Guest editorial

European initiatives for Antarctic collaboration

One year ago, at the Bremerhaven Colloquium, we celebrated the end of BIOMASS. Its primary and inspiring goal had been to reach a "deeper understanding" of the structure and functioning of the Antarctic Marine Ecosystem as a basis for the future management of potential living resources. Fifteen years of intense studies in the Southern Ocean have produced a great wealth of information and some increase in understanding. We are now far more cautious before making sweeping statements on Southern Ocean productivity. We doubt that the question, "How much krill is in the Southern Ocean?" can ever be answered. Instead, we think in terms of regional stocks and of their production rates; we are interested in the fluxes between the compartments of the ecosystem and we consider variability more important than averages and steady rates.

In the 1980's great changes took place in Southern Ocean research. CCAMLR assumed responsibilities for management and ecosystem monitoring. Interest in krill fishing declined. Remote sensing and the availability of new ice-breaking research vessels opened up the sea ice zone for comprehensive studies. Having been mostly absent from the Southern Ocean, oceanographers became increasingly involved in the Antarctic components of WOCE and JGOFS. And for Antarctic marine biologists "Global Change" has become a key phrase. In terms of fund raising, the UV-B effect on phytoplankton might even be as profitable a line as the decrease in biodiversity in tropical rain forests!

One of the most important achievements of BIOMASS was to create the international network of scientific contacts which made up the BIOMASS community, headed by Professor El-Sayed. How can this community now be redirected towards the new scientific goals ?

To my mind the time of multi-ship surveys has passed, although there is still the need for synoptic observations which will require two or three vessels to address e.g. up-stream–down-stream effects. SCAR has announced the new programme "Ecology of the Antarctic Sea Ice Zone" (EASIZ) as its major future multinational biological research effort. This aims to bring together the near shore and the pelagic shelf research, combining approaches both from land bases and from ships. Internationally planned and manned expeditions on a single large national research vessel like the European Polarstern Study, EPOS, have proved very successful. There is now more than one vessel operating in the Southern Ocean which would be suitable for such expeditions. Furthermore, coastal Antarctic stations with easy access to the sea and to sea ice could certainly host joint projects bringing together expertise from various institutes, including those not used to polar work. Projects of this kind would also provide some on-the-job training.

BIOMASS is *passé*. Its unique blending of applied and pure research and its fine organizational structure of multi-ship surveys, workshops, data centre, symposia and publications are history. There remains, however, the need for further international co-operation amongst the scientific community of Antarctic marine biologists. I personally think that European Antarctic researchers might take the lead in developing a scheme for international projects based on the sharing of national vessels and shore stations. Such truly European projects should be financially supported by the European Community, but should be open to non-European scientists from industrialized and Third World countries. This would build on the BIOMASS achievements in international co-operation by extending the community and maximizing the opportunities for good science.

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