

Title: Thermocline mixing and vertical oxygen fluxes in the stratified central North Sea

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Notes to authors

Terminology : use term “interior layer” (not just “interior”) throughout; if qualifying the central region call it “central interior layer” throughout. Otherwise this descriptor becomes very clumsy (e.g lines 318 onwards)

Clearly state whether the final CTD values used were corrected values according to Winkler titrations (apart from being within 5%). This is important to clarify if the study is to be replicated.

The times of profiling over the 3-day period are acknowledged as mostly night time or dusk/dawn periods. Therefore you did not actually sample “day” time?; yet make the statement that there is no day/night difference? Fig 2. states “selected” profiles. Be aware that the turbid layer suggested to include (possibly migrating) plankton will of course be expected remain deep at those sample times.....so from this study there is not indication of migration to support your suggestion of migrating dinoflagellates.

Ensure figure labels are explained e.g. fig 3 d

Specifically improve:

Line 12 and 455 “transient” is the wrong word. Leave out or in line 456 qualify “snapshot study”

L 16 Change “may” to “could”: (speculative).

L 62 over the global mean

L 153 see above – clarify

L 450 a factor of nearly 5.....

L 533 “ necessary to test (not validate) and quantify such an effect, ...and”