

**International Conference on Marine Mammals and the Marine Environment Shetland Hotel,
Lerwick, Shetland, 20 & 21 April 1995**

Summary NAMMCO Secretariat - May 1995 (taken from the Annual Report 1995)

The International Conference on Marine Mammals and the Marine Environment was held at the Shetland Hotel, Lerwick, Shetland (UK), 20 and 21 April 1995.

The Conference, which was arranged and hosted by the North Atlantic Marine Mammal Commission (NAMMCO), with support from the Norwegian Ministry of the Environment, focused on the sources, levels and effects of chemical pollution in the marine environment and marine mammals, as well as the consequences of marine pollution for coastal communities. More than 60 people from 15 different countries and a wide range of backgrounds and disciplines attended the two-day event, which featured a total of 20 presentations by scientists and other experts under the four main theme sessions of the Conference programme. Proceedings concluded with an open discussion on issues raised during the meeting, led by a panel of invited experts.

The arrangement of the International Conference on Marine Mammals and the Marine Environment was prompted by contemporary concerns about the state of the marine environment and the desire to understand better the nature and extent of impacts on, and risks to, marine ecosystems and their various components from human activities, both on land and at sea. For many people in coastal communities throughout the North Atlantic and elsewhere, the sources, levels and effects of chemical pollutants in marine mammals are of particular concern. These concerns relate both to the possible long-term effects of contaminants on the continued viability of marine mammal populations, as well as the health risks faced by people who have marine mammals as a significant part of the diet. The International Conference on Marine Mammals and the Marine Environment provided a forum for presentations in both these areas.

The following is an overview of proceedings and a brief summary of some of the main points raised during general discussions. Scientific papers presented at the Conference are currently being edited for publication.

Conference Proceedings

The Conference programme was divided into four main sessions, as outlined below. Proceedings were distinguished by the variety of disciplines and backgrounds of speakers and other participants, with representatives from the chemical, biological, medical, social and political sciences, as well as from public administration and non-governmental organisations. This provided a useful interaction and exchange of information and ideas and led to constructive discussions of the issues on a number of levels. 188 Papers presented:

1 Marine mammals and the marine environment - impacts and management approaches Assessing and managing man-made impacts on the marine environment - the North Sea example: R.Ferm, Chairman of the ICES/OSPARCOM North Sea Task Force The work of ICES on marine mammals and their environment: A. Bjørge, International Council for the Exploration of the Sea (ICES)

2 Contaminants in marine mammals - sources, levels and effects Sources and pathways of persistent organic pollutants to the North Atlantic and levels in the marine food chain: M. Oehme, Institute for Organic Chemistry, Basel / Norwegian Institute for Air Research, Oslo Persistent organochlorines in marine mammals - a global perspective: S. Tanabe, Department of Environment Conservation, Ehime University, Japan Organochlorine contaminants in marine mammals in the Norwegian Arctic: J. Utne Skåre, Norwegian College of Veterinary Medicine Organochlorine residues in seals from the northern

hemisphere: W. Vetter & B. Luckas, Institute for Nutrition and Environment, Friedrich Schiller University, Jena Organochlorines in western Canadian and Arctic seals: trends and toxicological significance: R.F. Addison, Institute of Ocean Sciences, Department of Fisheries and Oceans, British Columbia Status and Trends of Metal Contaminants in Marine Mammals of the Canadian Arctic: R. Wagemann, Freshwater Institute, Winnipeg Metals bioaccumulation in North Atlantic pilot whales: F. Caurant, Institute of Applied Ecology, Angers The impact of the Braer oil spill on seals in Shetland: A. Hall, Sea Mammal Research Unit, Cambridge UK Organochlorine/oil pollution of grey seals: B. Munro Jensen, Department of Zoology, University of Trondheim Histological evaluation and cytochrome P4501A expression in tissues of pilot whales stranded on Cape Cod, MA, USA: M. Moore, Woods Hole Oceanographic Institution, Massachusetts How toxic are toxic residues in cetaceans? An ecotoxicological view: C. Joiris, Laboratory for Ecotoxicology and Polar Ecology, Free University of Brussels

3. Coastal communities & marine pollution - social, economic and health considerations Human health and diet in the Arctic: J. C. Hansen, Arctic Monitoring and Assessment Program (AMAP), Human Health Group/Centre for Arctic Environmental Medicine, Uni. of Århus Inuit exposure to organochlorines and heavy metals through the aquatic food chain in Greenland: G. Mulvad, Centre for Primary Health Care, Nuuk Health implications for Faroe Islanders of heavy metals and PCBs from pilot whales: P. Weihe, Department of Occupational and Human Health, Tórshavn Effects of the Braer oil spill on the Shetland seafood industry: J. Goodlad, Shetland Fishermen's Association, Lerwick

4. Addressing the questions - problems and future needs International efforts to combat marine pollution: experiences gained and future prospects: S. Andresen, Fridtjof Nansen Institute, Oslo Conservation of small cetaceans - the role of a new regional Agreement, ASCOBANS: C. Lockyer, Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas "Commons" concerns in search of uncommon solutions: Arctic marine issues and the relevance of North Atlantic experiences: N. Doubleday, Carleton University, Ottawa

5. Discussion

Conference proceedings concluded with a general, open discussion, initiated by brief statements from each of the four panelists - Steinar Andresen and Michael Oehme (see under 4 & 2 above), Jody Walker of the Contaminants Unit of the Department of Health, Government of the Northwest Territories, Canada, and Frank Anderson of the Ottawa office of the Inuit Circumpolar Conference (ICC).

The panel and discussion session was chaired by Professor Guðmundur Eiriksson, legal adviser to the Ministry of Foreign Affairs, Iceland.

Some of the main points raised during presentations and discussions are summarised below. - Research on global atmospheric transport of persistent organic pollutants indicates that source areas are not necessarily affected by their own emissions. Organic pollutants in Arctic regions, as witnessed by high levels recorded in various species of marine mammals, derive from sources far from the receptor areas, in subtropical and tropical regions, where the use of toxic substances such as polychlorinated bornanes (toxaphenes) in agriculture is widespread in developing countries. - Marine mammals are particularly vulnerable to the long-term toxicity of man-made chemicals in the marine environment, due to their place at the top of the marine food web and due to the accumulation of some pollutants in fat deposits of marine mammals. - Although there is as yet no conclusive scientific evidence of a direct linkage between contaminant loads and mortality in marine

mammals, experimental and other studies have shown that the possible long-term effects of chemical contaminants include hormone disruption and reduction of general resilience to other factors such as disease. Continued monitoring of temporal and spatial contaminant trends, and studies of the physiological effects of pollutants are required before detrimental effects on marine mammal populations can be determined. - Recent medical research has shown high levels of heavy metals and organochlorine compounds in humans, deriving from marine food diets in which whales and seals are significant components, (e.g. the Faroes, Greenland and Canada). These levels are in many cases close to, or in excess of, internationally recognised intake limits. In the Faroes, studies to monitor possible neurobehavioural dysfunctions associated with prenatal exposure to mercury and PCBs are currently being conducted. Preliminary results suggest that some revision of present recommendations on intake levels may be necessary. - The social, economic and health benefits of marine mammal foods in traditional diets should be carefully weighed against the health risks associated with high levels of chemical contaminants. Radical changes in customary local diet in reaction to risk factors, the precise effects of which have yet to be substantiated, are not necessarily an appropriate response in communities dependent on marine foods. - The reduction of chemical pollutants at their source should be the main focus of international cooperation related to the possible effects of marine pollution on marine mammals and the people who consume them. Present knowledge of the distribution of POPs (persistent organic pollutants), their apparent accumulation in colder regions, and indications of their potential long-term effects on both animals and humans, should provide sufficient motivation for global political commitments to the reduction and eventual elimination of these and other toxic substances. -