

NZFGW Study Travel Award Report: Hannah Charan-Dixon

In the middle of this year, I was privileged to go to the Kingdom of Tonga to conduct 10 weeks of research for my Master of Science project. My study is investigating the effects of indigenous fishing techniques on sea cucumber populations, and looking at their abundance and diversity at different sites of varying pollution levels around Tonga. In addition, I am characterising the levels of trace metals in sediments and sea cucumber tissues around the island group of Tongatapu, Tonga.

Throughout the duration of this work, another research student and I lived in a guest house in Tonga, where we developed a close bond with those who we stayed with. It was an incredible experience to be among the Tongan culture, and a privilege to meet such wonderful and generous people. Our work was based at the Ministry of Fisheries in Nuku'alofa, where the staff were exceptionally helpful, facilitating, and supportive of our research. Working with the staff was an excellent experience, and highlighted the importance of incorporating indigenous knowledge into science. The staff were able to help me think about my experimental design and were very knowledgeable about sea cucumbers and their marine systems, and this knowledge was greatly appreciated at all times.

I hope that the findings of my research can contribute towards developing sustainable fishing practices in Tonga. Sustainability is important for the livelihoods of the Tongan people who depend on sea cucumbers as a food and income source. Furthermore, sea cucumbers are important for marine ecosystem health. Therefore, sustainable management of this resource is beneficial both to the community and to the ecosystem and this is something that I hope will be promoted by my study.

The Study Travel Award from NZFGW was fundamental in allowing this research trip to happen. I am extremely grateful to NZFGW for this award and it was used to facilitate a huge learning experience both on a personal and professional level.



NZFGW Study Travel Award Report: Beth Vanderhaven

I wanted to thank you again for the support of my studies with the scholarship for research in Tonga. Unfortunately we (Hannah who also received the award) could not make it to show you our work in a presentation as we were away. Know that I have returned and been able to work through some of the data I wanted to give you an update and information about the research that occurred.

For the two months Hannah and I were overseas we dived straight into the Tongan culture and straight into our research. We had the fantastic opportunity to work with the department of fisheries, and complete our lab and experimental work there. For my research, with the help of Hannah, we would swim out at high tide and set up a stand of go pro videos. These were moved to film 3 transects along the reef crest and towards the back reef. We also completed swim transects holding go pros on sticks and swimming along. We covered 4 sites at 5 locations around Tonga and the nearby islands.

On these swims we saw the most amazing animals, including a turtle, puffer-fish, pipe-fish, cuttle fish, dolphins and reef sharks to name a few! Luckily we had support from the fisheries staff who (when they weren't too cold as it was there winter) came swimming with us, drove us on the boats and let us know good locations.

These videos were assessed for parrotfish species, abundance, behaviours and comparing techniques of collecting this information.

Experiments were completed at the fisheries, with local divers helping to live catch parrotfish (the first time they had done this). Over there we had to trouble shoot a lot and changed some experiments on colour change and stress influencing this. This was really interesting as it caught a lot of attention from the staff as these fish had not been kept at the fisheries before. A lot of parrotfish collected from the markets were dissected and sampled for gonads and samples to help identify species through genetics back at Canterbury. Hannah and I of course spent a lot of time on her work with the sea cucumbers also, lots of laboratory work and sampling at low tide in similar locations as my research.

We had the pleasure of being able to speak to one of the all girls high school, giving presentations of women in science which was fantastic. They all seemed very interested and hopefully it will encourage them to continue into future study.

We had such an amazing time and would not have been able to complete all the work we did and travel to the sites for research without your support.