**Daniel Montgomery**
**Bioenergetics of juvenile lemon sharks, Cape Eleuthera Institute, The Bahamas**

I am an undergraduate student at Newcastle University studying for a BSc in marine biology. As part of this course I was presented with the opportunity to undertake research for my final year project with the Cape Eleuthera Institute located in the Out Islands of The Bahamas.

My research project involved investigating the bioenergetics of juvenile lemon sharks using respirometers in order to measure the oxygen consumption of sharks during resting periods and during exercise. By measuring oxygen consumptions the metabolic rate of sharks in different activity states was able to be calculated. Oxygen consumption of sharks was also measured after exhaustion in order to measure recovery from exercise. The aims of this research were to quantify the energetic costs of simulated capture in order to compare it with metabolic rates measured during resting and active states of a model shark species. This is extremely useful in estimating the effects of bycatch on shark species, one of the main contributors to declines in shark species worldwide. In particular the energetic cost of capture is important to be able to evaluate the sub-lethal effects of bycatch on shark species. A secondary aim of the project was to compare metabolic rate measurements taken from different respirometry methods. This research is the first of its kind to be carried out on sharks and is being continued and expanded by members of the Cape Eleuthera Institute.

As well as working on my own research life at the institute allowed many opportunities to become involved in research conducted by other scientists and undergraduate students. As such I became involved in a lot of projects with such topics as analysing stomach contents of yellow stingrays, evaluating thermal preferences of green turtles and evaluating life histories of deep sea isopods, from the Exumas sound, including several species new to science!

Left: Preparing one of the respirometers for an experimental trial

The experience of spending six weeks living and working at a remote field institute has been better than I could possibly have hoped. In addition to spending days in the field gaining valuable experience of deploying equipment such as longlines and baited remote video cameras I have also greatly improved my knowledge of animal husbandry and handling of several species of elasmobranchs. Alongside this the working every day among researching scientists was also an invaluable way to improve my experimental design techniques, scientific writing and statistical analysis and lectures were given by members of the institute on numerous subjects each week to aid interns and undergraduate researchers with their project work.

I would like to thank the Society of Biology for awarding me an affiliate travel grant. This greatly helped me finance this research trip which will has provided me invaluable experience moving forward with my scientific career.