Abstract: Developing an understanding of the ocean’s physical aspects is very important. The ocean’s physical parameters can provide us with an understanding of marine habitats, how they formed, and also allow us to make predictions as to what will happen to them. This information is useful for fisheries management. It can help explain why certain species are attracted to specific areas. The physical parameters that can be observed are both physical and physicochemical. Physical aspects are visible features such as bottom topography, bottom composition, and currents. The physicochemical is the salinity, suspended matter, and temperature of the observed areas. Traditionally, observatory data was collected manually through techniques that involve humans attending equipment from the surface. But as of late there has been a development of technology known as Autonomous Underwater Vehicles (AUVs). AUVs are excellent for collecting data because they operate with an almost continuous and human interference. AUVs can also perform multiple tasks at once. The Remote Environmental Measuring Unit (REMUS) was used to collect data. REMUS possesses the ability to collect physicochemical data, side scan imagery and also bathymetric data during a single mission. Once the data is collected it can be compiled and graphed for interpretation.

Methods and Procedures: REMUS (Remote Environmental Measuring Unit(S)) was used to create a side scan mosaic of stations LE and TOP. This information will allow us to make observations about the physical features of an area that might contribute to the species diversity observed in Otter trawl surveys.

Discussion and Conclusion: Figures 4a and 4b are plots of the obs data depth reference to Longitude. Depth is plotted on the secondary axis. The data was collected from the stations LE and TOP. The OBS data indicates that there is a great difference in the turbidity between stations. The value at LE was 100 NTUs while at TOP were around 41.7 NTUs. Since the OBS values are measurements of suspended material in the water column, it may also indicate a resuspension of nutrients offering a potential reason for the variation in species amount and Diversity observed in fig. 2. The resuspension of nutrients would attract smaller species of aquatic life and in turn attract larger species to feed upon the smaller ones. More extensive water testing would be required to prove this but with REMUS it is possible to get broad data that can provide insights as to what might be the explanations for the trawl survey results. Figures 3a and 3b are the snapshots from the side scan mosaics developed for stations LE and TOP. The snapshots of the bottom structure at LE has great topographic variation whereas at TOP is predominantly sand. TOP’s snapshot shows strong ripples which indicate that it is a high energy area due to wave effect. These sand ridges show us that there is little protection for marine life.

The side scan imagery indicates lots of structure at station LE. Since there was no ground truthing involved in this project, it is difficult to determine the nature of these structures. It is believed however that some of the “mounds” or sudden changes or rises in depth are indeed polychaete worm mounds which are a food source for fishes. If these are indeed polychaete worm mounds they would attract fishes to the area. Figures 5a and 5b are plots of the salinity with reference to longitude. Temperature and pressure were being plotted on a secondary axis for clarity or turbidity. The sensor can measure practically all suspended particle concentrations found in natural waters (wetlabs, 1999). OBS data indicates that there is a great difference in the turbidity between stations. The value at LE was 100 NTUs while at TOP were around 41.7 NTUs. Since the OBS values are measurements of suspended material in the water column, it may also indicate a resuspension of nutrients offering a potential reason for the variation in species amount and Diversity observed in fig. 2. The resuspension of nutrients would attract smaller species of aquatic life and in turn attract larger species to feed upon the smaller ones. More extensive water testing would be required to prove this but with REMUS it is possible to get broad data that can provide insights as to what might be the explanations for the trawl survey results.