

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.



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

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>

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

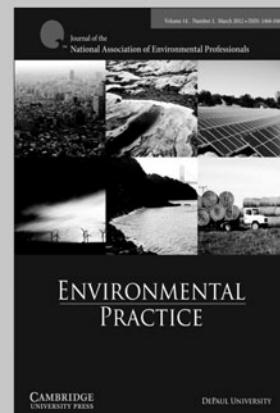
 CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Environmental Practice

Published for the National Association of Environmental Professionals



Editor

Tim Stretton, Saint Mary's University, Canada

Environmental Practice provides a multidisciplinary forum for authoritative discussion and analysis of issues of wide interest to the international community of environmental professionals, with the intent of developing innovative solutions to environmental problems for public policy implementation, professional practice, or both. Peer-reviewed original research papers, environmental reviews, and commentaries, along with news articles and points of view, link findings in science and technology with issues of public policy, health, environmental quality, law, political economy, management, and the appropriate standards for expertise.

Environmental Practice

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

**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

Free email alerts

Keep up-to-date with new material – sign up at
journals.cambridge.org/register

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

 **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>

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



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

 CAMBRIDGE
UNIVERSITY PRESS

THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM

TERMS OF MEMBERSHIP FOR 2014

Professional members, receiving the Journal – online only, per annum	£55.00*
Professional members, receiving the Journal – print only, per annum	£95.00*
Professional members, receiving the Journal – print and online, per annum	£115.00*
Associate members, receiving the Journal – online only, per annum	£55.00*
Associate members, receiving the Journal – print only, per annum	£95.00*
Associate members, receiving the Journal – print and online, per annum	£115.00*
Student members, receiving the Journal – online only, per annum (non-voting)	£30.00
Student members, receiving the Journal – print only, per annum (non-voting)	£45.00
Institutional members, receiving the Journal – online only, per annum	£360.00
Institutional members, receiving the Journal – print and online, per annum	£425.00
Fellow members, receiving the Journal – online only, per annum	£140.00*
Fellow members, receiving the Journal – print only, per annum	£180.00*
Fellow members, receiving the Journal – print and online, per annum	£200.00*

The Association is a registered charity and was founded in 1884 to promote accurate researches leading to the advancement of zoological and botanical science and to increase our knowledge of the food, life, conditions and habits of British fish. 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). Summaries of the activities and research of the Association are given annually in the Report of the Council, sent to members in April, and to other subscribers with a later issue of the *JMBA*.

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.

In 1988 an agreement was reached between the MBA Council and the Natural Environment Research Council (NERC) to merge a large part of the Plymouth Laboratory with the NERC's Institute for Marine Science which had been in Plymouth since 1971. This new institute was called the Plymouth Marine Laboratory (PML) based at both Citadel Hill and West Hoe sites. In 2001 the MBA and PML re-established separate identities funded by Grants-in-aid from NERC. 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 (partly funded by NERC) 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 the following rights and privileges: they elect the Officers and Council annually; they are entitled to receive the Journal of the Association at the members' rate; they receive the biannual Newsletter; they have the option to apply to the Director for research facilities at the laboratory; and they have access to the resources in the library at Plymouth during working hours. Corporate members have significant additional rights and privileges, details of which can be supplied on request. Student members do not have voting rights. 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.

CAMBRIDGE UNIVERSITY PRESS

The Edinburgh Building, Cambridge, CB2 2RU, 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

FOREWORD

Evans, P.G.H., Anderwald, P. & Wright, A.J. Marine mammal research: its relationship to other scientific disciplines and to wider society	1073
Cronin, M., Gregory, S. & Rogan, E. Moultling phenology of the harbour seal in south-west Ireland	1079
Garibaldi, F. & Podestà, M. Stomach contents of a sperm whale (<i>Physeter macrocephalus</i>) stranded in Italy (Ligurian Sea, north-western Mediterranean)	1087
Best, P.B., Smale, M.J., Glass, J., Herian, K. & Heyden, S.V.D. Identification of stomach contents from a Shepherd's beaked whale <i>Tasmacetus shepherdii</i> stranded on Tristan da Cunha, South Atlantic	1093
Páez-Rosas, D. & Auriolles-Gamboa, D. Spatial variation in the foraging behaviour of the Galapagos sea lions (<i>Zalophus wollebaeki</i>) assessed using scat collections and stable isotope analysis	1099
Fernández, R., Pierce, G.J., MacLeod, C.D., Brownlow, A., Reid, R.J., Rogan, E., Addink, M., Deaville, R., Jepson, P.D. & Santos, M.B. Strandings of northern bottlenose whales, <i>Hyperoodon ampullatus</i> , in the north-east Atlantic: seasonality and diet	1109
Murray, A., Rice, A.N. & Clark, C.W. Extended seasonal occurrence of humpback whales in Massachusetts Bay	1117
Arcoverde, D.L., Emin-Lima, R., Costa, A.F., Beneditto, A.P.M.D., Siciliano, S., Sena, L., Moreno, I.B. & Silva, J.D.S.E.Jr Evaluation of periotic-timpanic bone complex of <i>Sotalia guianensis</i> (Cetacea: Delphinidae) as tool in identification of geographic variations	1127
Anzolin, D.G., Carvalho, P.S.M.D., Vianajr, P.C., Normande, I.C. & Souto, A.D.S. Stereotypical behaviour in captive West Indian manatee (<i>Trichechus manatus</i>)	1133
Kikuchi, M., Akamatsu, T., Gonzalez-Socoloske, D., Souza, D.A.D., Olivera-Gomez, L.D. & Silva, V.M.F.D. Detection of manatee feeding events by animal-borne underwater sound recorders	1139
Degrati, M., Dans, S.L., Garaffo, G.V. & Crespo, E.A. Seabird and dolphin associations: do seabirds benefit from feeding in association with dusky dolphins in Patagonia?	1147
Stringell, T.B., Millar, C.P., Sanderson, W.G., Westcott, S.M. & McMath, M.J. When aerial surveys will not do: grey seal pup production in cryptic habitats of Wales	1155
Luksenburg, J.A. The cetaceans of Aruba, southern Caribbean	1161
Pulcini, M., Pace, D.S., Manna, G.L., Triassi, F. & Fortuna, C.M. Distribution and abundance estimates of bottlenose dolphins (<i>Tursiops truncatus</i>) around Lampedusa Island (Sicily Channel, Italy): implications for their management	1175
Dolman, S.J., Hodgins, N.K., MacLeod, C.D., Pierce, G.J. & Weir, C.R. Harbour porpoises (<i>Phocoena phocoena</i>) and minke whales (<i>Balaenoptera acutorostrata</i>) observed during land-based surveys in The Minch, north-west Scotland	1185
Dede, A., Özeturk, A.A., Akamatsu, T., Tonay, A.M. & Özeturk, B. Long-term passive acoustic monitoring revealed seasonal and diel patterns of cetacean presence in the Istanbul Strait	1195
Scheinin, A.P., Kerem, D., Lojen, S., Liberzon, J. & Spanier, E. Resource partitioning between common bottlenose dolphin (<i>Tursiops truncatus</i>) and the Israeli bottom trawl fishery? Assessment by stomach contents and tissue stable isotopes analysis	1203
Lauriano, G., Guardo, G.D., Marsili, L., Maltese, S. & Fossi, M.C. Biological threats and environmental pollutants, a lethal mixture for mediterranean cetaceans?	1221
Gonzalo, J., Forcada, J., Grau, E. & Aguilar, A. Strong site-fidelity increases vulnerability of common bottlenose dolphins <i>Tursiops truncatus</i> in a mass tourism destination in the western Mediterranean Sea	1227
Karpiej, K., Simard, M., Pufall, E. & Rokicki, J. Anisakids (Nematoda: Anisakidae) from ringed seal, <i>Pusa hispida</i> , and bearded seal, <i>Erignathus barbatus</i> (Mammalia: Pinnipedia) from Nunavut region	1237
OBITUARY	
Lipinski, M. Malcolm Roy Clarke: marine biologist and Fellow of the Royal Society	1243
FOREWORD	
Foote, A.D., Kuningas, S. & Samarra, F.I.P. North Atlantic killer whale research: past, present and future	1245
Lawson, J.W. & Stevens, T.S. Historic and current distribution patterns, and minimum abundance of killer whales (<i>Orcinus orca</i>) in the north-west Atlantic	1253
Passadore, C., Domingo, A., Szephegyi, M. & Secchi, E.R. Influence of environmental and longline fishing operational variables on the presence of killer whales (<i>Orcinus orca</i>) in south-western Atlantic	1267
Kuningas, S., Similä, T. & Hammond, P.S. Population size, survival and reproductive rates of northern Norwegian killer whales (<i>Orcinus orca</i>) in 1986–2003	1277
Higdon, J.W., Westdal, K.H. & Ferguson, S.H. Distribution and abundance of killer whales (<i>Orcinus orca</i>) in Nunavut, Canada—an Inuit knowledge survey	1293
Dunn, C. & Claridge, D. Killer whale (<i>Orcinus orca</i>) occurrence and predation in the Bahamas	1305
McCordic, J.A., Todd, S.K. & Stevick, P.T. Differential rates of killer whale attacks on humpback whales in the North Atlantic as determined by scarification	1311
Esteban, R., Verborgh, P., Gauffier, P., Giménez, J., Afán, I., Cañadas, A., García, P., Murcia, J.L., Magalhães, S., Andreu, E. & Stephanis, R.D. Identifying key habitat and seasonal patterns of a critically endangered population of killer whales	1317
Beck, S., Foote, A.D., Kotter, S., Harries, O., Mandleberg, L., Stevick, P.T., Whooley, P. & Durban, J.W. Using opportunistic photo-identifications to detect a population decline of killer whales (<i>Orcinus orca</i>) in British and Irish waters	1327
Mäkeläinen, P., Esteban, R., Foote, A.D., Kuningas, S., Nielsen, J., Samarra, F.I.P., Similä, T., Geel, N.C.F.Y. & Vikingsson, G.A. A comparison of pigmentation features among North Atlantic killer whale (<i>Orcinus orca</i>) populations	1335
Matthews, C.J.D. & Ferguson, S.H. Spatial segregation and similar trophic-level diet among eastern Canadian Arctic/north-west Atlantic killer whales inferred from bulk and compound specific isotopic analysis	1343
Vongraven, D. & Bisther, A. Prey switching by killer whales in the north-east Atlantic: observational evidence and experimental insights	1357