

# ***Interactive comment on* “Collection of large benthic invertebrates in sediment traps in the Amundsen Sea, Antarctica” by Minkyoung Kim et al.**

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We appreciate the review. We will incorporate all specific comments raised by reviewer in the revision.

1.Detailed reviews on sea ice or anchor ice transport, their importance to the Antarctic

R) We will add more relevant lines of information in the revision as suggested.

2.Cycling of other components?

R) Cycling of nutrients, detrital materials through the ice rafted transport are important. The role of anchor ice in transporting sediment particles has not been studied

or reported in the Antarctic, in contrast to the Arctic where this phenomenon has been reported to be a main mechanism for sediment particle entrainment into sea ice and dispersal. We will include the reviewer's suggestion in the revision as a potentially important future research.

### 3. Traditional taxonomic approach

R) In addition to the genetic tool, we have also put effort for species identification based on conventional approaches asking benthos experts. Unfortunately, we have not been successful. For example, Dr. Chernyshev Alexei Viktorovich in Russia provided his opinion. The consensus was that specimens preserved in formalin for an extended time period (> 1 year) are very difficult to identify.

### 4. Gut content and contribution of zooplankton

R) Reviewer's point regarding the gut content is of importance. We have not tried to separate the gut content for further analysis. However, considering the high organic carbon content (44 %) and presumably high protein content of these specimens, their bodies are likely to be mainly organic matter with relatively small amount of sediment material. The sinking particles contain high content of non-biogenic material (or lithogenic material) supplied from sediment resuspension to begin with. Conventionally zooplanktons (so called "swimmers") collected in sediment traps are not considered as a part of passive particle flux. If the collected benthos in our study were able to swim actively to reach the traps, they should not be included in sinking particle flux. We only wanted to make a point that the carbon flux by them can be potentially important considering the small sinking POC flux.

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Discussion paper

