

## Opening address

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President of ICES

Chers collègues et amis, dear colleagues and friends,

Twenty years ago the University of Århus hosted the ICES Symposium on “North Sea Fish Stocks – Recent Changes and Their Causes”, which was to become a benchmark in ICES history. That meeting provided an opportunity to update the state of knowledge on the living resources exploited in the North Sea and on the development of new approaches and concepts. It is a nice coincidence that allows me to address you on this occasion, as 20 years ago a former French president of ICES, Robert Letaconnoux, did the same at the first Århus Symposium. You will allow me to send him greetings on your behalf.

The Convener of that Symposium, Gotthilf Hempel, raised some fundamental questions in the introduction to the published proceedings about the respective roles of natural causes versus anthropogenic factors in governing fluctuations of fish stocks in the North Sea (Hempel, 1978). In essence these questions were not that different from those raised at the very end of the last century, and they are still largely relevant.

During the periods preceding each of the two ICES Symposia – the first lasting about 70 years and the second, 20 years – major changes occurred. Reduced fishing activity during the war years presented the opportunity to observe the substantial recovery of certain stocks that had been over-exploited. The post-war years provided evidence of the anthropogenic impact on the abundance of the living resources of the North Sea and of their resilience and ability to recover from a depleted state. Over the last two decades, important events have dramatically changed the context of marine fisheries and research on global as well as regional scales, such as that of the North Sea. Among these can be mentioned: the creation of Exclusive Economic Zones; the adoption of the United Nations Convention on the Law of the Sea (UNCLOS); the convening of the United Nations Conference on Environment and Development (UNCED), with its corollary, the precautionary approach; the development of international concern at government and public levels about the quality of the environment; the definition of a Common Fishery Policy by the European Union; and the convening of international conferences on the protection of the North Sea.

These developments reflect a growing concern about the sustainability of harvesting marine resources and about the quality of the marine environment. Examples of stock collapse have been observed in the past. However, never before have so many of the resources throughout the world oceans been in such a poor state as in recent years. The tremendous increase in harvesting capacities has led to acute tensions between user groups competing for the available marine resources: fish stocks as well as the environment in general.

In an address dealing with the consequences of the Rio conference, where biodiversity was a prime concern, the late Professor Ray Beverton defined “rational harvesting and the conservation ethic”. He drew attention to the clear signals sent by this conference to the effect that “management must be as much for the benefit of the fish as for the fishers”; “natural resources should be utilised with as little adverse effect as possible”; and “remedial action must be taken if things are going wrong”.

Ray Beverton proposed to define specific levels of fishing mortality as management objectives based on biological criteria (e.g. adequate spawning biomass). The challenge that scientists have to face lies in the translation of the broad messages emerging from these international conferences into workable objectives, which are needed before relevant and suitable advice can be given. Such advice has, of course, to be based on sound and comprehensive understanding of the biological and economic processes involved and requires interdisciplinary research. Defining common research goals, criteria, and evaluation procedures, and even developing a common language, between the different disciplines involved are the first difficulties that must be overcome.

When dealing with marine ecosystems it may seem trivial even to mention complexity. Nevertheless, this complexity must be addressed before attempting to reach a comprehensive understanding of the interactions that occur. Without simplifications, it will be impossible to translate our knowledge into suitable management advice that can serve as the basis for decisions on sensible and efficient actions. The likely alternative to this scenario is that decisions will be made under the influence of pressure exerted by groups or lobbies whose interests are not necessarily guided by objective scientific analyses.

The past two decades have seen a tremendous development in new concepts and modelling tools which allow us to improve our knowledge of the dynamics of the biological resources in relation to the physical environment. Along the lines developed by Gotthilf Hempel 20 years ago, research has been carried out on various aspects of marine biological processes mainly through international programmes – some coordinated by ICES. During the last decade, the concept of technical interactions, which refers to the relationship between fish resources and fishing activities, has been developed. If the impacts of these activities are considered in an ecological framework, fishermen also constitute part of the system, even though this component has its driving socio-economic forces ashore. Our understanding of the relative importance of economic factors and of the behaviour of the various components is still extremely limited.

ICES is certainly the suitable forum for developing the necessary interdisciplinary research through effective integration, and important steps have already been taken in that direction. This is crucial because society is clearly expecting answers that can provide a basis for concrete actions. In this respect it is worth noting that one of the decisions taken at the last Ministerial Conference on the Protection of the North Sea was

aimed at facilitating joint cooperation between Ministers responsible for environmental issues and those responsible for the fisheries, in future activities and meetings. ICES is already an integral part of these plans and has been asked to lend its support.

The results presented during this Symposium and the subsequent discussions are part of the overall process of understanding the role played by human activities within the marine ecosystem. It is certainly not necessary to comment upon the importance of the research conducted in this framework. I cannot end without a sincere acknowledgement of the role played here by Kathy Richardson and Niels Daan, the Conveners of this ICES Symposium who have also worked so hard and efficiently in cooperation with the local organizers and the City of Århus. Thanks to all of them and thanks to you who will have the task of ensuring that this Symposium continues the unbroken line of the prestigious ones that have preceded it.

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Hempel, G. 1978. Introduction and historical background. *Rapports et Procès-Verbaux des Réunions du Conseil International pour l'Exploration de la Mer*, 172: 5–9.