

CAMBRIDGE

JOURNALS

Environmental Conservation

International Journal of Interdisciplinary Environmental Science

Published for the Foundation for Environmental Conservation

Editor

Nicholas V. C. Polunin, University of Newcastle, UK

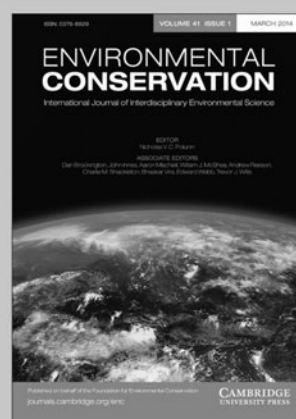
Environmental Conservation is one of the longest-standing, most highly-cited of the interdisciplinary environmental science journals. It includes research papers, reports, comments, subject reviews, and book reviews addressing environmental policy, practice, and natural and social science of environmental concern at the global level, informed by rigorous local level case studies. The journal's scope is very broad, including issues in human institutions, ecosystem change, resource utilisation, terrestrial biomes, aquatic systems, and coastal and land use management. *Environmental Conservation* is essential reading for all environmentalists, managers, consultants, agency workers and scientists wishing to keep abreast of current developments in environmental science. Selected papers are made freely available online as part of **EC Perspectives**.

Price information

is available at: <http://journals.cambridge.org/enc>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/enc-alerts>



Environmental Conservation is available online at:
<http://journals.cambridge.org/enc>

To subscribe contact Customer Services

in Cambridge:
Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:
Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/enc>

 **CAMBRIDGE**
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Antarctic Science

Published on behalf of Antarctic Science Ltd, Cambridge

Editors

Laurie Padman, Earth & Space Research, Corvallis, USA

Walker O. Smith, Virginia Institute of Marine Sciences, USA

Alan P. M. Vaughan, British Antarctic Survey, Cambridge, UK

David W. H. Walton, British Antarctic Survey, Cambridge, UK

Antarctic Science provides a truly international forum for the broad spread of studies that increasingly characterize scientific research in the Antarctic. The journal attracts papers from all countries currently undertaking Antarctic research. Whilst emphasising interdisciplinary work, the journal publishes papers from environmental management to biodiversity, from volcanoes to icebergs, and from oceanography to the upper atmosphere. No other journal covers such a wide range of Antarctic scientific studies.

Price information

is available at: <http://journals.cambridge.org/ans>

Free email alerts

Keep up-to-date with new material – sign up at

<http://journals.cambridge.org/ans-alerts>



Antarctic Science

is available online at:

<http://journals.cambridge.org/ans>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/ans>

 **CAMBRIDGE**
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

The Lichenologist

Published on behalf of The British Lichen Society

Senior Editor

Peter D. Crittenden, University of Nottingham, UK

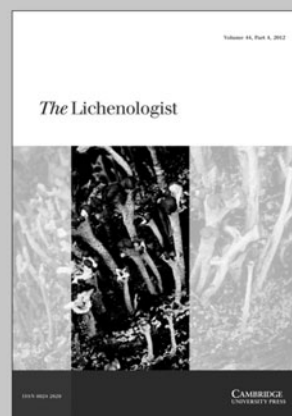
The Lichenologist is the premier scientific journal devoted exclusively to the study of lichens worldwide. As the leading forum for the dissemination of new concepts and topical reviews, *The Lichenologist* reaches more scientists concerned with the study of lichens and lichen symbionts than any other single journal. All aspects of lichenology are considered including systematics and phylogenetics; molecular biology; ultrastructure, anatomy and morphology; secondary chemistry, effects of pollutants and use as bioindicators; biogeography.

Price information

is available at: <http://journals.cambridge.org/lic>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/lic-alerts>



The Lichenologist
is available online at:
<http://journals.cambridge.org/lic>

To subscribe contact Customer Services

in Cambridge:
Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:
Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/lic>

 **CAMBRIDGE**
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Oryx

The International Journal of Conservation
Published for Fauna & Flora International

Editor

Martin Fisher, Fauna & Flora International, UK

Oryx -- *The International Journal of Conservation* is a quarterly peer-reviewed journal of biodiversity conservation, conservation policy and sustainable use, and the interaction of these subjects with social, economic and political issues. The journal has a particular interest in material that has the potential to improve conservation management and practice, supports the publishing and communication aspirations of conservation researchers and practitioners worldwide and helps build capacity for conservation. Besides articles and short communications, *Oryx* regularly publishes reviews, forum sections and letters, and every issue includes comprehensive reporting of international conservation news.

Price information

is available at: <http://journals.cambridge.org/orx>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/orx-alerts>



Oryx

is available online at:
<http://journals.cambridge.org/orx>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/orx>

 **CAMBRIDGE**
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Bird Conservation International

Published on behalf of BirdLife International

Editor-in-Chief

Phil Atkinson, British Trust for Ornithology, UK

Bird Conservation International is a quarterly peer-reviewed journal focusing on the conservation of birds and their habitats. The official journal of BirdLife International, it provides stimulating, international and up-to-date coverage of a broad range of conservation topics, using birds to illuminate wider issues of biodiversity, conservation and sustainable resource use. *Bird Conservation International* publishes original papers and reviews, including specifically targeted articles and recommendations by leading experts.

Price information

is available at: <http://journals.cambridge.org/bci>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/bci-alerts>



Bird Conservation International is available online at:
<http://journals.cambridge.org/bci>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/bci>

 **CAMBRIDGE**
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

The Journal of Navigation

Published on behalf of
The Royal Institute of Navigation

Editors

Nick Randall, MSc FRIN, The Royal Institute of Navigation, UK
Tony Fyler, The Royal Institute of Navigation, UK

The Journal of Navigation contains original papers on the science of navigation by man and animals over land and sea and through air and space, including a selection of papers presented at meetings of the Institute and other organisations associated with navigation. Papers cover every aspect of navigation, from the highly technical to the descriptive and historical. Subjects include electronics, astronomy, mathematics, cartography, command and control, psychology and zoology, operational research, risk analysis, theoretical physics, operation in hostile environments, instrumentation, ergonomics, financial planning and law. The journal also publishes selected papers and reports from the Institute's special interest groups. Contributions come from all parts of the world.

Price information

is available at: <http://journals.cambridge.org/nav>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/nav-alerts>



The Journal of Navigation
is available online at:
<http://journals.cambridge.org/nav>

To subscribe contact Customer Services

in Cambridge:
Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:
Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/nav>



CAMBRIDGE
UNIVERSITY PRESS

THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM

TERMS OF MEMBERSHIP FOR 2016

MBA MEMBERSHIP (prices per annum)	Price from 1st March 2016
Young Marine Biologist (YMB)	£12.50
Student Member	£25.00
Associate Member	£40.00 (direct debit discount £5)
Professional Member, Mem.MBA	£45.00 (direct debit discount £5)
MBA Fellow, FMBA	£120.00 (direct debit discount £5)
Institutional Member	£340.00

JOURNAL SUBSCRIPTION (MBA price added to the above membership fees, with the exception of YMB as no Journal option for this category)	
Online Journal	£20.00
Print Journal	£60.00
Print & Online Journal	£80.00

The Association is a learned society founded in 1884 and incorporated by Royal Charter in 2013. The Marine Biological Association (MBA) provides a unified, clear, independent voice on behalf of the marine biological community. In 1888, the MBA opened the Plymouth laboratory at Citadel Hill.

The MBA is also a registered charity with its key aims being to promote scientific research into all aspects of life in the sea, including the environment on which it depends, and to disseminate to the public the knowledge gained. The Patron of the Association is His Royal Highness the Duke of Edinburgh, who is also an Honorary Fellow. The other Honorary Fellows are His Serene Highness Prince Albert of Monaco, Dr Sylvia Earle, Sir Tim Hunt and Professor James Lovelock.

The work of the Association is controlled by the Council elected annually by its subscribing members.

The Marine Biological Association, under the direction of its Council, has undertaken research in all branches of marine science and many of the results have been published in this Journal. An account of the history of the first hundred years of the Association and Journal may be found in Volume 67 (pp. 463 and 465).

Since its foundation the Association has been supported by grants from Research Councils and by subscriptions and donations from private members, universities, learned societies, the Fishmongers' Company and other public bodies.

The Plymouth Laboratory was opened in June 1888 and, since that date, considerable additions have been made to the buildings,

including a library, resource centre, extensive laboratory accommodation and seawater facilities.

The Association and the research programme are based entirely at the Citadel Hill Laboratory. The building is shared with SAHFOS (Sir Alister Hardy Foundation for Ocean Science).

The Marine Biological Association retains the lease of the building on Citadel Hill and continues as a very active scientific learned society with a large international membership. The MBA manages a research programme carried out by research fellows together with scientific visitors, publishes an International Journal, Annual Report, Newsletters and organizes scientific meetings.

Subscriptions can be paid by cash/cheque, direct debit from a UK bank account or credit card. *Subscriptions are reduced by £5 per annum if paying by direct debit.

Members of the Association have a wide range of rights and privileges including the use of post-nominals (FMBA for MBA Fellows, Mem.MBA for Professional Members) and being entitled to receive the Marine Biologist Magazine. The Commissioners of Inland Revenue have approved the Association for the purposes of Section 16, Finance Act, 1958, and that the whole of the annual subscriptions paid by a member who qualifies for relief under the section will be allowable as a deduction from his emoluments assessable to income tax.

All correspondence should be addressed to: The Membership Secretary, Marine Biological Association, The Laboratory, Citadel Hill, Plymouth, PL1 2PB, UK (Tel. +44 (0) 1752 633207; Fax. +44 (0) 1752 633102; e-mail: membership@mba.ac.uk).

PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, CB2 1RP, United Kingdom

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

Printed by Bell and Bain Limited, Glasgow

CAMBRIDGE UNIVERSITY PRESS

Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, United Kingdom
32 Avenue of the Americas, New York, NY 10013-2473, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
C/ Orense, 4, planta 13, 28020, Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

CONTENTS

SPECIAL ISSUE: MARINE MAMMALS

FOREWORD

- Evans, P.G.H. & Anderwald, P. Addressing human pressures upon marine mammals: a European and global perspective 779

ARTICLES

- Huggenberger, S., André, M. & Oelschläger, H.H.A. The nose of the sperm whale: overviews of functional design, structural homologies and evolution 783
- Bertulli, C.G., Rasmussen, M.H. & Rosso, M. An assessment of the natural marking patterns used for photo-identification of common minke whales and white-beaked dolphins in Icelandic waters 807
- Negri, M.F., Panebianco, M.V., Denuncio, P., Paso Viola, M.N., Rodríguez, D. & Cappozzo, H.L. Biological parameters of franciscana dolphins, *Pontoporia blainvillei*, by-caught in artisanal fisheries off southern Buenos Aires, Argentina 821
- Panebianco, M.V., Del Castillo, D.L., Denuncio, P.E., Negri, M.F., Bastida, R., Failla, M., Vitullo, A.D. & Cappozzo, H.L. Reproductive biology of female franciscana dolphins (*Pontoporia blainvillei*) from Argentina 831
- Davison, N.J., Ten Doeschate, M.T.I., Dagleish, M.P., Read, F.L., Reid, R.J., Foster, G., Brownlow, A. & Barley, J. Twin fetuses in an Atlantic white-sided dolphin (*Lagenorhynchus acutus*) stranded on the coast of Scotland, UK 841
- Kimura, S., Akamatsu, T., Fang, L., Wang, Z., Wang, K., Wang, D. & Yoda, K. Apparent source level of free-ranging humpback dolphin, *Sousa chinensis*, in the South China Sea 845
- Di Benedetto, A.P.M. & Monteiro, L.R. Isotopic niche of two coastal dolphins in a tropical marine area: specific and age class comparisons 853
- D'Agostino, V.C., Hoffmeyer, M.S. & Degradi, M. Faecal analysis of southern right whales (*Eubalaena australis*) in Peninsula Valdés calving ground, Argentina: *Calanus australis*, a key prey species 859
- Dede, A., Salman, A. & Tonay, A.M. Stomach contents of by-caught striped dolphins (*Stenella coeruleoalba*) in the eastern Mediterranean Sea 869
- Ryan, C., Whooley, P., Berrow, S.D., Barnes, C., Massett, N., Strietman, W.J., Broms, F., Stevick, P.T., Fernald Jr, T.W. & Schmidt, C. A longitudinal study of humpback whales in Irish waters 877
- Stevick, P.T., Berrow, S.D., Bérubé, M., Bouveret, L., Broms, F., Jann, B., Kennedy, A., López Suárez, P., Meunier, M., Ryan, C. & Wenzel, F. There and back again: multiple and return exchange of humpback whales breeding habitats separated by an ocean basin 885
- Cafaro, V., Angeletti, D., Bellisario, B., Macali, A., Carere, C. & Alessi, J. Habitat overlap between bottlenose dolphins and seabirds: a pilot study to identify high-presence coastal areas in the Tyrrhenian Sea 891
- Elorriaga-Verplancken, F.R., Morales-Luna, L., Heckel, G. & Schramm, Y. Foraging ecology of harbour seals (*Phoca vitulina*) and Northern elephant seals (*Mirounga angustirostris*) from Baja California, Mexico: inferences from stable isotopes in pups 903
- Genov, T., Angelini, V., Hace, A., Palmisano, G., Petelin, B., Malačič, V., Pari, S. & Mazzariol, S. Mid-distance re-sighting of a common bottlenose dolphin in the northern Adriatic Sea: insight into regional movement patterns 909
- Viddi, F.A. & Harcourt, R.G. Behaviour of Chilean and Peale's dolphins in southern Chile: interspecific variability of sympatric species 915
- Covelo, P., Martínez-Cedeira, J.A., Llavona, Á., Díaz, J.I. & López, A. Strandings of Beaked Whales (Ziphiidae) in Galicia (NW Spain) between 1990 and 2013 925
- Leeney, R.H., Weir, C.R., Campredon, P., Regalla, A. & Foster, J. Occurrence of Atlantic humpback (*Sousa teuszi*) and bottlenose (*Tursiops truncatus*) dolphins in the coastal waters of Guinea-Bissau, with an updated cetacean species checklist 933
- Gonçalves, L.R., Augustowski, M. & Andriolo, A. Occurrence, distribution and behaviour of Bryde's whales (Cetacea: Mysticeti) off south-east Brazil 943
- Alves, M.D., Kinas, P.G., Marmontel, M., Borges, J.C.G., Costa, A.F., Schiel, N. & Araújo, M.E. First abundance estimate of the Antillean manatee (*Trichechus manatus manatus*) in Brazil by aerial survey 955
- Alves, M.D., Kinas, P.G., Marmontel, M., Borges, J.C.G., Costa, A.F., Schiel, N. & Araújo, M.E. First abundance estimate of the Antillean manatee (*Trichechus manatus manatus*) in Brazil by aerial survey – CORRIGENDUM 967
- Bertulli, C.G., Leeney, R.H., Barreau, T. & Matassa, D.S. Can whale-watching and whaling co-exist? Tourist perceptions in Iceland 969
- Arias, A.H., Panebianco, M.V., Net, S., Dumoulin, D., Souissi, S., Ouddane, B., Cappozzo, H.L. & Marcovecchio, J.E. Franciscana dolphins as PCBs marine biomonitors in Argentina, south-west Atlantic Ocean 979
- Tonay, A.M. Estimates of cetacean by-catch in the turbot fishery on the Turkish Western Black Sea Coast in 2007 and 2008 993
- Bamford, C.C.G. & Robinson, K.P. An analysis of dorsal edge markings in short-beaked common dolphins (*Delphinus delphis*) from the Bay of Gibraltar and the Moray Firth 999