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Waterbirds around the world

A global overview of the conservation,
management and research of the
world's waterbird flyways

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Cover photography: Whooper Swans *Cygnus cygnus* arriving at Martin Mere, England. Photo: Paul Marshall.
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5.5 The marine environment: challenges for conservation implementation. Workshop Introduction

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Royal Albatross *Diomedea* sp. in New Zealand. The conservation of pelagic seabirds such as albatrosses and petrels is both a pressing and urgent conservation challenge. Photo: Colin Galbraith.

This workshop, the only one of the conference devoted exclusively to a marine theme, recognised that some of the world's greatest conservation challenges are in the marine environment, both within territorial (Exclusive Economic Zone) waters and on the high seas.

Amongst the biggest challenges for marine conservation are:

- a) implementation of precautionary ecosystem-based approaches to sustainable use of resources; and
- b) minimization of the environmental consequences of human activities.

Progress on both topics requires the identification of species, sites and areas needing particularly sensitive management, including the context and scope of Marine Protected Areas.

The presentations illustrated some current approaches to these issues, both methodological and practical, mainly focusing on sea ducks and coastal areas in the Northern Hemisphere.

Two presentations illustrated the use of new methods and instrumentation. Mosbech *et al.* describes the use of satellite telemetry to define migration routes and offshore key habitats during winter for King Eiders *Somateria spectabilis* in arctic Greenland by attaching transmitters to birds from three moulting sites in west Greenland and a breeding site in arctic Canada. With increasing potential human impacts from oil activities and fisheries more knowledge on the key habitats outside the breeding areas is needed. Surveys by plane or ship can give snapshots of distribution and provide important data for population estimates. However, offshore surveys whether by plane or ship are costly and are limited by light and bad weather during the Arctic winter, where ice also limit the accessibility for ships. Therefore satellite telemetry provides an important supplementary tool. West Greenland though in the Arctic, provides areas of open water during winter and is an important wintering area for Arctic marine birds.

Garthe & Skov report that the German Baltic Sea was one the first areas in which the Special Protection Areas (SPA) of the

EC Directive on the conservation of wild birds were selected on the basis of offshore concentrations of seabirds. In 2002, a GIS and geostatistical procedure was applied to define concentration areas for seabirds, mainly sea ducks. From this exercise it was concluded that it is possible to describe offshore aggregations of seabird species exhibiting high aggregations by applying geostatistical routines. For species showing widespread distributions this procedure is much more difficult and needs to be further developed. For modelling purposes, co-variables (*e.g.* water depth) should be taken into account in the future. Also, the spatial variation of the boundary lines describing concentrations should be calculated to estimate the reliability of the data as well as the relevance of the areas selected.

Nikolaeva *et al.* reported that although the present system of Russian protected areas has established over 100 strictly protected nature reserves (*zapovedniks*), these do not currently include marine protected areas. An important goal is to establish 13 strictly protected reserves with offshore areas for protection of seabirds and waterfowl and coastal marine habitats. Recently the combined efforts of experts have resulted in a set of proposed Marine Protected Areas with special reference to seabird and sea duck conservation. Some of the most important proposed protected areas in the Barents and White Sea include: (1) east Murman coast including the archipelagos of the Kandalaksha state strictly protected reserve and the most important seabird colonies; (2) the main moulting, migrating and stopover areas of waterfowl in the Pechora Sea area; (3) the main breeding moulting, migrating and wintering areas in the White Sea area. In the very near future rapid oil and gas development and transportation on the Russian arctic shelf will come into conflict with the existing habitat protection strategy for seabirds and waterfowl. It is evident that development of an appropriately designed network of marine protected areas is urgently needed as an effective way

to mitigate the environmental impact of the above activities and to maintain normal ecosystem functioning.

Overall, the workshop agreed that sufficient data, expertise and relevant methodological approaches now exist to identify key sites for protecting breeding and wintering concentrations of seabirds and sea duck within coastal areas, notably Exclusive Economic Zones (EEZs). The challenge here is primarily to integrate the necessary species and habitat protection into an appropriate overall system for managing all aspects of such habitats in a way that will provide suitable protection against pollution, over-fishing and other ecosystem-destabilizing influences. Even within coastal areas and EEZs, however, much more work is needed to identify important staging areas and to define key habitats for species which are not congregatory.

For high seas areas and pelagic marine systems, however, considerable new work is required to develop approaches for identifying critical habitats and biodiversity hot-spots for marine vertebrates, especially seabirds. This will require combining existing data from at-sea surveys with records from remote-tracking sources and developing new analytical and modeling approaches for visualizing and integrating such data with information from other marine taxa and with data on the physical and biological marine environment. New standards of management and governance of the high seas will also need to be implemented, particularly by Regional Fisheries Management Organizations and others with high seas jurisdictions, closely linked to parallel initiatives and equivalent standards being implemented in adjacent areas within EEZs under coastal state jurisdiction. This will entail large-scale multinational initiatives and will need to involve data holders and stakeholders from both conservation and resource exploitation constituencies, together with relevant government, intergovernmental and non-governmental organizations if open-ocean areas are to be managed and protected in appropriate ways.



With issues to address in both terrestrial and marine environments, birds such as penguins present challenging conservation problems. More than 3 000 Magellanic Penguins *Spheniscus magellanicus* at Harber-ton, Beagle Channel, Argentina. Photo: Chris Wilson.