

Skomer marine reserve subtidal monitoring project

B. Bullimore

6 Mill Street, Penclawdd, Gower, West Glamorgan, SA4 3XJ, Swansea, United Kingdom

The causes and extent of natural fluctuations in subtidal rocky epibenthic communities in British waters is largely unknown and a project to monitor some representative communities in the voluntary Skomer Island Marine Reserve, S.W. Wales, was begun in 1982 with the encouragement of the reserve's management committee.

The non-destructive sampling technique of stereophotography chosen for data gathering was based on proven techniques in use in Scandinavia. The stereocamera system used between 1982 and early 1984 was, owing to severe financial limitations, designed for use with a single Nikonos camera and standard lens. Four sites, of three 0.2 m² quadrats each, at 10, 15, 20 and 25 m below chart datum, were established during July 1982 at a location on the north coast of Skomer Island exposed to strong tidal streams and occasional heavy wave action. The 'typical' vertical bedrock communities at this 'North Wall' station were sampled irregularly until early 1984 when funding by the Nature Conservancy Council enabled expansion of the project and facilitated a more regular sampling programme. Further sites were established in order to monitor several long-lived and/or Lusitanian species of scientific interest. Adjacent to the existing North Wall sites, new sites included colonies of *Alcyonium glomeratum*, *Pentapora foliacea*, *Eunicella verrucosa* and *Gymnangium montagui*. A second station was established on the wave exposed south coast of the island where the communities sampled include *Balanophyllia regia*, *Isozoanthus sulcatus* and several species of sponges and ascidians. A Welsh Water Authority grant also enabled a more efficient stereocamera system to be constructed utilising two cameras with wide angle lenses.

The 20 and 25 m North Wall sites are dominated by *Corynactis viridis* and a short bryozoan turf partially overlying barnacles and *Salmacina dysleri*. Seasonal variation in the bryozoan turf was observed between 1982 and 1984. During 1985 the 25 m site was heavily grazed by *Echinus esculentus* leaving areas of bare rock suitable for colonisation. The communities at the 10 and 15 m sites are dominated by *Alcyonium digitatum* and seasonal growths of hydroids and bryozoans. An understory of *Corynactis*, *Caryophyllia smithii*, sponges and barnacles is only apparent during the winter. The density of colonies of the bryozoan *Cellaria* spp., which generally appear to survive two seasons, have remained fairly constant, although the actual distribution has varied considerably. Considerable growth has been observed in the sampled *Pentapora* and a seasonal growth of epifauna on the colonies noted. No growth in *Eunicella* has been recorded and no apparent change in either the *Balanophyllia* or *A. glomeratum* communities noted during the short time since observations began. The inherent difficulties in estimating the size of highly contractile organisms, such as *A. glomeratum*, are recognised. The *Gymnangium* colony was sampled once in 1982, before inclusion in the regular programme, and since that time has moved across the rock face as new hydrocauli have grown on the 'leading edge' of the colony.

In addition to the above work, a second investigator is monitoring subtidal algal communities at the North Wall station and both the S.M.R.S.M.P. workers are studying the impact of scallop dredges on, and monitoring the recovery of, the benthos of a mixed sediment seabed elsewhere in the reserve.