SOCIETY FOR MARINE MAMMALOGY: SMALL GRANTS IN AID OF RESEARCH (2019) GRANT REPORT

PROJECT TITLE: Microplastic contamination in Antarctic phocids

AWARDEE: Julieta Cebuhar (MSc)
Laboratório de Ecologia e Conservação da Megafauna Marinha – ECOMEGA, Instituto de Oceanografia, Universidade Federal do Rio Grande – FURG, Brazil
ORCID: **https://orcid.org/0000-0002-9780-7112**

Project Summary:

The Antarctic Peninsula contains approximately 1794 microplastic items per km^2 of the ocean surface, most of them of local origin. Little is known about microplastics in Antarctic megafauna, especially Antarctic seals. In this study, we analyzed 29 fecal samples from three Antarctic seals collected in the West Antarctic Peninsula (WAP) to evaluate the presence and types of microplastics. This is the first study that searches for pollution for its kind in this species.

Research questions

This project aims to provide the first record of microplastics in three species of Antarctic seals from the Danco Coast- WAP. We analyzed scat samples from crabeater, leopard and Weddell seals (*Lobodon carcinophaga*, *Hydrurga leptonyx*, *Leptonychotes weddellii*). The specific aims are:

a) characterize and morphologically/chemically classify the microplastics.

b) compare the microplastic ingestion among phocids with different foraging habits

Project Progress:

At the start of the project, some samples were already collected during January and February of 2020. Lab work was done successfully, however, the sample processing took longer than expected. Additionally, during the 2020 and 2021 COVID-19 pandemic, access to laboratories was restricted and the Austral summer Antarctic campaign was also cancelled. So far, 29 samples were processed, despite the pandemic we were able to analyze ~60% of the samples that were already collected. We hope to include the remaining samples in a new project even the ones that will be collected during this Austral summer. We expect to finish and submit the paper by the end of June, otherwise, we will thank and acknowledge the Society of Marine Mammals in the paper.

Project Results:

In summary, we analyzed 13, 11, 5 scats from leopard, Weddell and crabeater seal respectively. We found microplastics in all scat samples, with fibers being the most abundant followed by fragments (Figure 1). Weddell seals' scats showed more microplastics than the other species.

The polymeric composition is being analyzed using RAMAN spectroscopy in the CEQUINOR laboratory (Centro de Química Inorgánica) – La Plata.

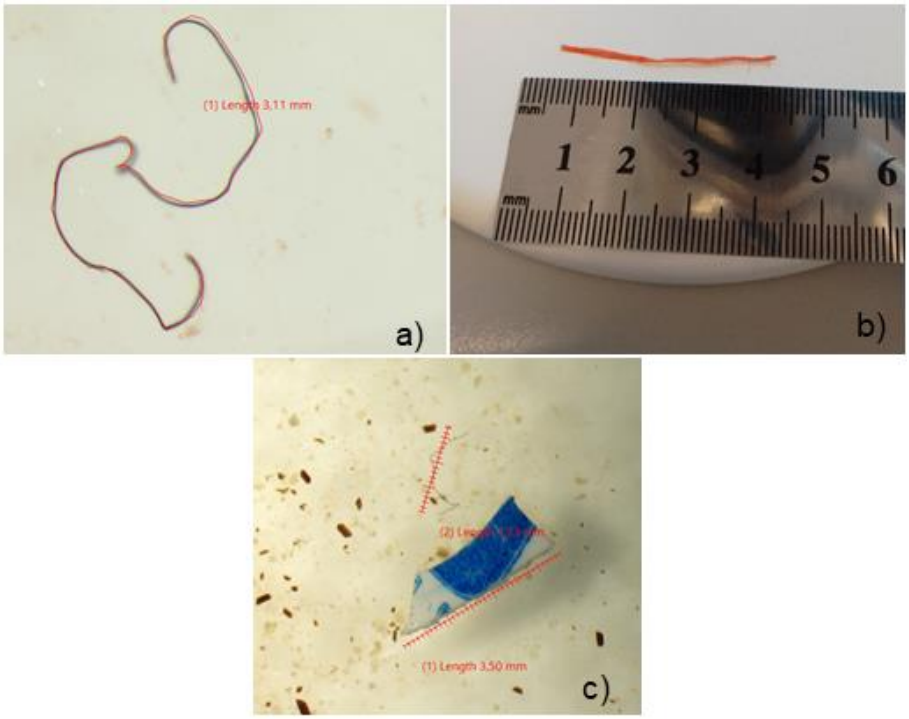

Figure 1. Microplastics found in crabeater, leopard, and Weddell seal