

Reviewer Report

Title: A haplotype-resolved draft genome of the European sardine (*Sardina pilchardus*)

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Reviewer name: Andrew Thompson

Reviewer Comments to Author:

In this manuscript, the authors report a draft genome for the critically important European Sardine. For the most part, the approach is well thought-out and justified, but there are some key concerns involving findings and methodology. For example, the annotation pipeline is unclear. In line 169, it is described as a custom pipeline, but there is no detail regarding how specifically MAKER is used to annotate the genome. There is no mention of how evidence such as transcriptome evidence from the sardine or other species was used to annotate via MAKER. In addition, it is stated in line 183 that 17,199 (65%) proteins received functional annotation. This seems like low efficiency as over a third of potential genes remain unannotated even though there is a wealth of protein sequence data available from fish genomes. This could be due to gene prediction calling a large number of false positives, but it is hard to interpret based on the brief explanation of a custom pipeline. There are other unjustified cutoffs such as the fact that only half of the genome was used for some analyses (line 190). The authors mention that the genome contains high heterozygosity, but offer no point of reference or comparison to other species so that it is demonstrated to be high. Lastly, there is little discussion about the transcriptomes and how they were used for the genome analyses. This is also an awesome resource that is established by this study, but it needs more attention in the manuscript. A commented manuscript is attached. Figure 1 is also blurry and it is difficult to see the head region of the fish.

Overall, more detail and justification is needed for methods and results, and the study would benefit by a comparison or the use of available data from other fish genomes. If these changes are implemented, the study would provide an excellent resource for a valuable fishery.

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