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[Abundance and Structure of the Zooplankton Community During a Post-eruptive Process: The Case of the Submarine Volcano Tagoro \(El Hierro; Canary Islands\), 2013-2018.](#)

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Abstract: The mesozooplankton community was analyzed over a 6-year period (2013-2018) during the post-eruptive stage of the submarine volcano Tagoro, located south of the island of El Hierro (Canary Archipelago, Spain). Nine cruises from March 2013 to March 2018 were carried out in two different seasons, spring (March-April) and autumn (October). A high-resolution study was carried out across the main cones of Tagoro volcano, as well as a large number of reference stations surrounding El Hierro (unaffected by the volcano). The zooplankton community at the reference stations showed a high similarity with more than 85% of the variation in abundance and composition attributable to seasonal differences. Moreover, our data showed an increase in zooplankton abundance in waters affected by the volcano with a higher presence of non-calanoid copepods and a decline in the diversity of the copepod community, indicating that volcanic inputs have a significant effect on these organisms. Fourteen different zooplankton groups were found but copepods were dominant (79%) with 59 genera and 170 species identified. Despite the high species number, less than 30 presented a larger abundance than 1%. Oncaea and Clausocalanus were the most abundant genera followed by Oithona and Paracalanus (60%). Nine species dominated (>2%): *O. media*,

O. plumifera

, and

O. setigera

among the non-calanoids and

M. clausi

,

P. nanus

,

P. parvus

,

C. furcatus

,

C. arcuicornis

, and

N. minor

among the calanoids. After the initial low abundance of the copepods as a consequence of the eruption, an increase was observed in the last years of the study, where besides the small *Paracalanus* and *Clausocalanus*, the Cyclopoids seem to have a good adaptive strategy to the new water conditions. The increase in zooplankton abundance and the decline in the copepod diversity in the area affected by the volcano indicate that important changes in the composition of the zooplankton community have occurred. The effect of the volcanic emissions on the different copepods was more evident in spring when the water was cooler and the mixing layer was deeper. Further and longer research is recommended to monitor the zooplankton community in the natural laboratory of the Tagoro submarine volcano.

Keywords: copepod assemblages, plankton diversity, post-eruptive stage, Tagoro submarine volcano, North Atlantic Subtropical, Canary Islands, El Hierro island