Polar Record

Editor: Dr Bernard Stonehouse Scott Polar Research Institute, Cambridge CB2 1ER, U.K.

Polar Record is published four times yearly, in January, April, July and October, from the Scott Polar Research Institute. Devoted to polar and sub-polar research, it covers both ends of the earth and a wide range of disciplines from archaeology to zoology, including glaciology, geophysics and other earth sciences.

The journal includes papers on current research, political and legal issues, short notes, reviews of new books, letters, brief topical items, obituaries, and reports from *SCAR Bulletin*, which records the activities of the Scientific Committee on Antarctic Research.

Polar Record is distributed internationally, keeping its readers aware of contemporary developments in polar and sub-polar regions, and providing a valuable source of historical reference. The annual subscription is only £25.00 for individuals, and £35.00 for institutions.

Recent and forthcoming topics: The growth, structure, and disintegration of Arctic ice shelves -M.O. Jeffries Attraction of polar bears to offshore drilling sites in the eastern Beaufort Sea - Ian Stirling Greenland: a country in transition - Tom Høyem The Antarctic minerals regime negotiations - Peter Beck Control of spring run-off in northern rivers: the ice-veil concept -G. S. H. Lock Assessment of a small snowmobile for long-distance unsupported travel - J. R. Osczevski, J. B. Cain and L. D. Reed Substantial changes in the coastline of Antarctica revealed by satellite imagery - J. G. Ferrigno and W. G. Gould Soviet proposals for the Arctic; a policy declaration by Mr Gorbachev - T. E. Armstrong Polar cap and other auroral events observed from Spitzbergen - D. A. R. Simmons and J. K. Henriksen The ARA Islas Orcadas marine geology coring programme: a research bibliography - D. S. Cassidy Sea ice conditions during an early spring voyage in the eastern Weddell Sea, Antarctic - H. Eicken, T. C. Grenfell and B. Stonehouse

To order your copy, send payment to: The Journals Subscription Manager, Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England



Journal of the Marine Biological Association, 68, 1 (i)

Starting a new series

Bioorganic Marine Chemistry

Editor: P. J. Scheuer

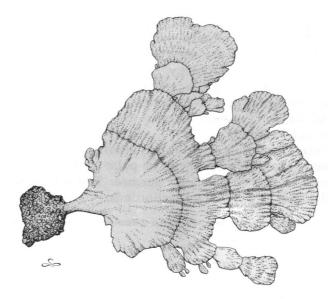
The present series, "Bioorganic Marine Chemistry", is being launched at a time, when we have the fundamental knowledge and the requisite instrumentation to probe the molecular basis of many biological phenomena. Worldwide interest in the organic chemistry of marine plants and animals was stimulated in the late 1960's through conferences, publications, and a singular event – the discovery of prostaglandins in a gorgonian coral.

The study of marine natural products remains firmly anchored in chemistry, i.e., in molecular integrity, yet continues to seek greater involvement in functional biology. Involvement with biology started on three fronts simultaneously: a study of chemical interactions occurring in the marine habitat. i.e., marine ecology; a search for meaningful and appropriate bioassays designed to guide isolation and to predict the nature and degree of biological activity, and finally, a delineation of biological activity that might lead to application in medicine or agriculture.

The scope of this series is the entire domain of marine bioorganic chemistry – ecology, pharmacology, biosynthesis, molecular structure, laboratory synthesis. Marine biologists, pharmacologists, organic and medicinal chemists will be the prime audience. The level of the reviews will be geared to researchers and graduate students in biology, chemistry and biomedicine. Complete documentation will allow

Springer-Verlag Berlin Heidelberg New York London Paris Tokyo

Heidelberger Platz 3, D-1000 Benin 33 - 175 Fifth Ave., New York, NY 10010, USA - 28, Lurke Street, Bedford MK40 3HU, England - 26, rue des Carmes, F-75005 Paris 3-3, Hongo 3-chome, Bunkyo-ku, Tokyo 113, Japan



Volume 1

1987. Approx. 15 figures. Approx. 200 pages. Hard cover DM 118,-. ISBN 3-540-17884-8

The book contains the following four contributions:

V.J. Paul, W. Fenical

Natural Products Chemistry and Chemical Defense in Tropical Marine Algae of the Phylum Chlorophyta

P. Karuso

Chemical Ecology of the Nudibranchs

N. Fusetani

Marine Metabolites Which Inhibit Development of Echinoderm Embryos

M. H. G. Munro, R. T. Luibrand, J. W. Blunt The Search for Antiviral and Anticancer Compounds from Marine Organisms

Springer 🦻

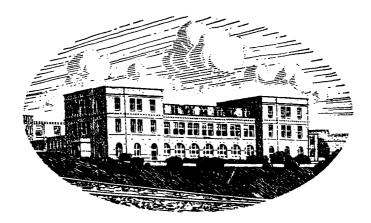
8254/5/1

JOURNAL OF THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM

https://doi.org/10.1017/S0025315400050049 Published online by Cambridge University Press

The Council of the Marine Biological Association wish it to be understood that they do not accept responsibility for the accuracy of statements published in this Journal, excepting when those statements are contained in an official report of the Council.

JOURNAL OF THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM



THE PLYMOUTH LABORATORY

VOLUME 68

1988

CAMBRIDGE UNIVERSITY PRESS CAMBRIDGE LONDON NEW YORK NEW ROCHELLE MELBOURNE SYDNEY

PUBLISHED BY

THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE

The Pitt Building, Trumpington Street, Cambridge, CB2 1RP 32 East 57th Street, New York, NY 10022, USA 10 Stamford Road, Oakleigh, Melbourne 3166 Australia

© Copyright Marine Biological Association of the UK 1988 Printed in Great Britain at the University Press, Cambridge

Number 1, pp. 1-217, 5 February 1988 Number 2, pp. 219-363, 4 May 1988 Number 3, pp. 365-548, 1 August 1988 Number 4, pp. 549-797, 7 November 1988

								Page
Report of the Council for 1987-88 .							٠	751
Income and Expenditure Account and Balance S	Sheet							791
Alexander, C.G. The paragnaths of some intertidal crustaceans	5							581
Al-Kadhomiy, N.K. and Hughes, G.M. Histological study of different regions of the s Boleophthalmus boddarti with respect to their				udskipj	oer			413
See also Hughes and Al-Kadhomiy .		•	•	•	•	•	·	489
Ansell, A.D., Robb, L. and Powell, H.T. Algal-induced dislodgement as a cause of biv	alve n	nortality	on som	ne Scotti	sh beac	hes		219
Barnes, R.S.K. On reproductive strategies in adjacent lagoon marine gastropod <i>Hydrobia ulvae</i>	al and	intertio	dal-mari	ne popu	ilations	of the		365
Basford, D. and Eleftheriou, A. The benthic environment of the North Sea (56	° to 61	l°N)						125
Beard, J.B., see Davenport and Beard .				•	•	•		15
Bellan-Santini, D., see Dauvin and Bellan-Santini	i			•	•			659
Bhaud, M. Change in setal pattern during early develop Terebellidae) grown in simulated natural co			ymnia ne	ebulosa ()	Polycha	eta:		677
Boalch, G.T., see Southward, Boalch and Maddo					•			423
Bryan, G.W., Gibbs, P.E. and Burt, G.R. A comparison of the effectiveness of tri-n-but compounds in promoting the development								733
Burnell, G.M., see Gosling and Burnell .						,		251
Burt, G.R. See Bryan, Gibbs and Burt See Gibbs, Pascoe and Burt		•	•					733 715
Caceci, T., Neck, K.F., Lewis, D.H. and Sis, R.F. Ultrastructure of the hepatopancreas of the Pa (Crustacea: Decapoda)	acific v	white sh	nrimp, P	enaeus v	anname	i	•	323
Christensen, T. Salinity preference of twenty species of Vauch	ieria (1	riboph	yceae)					531
Claridge, P.N., see Potter, Gardner and Claridge	!							295
Dando, P.R., see Southward and Dando							•	627

Dauvin, JC. and Bellan-Santini, D. Illustrated key to <i>Ampelisca</i> species for	rom the	e north-e	eastern 4	Atlantic					659
Davenport, J. and Beard, J.B. Observations on the temperature and	d salini	ty relati	ons of L	asaea ruł	bra		•		15
Davies, A.G. and Smith, M.A. Alkaline phosphatase activity in the	western	n Englis	h Chanı	nel					239
De La Serna, J.M., see Muñoz-Chápuli,	Rey Sal	gado ar	id De Lá	a Serna					315
Diop, M., see Guillou and Diop .									41
Edwards, J.M. See Potts, Keenleyside and Edwards See Potts, Robinson and Edwards								•	277 287
Eleftheriou, A., see Basford and Elefthe	riou								125
Evans, F., see Roff, Middlebrook and Ev						_			143
Fernandez Castro, N. and Le Pennec, N Modalities of brooding and morphog experimental rearing	1.	of larva	e in <i>Ost</i>	rea puelc	hana (D'	Orbigny	y) under		399
French, D., see Kruuk, Nolet and French	h								601
Gardner, D.C., see Potter, Gardner and	Claridg	ge							295
Gibbs, P.E., Pascoe, P.L. and Burt, G.R. Sex change in the female dog-whelk, paints See also Bryan, Gibbs and Burt	Nucelli	a lapillus	, induce	ed by tri	butyltin	from an	ntifouling	<u>.</u>	715 733
Gosling, E.M. and Burnell, G.M. Evidence for selective mortality in C.	hlamys :	varia (L.) transp	lant exp	eriments	s.			251
Guillou, M. and Diop, M. Ecology and demography of a popul in the Bay of Brest, Brittany		f Anserc	poda pla	centa (Ec	chinoder	mata: A	steroide	a)	41
Harbison, G.R., see Larson, Madin and	Harbiso	on							689
Harris, R.P., see Pingree and Harris							•		519
Heffernan, P. Ultrastructural and histochemical stu (Polychaeta: Sigalionidae)		the dig	-	ystem of	Pholoe r	ninuta			447
Heffernan, P. and Keegan, B.F. The larval development of <i>Pholoe min</i> Ireland	nuta (Po	olychaet	a: Sigali	onidae)	in Galw	ay Bay,			339
Holmes, J.M.C. and O'Connor, J.P. A portable light-trap for collecting m	narine c	rustacea	ins				•		235
Hughes, G.M. and Al-Kadhomiy, N.K. Changes in scaling of respiratory sys See also Al-Kadhomiy and Hughes		-		opment o					489 413
Hughes, G.M. and Kikuchi, Y. Effects of temperature on the deform	ability	of red b	lood cel	ls of raiı	nbow tro	out and	ray		619

vi

Hughes, R.G. Dispersal by benthic invertebrates: the <i>in situ</i> <i>Corophium volutator</i>	u swimn	ning bel	naviour (of the ar	nphipod			565
Jenkins, K.D., see Mason, Jenkins and Sullivan								61
Keegan, B.F., see Heffernan and Keegan								339
Keenleyside, M.H.A., see Potts, Keenleyside an	d Edwa	rds						277
Kelley, D.F. Age determination in bass and assessment o	of growth	n and ye	ear-class	strengtl	ı.		·	179
Kikuchi, Y., see Hughes and Kikuchi .								619
Kruuk, H., Nolet, B. and French, D. Fluctuations in numbers and activity of insh	ore dem	ersal fis	hes in S	hetland				601
Larson, R.J., Madin, L.P. and Harbison, G.R. In situ observations of deepwater medusae in D. reticulum, sp. nov.	n the ger	nus of L	Deepstaria	ı, with a	descrip	otion of		689
Le Pennec, M., see Fernandez Castro and Le Pe	nnec							399
Lewis, D.H., see Caceci et al.								323
Lewis, J. Cysts and sediments: Gonyaulax polyedra (Lir	ıgulodini	um maci	haeropho	<i>rum</i>) in 1	Loch Cr	eran		701
Lynn, D.H. and Montagnes, D.J.S. Taxonomic descriptions of some conspicuou Choreotrichida) from the Isles of Shoals, G			bilidiine	e ciliates	(Ciliopi	hora:		639
Lynn, D.H., Montagnes, D.J.S. and Small, E.B. Taxonomic descriptions of some conspicuou (Ciliophora: Oligotrichida) from the Isles of					iidae			259
McCleave, J.D., see Wippelhauser and McClea	ve							81
MacOscar, K.C., see Parker, Rosell and MacOsc	ar							555
Madin, L.P., see Larson, Madin and Harbison			•		•	•		689
Maddock, L., see Southward, Boalch and Madd	lock	•	•		•			423
Mason, A.Z., Jenkins, K.D. and Sullivan, P.A. Mechanisms of trace metal accumulation in	the poly	chaete l	Veanthes	arenaceo	dentata			61
Middlebrook, K., see Roff, Middlebrook and Ev	vans	•						143
Montagnes, D.J.S. See Lynn and Montagnes See Lynn, Montagnes and Small .	•	•	•		•	•	•	639 259
Muñoz-Chápuli, R., Rey Salgado, J.C. and De I Biogeography of <i>Isistius brasiliensis</i> in the no wounds on swordfish (<i>Xiphias gladius</i>)		rn Atla	ntic, infe	erred fro	m crate	r		315
Mustaquim, J. Isozyme variation in three <i>Nereis</i> species from	m five lo	calities	in the U	.K.				549
Neck, K.F., see Caceci et al.		•						323
Nicolaidou, A. Notes on the behaviour of <i>Pectinaria koreni</i>								55

Nolet, B., see Kruuk, Nolet and French	•		•	•	•		•	601
Nugegoda, D. and Rainbow, P.S. Effect of a chelating agent (EDTA) on zinc (Crustacea: Decapoda)	uptake	and reg	ulation	by Palae	rmon eleg	zans		25
O'Connor, J.P., see Holmes and O'Connor								235
Parker, J.G., Rosell, R.S. and MacOscar, K.C. The phytoplankton production cycle in Be		ugh						555
Pascoe, P.L., see Gibbs, Pascoe and Burt								715
Pawlik, J.R. Larval settlement and metamorphosis of g Sabellaria alveolata compared with Phragr				olychaet	es:			101
Pingree, R.D. and Harris, R.P. An <i>in vivo</i> fluorescence response in the Ba	y of Bisc	ay in Ju	ine .					519
Potter, I.C., Gardner, D.C. and Claridge, P.N Age composition, growth, movements, me <i>Merlangius merlangus</i> , in the Severn Estu	eristics a				ting,			295
Potts, G.W., Keenleyside, M.H.A. and Edwar The effect of silt on the parental behaviour spinachia			leback,	Spinachi	a			277
Potts, G.W., Robinson, S.G. and Edwards, J.M. An underwater event recorder for use in h		iral rese	arch				•	287
Powell, H.T., see Ansell, Robb and Powell								219
Pugh, P.R. & Youngbluth, M.J. A new species of <i>Halistemma</i> (Siphonopho submersible	ira: Phys	onectae	: Agal n	idae) co	llected b	у .		1
Rainbow, P.S., see Nugegoda and Rainbow								25
Rangeley, R.W. and Thomas, M.L.H. Littoral stratification in growth form and t balanoides	fecundity	y of the	rock ba	rnacle, S	Semibalar	nus		591
Rey Salgado, J.C., see Muñoz-Chápuli Rey Sa	algado ar	nd De L	a Serna					315
Robb, L., see Ansell, Robb and Powell								219
Robinson, S.G., see Potts, Robinson and Edw	ards							287
Roff, J.C., Middlebrook, K. and Evans, F. Long-term variability in North Sea zoopla productivity of small copepods and ana	nkton of				coast:			143
Rosell, R.S., <i>see</i> Parker, Rosell and MacOscar								555
Scott, J.M. Effect of growth rate on the physiological <i>linnhei</i>	rates of a				fer Ence			165
Simkiss, K., see Watkins and Simkiss								93
Sis, R.F., see Caceci et al.								323
Small, E.B., see Lynn, Montagnes and Small								259

Smith, M.A., see Davies and Smith .								239
Southward, A.J., Boalch, G.T. and Maddock, I Fluctuations in the herring and pilchard fis to change in climate since the 16th centur	heries o	f Devor	ı and C	ornwall	linked			423
Southward, A.J. and Dando, P.R. Distribution of Pogonophora in canyons of abundance and depth range		of Bisc	-	ors cont	rolling			627
Southward, A.J. and Southward, E.C. Disappearance of the warm-water hermit c south-west Britain	rab Clib	anarius	erythrop	ous from			•	409
Southward, E.C. Development of the gut and segmentation of (Vestimentifera): implications for relation <i>See also</i> Southward and Southward .	ship be	tween V	/estime		ind Poge	onophora	•	465 409
Stock, J.H. Lamippidae (Copepoda: Siphonostomatoid	a) paras	sitic in 2	Alcyoniu	ım				351
Sullivan, P.A., see Mason, Jenkins and Sulliva	n.					•		61
Thomas, M.L.H., see Rangeley and Thomas		•				•		591
Thompson, T.E. Acidic allomones in marine organisms								499
Waite, M.E. and Walker, G. The haemocytes of balanomorph barnacles	•							391
Walker, G. Observations on the larval development of Rhizocephala) See also Waite and Walker	Sacculir	ia carcin	i (Crus	tacea: Ci	irripedia	::		377 391
Watkins, B. and Simkiss, K. The effect of oscillating temperatures on the	e metal	ion met	abolism	n of <i>Myt</i>	ilus eduli	is .		93
Wippelhauser, G.S. and McCleave, J.D. Rhythmic activity of migrating juvenile Am	nerican (eels Ang	guilla ro	strata				81
Youngbluth, M.J., see Pugh and Youngbluth								1

CORRIGENDA

Page 347, Table 1, line 2, column 4, for Blake (1975) *read* Lacalli (1981). Page 348, line 7, for Blake (1975) *read* Lacalli (1981).

Index to Volume 67, p. ix For: Ryan, T.H. See Bone et al. 545 See Roden et al. 359

Read: Ryan, K.P. See Bone et al. 545

Ryan, T.H. See Roden et al. 359

ix

SUBJECT INDEX

Behaviour

Diurnal activity of burrowing polychaetes, 55-59 Parental behaviour of the sea stickleback, 277-285 Rhythmic swimming activity of young eels, 81-91 Swimming behaviour of *Corophium volutator*, 565-579

Biochemistry

Acid secretion in marine organisms, 499-517 Alkaline phosphatase activity in Channel waters, 239-250

Breeding, Rearing and Fecundity

Experimental rearing of oysters, 399-407 Morphology of rock barnacles related to habitat, 591-599

Reproduction of Hydrobia ulvae, 365-375

Comparative Anatomy

Allometric relationships between respiratory area and body mass in fishes, 489-498

Morphology of rock barnacles related to habitat, 591-599

Paragnaths of intertidal crustaceans, 581-590 Possible phylogenetic relationship among tube-

worms, Vestimentifera and Pogonophora, 465-487

Two deepwater medusae, 689-699

Development, Growth and Maturation

Development of young vestimentiferans, 465-487 Growth and age determination of bass, 179-214 Larval development in cultured oysters, 399-407 Larval development of *Sacculina*, 377-390 Polychaete larvae in Galway Bay, 339-350 Setal patterns in young terebellids, 677-687 Settlement and metamorphosis in sabellariid polychaetes, 101-124

Ecology and Distribution

Bivalve dislodgement caused by algal growth, 219-233

Copepods in the North Sea, 143-164

Dinoflagellate cysts in Loch Creran, 701-714

North Sea benthic environment, 125-141

Pogonophora in Biscay canyons, 627-638

Shark distribution inferred from bite wounds on swordfish, 315-321

Starfish in the Bay of Brest, 41-54

Genetics

Isozymes of Nereis, 549-553 Mortality in transplanted Chlamys, 251-258

New Species

Deepstaria reticulum sp. nov., 691 Enalcyonium confusum n. sp., 358 Halistemma transliratum sp. nov., 1 Leegaardiella ovalis n. sp., 653 Leegaardiella sol n. gen., n. sp., 650 Strobilidium epacrum n. sp., 642 Strobilidium multinucleatum n. sp., 644

Parasitology

Copepod parasites of *Alcyonium*, 351-359 Larval development of *Sacculina carcini*, 377-390 Parasites of whiting in the Severn Estuary, 295-313

Phycology

Alkaline phosphatase activity in Channel waters, 239-250

- Chlorophyll *a* fluorescence changes in the Bay of Biscay, 519-529
- Phytoplankton production in Belfast Lough, 555-564

Salinity preference of Vaucheria spp., 531-545

Physical Oceanography

Fluorescence changes in the Bay of Biscay, 519-529

North Sea benthic environment, 125-141

Physiology and Experimental Biology

Deformability of fish erythrocytes, 619-625 Effect of light cycle and temperature on

- Pectinaria, 55-59
- Imposex in dog-whelks induced by six organotin compounds, 733-744

Imposex in dog-whelks induced by TBT, 715-731 Mortality in transplanted *Chlamys*, 251-258

Physiological parameters and growth rate of rotifers, 165-177

Temperature effects on metal metabolism, 93-100 Temperature and salinity tolerance of molluscs, 15-23

Zinc and cadmium uptake by polychaetes, 61-80 Zinc regulation in Crustacea, 25-40

Pollution Studies

Imposex in dog-whelks induced by six organotin compounds, 733-744

Imposex in dog-whelks induced by TBT, 715-731 Zinc regulation in Crustacea, 25-40

SUBJECT INDEX

Population Studies

Copepods in the North Sea, 143-164 Echinoderm population off Brittany, 41-54 Growth and ageing of bass, 179-214 Herring and pilchards in the Western Approaches associated with climatic change, 423-445 Inshore fish populations in Shetland, 601-617 Whiting in the Severn Estuary, 295-313

Structure and Histology

Haemocytes in barnacles, 391-397 Histology of the polychaete gut, 447-464 Paragnaths of intertidal crustaceans, 581-590 Respiratory epithelia in the mudskipper, 413-422 Ultrastructure of the crustacean hepatopancreas, 323-337

Taxonomy and Life History

Copepod parasites of *Alcyonium*, 351-359 Description of seven ciliates, 639-658 Key to the genus *Ampelisca*, 659-676 Taxonomy of ten planktonic ciliates, 259-276

Technique and Methodology

A portable light-trap for crustaceans, 235-238 An underwater event recorder, 287-293

THE MARINE BIOLOGICAL ASSOCIATION OF THE UNITED KINGDOM

THE ASSOCIATION was founded in 1884 to promote accurate researches leading to the advancement of zoological and botanical science and to an increase in our knowledge of the food, life, conditions and habits of British fishes. The work of the Association is controlled by a Council elected annually by its subscribing members.

Professor T. H. Huxley took the chair at the initial meeting held in the rooms of the Royal Society and was elected the first President. Among those present were Sir John Lubbock (afterwards Lord Avebury), Sir Joseph Hooker, H. N. Moseley, Mr G. J. Romanes, and Sir E. Ray Lankester who, after Professor Huxley, was for many years president of the Association. It was decided to build a laboratory at Plymouth, where a rich and varied fauna is found.

The Plymouth Laboratory was opened in June 1888, and, since that date, considerable additions have been made to the buildings, including a library, lecture-hall, and extensive laboratory accommodation with up-to-date equipment. Additional sea-water reservoirs have also been built, and an aquarium, modernized in 1959, opened to the public.

Since its foundation the Association has been supported by subscriptions and donations from private members, universities, learned societies, the Fishmongers' Company and other public bodies. For some time past, however, the main financial support for the work of the Plymouth Laboratory has come from Government funds, and since 1965 the Laboratory has been grant-aided through the Natural Environment Research Council.

The Marine Biological Association, under the direction of its Council, undertakes research in all branches of marine science and the main results are published in this journal. Accounts of the laboratory and aquarium are to be found in Vol. 27 (p. 761), Vol. 39 (p. 391) and Vol. 43 (p. 281), and summaries of the activities and research of the Association are given annually in the Report of the Council in the November issue of the Journal.

The laboratory is open throughout the year and its work is carried out by a fully qualified research staff under the supervision of the Director. The names of the members of the staff will be found on the inner page of the front cover. Accommodation is available for British and foreign scientific workers who wish to carry out independent research in all branches of marine science. Arrangements are made for courses for advanced students, and marine animals and plants are supplied to educational institutions.

Work at sea is undertaken by three research vessels and by a motor boat, and these also collect the specimens required in the laboratory.

TERMS OF MEMBERSHIP

£

Annual Mer	nber	s, ree	ceivin	g the	Jour	nal		per	ann	um	25.00
Annual Mer	nber	s, wi	thout	the	Journ	al.		per	ann	um	3.00
Founders											100.00
Governors							•				500.00

Annual subscriptions become due on 1 January.

Members of the Association have the following rights and privileges; they elect annually the Officers and Council; they are entitled to receive the Journal of the Association at a reduced rate; they are admitted to view the laboratory at Plymouth; they have the first claim to rent a place in the laboratory for research, with use of tanks, boats, etc.; they have the privilege of occupying a table for one week in each year free of charge; and they have access to the books in the library at Plymouth during working hours.

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 under Schedule E.

All correspondence should be addressed to the Director, The Laboratory, Citadel Hill, Plymouth, PL1 2PB.

Vol. 68 No. 1

CONTENTS

PAGE

PUGH, P. R. and YOUNGBLUTH, M. J. A new species of Halistemma (Siphonophora:
Physonectae: Agalmidae) collected by submersible
DAVENPORT, J. and BEARD, J. B. Observations on the temperature and salinity relations of
Lasaea rubra
NUGEGODA, D. and RAINBOW, P. S. Effect of a chelating agent (EDTA) on zinc uptake and regulation by <i>Palaemon elegans</i> (Crustacea: Decapoda)
GUILLOU, M. and DIOP, M. Ecology and demography of a population of Anseropoda placenta (Echinodermata: Asteroidea) in the Bay of Brest, Brittany
NICOLAIDOU, A. Notes on the behaviour of Pectinaria koreni
MASON, A. Z., JENKINS, K. D. and SULLIVAN, P. A. Mechanisms of trace metal accumulation in the polychaete <i>Neanthes arenaceodentata</i>
WIPPELHAUSER, G. S. and McCLEAVE, J. D. Rhythmic activity of migrating juvenile American eels Anguilla rostrata.
WATKINS, B. and SIMKISS, K. The effect of oscillating temperatures on the metal ion metabo-
lism of Mytilus edulis.
PAWLIK, J. R. Larval settlement and metamorphosis of gregarious sabellarid polychaetes: Sabellaria alveolata compared with Phragmatopoma californica.
ROFF, J. C., MIDDLEBROOK, K. and EVANS, F. Long-term variability in North Sea zooplankton off the Northumberland coast: productivity of small copepods and analysis
of trophic interactions
Scort, J. M. Effect of growth rate on the physiological rates of a chemostat-grown rotifer <i>Encentrum linnhei</i>
KELLEY, D. F. Age determination in bass and assessment of growth and year-class strength . 170
D N
BOOK NOTICES

© Copyright by the Marine Biological Association of the UK 1988

The Journal of the Marine Biological Association is published quarterly. The subscription price of volume 68, 1988 to non-members of the Association is \pounds 122 within the UK and \pounds 134 outside the UK but excluding North'America. Subscription price in the USA and Canada is US \$265. The above prices are payable in advance and include postage. Single parts cost \pounds 34 (US \$73 in USA and Canada) plus postage. Subscriptions may be sent to any bookseller or to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, or in USA and Canada, to Cambridge University Press, 32 East 57th Street, New York, 10022. Second class postage in the USA and Canada to Journal of the Marine Biological Association, Cambridge University Press, 32 East 57th Street, New York, NY 10022. All orders must be accompanied by payment.

CAMBRIDGE UNIVERSITY PRESS

THE PITT BUILDING, TRUMPINGTON STREET, CAMBRIDGE CB2 1RP

32 EAST 57TH STREET, NEW YORK, NY 10022, USA

10 STAMFORD ROAD, OAKLEIGH, MELBOURNE 3166, AUSTRALIA

Printed in Great Britain by the University Press, Cambridge