

The BIOFAR project

Stein Hjalti í Jákupsstovu

The Faroese Fisheries Laboratory; Nóatún, FO-100 Tórshavn; Email: hjaltij@frs.fo

The BIOFAR project has yielded an enormous amount of knowledge on the benthic fauna in Faroese waters. In addition to greatly expanding the faunistic knowledge of the area, new insight has been obtained on the zoogeography of the area, and the distribution of important species and biotopes has been mapped. This knowledge, however not quantitative, will be of great value when the ecosystem on the Faroe Plateau in a hopefully not too distant future is described.

The East Greenland-Scotland ridge divides the Nordic Seas from the Atlantic Ocean. Across the ridge flow warm and saline waters to the North in the upper layers and in the deeper layers cold and less saline waters flow to the South (Hansen and Østerhus, 2000). The inflow of warm water ensures a mild climate much further north in the Northeast Atlantic than otherwise possible in addition to enhancing a large biological production.

Time series of various oceanographic parameters show that the northward flow of warm water and southward flow of cold water vary both interannually and seasonally. For the Faroe Islands, situated on the ridge midway between Iceland and Scotland, the influence of the warm and cold

currents have major impacts as their relative strength affects the productivity of the area.

An anticyclonic circulation on the Faroe Plateau allows for a stable ecosystem to exist within the 130-150 m depth contour. The evidence for this is that the total yield of the main demersal fish species has fluctuated between 40 and 60 thousand tonnes most years in almost a century for which data exists.

Monitoring of the primary production since 1990 has shown large annual fluctuations in the production of a factor 4-5. These fluctuations further appear to have great impact on the growth and recruitment of the fish stocks and sea bird populations (Gaard *et al.*, 2002).

It is the ambition of the Faroese Fisheries Laboratory to collect data series which will enable the creation of an ecosystem model for the Faroe Plateau. Data on the physical and biological oceanography, as well as on the fish stocks are collected on a routinely basis, and very important relationships and correlations have been demonstrated. From stomach analysis of fish caught during the annual bottom trawl surveys, run twice annually since 1996, it is evident that benthic animals are a very important resource of

food for many fish stocks, and that the relative importance varies from one year to the other. Furthermore, the filter feeding benthic animals to a large and unknown extent are also affected by the variable primary production (Sólvá Eliassen, The Faroese Fisheries Laboratory, unpublished model data)

In order to understand and model the Faroe Plateau ecosystem it is therefore of great importance to incorporate the benthic animals in such a model. To this end new quantitative investigations are needed, but the outcome of the BIOFAR program will be vital in the planning and executions of these investigations.

References

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