

Nr.	Comment from editor	Author's answer	Changes in manuscript. All references to row numbers refer to the manuscript with tracked changes included.
1	<p>I think you might do a little more to address the previous editor's point about integrating the two approaches, and at the same time substantiate ". . . turbulent wakes are of a scale relevant to consider when assessing environmental impact from shipping." (end of "Conclusions"). For this, might you integrate a mean ADCP-based ϵ intensity, duration and vertical extent over a wake width and length corresponding to duration? [Care would be needed regarding width; the thermal wake may be wider than the enhanced-ϵ wake owing to the relaxation and spreading referred to in line 417.] Such a calculation (relative to ship forcing) might quantify an "amount" of ϵ related to an "amount" of ship forcing to compare with typical oceanic values of ϵ. I know this is vague; you are better placed to judge how this might best be done. However, I emphasise ϵ as the fundamental quantity which those concerned about ocean mixing attempt to measure.</p>	<p>With regards to the part of the comment relating to "substantiating" the statements in the conclusion, we have now rephrased and added some additional lines to further support our argument. See line 674-680.</p> <p>Regarding the comments about the parameter ϵ intensity, we agree and acknowledge that ϵ is an important parameter. However, it is not the mean dissipation rate in the wake, but the integrated dissipation rate at each depth and each vessel that is of interest for mixing. In the present manuscript, we decided that empirical data were not enough to make such an estimate. The aim of this manuscript is to provide a first estimate of the spatiotemporal scales of the turbulent wake and to identify the most relevant parameters and areas to focus on in future studies. We agree that the necessary next step to quantify the turbulent mixing, is to describe the distribution of ϵ intensity in the wake region, but we consider it a future outlook, rather than part of the present study.</p> <p>. However, we have tried to estimate total energy input from ship traffic and compared with wind energy input between 1 and 20 m in lines 546-578. There, we show that the total integrated dissipation rates from vessels is larger than that from winds during summer months in the Baltic Sea.</p>	<p>Line 674-682. Revised argumentation in conclusion.</p>
	Detailed comments from editor		
2	Line 12. "in" -> "is"	Revised as suggested.	Line 12. "in" revised to "is".
3	Line 23. "effected" (meaning "caused") or "affected" (meaning "influenced" or "changed")? According to lines 121-122, "affected".	Revised to "affected".	Line 23. "effected" revised to "affected".
4	Line 114. ADCP and "extent" – is this just vertical or also horizontal extent?	In this study, the ADCP was used to estimate the vertical and temporal extent, which has now been specified.	Line 114. The extent has been specified as "vertical and temporal extent".
5	Line 192. Omit "that"	Revised as suggested.	Line 192. "That" has been omitted.
6	Line 198. "origo" -> "the origin"?	Revised as suggested.	Line 198. "origo" has been changed to "the origin".
7	Lines 213-215, 230-231. Some repetition.	The repeated information has been removed from line 230-231.	Line 230-231. "using the structure function method according to the method described in Lucas et al. (2014)" has been removed.
8	Line 258. "relates" -> "is used to relate"?	Revised as suggested.	Line 258. "relate" has been revised to "is used to relate".
9	Line 267. From when until August 2018? Line 446 refers to April 2013 to December 2018 but Figure 9 has none in any August.	Regarding the question about the time period, there was a mistake made in Line 267, it should be "December", not "August".	Line 266-267. "until August 2018" has been removed from line 267 and replaced by "for

		<p>The sentence has been revised to use the term “investigated time period”, instead of stating the specific month.</p> <p>Regarding the comment of the lack of observations in August in figure 9, that is explained in the figure caption. For the entire investigated time period (April 2013 to December 2018) only 23 images had > 23 % cloud cover. None of these images were from the month of August, which is why there is no data for August in figure 9. However, the investigated time span still includes August (for all the years).</p>	the investigated time period” on line 266.
10	Line 304. Better “. . local temperature minima (thermal wake centre) and local temperature maxima . .”?	Revised as suggested.	Line 304. “Temperature” added before “minima” and “maxima”.
11	Line 331. “medium” -> “median”?	Revised as suggested.	Line 331. “Medium” changed to “median”.
12	Table 2. Longevity seems to be written as hr:min:sec although stated as [min]. hr: is redundant. This also applies to Supplement table 1.	As suggested, “hr:” has been removed from both tables.	Table 2 and Supplement table 1. The longevity format has been changed from [hr:min:sec] to [min:sec].
13	Line 381. “here” -> “there”?	Revised as suggested.	Line 381. “Here” changed to “there”.
14	Line 386. Better “. . wake, the . .” (add comma)	Revised as suggested.	Line 386. A comma was added between “wake” and “the”.
15	Line 391. Better “. . energy, on . .” (add comma)	Revised as suggested.	Line 391. A comma was added between “energy” and “on”.
16	Lines 414-415. I think there is literature about turbulent mixing (efficiency) that could substantiate the “small likelihood”, or you might be able to make a comparison as in lines 545-560. What you seem to be saying is that the CTD profiles on retrieval are showing the result of wake-induced mixing and subsequent (during the 3 hours) relaxation as the mixed water (less dense than ambient deeper water) spreads laterally and so becomes shallower. If so, I think this could be made a bit clearer. [If not, then clarification is definitely needed!]	<p>The section (lines 413-425 in track changes manuscript) have been revised to further clarify. The aim with this section is to give an example of an observation where ship-induced turbulence created mixing across the thermocline. We hope that the revised section makes this point in a clearer way.</p> <p>A reference regarding restratification of intense local mixing has also been added (line 418).</p>	Line 413-425. The sections has been revised for clarity and a reference has been added.
17	Figure 10B. Omit “median” from horizontal axis label – or are you using a median value for each individual wake?	The values in the figure do represent a median value for the entire wake. As described in the methods section (line 301-303), the wake width was measured in cross profiles along the wake length, in intervals of 250 m. All wakes longer than 750 m therefore had at least three wake width values, from which a median value was calculated. These median values are the ones presented in figure 10B. If needed this could be specified further in the figure caption or result section, but as the method has been explained in the methods section, and the caption is correct, we suggest keeping the current version.	No revisions have been made.

18	Figure 11. The caption should also explain the other symbols (bars, lines)	An explanation for the box edges and whiskers has been added to the figure caption.	Line 490-494. An explanation of the box and whiskers of the plot has been added.
19	Line 506. “dashed” → “hatched”. However, the lines giving hatching in the separation zone are too narrow; not obvious in normal magnification.	As suggested, the word “dashed” has been exchanged to “hatched”. The hatching has also been made bolder and larger, to make it visible in normal magnification.	Line 511. “Dashed” has been changed to “hatched”. Figure 12 has been revised to have a bolder and larger hatching indicating the separation zone.
20	Line 667 – data availability. The sentence about “Acoustic measurement data” is not very satisfactory. Please see https://www.ocean-science.net/policies/data_policy.html and “Statement on the availability of underlying data” therein.	The raw data from the ADCP measurements have now been deposited in a FAIR-aligned public data repository and properly cited with a DOI.	Line 684-687. A reference to the deposited dataset has been added.