
- Do the conclusions answer the aims of the study?
- Are the conclusions supported by the results? If not, are they supported by references?
- Are the limitations of the study fatal or are they opportunities to inform future research?

# Reviewer comment and authors' response

5. "Southern Ocean response and global trend": It was surprising that the oxygen loss was remarkable in the Southern Ocean (Fig. 5) despite the relatively small abundance of microplastics in the ocean (Fig. 1). It seems likely that the authors provided no interpretation for this discrepancy in the manuscript.

Figure 3b&c illustrates the mechanism of oxygen loss in the Southern Ocean. Another sentence is added to the section to state this more explicitly (Line 113).

6. Line 129-132, "This suggests both...surface microplastic accumulation": Was this argument for the discrepancy found in the Southern Ocean (my comment 5)? If this is true, I have the same comment as comment 5. Please provide the reasonable explanation for the discrepancy: large oxygen depression in spite of small microplastic abundance.

The new sentence "This impact occurs because the region is not macronutrient-limited, therefore even slight alleviation of grazing pressure increases export production" added in response to the above point explicitly states the reason for strong deoxygenation despite low microplastic concentrations (Line 113). Please also notice that we have added a new paragraph to the Discussion (Lines 130-138) to discuss possible impacts of iron limitation on our results.

Here in black you can see two comments of Reviewer #5. They are asking for further explanation around what they see as a discrepancy in the data.

The authors' response can be seen in blue, and in orange where they have updated a sentence in the manuscript. They have also added a new paragraph in the discussion.



# Abstract

What to look for in the abstract of a manuscript.



Now that you have read the whole paper, does the abstract clearly summarise what the results and conclusions are and the methodology used?

# Interactions between Thermal Acclimation, Growth Rate, and Phylogeny Influence *Prochlorococcus* Elemental Stoichiometry

Adam C. Martiny , Lanying Ma, Céline Mouginot, Jeremy W. Chandler, Erik R. Zinser

Published: December 9, 2016 • <https://doi.org/10.1371/journal.pone.0168291>

Article	Authors	Metrics	Comments	Media Coverage
				

## Abstract

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Materials and Methods

Results

Discussion

Supporting Information

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Author Contributions

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Reader Comments (0)

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## Abstract

Variability in plankton elemental requirements can be important for global ocean biogeochemistry but we currently have a limited understanding of how ocean temperature influences the plankton C/N/P ratio. Multiple studies have put forward a 'translation-compensation' hypothesis to describe the positive relationship between temperature and plankton N/P or C/P as cells should have lower demand for P-rich ribosomes and associated depressed  $Q_P$  when growing at higher temperature. However, temperature affects many cellular processes beyond translation with unknown outcomes on cellular elemental composition. In addition, the impact of temperature on growth and elemental composition of phytoplankton is likely modulated by the life history and growth rate of the organism. To test the direct and indirect (via growth rate changes) effect of temperature, we here analyzed the elemental composition and ratios in six strains affiliated with the globally abundant marine Cyanobacteria *Prochlorococcus*. We found that temperature had a significant positive effect on the carbon and nitrogen cell quota, whereas no clear trend was observed for the phosphorus cell quota. The effect on N/P and C/P were marginally significantly positive across *Prochlorococcus*. The elemental composition and ratios of individual strains were also affected but we found complex interactions between the strain identity, temperature, and growth rate in controlling the individual elemental ratios in *Prochlorococcus* and no common trends emerged. Thus, the observations presented here does not support the 'translation-compensation' theory and instead suggest unique cellular elemental effects as a result of rising temperature among closely related phytoplankton lineages. Thus, the biodiversity context should be considered when predicting future elemental ratios and how cycles of carbon, nitrogen, and phosphorus may change in a future ocean.

General background

# Interactions between Thermal Acclimation, Growth Rate, and Phylogeny Influence *Prochlorococcus* Elemental Stoichiometry

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Specific background



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Gap in knowledge

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Methodology used

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## Summary of the results

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## Conclusions



# Interactions between Thermal Acclimation, Growth Rate, and Phylogeny Influence *Prochlorococcus* Elemental Stoichiometry

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Relevance and practical application





# Title

What to look for in the title of a manuscript.



- Now that you know what the study is about, is the title informative and relevant?
- Does the title overstate the scope or findings of the study?



# References

What to look for in the references section of a manuscript.



- Are the references relevant?
- Have key studies been referenced or is a key reference missing?



# Overall

What to look for in the whole manuscript.



- What did this study add to what was already known on this topic?
- Is the article consistent within itself?
- Is there anything that stands out in the author or funder statement(s) that makes you question the objectivity of the study?

Your manuscript as submitted



... and after peer review and revision




REDPEN/BLACKPEN <http://redpenblackpen.jasonya.com>

### **3. Using a peer review template to structure your feedback**





# Why use a template?

- 
- Can help you peer review **consistently** and **fairly**.
  - Helps you **structure** your peer review comments.

## Web of Science Academy Peer Review Report Template

Manuscript/paper title:

DOI (if published):

Journal:

Review due date:

**Summary statement** of the article and its findings in your own words

**Major strengths** of the article and what **impact** it might have in your field

**Specific areas of improvement** needed in the article before it can be published

**Major points** (needs for clarification, re-analysis, re-writes and/or additional information and suggestions which would improve the article):

1.

2.

3.

...

**Minor points** (inconsistencies, major typos)

1.

2.



## **Poll question 2:**

**Can you describe your current experience with the peer review process as an author?**

# 4. Tips and recommendations



## Tips and recommendations



Don't shy away from your first invitations to peer review, they can benefit you, as being a good peer reviewer makes you a better writer as you can scrutinise your own manuscript from a peer reviewer's perspective!



## Tips and recommendations



- Learn from open peer reviews
- Practise by writing post-publication peer reviews of pre-prints
- Co-review with your supervisor/senior colleague or friend





# Thank you for listening, any questions?



## Contact:

[Julia.Vilstrup.Mouatt@auckland.ac.nz](mailto:Julia.Vilstrup.Mouatt@auckland.ac.nz)

[researcherdevelopment@auckland.ac.nz](mailto:researcherdevelopment@auckland.ac.nz)