

Ocean Sci. Discuss., referee comment RC2
<https://doi.org/10.5194/os-2021-41-RC2>, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on os-2021-41

Anonymous Referee #2

Referee comment on "Rectified tidal transport in Lofoten–Vesterålen, northern Norway" by
Eli Børve et al., Ocean Sci. Discuss., <https://doi.org/10.5194/os-2021-41-RC2>, 2021

This paper discusses two physical processes, tidal pumping and tidal rectification, that may be relevant to the dispersion and transport of cod eggs and larvae in the Lofoten - Vesteralen area, Northern Norway.

The geographical and ecological settings, as well as the physical processes and numerical techniques used to address the questions involved in larvae and cod egg transport and spreading are well described. The paper comes to a clear conclusion regarding the relevance of tidal pumping, and provides welcome suggestions for further investigation of the process of tidal rectification.

As a consequence, it is recommended that the paper is published provided it addresses the few minor issues discussed next.

Line 53 : waters => water

Caption Fig. 2: instruments => instrument

Line 127: drop 'the'

Line 404: The along-isobath velocity scale U may be much stronger than the cross-isobath current used in the previous scaling (line 403).

How is the value of R motivated?

Closer to islands, D decreases. So, how appropriate is a choice $D=50\text{m}$?

Line 443: chances => changes

Line 462: dynamically => dynamical

Line 519: Bottom intensification of tidally-rectified flows and concomitant vertical circulation cells (Maas et al 1989) might possibly be of relevance for the transport and spreading of marginally sinking larvae and cod eggs.

Figures A1 and A2 have interchanged captions.

Reference:

L. R. M. Maas & J. T. F. Zimmerman (1989) Tide-topography interactions in a

stratified shelf sea II. Bottom trapped internal tides and baroclinic residual currents, *Geophysical & Astrophysical Fluid Dynamics*, 45:1-2, 37-69, DOI: 10.1080/03091928908208892