

INTER AND INTRA-ANNUAL VARIABILITY IN ZOOPLANKTON VERTICAL MIGRATION AT SOUTH GEORGIA

P Enderlein¹, EJ Murphy¹, GA Tarling¹, A Brierley², M Brandon³, R Saunders²

¹*British Antarctic Survey, Cambridge, United Kingdom*, ²*Gatty Marine Laboratory, St Andrews, United Kingdom*, ³*The Open University, Milton Keynes, United Kingdom*

The diurnal vertical migration of zooplankton is known to be an important process in planktonic systems. However, there are few continuous, long-term surveys of changes in coastal zooplankton communities around the Antarctic. In this talk we report the analyses of acoustic sensor data obtained from sub-surface moorings systems that were deployed on the South Georgia shelf over a 2 year period (Oct 2002 - Oct 2004) at a depth of 200m. An upward looking 300 kHz Acoustic Doppler Current Profiler (ADCP) mounted on the mooring system continuously recorded the vertical migration patterns of zooplankton at a 6 minute intervals. A method was also developed to determine the biomass of zooplankton. The results showed strong patterns of diurnal migration, which varied throughout each year and were closely correlated with day length. Results also revealed changes in the speed at which zooplankton migrated, as well as their duration spend in different depths. Net samples revealed that Mysids were the mayor migration zooplankton species. These results suggest that there are substantial seasonal changes in the patterns in the vertical migration and biomass of zooplankton around South Georgia. Determining the factors responsible for these seasonal changes will be important in understanding what generates the observed intra and inter-annual changes in zooplankton abundance and the operation of the South Georgia ecosystem.