### THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM

#### **TERMS OF MEMBERSHIP FOR 2011**

Annual members, receiving the Journal – online only, per annum	£55.00*
Annual members, receiving the Journal – print only, per annum	£95.00*
Annual members, receiving the Journal – print and online, per annum	£115.00*
Annual members, without the Journal, per annum	£35.00*
Corporate members, receiving the Journal – online only, per annum	£360.00
Corporate members, receiving the Journal – print and online, per annum	£425.00
Student members, with the Journal – online only, per annum (non-voting)	£30.00
Student members, with the Journal – print only, per annum (non-voting)	£45.00
Student members, without the Journal, per annum (non-voting)	£20.00

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 research organizations are part of the Plymouth Partnership

which includes PML, the University of Plymouth and the NMA (National Marine Aquarium). Active collaboration and shared resources mutually enhance the marine research programmes of the participants.

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 40 West 20th Street, New York, NY 10011–4211, 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

# JMBA

## JOURNAL OF THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM VOLUME 91.1 FEBRUARY 2011

$\sim$	AT	TE	T

١	COMMINITIES	VND	ACCEMBLACES

COMMUNITIES AND ASSEMBLAGES	
FABRI, M-C., BARGAIN, A., BRIAND, P., GEBRUK, A., FOUQUET, Y., MORINEAUX, M. & DESBRUYÈRES, D. The hydrothermal vent community of	
a new deep-sea field, Ashadze-1, 12°58'N on the Mid-Atlantic Ridge	ı
SHORT, J. & METAXAS, A. Gregarious settlement of tubeworms at deep-sea hydrothermal vents on the Tonga—Kermadec arc, South Pacific TSUCHIDA, S., SUZUKI, Y., FUJIWARA, Y., KAWATO, M., UEMATSU, K., YAMANAKA, T., MIZOTA, C. & YAMAMOTO, H. Epibiotic association between filamentous	15
bacteria and the vent-associated galatheid crab, Shinkaia crosnieri (Decapoda: Anomura)	23
DENDA, A. & CHRISTIANSEN, B. Zooplankton at a seamount in the eastern Mediterranean: distribution and trophic interactions ISARI, S., SOMARAKIS, S., CHRISTOU, E.D. & FRAGOPOULU, N. Summer mesozooplankton assemblages in the north-eastern Aegean Sea:	33
the influence of Black Sea water and an associated anticyclonic eddy SABATINI, A., FOLLESA, M.C., LOCCI, I., MATTA, G., PALMAS, F., PENDUGIU, A.A., PESCI, P. & CAU, A. Demersal assemblages in two trawl fishing	51
lanes located on the Baronie Seamount (central western Mediterranean)	65
ANTONIADOU, C., SARANTIDIS, S. & CHINTIROGLOU, C. Small-scale spatial variability of zoobenthic communities in a commercial Mediterranean port Xu, H., CHOI, JK., MIN, GS. & ZHU, Q. Colonization dynamics of periphytic ciliate communities across taxonomic levels using an	77
artificial substrate for monitoring water quality in coastal waters	9
IANG, Y., Xu, H., AL-RASHEID, K.A.S., WARREN, A., Hu, X. & SONG, W. Planktonic ciliate communities in a semi-enclosed bay of Yellow Sea, northern China: annual cycle	97
GUERRA-GARCÍA, J.M., CABEZAS, M.P., BAEZA-ROJANO, E. & GARCÍA-GÓMEZ, J.C. Spatial patterns and seasonal fluctuations of intertidal macroalgal	
assemblages from Tarifa Island, southern Spain: relationship with associated Crustacea	107
KLEIN, J.C. & VERLAQUE, M. Experimental removal of the invasive Caulerpa racemosa triggers partial assemblage recovery	117
SÁNCHEZ-MOYANO, J.E. & GARCÍA-ASENCIO, I. Crustacean assemblages along the Guadiana River estuary (south-western Iberian Peninsula)	121
BIOCHEMISTRY, DEVELOPMENT AND BEHAVIOUR	
BIRD, D.J., DUQUESNE, S., HOEKSEMA, S.D., LANGSTON, W.J. & POTTER, I.C. Complexity of spatial and temporal trends in metal concentrations in macroinvertebrate biomonitor species in the Severn Estuary and Bristol Channel	139
Manfra, L., De Nicola, E., Maggi, C., Zambianchi, E., Caramiello, D., Toscano, A., Cianelli, D. & Cicero, A.M. Exposure of rotifers, crustaceans and sea urchins to produced formation waters and seawaters in the Mediterranean Sea	155
SERÔDIO, J., SILVA, R., EZEQUIEL, J. & CALADO, R. Photobiology of the symbiotic acoel flatworm <i>Symsagittifera roscoffensis</i> : algal symbiont photoacclimation and host photobehaviour	163
LEUNG, P.T.Y., MORTON, B. & NG, W.C. Meso-scale genetic structure of the intertidal, crevice-dwelling, stalked barnacle Ibla cumingi	
(Crustacea: Cirripedia): an interplay of life history and local hydrographic conditions	173
MUXAGATA, E. & WILLIAMS, J.A. Larval body size—mass relationships of barnacles common to the English Channel coast of the UK RIVERA-INGRAHAM, G.A., ESPINOSA, F. & GARCÍA-GÓMEZ, J.C. Ecological considerations and niche differentiation between juvenile and adult	18
black limpets (Cymbula nigra)  Stany L. Schanger P. De Princetto A. Merchania A. Villandia L. & Graschania A. Einst incident into the biochemistry of Schalle confloration.	19
STABILI, L., Schirosi, R., Di Benedetto, A., Merendino, A., Villanova, L. & Giangrande, A. First insights into the biochemistry of Sabella spallanzanii  (Annelida: Polychaeta) mucus: a potentially unexplored resource for applicative purposes	199
FANGYU, W., HONGSHENG, Y., XIAOYU, W., KUN, X. & FEI, G. Antioxidant enzymes in sea cucumber <i>Apostichopus japonicus</i> (Selenka) during aestivation	209
IKEDA, H., OHTSU, K. & UYE, S1. Structural changes of gonads during artificially induced gametogenesis and spawning in the giant jellyfish Nemopilema nomurai (Scyphozoa: Rhizostomeae)	215
CHEN, X., LU, H., BILIN, L. & CHEN, Y. Age, growth and population structure of jumbo flying squid, <i>Dosidicus gigas</i> , based on statolith microstructure off the Exclusive Economic Zone of Chilean waters	229
CHAPPERON, C. & SEURONT, L. Variability in the motion behaviour of intertidal gastropods: ecological and evolutionary perspectives	237
MOKHLESI, A., KAMRANI, E., BACKWELL, P. & SAJJADI, M. Study on the behaviour of two fiddler crabs, Uca sindensis and Uca annulipes	
(Decapoda: Ocypodidae), in Bandar Abbas, Iran	245
LOMBARDO, R.C. & GOSHIMA, S. Sexual conflict in <i>Neptunea arthritica</i> : the power asymmetry and female resistance SAHOO, D., PANDA, S. & GURU, B.C. Studies on reproductive biology and ecology of blue swimming crab <i>Portunus pelagicus</i> from	251
Chilika Lagoon, Orissa, India	257

Cambridge Journals Online

For further information about this journal please go to the journal web site at: journals.cambridge.org/mbi



