

Marine Egypt Expedition 2023 Report – Katie Grieve

From the 5th of June to the 17th of July, I embarked on a marine expedition to Egypt, along with five other students through the University of Glasgow's Exploration Society.

Prior to this expedition, I was not widely travelled, therefore having the opportunity to travel to another country/continent and immerse myself in a different climate and culture compared to Scotland was very exciting. Beforehand, it seemed unbelievable that I would soon be able to come face-to-face with things I had previously only seen in lectures and documentaries.

Roots Red Sea Resort could have been a set out of Star Wars, a small oasis in the middle of the desert with buildings constructed from sandy-coloured stone and domed roofs. Due to the resort's nature as the only source of fresh water for miles, it was a hotspot for many amazing creatures such as fennec foxes, birds of prey, spiders, snakes, scorpions and my favourite – praying mantises.



A praying mantis spotted in the resort.



The entrance to Roots Red Sea Resort.

Our daily schedule consisted of breakfast from 7.30 am, lunch at 1.30 pm then dinner again at 7.30. The food was delightful and we eagerly looked forward every day to what surprise dish would be served to us, I particularly enjoyed trying Egyptian cuisine (especially the national dish koshari and lots of falafels). Mealtimes further allowed us time to meet and socialise with the other guests, all of whom were experienced divers with fascinating insights and stories, as well as the lovely resort staff who really looked after us and spent many hours teaching us basic Arabic and about their culture and lives. Between those times, we would focus on our projects (either data collection or analysis) and outreach tasks. We would each do approximately 1-2 dives a day, swapping between each project and gaining unique experience with each one.

Our first project was a diver impact study on small black and white damselfish called humbug dascyllus (*dascyllus aruanus*) which live in colonies on *Acropora* or *Pocillopora* coral. My role in this project was to set up a tripod camera 2 metres away from the colony, which we then left for 15 minutes after which my diving buddy or I would swim over the colony to cause a diver disturbance. The colony would then be left another 12 minutes and through the footage obtained we could determine how the fish have been affected. By measuring how long it takes the fish to re-emerge from the coral after each disturbance, we can determine if their behaviour has adjusted over time as they adapt.



One of the humbug colonies we studied.



Me writing data points (timings, depths etc.) for the humbug project on a water-proof slate.

Our second project was on the territoriality/bold-shy behaviour of freckled Hawkfish. My buddy and I would alternate between two roles for this project. Firstly, using a 3D camera, a Hawkfish (*Paracirrhites forsteri*) will be approached until it swims away, the camera records how far away the diver is from the subject fish. The second diver can then take photos of the fish at a specific angle which will later allow us to use specialised software to identify individual fish. The closer the diver can get to the fish, the bolder it is, and the determination of these behavioural traits of multiple individuals can give information on the species and the reef ecosystem.

I particularly struggled with photographing the Hawkfish as there was only a very small margin for error when it came to the angle and positioning of the fish due to the requirements of the identification software. As a relatively new diver, it took a lot of practice and concentration to maintain my positioning in the water and approach the fish at the correct angle as well as getting as close as possible without scaring it away and restarting the process.



A Freckled Hawkfish.



Me taking photos of a freckled Hawkfish.

However, due to the nature of both projects, I have greatly developed both my skills in using cameras underwater and my scuba diving ability – vastly improving my buoyancy and trim over the 6 weeks, allowing me to effectively conduct underwater research.

I feel extremely lucky to have had the opportunity to dive in such an incredible location and to have the experiences I have had. A memory I will cherish forever was on our first day, my first time entering the water, I put my face in and immediately saw more fish than I had ever seen in my entire life. Additionally, encountering huge green sea turtles and eagle rays will be something I will never forget.



An amazing encounter we had with a large female green sea turtle.

On the days off from project work, the team conducted debris dives/snorkels and beach cleans in several locations, including the house reef near our accommodation, the local town beach and the nearby mangrove forests. In some cases, we were joined by other resort guests and a local environmental organisation comprising of children aged 15-17. We also created and delivered talks on the importance of conservation and management efforts in the Red Sea area to the children, covering topics of climate change, plastic pollution, the human impact on the climate and respect for ocean life specifically focusing on sharks.



All the rubbish collected within 30 minutes on a 50m stretch of mangrove forests.

Overall, I am immensely grateful to have been given the chance to be a member of this expedition and develop these skills and experiences. I feel like I have become much more independent and confident in my abilities as well as been exposed to the realities of research and fieldwork. Over the 6 weeks, I have learned so much about Egyptian culture and the marine world, I have gained firsthand experience with plastic pollution and how these problems are dealt with, I have had a taste of what a career in research and biology could be like and overall, I have achieved something I never thought I would have been able to do.



A photo of the whole team together – amazing friends that I hope to stay in contact with and carry out more research with in the future.