

Learning Side Scan Sonar Techniques and Sharing Knowledge across the South Atlantic Territories

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A successful and exciting week of training in the use of side scan sonar (SSS) for habitat mapping has just ended in Ascension Island. Participating in the course were, Sam Cherrett from Saint Helena , who led the course, Andy Richardson, Emma Nolan and Kate Downes (the AIMS team) from Ascension, Debs Davidson and iLaria Marengo from the Falkland Islands.

SSS is a valuable technique for the investigation of the type seabed and for the detection of different submarine features. Acoustic pings (pulses) sent by the sonar are reflected differently by sand, mud, bedrocks and artificial objects, such as metal (e.g. pipelines and wrecks). The sea state can influence the quality of the images, however, good results depend as much on a careful survey design and a proper setting of the device used.

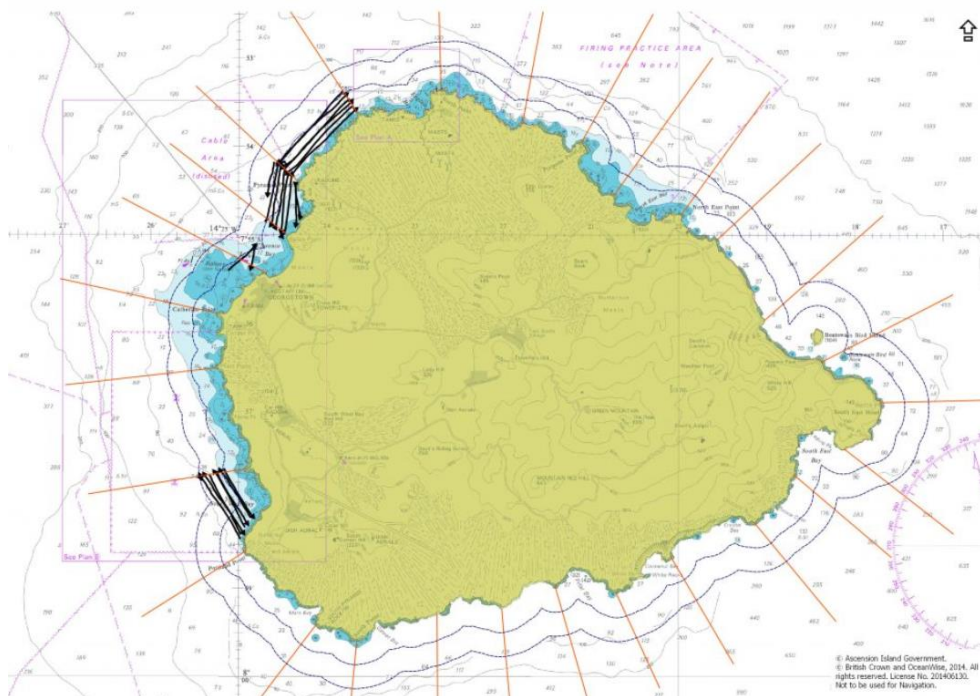
The goal for the Ascension team was to learn how to use side scan sonar and drop down cameras, the latter for ground truthing and features/seabed verification, in order to undertake a fine scale marine habitat classification and mapping up to 1000 metres from the coast. To provide a complete and accurate picture of the underwater environment, a series of targeted dives are also planned. These will be a valuable addition to the data retrieved and processed from the side scan sonar.

Similarly, the Falklands team came all the way to Ascension to gain essential skills, not in how to survive the equatorial heat, but how to identify seabed types in order to better understand and map marine habitats in inshore waters. Acquiring this knowledge is going to be important in making decision for the development of inshore fisheries, marine spatial planning and to support Environmental Impact Assessments.

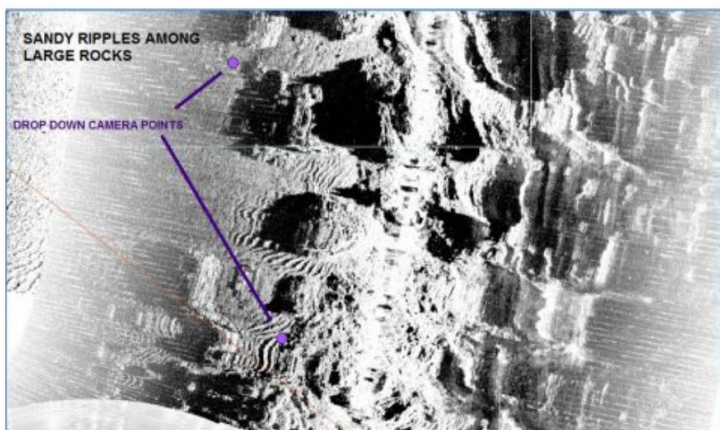
The course completely hooked all the participants as it was cleverly planned by Sam Cherrett to focus on the practical and operational aspects and techniques of survey planning, deployment of the side scan sonar (Starfish device and Scanline software) and processing of the images (Triton Perspective software). The days were split on the boat collecting data and in the office processing the raw data to produce images.

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The areas at sea where the side scan sonar was towed were identified by the Ascension team, so that the data collected could be used for one of the deliveries of the AIMS project (supported by Darwin Initiative funding). The tows took place at PanAm, Comfortless Cove, White Rock and the Georgetown moorings. A series of tests were carried out to understand the best setting of the weight to be applied to the Starfish. Then, the drop down camera was utilised to verify 27 points which were considered particularly interesting after the processing of the images.



The seabed in the surveyed areas were found to be made by medium to coarse sand, maerl and bedrock. The green turtles, which are nesting in Ascension, were pleasant company and appeared as features in the images too.



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From the work carried out on boat and afterwards in the office, the participants could learn how the side scan sonar records the data, how significant ground truthing is, how influential the conditions of the sea are, how bottom tracking can be tedious in case of a bad scan, how important team working and communication is, how boat engines are “delicate” and sun cream might not be enough to avoid sunburn!



A major success of the course was actually the capacity to work in synergy that was shown by the participants. The

collaboration of everyone was the main factor that made the full week extremely productive and enjoyable. Everybody contributed positively to the course by exchanging marine biology knowledge, sharing interests in working with fisheries and spatial data, and comparing research and life experience in the three islands of the South Atlantic.

Special thanks to Ascension Island Sea rescue team and Blaine Chester, skilful boatman of Swampdog.

