8 January 2021

Dear Prof Curchitser

Enclosed for your consideration is an original manuscript, titled: “Vertically resolved zooplankton biomass and size-structure across a continental shelf under the influence of a western boundary current”. This manuscript has not been published nor is currently under consideration for publication elsewhere. All authors have agreed with its content and approved submission in its present form.

Our paper addresses a significant gap in the broad understanding of zooplankton communities. Using a towed optical plankton counter, this paper is the first to present high resolution depth resolved transects of the zooplankton community across a continental shelf. We find significant horizontal and vertical declines in biomass as well as an altered size structure of the zooplankton community, particularly in the regions where the East Australian Current was present. By undertaking a global synthesis, we then show that these horizontal patterns in the zooplankton community are consistent globally and we present a conceptual figure of how the zooplankton community changes across continental shelves.

This study has significance for the fields of oceanography, zooplankton ecology and fisheries. It is critical we understand how oceanographic processes influence the pelagic biological communities of continental shelves as they are one of the most exploited marine environments in the world. As a key observational study linking oceanography and pelagic ecology with global implications, we believe *Progress in Oceanography* is the ideal journal for this paper.

Building on previous work in *Progress in Oceanography*, Everett et al (2014) showed strong oceanographic driven patterns in chlorophyll *a* in the east Australian region. Our current paper builds upon this research to extend the influence of oceanography into the higher zooplankton trophic groups and we think it would be ideal to publish this work in the same journal.

Sincerely

Dr Hayden Schilling

Postdoctoral Research Associate, Sydney Institute of Marine Science & UNSW

**Reference**

Everett, J. D., Baird, M. E., Roughan, M., Suthers, I. M., and Doblin, M. A. 2014. Relative impact of seasonal and oceanographic drivers on surface chlorophyll a along a Western Boundary Current. Progress in Oceanography, 120: 340–351.