

Data Paper

Kunio T. Takahashi, Ryosuke Makabe, Tsuneo Odate. Zooplankton monitoring using a twin NORPAC net during the 58th Japanese Antarctic Research Expedition in austral summer 2016-2017. *Polar Data Journal*. 2019, 3, p. 12–21. <https://doi.org/10.20575/00000007>.

(Received 6/10/2018; Accepted 12/27/2018)

1st submission

Editor Start Date: 6/10/2018

Editor Stop Date: 10/21/2018

Reviewer #1 (9/27/2018–10/1/2018)

Reviewer #2 (9/29/2018–10/5/2018)

Editor Comments to the Author:

Both two reviewers made fair decision and left constructive comments. If the author revises the manuscript accordingly, it would be very appreciated.

Reviewer #1 : Graham Hosie

This is a straight forward contribution of much needed zooplankton which in turn maintains a long standing practice of publishing data from the JARE NORPAC sampling programme extending back to JARE 14. Such long term data series are rare, and yet are very much needed when we are trying to understand the effects and consequences of long-term climate change on the Antarctic and global marine ecosystems. I have no hesitation in recommending publication of the data, subject to some minor English corrections and some clarification of the wet weight measuring process outlined in section 5-2. These are listed below, and should only take a few minutes to correct.

Abstract

Line 2 - change "zooplankton samplings" to "zooplankton sampling" and "standard net have" to "standard net has."

Line 7 - "These" to "This"

Line 9 - change to "This report provides"

1. Background & Summary

2nd paragraph

Line 4 - change "roughly" to "approximately"

Line 9 - change to "Sampling was"

Line 14 - change to "monitoring was"

Line 16 - change to "from the NORPAC"

2. Sampling Location

Line 2 - change to "Indian Ocean Sector. Thereafter, sampling"

Line 3 - change "because" to "where"

Line 7 - change to "(ice edge)"

Line 8 - change to "during the two"

5. Technical Validation

5-1. Zooplankton identification

Line 3 - change to "from the adult". Is this correct, the adult and developmental stages were identified separately?

5-2. Wet weight measurement

A semicolon after "Process" is probably not appropriate. I suggest either using a colon "Process:" then the next word should start with a lower case letter, or use a full stop "Process." and then the next word starts with an upper case letter.

Line 2 - should probably read "Process 1: the large-sized zooplankton (>10mm) were sorted from each entire sample in the laboratory."

Last sentence for Process 2 is not very clear. I think this means that aliquots were continued to be counted until their combined wet weight reached 10 mg. Is this correct? This will need to be changed in Figure 4.

Line 10 - I think this should be "Process 3: the wet weight of zooplankton of 1 mm or less, which were hard to measure, was measured by using a conversion factor (Table 1)." Is that the correct meaning?

Table 1 - check spelling of Copepodite, not Copeodite

Figure 4 - change description for Process 3, as noted above.

Reviewer #2 : Anonymous

This paper is valuable for publication. However, I think very minor revision is necessary. See below.

"NORPAC (North Pacific)" or "NORPAC (NORth PACific)", these should be unified through the abstract and the text.

I feel this sentence "... to estimate the mean biomass... of the Southern Ocean" is excessive expression. The sampling resolution of the NORPAC sampling is very low for time and space. So, do we can estimate "mean biomass" of "wide area" (the Indian Ocean sector of the Southern Ocean) from these NORPAC "point" samples (just only five stations)? More accurate expression might be necessary. For example, "Long-term trends of abundance, species composition, and their variation".

"T/V Umitaka-maru" or "TV Umitaka-maru", these should be unified through the abstract and the text.

Authors Response:

To Reviewer #1

Thank you for your comments concerning this manuscript. We have considered all of your comments and have made necessary changes.

All minor collections have been changed as suggested below.

Abstract

Line 2 - change "zooplankton samplings" to "zooplankton sampling" and "standard net have" to "standard net has."

Line 7 - "These" to "This"

Line 9 - change to "This report provides"

1. Background & Summary, 2nd paragraph

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2. Sampling Location

Line 2 - change to "Indian Ocean Sector. Thereafter, sampling"

Line 3 - change "because" to "where"

Line 7 - change to "(ice edge)"

Line 8 - change to "during the two"

Table 1 - check spelling of Copepodite, not Copeodite

All the unclear sentence you pointed out have been changed for clarify. Our specific replies to some minor comments are as follows,

5. Technical Validation, 5-1. Zooplankton identification

Line 3 - change to "from the adult". Is this correct, the adult and developmental stages were identified separately?

REPLY: Yes. We identified the adult and developmental stages separately. We have changed "with" to "from" as suggested.

5-2. Wet weight measurement

A semicolon after "Process" is probably not appropriate. I suggest either using a colon "Process:" then the next word should start with a lower case letter, or use a full stop "Process." and then the next word starts with an upper case letter.

Line 2 - should probably read "Process 1: the large-sized zooplankton (>10mm) were sorted from each entire sample"

in the laboratory."

Last sentence for Process 2 is not very clear. I think this means that aliquots were continued to be counted until their combined wet weight reached 10 mg. Is this correct? This will need to be changed in Figure 4.

Line 10 - I think this should be "Process 3: the wet weight of zooplankton of 1 mm or less, which were hard to measure, was measured by using a conversion factor (Table 1)." Is that the correct meaning?

Figure 4 - change description for Process 3, as noted above.

REPLY: Thank you for this valuable comments. We rewrote this unclear paragraph as follows. The word "Process" changed to "Step", and revised Figure 4.

"Processing of samples was carried out according to the four-step procedure outlined below and shown in Fig. 4.

Step 1: the large-sized zooplankton (more than 10 mm in size) were sorted for the whole sample in the laboratory. Zooplankton were classified into nine categories, and counting number of individuals and measured the wet weight each category using an electronic balance (Sartorius Quintix124-1SJP, readability 0.1 mg).

Step 2: all other species (<10mm in size) were counted from 1/2 to 1/32 aliquots of the whole sample, and identified to the lowest taxonomic level, generally species or genus, level, using a stereo-microscope. While sorting and counting this size fraction, the wet weight of zooplankton typically reached more than 10 mg per aliquot.

Step 3: given that the wet weight of zooplankton of 1 mm size or less were hard to sort, this fraction was estimated by using conversion factors listed in Table 1.

Step 4: the weights obtained in steps 1-3 were summed to give a total wet weight."

We hope that our revisions will improve the manuscript to your agreement.

To Reviewer #2

Thank you for your comments concerning this manuscript. We have considered all of your comments and have made necessary changes.

"NORPAC (North Pacific)" or "NORPAC (NORth PACific)", these should be unified through the abstract and the text.

REPLY: Thank you for this comment. We unified into "NORth PACific".

I feel this sentence "... to estimate the mean biomass... of the Southern Ocean" is excessive expression. The sampling resolution of the NORPAC sampling is very low for time and space. So, do we can estimate "mean biomass" of "wide area" (the Indian Ocean sector of the Southern Ocean) from these NORPAC "point" samples (just only five stations)? More accurate expression might be necessary. For example, "Long-term trends of abundance, species composition, and their variation".

REPLY: We agree with your comment. This sentence has been rewritten to clarify as shown below.

Abstract

“to estimate the long-term trends of abundance, species composition and their temporal/spatial variation in the uppermost 150 m of the Indian Ocean sector of the Southern Ocean.”

Background & Summary

“to estimate the long-term trends of abundance and species composition of surface zooplankton and its spatiotemporal variability in the upper layers of the Indian Ocean sector of the Southern Ocean.”

"T/V Umitaka-maru" or "TV Umitaka-maru", these should be unified through the abstract and the text.

REPLY: Thank you for this comment. We unified into “T/V Umitaka-maru”.

We hope that our revisions will improve the manuscript to your agreement.

2nd submission

Editor Start Date: 11/7/2018

Editor Stop Date: 12/27/2018

Editor Comments to the Author:

I am very glad to confirm that your revised version was clearly and property reflected to the reviewer's comments.

Editorial Office's note

Calcurate checksum date: 1/8/2019

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Original Data

Takahashi, K.T., Makabe, R., Odate, T. Zooplankton monitoring by a twin NORPAC net during the 58th Japanese Antarctic Research Expedition in austral summer 2016-2017. 1.00, Arctic Data archive System (ADS), Japan, 2018.
<https://doi.org/10.17592/001.2018060801>.