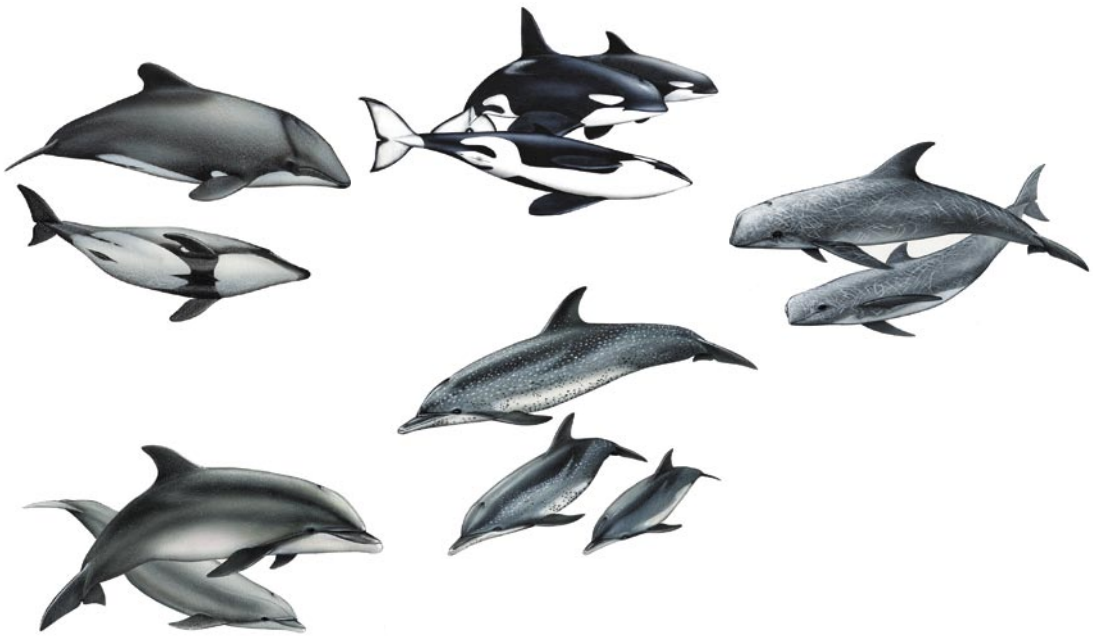
Review of Small Cetaceans

Distribution, Behaviour, Migration and Threats

by Boris M. Culik
Illustrations by Maurizio Wurtz, Artescienza

Marine Mammal Action Plan/
Regional Seas Reports and Studies no. 177



UNEP CMS Regional Seas

Published by United Nations Environment Programme (UNEP) and the Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Review of Small Cetaceans. Distribution, Behaviour, Migration and Threats. 2004. Compiled for CMS by Boris M. Culik. Illustrations by Maurizio Wurtz, Artescienza. UNEP/CMS Secretariat, Bonn, Germany. 343 pages.

Marine Mammal Action Plan / Regional Seas Reports and Studies no. 177

Produced by	CMS Secretariat, Bonn, Germany in collaboration with UNEP
Coordination team	Marco Barbieri, Veronika Lenarz, Laura Meszaros, Hanneke Van Lavieren
Editing	Rüdiger Strempel
Design	Karina Waedt

The author Boris M. Culik is associate Professor of Marine Zoology at the Leibnitz Institute of Marine Sciences at Kiel University (IFM-GEOMAR) and works free-lance as a marine biologist.

Contact address:
Prof. Dr. Boris Culik
F³: Forschung / Fakten / Fantasie
Am Reff 1
24226 Heikendorf, Germany
Email: bculik@fh3.de
www.fh3.de

The drawings stem from Prof. Maurizio Wurtz, Dept. of Biology at Genova University and illustrator/artist at Artescienza.

Contact address:
Prof. Maurizio Wurtz
Dept. of Biology, Genova University
Viale Benedetto XV, 5
16132 Genova, Italy
Email: wurtz-ge@unige.it
www.artescienza.org

Copies of this publication are available from the
UNEP/CMS Secretariat
United Nations Premises in Bonn
Martin-Luther-King Str. 8
53175 Bonn, Germany
Tel (+49 228) 815 24 01/02
Fax (+49 228) 815 24 49
E-mail: secretariat@cms.int
www.cms.int

ISBN 3–93 74 29–02–6

Review of Small Cetaceans

Distribution, Behaviour, Migration and Threats

UNEP/CMS

Foreword
Dr. Klaus Töpfer

Unfortunately, all cetacean species face a number of threats. Some of these are from natural causes such as predators but the majority of threats facing cetaceans today result from either direct or indirect human impacts, including bycatch in fisheries, habitat degradation, marine pollution, acoustic disturbance and competition with fisheries. As highly mobile species with individual ranges covering vast areas of ocean, these marine mammals present special challenges for their conservation.

Public outcry over the plight of marine mammals has motivated the international community to protect them at national, regional and international levels. Greater priority was also given to the protection of the unique creatures by the United Nations in the early 1980s. Seeing an opportunity to organize collective efforts into one global conservation effort, the UN brought governments together which resulted in a Global Plan of Action for the Conservation, Management and Utilization of Marine Mammals. This Action Plan serves to generate consensus among governments on basic policy related to marine mammal protection and management. It integrates research on such issues as the creation of sanctuaries, prohibition of access to breeding areas and setting of catch limits.

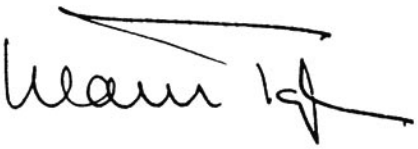
At the regional level the Marine Mammal Action Plan has helped to enhance the technical and institutional capacities for the conservation and management of marine mammals in several Regional Seas programmes, particularly those of Latin America and the Caribbean, Eastern Africa, West and Central Africa, the Black Sea and South-East Asia.

Several international partners of this Action Plan, notably the IWC, CMS and CITES and NGOs such as Greenpeace, IFAW and WWF play an important role in the conservation of small and medium sized cetaceans. Only recently, the Irrawaddy dolphin, was transferred from the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II to Appendix I, which forbids all commercial trade. This is an example of binding management actions in regard to small and medium-sized cetaceans taken by a global convention.

Small cetaceans are also covered by two regional agreements of the Convention on Migratory Species (CMS): the Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) and the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS). Similar CMS initiatives are being developed for the South Pacific, South-East Asia and West Africa as well. In addition, CMS supports important activities such as field surveys and training, technical workshops and conferences, as well as scientific publications like this one.

This publication is one result of the collaboration between UNEP and CMS on the plight of marine mammals. Compiled by marine biologist Prof. Dr. Boris Culik, for the Bonn Secretariat of CMS, it summarizes the available knowledge on toothed whales distribution, behavior, migration and threats.

We hope this comprehensive review will encourage greater public awareness of the importance of marine conservation and the benefits for marine biodiversity, and will improve our understanding of threats to these threatened species. It offers an opportunity to reinforce our commitment to marine mammal conservation and management, and to revitalize our 20-year partnership to implement the Marine Mammal Action Plan.



Dr. Klaus Töpfer, Executive Director of UNEP

Foreword
Robert Hepworth

Small cetaceans are at the centre of marine mammals conservation within the Convention on Migratory Species. The important role of CMS' Regional Agreements, ACCOBAMS and ASCOBANS, is being reflected in their enhanced collaboration with the United Nations Environment Programme (UNEP). They contribute to implementing the Joint Work Programme between CMS and the Convention on Biological Diversity (CBD). As such they play a vital role within the preparation and implementation of national biodiversity strategies and action plans.

This reference book is intended for experts in the field of marine biology, students, and conservationists as well as for interested laypersons. No comparable encyclopedia on whales has been published so far. With the exception of the sperm whale, all 72 species of toothed whales that migrate across the oceans are covered. What is new about this review is that it is based on the most recent literature available and compiled by a single author and not by a variety of experts. It highlights the threats whales are exposed to. A description and a picture are dedicated to each species. A detailed list of references to every single species adds particular value to the study. The most up to date maps available illustrate their distribution. Population size, biology, migration patterns and threats are dealt with in further chapters. These new findings on distribution, behaviour and migration will facilitate the application of targeted action plans and threat mitigating methods.

The study was published for the first time on the CMS website in 2001. Readers were invited to submit comments to the author. Since then the publication has been continuously amended and supplemented up to and including 2004. The fact that experts were given the opportunity to review the study before printing is quite unique and ensures its high scientific value. With the results of the most recent research undertaken this publication makes a valuable contribution to seeking efficient conservation strategies for cetaceans.

I would like to thank the Division of Environmental Conventions of UNEP for publishing this important review. It heralds the revitalisation of the Marine Mammals Action Plan where I hope that CMS will work with related Conventions, UNEP's Regional Seas Programmes, NGOs and others towards the conservation of marine mammals.

Robert Hepworth, Executive Secretary of CMS

Table of Contents

1 Preface

This report summarises the available knowledge on odontocete (toothed whale) distribution, behaviour, migration and threats and was compiled for the Bonn Secretariat of CMS.

First of all, how is the term "migration" to be interpreted? According to the Bonn Convention on the Conservation of Migratory Species of Wild Animals, "Migratory species" means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries".

What methods were employed to compile this review? While I compiled published information, I sent several emails via the marine mammal science (MARMAM) and the European Cetacean Society (ECS) list servers in order to obtain the latest information from the specialists in the field. The information returned, for which I am very grateful, is cited as (pers. comm.) in the report where appropriate. With respect to scientific papers, I used the Aquatic Science and Fisheries Abstract (ASFA Silver Platter) from 1978–2003 as well as the Biological Abstracts Service from 1990–2003 available at the library of the Institut für Meereskunde, Kiel. Both services monitor a very wide variety of biological, aquatic and marine scientific literature and are very good sources of full abstracts of scientific papers. To select relevant publications, I used the coarsest possible filter, i.e. the species name, and then selected "by hand" as well as via the Reference Manager software the appropriate sources from the wide variety that: "Initial faith in the near-infallibility of molecular studies has now been tempered by a more sober appraisal of their strengths and weaknesses. Molecular techniques are not free of many of the difficulties that beset morphological techniques, and they have some of their own... Perhaps the most serious deficiency that has compromised the credibility of many molecular phylogenetic studies is that each higher taxon is usually represented by only one or a few of its species. Another serious deficiency has been the routine use of only one or at most few specimens to represent each species, so that no cognisance is taken of individual or geographic variation. For example, in a cladogram based on the amino acid sequences of myoglobin, one specimen of *Delphinus delphis* formed a clade with *Tursiops truncatus* and *Stenella frontalis*, but another specimen formed a clade with *Globicephala melas* and *Orcinus orca*." (Rice 1998)

With respect to migratory behaviour, another word of caution came from Robin Baird (pers. comm.): "I know that for most species of cetaceans the information available on possible migratory patterns is pretty sparse, and what is available is often fraught with sampling biases. I'm amazed how often people conclude animals migrate because they don't see them during the winter (when the days are short, the amount of survey effort is minimal etc.)." Finally, I would -point out that the range states mentioned under the heading "Remarks" are not necessarily countries where the species has been directly sighted (these are found under "Distribution") but those states touched by the distribution of the species as shown on the maps. With these limitations in mind, I hope that the reader will