



## [Cuban Scientific Diving](#) [Written by Matt Newsome](#)

In June 2014 I went to Cuba with the University of Hull to do scientific dive training. We arrived at Havana International Airport and were immediately confronted by tropical temperature, palm trees and 1950's American cars! We spent the night in Havana but the next morning we took an inland flight from mainland Cuba to Isla de Juventud; our home for the next ten days. After a 25 minute flight in a converted propeller driven cargo plane (not the purpose-built passenger plane we'd been promised!) we landed and hired a mix-

ture of local minibuses and Lada taxi's to Hotel Colony; our base. It wasn't until the last day we got a proper look around the island but the most common form of transport was horse and cart and it was a very poor part of Cuba. Our chambermaid got paid £6.80 a month. But the locals were happy and friendly, even if their English ranged from poor to non-existent.

The next day was our first day of diving. We walked the 2 kilometres to the marina for our dive boats. Our main boat was a catamaran perhaps 50ft long. It was fairly new and this was the boat we would spend most of our time on. Our support boat was a 35ft mono-hull which basically carried cylinders only and this was the boat we actually dived off. This boat was instantly recognisable because for reasons we never found out, thick black smoke blew out of the engine hatch half the time the engine was running!

Whenever we reached a site the catamaran would anchor in and the support boat would moor to us. There were 26 students, 5 staff, 2 hired British dive instructors, 2 Cuban marine biologists at the University of Havana and 2 research assistants who did their own thing. One of the research assistants was one of my diving instructors from Scarborough Sub-Aqua Club and the other joined the club five months later! Due to the massive number of students we went in 2 waves. Each wave was divided in 2, so groups of about 6 students each plus staff.

For the first 6 dives we practised scientific techniques. These were fish identification, behavioural observations, coral identification, transects and quadrats. A transect was laid by laying out a piece of string 10m long and then we swam along the length and either counted the number of fish and species or estimated the percentage coverage of coral/algae within a square metre of the quadrat every metre. A quadrat is a square of string between 1 and 4 square metres and we either counted the fish or estimated the percentage coverage of coral or algae.

Half way through the expedition we did a leisure dive on a 50m drop off, though we only went to 25m. This was a good dive with some stunning topography. One buddy pair was lucky enough to get a distant sighting of a turtle! This proved to be our only leisure dive

and after this we started our projects. Our projects were of our own design and used the skills we had practised in the earlier dives to find data we wanted.

Our project I did with my 2 buddies Carl and Pippa involved placing quadrats at random on a coral reef. We then counted the number of individuals and species of damselfish in each quadrat and then measured the rugosity of the corals. Rugosity is measured by laying a length of lightweight chain over the corals. The quadrat was 1.5m long. So the more chain we had to use to get from one end of the quadrat to the next, the higher the rugosity or complexity of the habitat. A flat piece of reef has low rugosity. A piece of reef with large corals has high rugosity. We were trying to find a link between seabed rugosity and damselfish diversity.

The next dives were spent collecting the data. We aimed to do as many quadrats as possible. On one of the quadrats we had the distraction of 2 six foot long moray eels having a fight above our quadrats. It was spectacular to watch. We didn't get that much data that dive! On another dive when we were on the surface, some of the divers were lucky enough to see a manatee just by the anchor line!

Unfortunately I had to skip the last dive because I had been doing rugosity measurements and as a result often ascended and descended as much as 2 metres repeatedly in less than 20 metres depth and so had bruised my ear drums. All in all we did sixteen quadrats. Our deepest quadrat was sixteen metres deep and our shallowest eight. All our dives were scenic dives with the exception of a small wreck perhaps forty feet long. The bow and stern were intact but the midships was just a mess and the engine was missing. I guessed a salvage attempt but this was never confirmed. Average visibility was 25 metres. Water temperature was in the late twenties (Celsius). It was interesting to step off the boat into the water and feel virtually no temperature change. The weather on the whole was hot and sunny but with occasional, and spectacular, rain and lightning storms but with barely a breath of wind.

We aimed to get back to mainland Cuba by plane again. However our plane had broken down. We never found out if this was on the runway or in mid-air but we were now marooned on the island! Thankfully, our catamaran skipper was able to make the 80 mile or so journey to the mainland. The bad news? We had been getting used to being up at 6.30am. This morning, we had to be up at 4! This was bad news to about 60% of the students who had decided to spend most of the evening in the hotel bar.

After having a couple of the students dragged out of bed we were soon off and enjoyed a very smooth trip back to the airport stopping off in Havana for a couple of hours to do some shopping.

By far the most common species of damselfish we encountered was the bicour damselfish, which ranged from five to ten centimetres long and were territorial. It looked like the higher the rugosity, the lower the damselfish diversity (in terms of abundance and number of species). However statistical tests showed that this was not significant and may not be true. Officially we've proven nothing (which is just as important as proving something) but unofficially there could be a link. There appeared to be more small damselfish and large damselfish and a previous study confirmed that smaller individuals are more commonly found on seabeds with lower rugosity because areas of seabed with higher rugosity provide shelter from predators for larger damselfish and the smaller damselfish are chased out. This pattern may be being reflected here. We needed more samples to get a true reflection on what was going on. We did sixteen quadrats, but we compared that with another study and realised that to get a statistically strong result we needed closer to a hundred quadrats.

I really enjoyed my time away. It was only my second time diving abroad and even then the first time was Greece so it was a completely different environment. Also what limited time we had spent exploring the land parts of Cuba was fascinating. I urge everyone to visit Havana. I only spent a couple of hours looking around there and it's such an amazing city (but bring a Spanish phrase-book!). Overall, a great expedition!