General Comment:

Unfortunately I could see and review only a kind of a contribution to an article rather than a standard and complete manuscript (only Introduction, Materials and Methods and the Dataset). It is a pity, as the dataset itself is one matter and how it is then handled, combined and interpreted is the other aspect, even more important in my opinion.

It is great that such initiatives as combining data from huge databases such as PANGEA are taken, but one has to be very careful when merging data from different sources and various methodologies. I can imagine that it is a great challenge to standardize the data to a comparable format, so I really appreciate the effort taken by the authors and simultaneously I suggest to transform it slightly, especially in terms of CPR dataset.

I can thus just say that the dataset itself is impressive, as it contains huge amounts of diverse measurements of high quality. Generally, it is compiled and standardised in proper way, but with some oversimplifications, not always required. The description of data manipulation is not sufficient at some points.

The main problem is that even if the dataset is huge and there is no way to imagine that it could be broader, I am not sure if the objective (biogeography) can be fully met at this stage, and even yes, it all depends how it would be presented and discussed. At this stage there is only a preview of different aspects (hydrography, chlorophyll a, phytoplankton colour index, CPR mapping of few species, seasonal dynamics of C. finmarchicus, egg production of C. finmarchicus) and no information how they are going to be combined to obtain the full picture (biogeography).

While CPR data is excellent in terms of their spatial coverage and resolution, they are very limited in other aspects (e.g. i) 6 m depth is not representative for the upper water column, especially in terms of older life stages of Calanus, ii) there is no division for different seasons, which is very important in northern latitudes, iii) there is no demography data).

Overall, I appreciate the good quality of the Dataset and the general idea of the study, which is important and of high value for marine zooplankton research. However I am disappointed that the authors did not went deeper into the issue and have not presented neither the outcome nor the concept of further data handling.

Specific Comments & Technical Corrections:

Title

- I would suggest to simplify into : “Biogeography of Calanus finmarchicus in the North Atlantic”
- I am not sure if the phrase ‘manual counting methods’ is informative and precise

Abstract

- p 227, line 2: ‘pan-Atlantic’ I would change to North-Atlantic

- ‘ten representative zooplankton taxa’ from CPR – actually there is 8 taxa (C. finmarchicus, C. helgolandicus, C. hyperboreus, Cnidaria, Euphausiidae, Oithona sp., Pseudocalanus spp. Thecosomata). Nevertheless, I would suggest focusing only on C. finmarchicus to be consistent with the other results (demography and egg production)
- ‘Then we present a compilation of data on C. finmarchicus including observations of abundance, demography, egg production and female size with accompanying data on temperature and chlorophyll’ I would add “at stations”

1. Introduction

- In general it is too scarce and not very informative at this stage. If it is going to be a normal manuscript it should be extended by some more information about the importance of the distribution studies and a kind of summary of previous C. finmarchicus distribution studies etc. Moreover it is necessary to indicate what new is brought with this compilation
- It is a very good idea to ‘build the foundation for ongoing and future research on the influence of habitat change’, so I suggest to sum up the existing ideas of the influence of e.g. climate forcing on the distribution and abundance of this species
- Again, I would suggest to resign from ‘10 others species’, especially from macrozooplankton, as the CPR method is not adapted for collecting macrozooplankton effectively

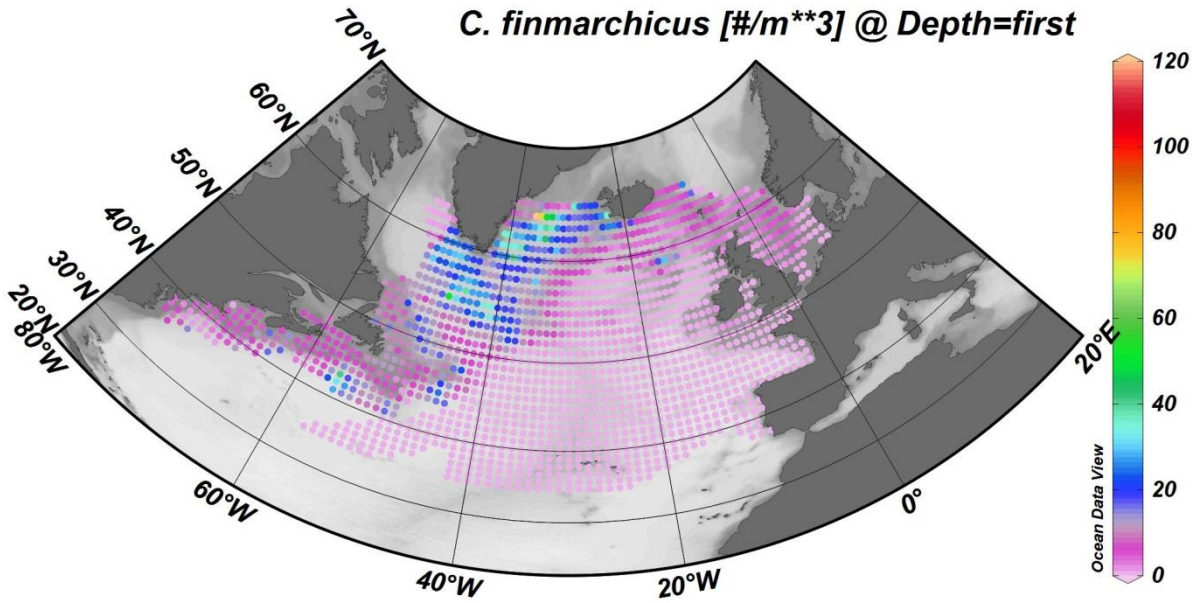
2. Materials and Methods

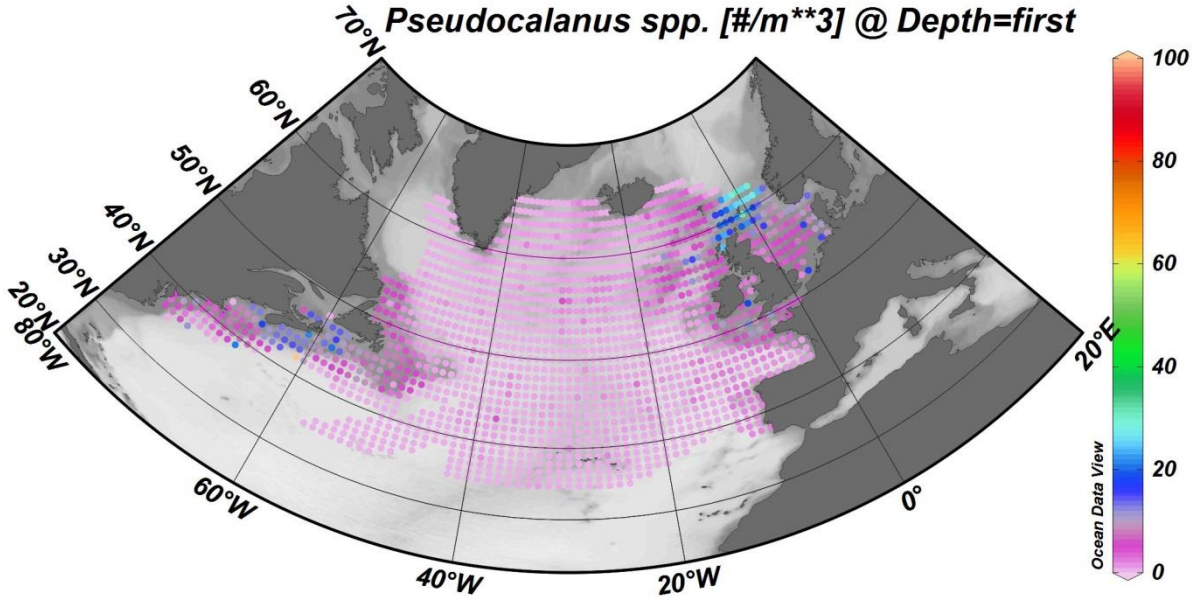
2.1. Hydrography and chlorophyll

- It is a standard procedure to collect zooplankton data together with CTD, but I am not sure how it is going to be further used in this study. What is the plan for CTD data, is it going to be related to some distributional data? It would be appreciated if there is any information of its utility.
- There is no information about temperature and chlorophyll averaging and integration in figure captions, as indicated in 18-21 lines, p. 228
- The information about phytoplankton colour index should be moved from 2.2 section to this section (2.1). The same applies to the temperature and chlorophyll concentration from egg production experiments; or alternatively, the hydrographical and chlorophyll descriptions should be put together with the zooplankton sampling descriptions and this separate section (2.1) should be deleted

2.2. Mapping with CPR

- I think it is a an oversimplification that CPR data were averaged over the whole year. Luckily, those data are collected at monthly intervals, so to be consistent with the other datasets (C.finmarchicus demography and egg production), it would be very beneficial to produce seasonal data matrix. North Atlantic is an area of strong seasonality and this cannot be neglected, especially when studying the copepod, which procreation and development is directly connected with seasons. Such a very general picture (I prepared maps of species distribution) is not that informative, as it could be, if you tried to take more from those extensive datasets





- I am afraid that the sampling depth (6 meters) is not representative to provide data on general C. finmarchicus distribution, especially in terms of the older life stages, which vertical distribution varies during the year due to ontological, feeding and daily migrations, and concentrates rather deeper
- Why the analysis is restricted to the older life stages of C. finmarchicus ? I think that in the uppermost layer mainly younger life stages can be found
- The mesh size of 270 um is not sufficient to collect Oithona quantitatively, especially its younger life stages
- The information about the extension of sampling routines to the Norwegian Sea should be moved to the Discussion section, as it does not refer to the utilised dataset
- Phytoplankton Colour Index (PCI): there is no information how is it obtained and then converted to total phytoplankton biomass. I suggest removing this description into proper section (2.1. hydrography and chlorophyll)

- 2° x 2° gridding – it looks nice at maps, but I am not sure if it is necessary to perform for the whole north Atlantic area, I would rather integrate the real data points along some sampling distance/area. In this form (2° x 2° gridding) there are too wide interpolations within huge areas, where no measurements were performed
- I think that inter-annual variation cannot be passed over. Even if the final outcome is the average over the ten years, it is required to comment on inter-annual data variability

2.3. Net samples

- Short summation of net sampling methods should be presented, not just referring to the Table 1
- That's OK that the abundances were averaged over 14 days periods within the year and then over all years, but it is very important to add standard errors and/or deviations to have an idea of the range of multiyear variability. Because the abundance of various life stages can be very variable, so the average is not always the best way of data grouping
- Nevertheless I think it is a very nice data for seasonal analysis of C. finmarchicus abundance and demography
- Caption of Table 1: what kind of transects? It seems that only stations were put in this table
- Table 1: It seems that Mortality analyses dominated the studies, but I am not sure what information brings this column, as neither mortality nor dormancy results are used and presented

2.4. Egg production and female size

- Too much details in comparison to other Methods sections, some information better fit to Introduction and/or Discussion sections than to the Methods
- p. 230 12-13 lines 'observations of egg production […] were compared' – unfortunately it was not done/presented. There is a an indication to the problem of various techniques applied as well as a short description, but no comparison. It's a shame that the methodology differs so much, but probably it is still worth comparing and compiling the data
- As there is data of various quality, due to methodology and sample numbers, it would be beneficial to add one extra column with the information about its integrity (according to e.g. incubation duration, number of females etc.)
- The number of stations and experiments used for the compilation is impressive, congratulations
- P. 234, line 6: There is no Table 3 in the manuscript version that I got
- Grouping months into seasons –I like your method and idea even if it is demanding. It should also be performed in other results accordingly (C. finmarchicus demography, CPR dataset)
- The description of obtaining data on temperature and chlorophyll should be in the proper section (2.1)
- I am not a specialist at egg production experiments but even if dataset looks impressive, the variability of results seems high (according to standard deviations and errors)