

Scientific English course

Article: Listening fish to recover Ocean's physical properties (Edouard Gauvrit)

Reviewer: Eva Chamorro Garrido

Summarize the main results of the article in a few sentences:

This study obtains as a result that the method used in certain cases the biological activity is related to physical processes. It also suggests that the biological activity is below the mixing layer and shows how in a more stratified section the turbulence is lower than in a mixed one. Due to the lack of precision of the method and the lack of data it is not possible to reach solid conclusions about the relation between biological activity and physical processes.

Answer the following questions about the structure of the paper:

Overall content:

1. Is the overall purpose of the study and /or central question clear?

Yes. The central question is to understand the physics using acoustics and that is what we found developed in the paper.

2. Does the interpretation of the findings answer the overall question of the paper?

Yes. From my point of view the objective is not precise so yes, the findings answer the questions because this question is so general. Fix more the objective will be more accurate to present the research.

3. Is every paragraph and sentence in the paper relevant to the overall question?

Yes

If no, point to some examples:

The next paragraph could be resumed in one sentence, just the last sentence is relevant for the research:

"Gargett & Garner (2008) propose to built two intermediate profiles instead of just one. One goes from the top to the bottom (down profile), and the second one from the bottom to the top (up profile). A final intermediate profile is then created as the average of the two individual (downward and upward) profiles."

4. Are there portions of the text that could be omitted?

Yes

If yes, point to some examples:

“We have shown that” in the conclusion part

5. Is the overall organization of the paper clear and effective?

Yes

Suggestions for improvement:

I think that is very well organized, clear and concise. Maybe the methodology part is a little bit dense and difficult to read but the rest is well organized and presented to the reader.

Individual sections:

1. Does the title adequately represent the content of the paper?

No

Suggestions for improvement:

I think that is an attractive title to the reader but in the other hand is not “real”. This means that you are not listening to fish! I think that it could be good for a press article or for a titular in a review but not in a scientific paper. Because you are not listening to fish you are listening to the ocean to identify fish.

2. Does the abstract clearly and concisely summarize the paper and state the main results? Does it contain all needed information (context, need, task, object, findings and conclusion)?

Yes, the abstract is very complete because it has each of the parts mentioned above, but there is a lack of cohesion between them. Also, I have to mention the absence of acronyms' description.

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?

Yes, I think the introduction is correct. It is short but it has information about the context, previous studies and objectives of the work.

4. Does this paper put the progress it reports in the context of existing published work? Is there adequate referencing and introductory discussion?

Throughout the article we find references to existing published work. These references are poor but very appropriate to the study area. It should be noted that the methods part talks about the method used by Gargett and Garner, this information could have been introduced in the introduction.

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?

From my point of view is a little bit disorganized and difficult to understand. First part including Mixed Layer Depth computation is clear but the second part of investigation in turbulence is confusing. For example, it starts to talk about Thorpe length scale and the Thorpe method is defined later so it's hard to understand.

This paper describes an own method mixing methods designed by other authors so it is something new. Considering that acoustics is a simple way of obtaining data, the development of techniques for the study of the ocean from acoustics is currently of great importance.

6. Are the results sections(s) clearly and concisely written? Are there logical and smooth transitions between sections, subsections and between paragraphs?

This part is divided into sections highlighting the different results obtained. From my point of view, the results are well explained and synthesized, but there is no cohesion between the different sections.

I must also point out that the RGB image is not very clear. For example in the following sentence concerning the RGB image, it is not clear what it claims.

"The CHL_{max} line seems to be encompassed between the green (70 kHz) and blue (120 kHz) layers"

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 summarize the results or does it interpret the findings and explain what they mean?

"But we don't have a good method that relate clearly the physics to the acoustic." I think that this sentence destroys the study, it states that the method used is not good. With this a reader who reads the conclusions before the whole article will not spend his time reading a method that is not good.

Respect to the interpretation of results only in some cases these are interpreted. In other cases, results are just summarized. This may be because there is no clear interpretation.

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?

From my point of view the complete article is well connected. Despite the objectives are too general, they are consistent with the methodology and the conclusions. The method used is correct and is addressed to solve the main objective. But when I come to the conclusions, I think they are very negative and poor. In other words, the results are not emphasized. The author concentrates on criticizing the method instead of how to improve it.

9. Are all parts of the text, references, graphics and tables necessary for the new results and main points to be understood?

Yes, both images and references are essential for the coherence and understanding of the paper.

10. Are the graphics and tables clear and their captions self-explanatory?

I think they are correct. I would just comment a possible change in figure 3, the “mean MDL” color scale in purple is not clear.

• Sentences and Wording

1. Can you find grammatical mistakes?

No

2. Can you point to sentences that loose you (too long/complex) and do you have suggestions for improvement?

“Which” makes the sentence complex:

“We assume that if the vertical mixing is strong then the living organisms will be spread over a thick region, which would led to a blurred and mixed acoustic response.”

Suggestion:

“We assume that if the vertical mixing is strong the living organisms will be spread over a thick region. This would led to a blurred and mixed acoustic response.”

I don’t understand this sentence:

“A significant difference is defined relative to a threshold noise level below which a density difference is considered as due to random noise.”

Repetitive overturn:

“A perfect overturn can be define as an overturn with equal positive and negative parts ($L^+ = L^-$)”

Suggestion:

A perfect overturn can be define as that with equal positive and negative parts ($L^+ = L^-$)

3. Are generally the action in verbs, characters in subjects and subjects near verbs?
Can you find counter-examples? Can you point out misused nominalizations?

Nominalizations:

- the **living** organisms will be spread over a thick region

Subject away from the verb:

-The use of acoustical observations, that trace biological activity, as a probe of the physics underneath seems to work in some places here

4. Is the writing cohesive? Does it flow well? Is the part of the sentence that links to the previous sentence at the beginning or the end?

In general, is cohesive. It flows correctly except in the methodology part but from my point of view is a problem of organization and not of writing. In the part of results and conclusions, it flows because it presents sections but these ones in most cases are not interconnected between each other.

5. Are the paragraphs coherent? Do the first and last sentences of paragraphs match?
Can you find counter-examples?

The following paragraph is not clear the first and the last sentence does not match:

"Our second investigation tends to verify if turbulent processes can be identified with a blurred acoustical response. To characterize turbulent processes in the water column from our CTD data, we look at the Thorpe length scale, that measure vertical displacement. The measure of this vertical displacement can be used to distinguish the presence of vertical mixing. We assume that if the vertical mixing is strong then the living organisms will be spread over a thick region, which would led to a blurred and mixed acoustic response. On the contrary, if vertical mixing is low then, living organisms might concentrate at one given isopycne. The Thorpe method is based on the re-organization of density (or temperature) profiles. The density is sorted in ascending order from the surface to the bottom of the water column. A comparison is made between the density profile and the ordered one. This comparison gives us the displacement that we need to apply on fluid parcels at each depth, if we want to get a stable profile (Thorpe, 1977)."

In the following paragraph the first and last sentence fit perfectly:

"Here we present our results for two different radials, one visibly stratified and the other completely blurred (*see* Figure 3). Thorpe length scales (LT) are shown only for depth below the MLD, due to the high level of displacements into the mixed layer. Both radials are during the day. The stratified one shows low LT values (1 to 7 m) compared to the blurred radial, that contains high LT values (5 to 10 m). For all of our radials there is no apparent change in LT when we go through acoustical layers."

6. Is there an abusive use of passive voice?
No

7. Can you find a lot of useless words/phrases?

“A first approach”

“Our first approach”

“Thanks to”

8. Can you find complex words that could be replaced by simpler ones?

“encompassed ” Suggestion: “enclosed”

“threshold” Suggestion: “Criteria” “Limit”

9. Can you find too complex subjects?

No

10. Can you find inadequately used adverbs/ repetition/ excessive hedging?

We found “A first approach” and then repeated “Our first approach”

“Thanks to” to introduce methods I think it is not well used.

11. Is the use of tenses (past/present/future) adequate?

Sometimes for the description of a process we found past and present terms mixed.

• **Other comments?**