

Basic Reporting-

Overall, I thought the authors did a good job addressing reviewers' concerns and I found the manuscript much more of a compelling read. I appreciated the authors' attention to language and to the reviewers' comments. There is a major issue with the prey analysis (discussed in detail in the "Validity of the findings" section below) that needs to be addressed before the manuscript can be accepted, and generally the description of the prey analysis could be much tighter and clearer, but other comments are small.

General comments:

I appreciated the increased focus on error with regards to kinematics. Unless I missed it, I didn't see a similar error reported for whale speed/distance. Some discussion of the potential error in speed estimation (in numerical form, even if an additional estimation) given the different moving pieces seems warranted (in addition to the helpful caveats given describing why the error exists).

Thank you for including the raw video that allows the reader to examine the escape responses laid out in lines 397-407. After viewing the video, it is perhaps worth an extra sentence at the end of this paragraph noting that the krill appears to move around in response to the whale, but does not appear to move in an outward direction away from the whale, so capture percentage is likely high. Indeed, the general shape of the patch (including the off-shoot arm on the right side of the frame) appears to be maintained throughout the lunge.

Line 499-500. It is worth a little bit more explanation of why surface feeding energetics are presumed to be lower than deep feeding. Wave drag is higher at the surface, so it's my understanding that the actual cost of lunging is not smaller at the surface, but the overall reduction in cost is more likely related to the shorter recovery times (from the shorter dives you describe) as well as shorter transit times.

Prey comments-

Generally, it was a little difficult to know exactly what steps were taken in the analysis, but I do thank the authors for including well-commented, easy-to-follow code that allowed me to make the following observations that help the descriptions in the methods, but also allowed the identification of a major issue that, when fixed, should give more convincing results.

Minor comments:

NASC as a metric of density. As I mentioned in the first review, NASC is typically used in two dimensions as it integrates the vertical dimension to measure abundance over an area (as opposed to density in a patch). These authors use NASC to measure changes in the vertical domain, in which case care should be taken to justify why this is appropriate. The explanation should highlight that because 1 m vertical bins were used, NASC and sv essentially only differ by a multiplicative factor (i.e. $NASC/(4\pi \cdot 1852^2)$, see MacLennan reference below). I would still suggest using sv (or better, Sv , see below) as that additionally standardizes for bins of unequal size (i.e. some bins in the dataset are ~ 1.1 m and some are 0.9), but those differences should not substantially affect results. If NASC is used, places to further explain how it was used would be in lines 227-228, for example, where the authors could emphasize that the NASC of the 1m thick bins were averaged within krill swarms (i.e. NASC of the whole swarm itself was not calculated, which would give the areal vs density problem).

Sv vs sv. Throughout the manuscript, these appear to be used interchangeably (see, e.g., Fig S1). In conventional usage, Sv is the logged form of sv, that is $Sv = 10 \log_{10}(sv)$. See the guide to definitions and symbols here:

MacLennan, D.N., Fernandes, P.G. & Dalen, J. (2002) A consistent approach to definitions and symbols in fisheries acoustics. *ICES Journal of Marine Science*, **59**, 365-369.

This will be critical later, as improper averaging of Sv in the logarithmic domain is one of the problems identified in the code.

The term “patch width” is used throughout the manuscript, but I think from the usage in the code the authors are referring to patch size in the z-direction, so “patch thickness” may be a clearer term to use as width is often a dimension along the x and y axes.

Supplemental figure S1 is hard to interpret. Would it be possible to place the correlations on the plot that they go with? Looking in two disparate places makes it challenging to draw connections. A legend/caption would help as well, though I do not see one in the files available to reviewers. I’m not familiar enough with these types of plots to know what, for instance, a plot of mean depth vs mean depth with different scales means.

Line 228-229. The description of how depth was calculated was a little hard to follow. Perhaps say more explicitly that mean depth was calculated as the mean depth of the patch midpoints. Another suggestion would be to calculate the depth of the densest bin in each vertical column, but regardless a clearer explanation would be useful.

Experimental design

It should say explicitly in the text what surface values were excluded. Your spreadsheets have very high values in the first m, which is in the near field of the transducer so need to be excluded or they will bias your results. Code suggests first two m were excluded (line 142), so just state that this was the method applied to all data

What software was used for the original export of acoustic data to csv file?

When/how was the echosounder calibrated? If uncalibrated, important to state.

Validity of the findings-

There is a major issue in the prey analysis that will lead to large underestimation of patch density in some cases that needs to be corrected.

This issue in analysis appears in line 296 “`nasc = mean(mean((NASC_Agg(minr:maxr,minc:maxc))))`” as well as line 300 of the matlab code. Earlier in the code, empty water was replaced in the aggregation matrices “Krill” and “NASC_Agg” with zeros. But then in line 296 those zeros are averaged into overall density estimation (since the code as written takes the mean of the columns, and the means of those values) which will bias your values low (if using NASC, high if using Sv), particularly for patches with both thin and thick sections. See figure below (included in the pdf attachment to this review) which is the 3rd aggregation in the first csv file. In this example, averaging as is done in the code results in a value that is half what the actual value should be.

```
>> NASC_Agg(minr:maxr,minc:maxc)

ans =

Columns 1 through 12

    0         0         0         0         0         0         0         0         0         0         0         0.0027
    0.0481     0         0         0         0         0         0         0.0032     0.0102     0.0064     0.0111     0.0078
    0.5175     0         0         0         0         0         0         0.0081     0.0021     0.0898     0.0469     0.0303     0.0669
    0.0880     0         0         0         0         0         0         0.0394     0.0451     0.2712     0.2823     0.2132     0.3456
    0         0         0         0         0         0         0         0.0727     0.1671     0.4657     0.6131     0.1448     0.2323
    0         0         0         0         0         0         0         0         0.0194     0.0698     0.1951         0         0
    0         0.0075     0.0035     0.1652     0.0088     0.0063     0.0059     0.0074     0.7180     0.0156     0.1648     0.0265
    0.0179     0.0185     0.1664     0.0613     0.1353     0.0077     0.0481     0.3072     0.6760     0.0805     0.2936     0.1650
    0.0412     0.0647     0.2507     0.2673     0.5744     0.0400     0.2124     0.9542     1.7151     0.1977     0.0622     0.0996
    0.0619     0.0932     0.0803     0.1236     0.4475     0.0329     0.1433     0.4060     0.0849         0         0         0.0100
    0         0         0         0         0         0         0         0         0         0         0         0.0095
```

Instead, you need to find the mean of just the patch. So code for you would look instead like this:

```
NASC_Agg(find(Aggs==i))
```

Which gives you a column vector of just the bins within the patch (without the zeros). Taking the mean of this will give you the mean NASC of the aggregation. There is a second reason why this is better as well. Even if you removed the zeros, the way the code is now, “mean(mean(...” takes the mean of the columns and then averages those. This will create a bias towards the thin parts of the patch. Taking the mean of all the data combined (i.e. “mean(NASC_Agg(find(Aggs==i)))” gives you the overall mean of the patch.

Additionally, line 300 of the code involves the “Krill” table, which are Sv values. The same problems from above apply, but additionally, if you are trying to calculate a mean patch density, you need to average values in the linear domain (i.e. sv). NASC is already in linear domain (which is why you log it for comparisons and figures), but Sv, which is in decibels, needs to be converted back to sv before averaging (see equation above and MacLennan et al. cited above), and then converted back to Sv after averaging.

General comments for the author