

Review :

Listening fish to recover Ocean's physical properties – *Edouard Gauvrit*

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1 Main results of the article

Using acoustic data and CTD measurements, the 38 kHz upper layer and the mixed layer depth were found to closely match each other. Consequently, acoustic data can be used to recover physical oceanic properties.

2 Structure of the paper

2.1 Overall content

1. Is the overall purpose of the study and/or central question clear? The purpose of this study is not really clear to me but I still get it somehow : they want to use mixed layer depth as a metric to relate acoustic data to CTD measurements, thus being able to compare acoustics to physics.

2. Does the interpretation of the findings answer the overall question of the paper? Although the article confused me a little bit, the findings and their interpretation do indeed somewhat answer the problem asked in the introduction.

3. Is every paragraph and sentence in the paper relevant to the overall question? If no, point to some examples. No. There are some parts that didn't need to be explained in the paper, e.g. the *Methods* are way too long and complex. They should have been put at the end of the article.

4. Are there portions of the text that could be omitted? If yes, point to some examples.

There are lots of portions of text that could be omitted, e.g. in the *Methods* again : "Echo-sounders that were used during the survey had an angle of $\theta = 7^\circ$ and the ping was $\tau = 0.3 \text{ ms}$. After the echo-integration, we end up with a vertical resolution of 0.5 m and 10 s horizontally."

5. Is the overall organisation of the paper clear and effective? Suggestions for improvement. The overall organisation of the paper aims to be aesthetically pleasing, but I didn't find the article's organisation clear and effective..

2.2 Individual sections

1. Does the title adequately represent the content of the paper? Suggestions for improvement. The title is quite confusing. "Listening fish" literally means "a fish that can listen". I think the title was supposed to be something like "Listening to fish to recover the Ocean's physical properties".

However, it still does not change the fact that it does not represent the content of the paper. A title like "Acoustic data recovers the ocean's physical properties" would be more appropriate.

I also did not get the "I. Feasibility and first results" part of the title.

2. Does the abstract clearly and concisely summarise the paper and state the main results? Does it contain all needed information (context, need, task, object, findings and conclusion)? The abstract uses a lot of abbreviations that are not explained within the abstract. It also lacks a 'need' : by reading the abstract, I cannot answer : "why is this study necessary?".

3. Does the introduction provide enough context to the readers? Does it state the need for the work? Does it state clearly what has been done to address it? The need for the work is stated only a bit and referred to as "interest". I still do not know the actual need of this study.

The introduction – although a bit confusing – does give me some context to better grasp what this study is about.

4. Does this paper put the progress it reports in the context of existing published work? Is there adequate referencing and introductory discussion? The article does put the progress it reports in the context of existing published work, i.e. "Bertrand et al."

5. Are the material and methods used in the study clearly explained? Can you point out what is special, unexpected, or different in the approach compared to existing published work? Does it contain too many technical details? The *Methods* section contain too many technical details and is hard to follow. It is longer than the *Results* section.

There is nothing 'special' or 'unexpected' in the paper's approach because it is based on "Bertrand et al.".

6. Is the results section clearly and concisely written? Are there logical and smooth transitions between sections, subsections and between paragraphs? The *Results* section is too concisely written. As I have said just above, it is shorter than the *Methods* section.

7. Does the conclusion clearly state the most important outcome of the work? Does it address the questions stated in the introduction? Does the conclusion just summarise the results or does it interpret the findings and explain what they mean? The conclusion is concise and – somewhat – clear. Interpretations of the findings are given briefly but do not suffice to answer the question asked in the introduction.

8. Are the interpretations and conclusions adequately supported by the evidence presented? That is, are the assumptions valid, is the methodology sound, is the evidence adequate, and do the conclusions logically follow? Because of the confusion I had with the *Methods* section, I cannot say whether or not the methodology is sound. However, the evidence does seem adequate and the conclusions are logical.

9. Are all parts of the text, references, graphics and tables necessary for the new results and main points to be understood? As I have explained before, the *Methods* section is way too long compared with the *Results* section and *Conclusion*.

I also thought that the part about the "Thorpe length scale", including *figure 3*, were not necessary to understand the main findings.

10. Are the graphics and tables clear and their captions self-explanatory? The graphics are clear, although quite small.

However, the captions did not give me enough information, e.g. I do not know what the top and bottom panels are in *figure 1*.

2.3 Sentences and Wording

1. Can you find grammatical mistakes? There were so many grammatical and spelling mistakes that it was very hard for me to read the article.

2. Can you point to sentences that loose you (too long/complex) and do you have suggestions for improvement? Again, I found so many complex sentences that it was hard for me to read, e.g. "The main interest to implement this approach to the Mad Ridge data is to recover physical knowledge of the water column from acoustic observations, which are easier to record and ensure more fine scale resolution within horizontal and vertical plane." on *page 1*.

I would suggest making shorter sentences with simple subjects and verbs. A long sentence like the one just above should be cut into two.

3. Are generally the action in verbs, characters in subjects and subjects near verbs? Can you find counter-examples? Can you point out misused nominalisations? In the article, the action are not in verbs, the characters not in subjects and subjects not near verbs.

There a few instances of misused nominalisations :

- "Based on Ferron et al. (1998), **they proceed by creating** an intermediate profile" on *page 2* could simply be "Based on Ferron et al. (1998), **they created** an intermediate profile".

5. Are the paragraphs coherent? Do the first and last sentences of paragraphs match? Can you find counter-examples? The paragraphs are only coherent in the *Results* section and *Conclusion*.

The *Methods* section is good example for non coherent paragraphs. Indeed, they are way too long and the first and last sentences of each one of them do not match.

6. Is there an abusive use of passive voice? There is no abuse of passive voice in this article.

7. Can you find a lot of useless words/phrases? There were a lot of useless words / phrases, e.g. in the *Methods* section.

8. Can you find complex words that could be replaced by simpler ones? Although there are lots of complex sentences, there aren't too many complex words.

9. Can you find too complex subjects? I did find a lot of complex subjects, which made sentences quite difficult to understand.

10. Can you find inadequately used adverbs / repetition / excessive hedging? There are a lot of repetitions, such as "look", "seem", "there is", "get", "using", etc.

11. Is the use of tenses (past/present/future) adequate? The use of verb tenses is not accurate, e.g. "Based on Ferron et al.(1998), they **proceed** by creating an intermediate profile" on *page* 2 should be "Based on Ferron et al.(1998), they **proceeded** by creating an intermediate profile" because its a past result. There are several other mistakes like these in the article.

2.4 Other comments?

The high number of spelling and grammar mistakes took away the main goals of the article. I found myself trying to correct the mistakes instead of trying to understand what was said. It is a shame since the subject is really interesting !