

# THE ECHINODERM NEWSLETTER

Number 23. 1998

**Editor: Cynthia Ahearn**  
Smithsonian Institution  
National Museum of Natural History  
Room W-318, Mail Stop 163  
Washington D.C. 20560-0163 U.S.A.

**NEW E-MAIL: [ahearn.cynthia@nmnh.si.edu](mailto:ahearn.cynthia@nmnh.si.edu)**

**Distributed by: David Pawson**  
Smithsonian Institution  
National Museum of Natural History  
Room W-323, Mail Stop 163  
Washington D.C. 20560-0163 U.S.A.

**The newsletter contains information concerning meetings and conferences, publications of interest to echinoderm biologists, titles of theses on echinoderms, and research interests, and addresses of echinoderm biologists. Individuals who desire to receive the newsletter should send their name, address and research interests to the editor.**

**The newsletter is not intended to be a part of the scientific literature and should not be cited, abstracted, or reprinted as a published document.**



*From Edward Forbes (184*

## TABLE OF CONTENTS

30th Anniversary.....	1
Echinoderm Specialists	
Addresses; (p-); Fax (f-); e-mail numbers.....	2
Current Research.....	39
Theses and Dissertations.....	62
Information Requests.....	66
Announcements.....	67
Recent Echinoderms Publications and Papers in Press.....	69
How I Began to Study Echinoderms - Part 8.	
John Lucas.....	83
Ram Mohan M.K.....	84
Payikat Sahadevan Asha.....	85
Robert Singletary.....	85
Papers Presented at Meetings (by country or region)	
Africa.....	86
Australia.....	86
Canada.....	86
Europe.....	87
India.....	87
Jamaica.....	88
Japan.....	88
Pakistan.....	88
Russia.....	89
United States.....	89
Papers Presented at Meetings (by conference)	
XIV Zoology National Congress, Mexico.....	90
Fourth Annual Florida Echinoderm Festival (notice).....	91
Western Society of Naturalists Meeting, California.....	91
Annual Meeting of Florida Association of Benthologists.....	92
Annual Meeting of the World Aquaculture Society, Nevada.....	92
Annual Meeting of the Society for Integrative and Comparative Biology.....	93
XVIII Congreso de Ciencias del Mar, Chile.....	94
North American Echinoderms Meeting, Wallops Island, Virginia.....	95
Geological Society of America 32nd Annual Meeting, North-Central.....	96
5th European Conference on Echinoderms.....	97
Echinoderm Specialists 'Keyword' List.....	105
Obituary: Sven Otto Hörstadius.....	111
Information Bulletin Bêche-de-Mer.....	113
New Book Announcements	
Echinoderms: San Francisco.....	115
Sea Cucumbers of British Columbia, Southeast Alaska and Puget Sound.....	116
Fauna Sinica Phylum Echinodermata.....	117
Fossils of Ohio.....	119
North Australian Sea Cucumbers.....	121
Ailsa's Section.....	122

☆ 30TH ANNIVERSARY ☆

**OF THE FOUNDING OF THE ECHINODERM NEWSLETTER**

Communication among scientists is extraordinarily important. As the number of scientists working on echinoderms is not large, a journal or society to facilitate communication has never developed. Thus the founding of the Echinoderm Newsletter in 1968 by David Pawson and Maureen Downey of the Smithsonian Institution was an important contribution to progress in echinoderm biology. David noted in the first newsletter "We believe that the newsletter should be helpful in providing an informal means of communication between specialists." His belief was well founded as the issues over the years have provided not only information itself but have led to interaction and collaboration of echinoderm biologists. Let us recognize this anniversary with joy!

John Lawrence



## ECHINODERM SPECIALISTS AND/OR NEWSLETTER RECIPIENTS

ABREU, MERCEDES  
INSTITUTE OF OCEANOLOGY  
AVE 19 No 18406  
E/ 184 y 186 REPARTO FLORES  
HAVANA, CUBA  
oceanoo@ceniai.cu

ACUNA, FABIAN H.  
UNIVERSIDAD NACIONAL DE MAR DEL PLATA  
DEPTO DE CIENCIAS MARINAS  
ENTRE RIOS 2606 6 A  
MAR DEL PLATA 7600, ARGENTINA  
p- 54 (023) 742426; f- 54 (023) 753150; facuna@mdp.edu.ar

ADAMS, NIKKI L.  
UNIVERSITY OF MAINE  
DEPARTMENT BIOLOGY  
5751 MURRAY HALL, ROOM 100  
ORONO, ME 04469  
p- 207-581-2573 (office); 207-581-2572 (lab); f- 207-581-2537

AGATSUMA, YUKIO  
TOHOKU UNIVERSITY  
LAB APPLIED BOTANY, FAC AGRIC  
1-1 TSUTSUMIDORI-AMAMIYA  
AOBA, SENDAI, MIYAGI 981, JAPAN  
p- 022-717-8847; f- 022-717-8845;  
agatsuma@bios.tohoku.ac.jp

AHEARN, CYNTHIA  
SMITHSONIAN INSTITUTION  
NAT MUSEUM OF NATURAL HISTORY  
ROOM W318, MAIL STOP 163  
WASHINGTON, DC 20560-0163  
p- 202-786-2125; f- 202-357-3043;  
ahearn.cynthia@nsmnh.si.edu

ALBI, YVONNE Z.  
P.O. BOX 45828  
LOS ANGELES, CA 90045  
p- 310-823-3345; Holaster@aol.com

ALBUQUERQUE, MARIA  
UNIVERSIDAD SANTA URSULA  
DEPT DE CIENCIAS BIOLOGICA  
RUA F. FERRARI, 75 BOTAFOL  
RIO DE JANEIRO, BRAZIL

ALI, MOHAMED SAID M.  
EL MINIA UNIVERISTY  
DEPARTMENT OF GEOLOGY  
FACULTY OF SCIENCE  
EL MINIA, EGYPT  
p- 86-32-30-11; f- 86-33-26-01

ALLEN, JOHN A.  
UNIVERSITY MARINE BIOLOGICAL STATION  
MILLPORT  
ISLE OF CUMBRAE, KA28 0EG SCOTLAND, U.K.  
p- 01475-530581; f- 01475-530601; gbfe01@undef.ac.uk

ALLISON, WILLIAM R.  
MA. MAADHELI  
MAJEEDHEE MAGU  
MALE 20-03, REPUBLIC OF MALDIVES  
p- 960-32-9667; f- 960-32-6886; maadheli@dhivehinet.net.mv

ALVA, VICTOR  
INSTITUT DE CIENCIES DEL MAR  
C.S.I.C.  
PASSEIG JOAN DE BORBO s/n  
BARCELONA, 08039 SPAIN  
p- 34-3-221-73-40; f- 34-3-221-64-16; valva@masagran.uab.be

ALVAREZ, LEONARDO R.  
COLORADO #79  
NAPOLIS  
MEXICO D.F. 03810, MEXICO

ALVAREZ, MARTINEZ DE  
UNIVERSIDAD DE LA LAGUNA  
DEPARTAMENTO DE ZOOLOGIA  
TENERIFE, CANARY ISLANDS

AMEZIANE-COMINARDI, NADIA  
MUSEUM NATIONAL D'HISTOIRE NATURELLE  
BIOLOGIE INVERTEBRES MARINS  
55 RUE BUFFON  
PARIS, 75005 FRANCE  
p- 33-01-40-79-30-95; f- 33-01-40-79-30-89;  
cominard@mnhn.fr

ANDACHT, TRACY M.  
395 MILLEDGE CIRCLE  
ATHENS, GA 30606  
p- 706-613-9640; tandacht@acpub.duke.edu

ANDERSEN, AASMUND  
NORWEGIAN COLLEGE OF FISHERY SCIENCE  
DEPT AQUATIC RES & ENVIRON BIOL  
ROOM B302, UNIV OF TROMSOE  
TROMSOE, N9037 NORWAY  
p- 47-776-46-049; aasmunda@stud.nfh.uit.no

ANDERSON, EDWIN J.  
TEMPLE UNIVERSITY  
GEOLOGY DEPARTMENT  
PHILADELPHIA, PA 19122

ANDERSON, JOHN M.  
110 ROAT ST.  
ITHACA, NY 14850

ANDERSON, OWEN  
DEEPWATER GROUP, NIWA  
GRETA POINT  
PO BOX 14-901  
KILBIRNIE, WELLINGTON, NEW ZEALAND  
p- +64-4-386-0300; f- +64-4-386-0574  
o.anderson@niwa.cri.nz

ANDERSON, ROLAND C.  
THE SEATTLE AQUARIUM  
PIER 59, WATERFRONT PARK  
1483 ALASKAN WAY  
SEATTLE, WA 98101-2059  
p- 206-386-4347; f- 206-386-4328

ANDRADE, HECTOR  
UNIVERSIDAD DE VALPARAISO  
INSTITUTO DE OCEANOLOGIA  
CASILLA 13-D  
VINA DEL MAR, CHILE

ARAKAKI, YUJI  
MEIO UNIVERSITY  
DEPT TOURISM, FAC INTERNATL STUDIES  
1220-1 BIMATA, NAGO  
OKINAWA, JAPAN  
p- 0980-51-1100; f- 0980-52-4640; arakaki@tor.meio-u.ac.jp

ARCHER, JEFFREY E.  
LEIGH MARINE LABORATORY  
PO BOX 349  
WARKWORTH, NEW ZEALAND  
p- 09 422 6111; f- 09 422 6113; j.archer@auckland.ac.nz

ARENDR, YURII A.  
PALEONTOLOGICAL INSTITUTE  
RUSSIAN ACADEMY OF SCIENCES  
PROFSOYUSNAYA STR. 123  
117647 MOSCOW, RUSSIA

ARISOLA, AMELIA T.  
SEAFDEC AQUACULTURE DEPT  
THE LIBRARY  
P.O. BOX 256  
TIGBAUAN, ILOILO, 5021 PHILIPPINES  
p- (63-33) 335-1009; f- (63-33) 335-1008  
tms-seafdec@phil.gn.apc.org

ARNAUD, PATRICK M.  
CENTRE D'OCEANOLOGIE DE MARSEILLE  
STATION MARINE D'ENDOUME  
MARSEILLE, 13007 FRANCE  
p- 91 52.12.94

ARONSON, RICHARD B.  
DAUPHIN ISLAND SEA LAB  
MAR ENVIRON SCI CONSORTIUM  
P.O. BOX 369-370  
DAUPHIN ISLAND, AL 36528  
p- 334-861-7576; f- 334-861-7540;  
raronson@jaguar1.usouthal.edu

ARTECHE, INAKI  
DEPARTAMENTO DE BIOLOGIA (ZOOLOGY)  
FACULTAD DE CIENCIAS  
APARTADO 644  
BALBOA, SPAIN

ASHA, PAYIKAT  
TRC OF CMFRI  
SOUTH BEACH ROAD EXTENSION  
KARAPPAD, TUTICORIN  
TAMIL NADU, 628001 INDIA  
p- 0461-320102; f- 0461-30198

AUSICH, WILLIAM I.  
THE OHIO STATE UNIVERSITY  
DEPARTMENT OF GEOLOGICAL SCIENCES  
155 SOUTH OVAL MALL  
COLUMBUS, OH 43210-1308  
p- 614-292-0069; f- 614-292-7688; ausich.1@osu.edu

AUSTIN, WILLIAM  
KHOYATAN MARINE LABORATORY  
4635 ALDER GLEN ROAD  
RR1, COWICHAN BAY  
BRITISH COLUMBIA, VOR INO CANADA

BAKER, ALAN N.  
DEPT CONSERVATION  
PO BOX 10-420  
WELLINGTON, NEW ZEALAND  
p- 64 4 471 3299; f- 64 4 471 3048; abaker@doc.govt.nz

BALCH, TOBY  
DALHOUSIE UNIVERSITY  
DEPT BIOLOGY  
HALIFAX, NS, B3H 4J1 CANADA  
p- 902-494-2296; f- 902-494-3736; tbalch@is2.dal.ca

BALL, BRENDAN JOHN  
UNIVERSITY COLLEGE GALWAY  
MARTIN RYAN MARINE SCIENCE INSTITUTE  
ZOOLOGY DEPARTMENT  
GALWAY, IRELAND

BALSER, ELIZABETH J.  
ILLINOIS WESLEYAN UNIVERSITY  
DEPT BIOLOGY  
PO BOX 2900  
BLOOMINGTON, IL 61702-2900  
p- 309-556-3307; f- 309-556-3864; sbals@titan.iwu.edu

BANGI, HELEN GRACE P.  
MARINE SCIENCE INSTITUTE  
UNIVERSITY OF THE PHILIPPINES  
PO BOX 1, DILIMAN 1101  
QUEZON CITY, THE PHILIPPINES

BARKER, MICHAEL F.  
UNIVERSITY OF OTAGO  
DEPT MARINE SCIENCE  
DUNEDIN, NEW ZEALAND  
p- 643-479-5820; f- 64 3 479-5825  
mike.barker@stonebow.otago.ac.nz

BARTSCH, ILSE  
BIOLOGISCHE ANSTALT HELGOLAND  
NOTKESTR. 31  
HAMBURG, 22607 GERMANY  
p- 49 40 89 69 32 12; f- 49 40 89 69 31 15

BASCH, LARRY V.  
SCRIPPS INSTITUTION OF OCEANOGRAPHY  
UNIVERSITY OF CALIFORNIA, SAN DIEGO  
LA JOLLA, CA 92093-0201  
p- 619-534-9899; f- 619-534-6500; [lbach@ucsd.edu](mailto:lbach@ucsd.edu)

BASKAR, B. K.  
CENTRAL MARINE FISHERIES R.I.  
E.R.G. ROAD  
ERNACULAM  
COCHIN, 682031 INDIA

BAUER, JOHN C.  
7794 CLOVERFIELD CIRCLE  
BOCA RATON, FL 33433  
p- 561-395-9426

BAUMILLER, TOMASZ K.  
MUSEUM OF PALEONTOLOGY  
UNIVERSITY OF MICHIGAN  
1109 GEDDES ROAD  
ANN ARBOR, MI 48109-1079  
p- 313-764-7543; f- 313-936-1380; [tomaszb@umich.edu](mailto:tomaszb@umich.edu)

BA Y-SCHMITH, ENRIQUE  
INSTITUTO DE BIOLOGIA CELULAR  
UNIVERSIDAD DE CONCEPCION  
CONCEPCION, CHILE

BAZHIN, ALEXANDER  
KAMCHATKA PACIFIC INST FISHERY  
& OCEANOGR. (KAMCHATNIRO)  
NABEREZHNA YA, 18  
PETROPVLOVSK-KAMCHATSKY, 68302 RUSSIA  
p- 415-222-35-00; f- 415-222-24-05

BEAVER, HAROLD H.  
BAYLOR UNIVERSITY  
DEPARTMENT OF GEOLOGY  
P.O. BOX 97354  
WACO, TX 76798-7354  
p- 817-755-2361; f- 817-755-2673; [harold-beaver@baylor.edu](mailto:harold-beaver@baylor.edu)

BECKER, JOHANN  
MUSEU NACIONAL  
QUINTA DA BOA VISTA  
RIO DE JANEIRO, RJ, 20940-040 BRAZIL

BEDDINGFIELD, STEVE D.  
1813 OLD ORCHARD ROAD  
VESTAVIA, AL 35216  
p- 205-823-7617; f- 205-975-6097; [zu02081@uab.dpo.edu](mailto:zu02081@uab.dpo.edu)

BEBBIE, KIRSTEN M.  
GATTY MARINE LAB  
EAST SANDS  
ST ANDREWS, SCOTLAND, U.K.  
p- 0334-76161 ; f- 0334-63443; [kmb2@st-andrews.ac.uk](mailto:kmb2@st-andrews.ac.uk)

BELL, BRUCE M.  
EDRIO OIL COMPANY  
SUITE 333W  
2601 NW EXPRESSWAY  
OKLAHOMA CITY, OK 73112  
p- 405-843-8408; f- 405-843-8509

BENEJAM DE SUAREZ, CARLA  
24 TALBOT ST.  
SALINAS, CA 93901  
p- 408-753-2099

BENTLEY, ANDREW C.  
JLB SMITH INSTITUTE OF ICHTHYOLOGY  
COLLECTION MANAGER  
GRAHAMSTOWN 6140, SOUTH AFRICA  
p- +09-27-461-311002; f- +09-27-461-22403;  
[ihab@giraffe.ru.ac.za](mailto:ihab@giraffe.ru.ac.za)

BERENTS, PENELOPE B.  
AUSTRALIAN MUSEUM  
INVERTEBRATE ZOO, COLLECTION MANAGER  
6 COLLEGE STREET  
SYDNEY 2000, NSW, AUSTRALIA  
p- 61-2-9320-6134; f- 61-2-9320-6050  
[pennyb@amsg.austmus.gov.au](mailto:pennyb@amsg.austmus.gov.au)

BERGEN, MARY  
SOUTHERN CALIFORNIA COASTAL  
WATER RESEARCH PROJECT  
7171 FENWICK LANE  
WESTMINSTER, CA 92683-5218  
p- 714-894-2222; f- 714-894-9699  
[maryb@sccwrp.org](mailto:maryb@sccwrp.org)

BERTRAM, DOUGLAS F.  
ENVIRONMENT CANADA  
PACIFIC WILDLIFE RES CTR  
RR1 5421 ROBERTSON RD  
DELTA, B.C., V4K 3N2 CANADA  
p- (604) 946-8546

BIERMANN, CHRISTIANE H.  
FRIDAY HARBOR LABORATORIES  
620 UNIVERSITY ROAD  
FRIDAY HARBOR, WA 98250  
p- 206-543-1484 (1999-2000 ADDRESS)

BIERMANN, CHRISTIANE H.  
MOLECULAR ECOL & FISHERIES  
GENETICS LABORATORY  
DEPT BIOL SCI, UNIV HULL  
HULL, HU6 7RX ENGLAND, UK  
p- +44-1482-465536; f- +44-1482-465458  
[c.h.biermann@biosci.hull.ac.uk](mailto:c.h.biermann@biosci.hull.ac.uk) (1998 ADDRESS)

BILLETT, DAVID S.M.  
SOUTHAMPTON OCEANOGRAPHY CENTRE  
EMPRESS DOCK  
SOUTHAMPTON, SO14 3ZH GREAT BRITAIN, U.K.  
p- 44-1703-596102; f- 44-1703-596101;  
[d.billett@soc.soton.ac.uk](mailto:d.billett@soc.soton.ac.uk)

BILTON, JOHN  
JAMES COOK UNIVERSITY  
PO BOX 102  
TOWNSVILLE 4811, QLD, AUSTRALIA  
[john.bilton@jcu.edu.au](mailto:john.bilton@jcu.edu.au)

BIRENHEIDE, RUDIGER  
TOKYO INSTITUTE OF TECHNOLOGY  
BIOL LAB, FAC. OF SCIENCE  
2-12-1 O-OKAYAMA, MEGURO-KU  
TOKYO 152, 8551 JAPAN  
p- +81 3 5734 2656; f- +81 3 5734 2946;  
rbirenhe@bio.titech.ac.jp

BIRKELAND, CHARLES E.  
UNIVERSITY OF GUAM  
MARINE LABORATORY  
UOG STATION  
MANGILAO, GU 96923  
p- 671-735-2184; f- 671-734-6767; birkelan@uog9.uog.edu

BIRYUKOVA, INGA V.  
TINRO - PACIFIC RESEARCH FISHERY CENTER  
4 SHEVCHENKO ALLEY  
VLADIVOSTOK, 690600 RUSSIA  
p- (4232) 25-95-04; f- (4232) 25-77-83; root@tinro.marine.su

BLACK, W. ROBERT  
THE UNIVERSITY OF WESTERN AUSTRALIA  
DEPARTMENT OF ZOOLOGY  
NEDLANDS, W.A., 6907 AUSTRALIA  
p- 61 9 380-2232; f- 61 9 380-1029  
rblack@uniwa.uwa.edu.au

BLAKE, DANIEL B.  
UNIVERSITY OF ILLINOIS  
DEPT GEOLOGY, 245 NHB  
1301 W GREEN ST.  
URBANA, IL 61801  
p- 217-333-3833; f- 217-244-4996; dblake@uiuc.edu

BLUHM, BODIL A.  
ALFRED-WEGENER-INSTITUTE FOR  
POLAR AND MARINE RESEARCH  
COLUMBUSSTRASSE, PO BOX 120161  
BREMERHAVEN, 27515 GERMANY  
p- +49-471-4831-323; f- +49-471-4831-149  
bbluhm@awi-bremerhaven.de

BLUHM, HARTMUT  
ALFRED-WEGENER-INSTITUTE FOR  
POLAR AND MARINE RESEARCH  
COLUMBUSSTRASSE  
BREMERHAVEN, 27568 GERMANY  
p- +49-471-4831-581; f- +49-471-4831-580  
hbluhm@awi-bremerhaven.de

BOCKELIE, JOHAN F.  
NORSK HYDRO EXPLORATION  
P.O. BOX 200  
N-1321 STABEKK, NORWAY  
p- +47-22-73-79-67; f- +47-22-73-90-70

BOCZAROWSKI, ANDRZEJ  
SILESIAN UNIVERSITY  
DEPARTMENT OF EARTH SCIENCES  
BEDZINSKA STR. 60  
SOSNOWIEC 41-200, POLAND

BOETTGER, ANNE  
UNIV OF ALABAMA AT BIRMINGHAM  
DEPT BIOLOGY, CAMPBELL HALL  
1300 UNIVERSITY BOULEVARD  
BIRMINGHAM, AL 35294-1170  
p- 205-934-1034; f- 205-975-6097; boettger@uab.edu

BONASORO, FRANCESCO  
UNIV DEGLI STUDI DI MILANO  
DEPT BIOLOGIA, SEZIONE ZOOLOGIA  
VIA CELORIA 26  
MILANO, 20133 ITALY  
p- +39 2 2660 4465; f- +39 2 2660 4462  
bonasoro@imiucca.csi.unimi.it

BOOTH JR., BILLY B.  
MOTE MARINE LABORATORY  
1600 CITY ISLAND PARK  
SARASOTA, FL 33577

BORZONE, CARLOS A.  
UNIVERSIDADE FEDERAL DO PARANA  
CENTRO DE ESTUDOS DO MAR  
AV BEIRA MAR, s/n, PONTAL DO SUL  
PARANAGUA, PARANA, 83255-000 BRAZIL  
p- 0055 (041) 455-1333; f- 0055 (041) 455-1105  
capborza@aica.cem.ufpr.br

BOSCH, ISIDRO M.  
STATE UNIVERSITY OF NEW YORK  
DEPT BIOLOGY  
1 COLLEGE CIRCLE  
GENESEO, NY 14454  
p- 716-245-5303; f- 716-245-5007; bosch@uno.cc.geneseo.edu

BOTTJER, DAVID  
UNIVERSITY OF SOUTHERN CALIFORNIA  
DEPT GEOLOGICAL SCIENCES  
LOS ANGELES, CA 90089

BOUDOURESQUE, CHARLES F.  
CENTRE D'OCEANOLOGIE DE MARSEILLE  
UMR CNRS 6540 DIMAR  
PARC SCIENTIFIQUE ET TECHNOLOGIQUE DE LUMINY,  
CASE 901  
MARSEILLE CEDEX 09, 13288 FRANCE  
p- (33)4 91 26 91 30; f- (33) 4 91 41 12 65  
boudour@com.univ-mrs.fr

BOULAND, CATHERINE  
UNIVERSITE LAVAL  
DEPARTEMENT DE BIOLOGIE  
QUEBEC, QUEBEC, G1K 7P4 CANADA

BOURGOIN, ALLAIN  
UNIVERSITE DE MONCTON  
CAMPUS SHIPPIGAN  
P.O. BOX 2000  
SHIPPIGAN, N.B., EOB 2PO CANADA  
p- 506-336-3425; f- 506-336-3434; allain@cus.ca

BRANDT, DANITA  
MICHIGAN STATE UNIVERSITY  
DEPT GEOLOGICAL SCIENCES  
EAST LANSING, MI 48824-1115  
p- 517-355-4626; f- 517-353-8787; [brandt@pilot.msu.edu](mailto:brandt@pilot.msu.edu)

BRAY, RICHARD D.  
176 WEST MAIN ST.  
PORT JERVIS, NY 12771

BREGMAN, YURIY E.  
PACIFIC RESEARCH INSTITUTE  
FISHERIES & OCEANOGRAPHY (TINRO)  
4 SHEVCHENKO ALLEY  
VLADIVOSTOK, 690600 RUSSIA  
p- 4232-255-943; f- 4232-257-783; [root@tinro.marine.su](mailto:root@tinro.marine.su)

BRETON, GERARD  
MUSEUM D'HISTOIRE NATURELLE  
PLACE DU VIEUX MARCHÉ  
LE HAVRE, 76600 FRANCE  
p- 33-02-35-41-37-28; f- 33-02-35-42-12-40

BRETT, CARLETON  
UNIVERSITY OF ROCHESTER  
DEPT. OF GEOLOGICAL SCIENCES  
ROCHESTER, NY 14627

BREWTON, PAUL E.  
UNIVERSITY OF OTAGO  
DEPT. OF MARINE SCIENCE  
P.O. BOX 56  
DUNEDIN, NEW ZEALAND  
p- 3-479-8306; [marinesci@otago.ac.nz](mailto:marinesci@otago.ac.nz)

BREY, THOMAS  
ALFRED WEGENER INSTITUTE FOR POLAR  
& MAR RESEARCH, ECOLOGY & ECOPHYSIOLOGY  
PO BOX 120161  
BREMERHAVEN, D-27515 GERMANY  
p- ++49 (0) 471 4831 316; f- ++49 (0) 471 4831 149  
[tbrey@awi-bremerhaven.de](mailto:tbrey@awi-bremerhaven.de)

BRITO, IGNACIO M.  
INSTITUTO AMBIENTAL DO PARANA  
RUA DESEMBARGADOR MOTTA, 3384  
CURITIBA, PR, 80420-200 BRAZIL

BROADHEAD, THOMAS  
UNIVERSITY OF TENNESSEE  
DEPT. OF GEOLOGICAL SCIENCE  
KNOXVILLE, TN 37996

BROWER, JAMES C.  
SYRACUSE UNIVERSITY  
DEPT EARTH SCIENCES  
HEROY GEOLOGY LABORATORY  
SYRACUSE, NY 13244-1070  
p- 315-443-4119

BRUMBAUGH, JOE  
SONOMA STATE UNIVERSITY  
DEPT BIOLOGY  
ROHNERT PARK, CA 94928

BRUNEL, PIERRE  
UNIVERSITE DE MONTREAL  
DEPT SCIENCES BIOLOGIQUES  
CP 6128, SUCCURSALE CENTRE-VILLE  
MONTREAL, QC, H3C 3J7 CANADA  
p- 514-343-7461; f- 514-343-2293

BUTTRON-SANCHEZ, BLANCA E.  
INSTITUTO DE GEOLOGIA, UNAM  
CIUDAD UNIVERSITARIA  
DELEG. COYOACAN  
04510 MEXICO, D.F., MEXICO  
p- 525 622 42 97; f- 525 550 66 44;  
[laguarda@unamvml.dgsca.unam.mx](mailto:laguarda@unamvml.dgsca.unam.mx)

BURCH, BEATRICE L.  
& THOMAS A. BURCH, RESEARCH ASSOCIATES  
BERNICE P. BISHOP MUSEUM  
1525 BERNICE ST.  
HONOLULU, HI 96817-0916  
p- 808-261-7465; f- 808-263-6408; [tab@hits.net](mailto:tab@hits.net)

BURKE, ROBERT  
UNIVERSITY OF VICTORIA  
DEPARTMENT OF BIOLOGY  
VICTORIA, B.C., V8W 2F2 CANADA  
p- 604-721-710; f- 604-721-8653

BURNS, CASEY  
9962 SHORTY CAMPBELL ROAD  
KINGSTON, WA 98346  
p- 360-297-4020; [cburns@kendaco.telebyte.com](mailto:cburns@kendaco.telebyte.com)

BURTON, MARGARET  
MEMORIAL UNIVERSITY OF NEWFLD  
DEPARTMENT OF BIOLOGY  
ST JOHN'S, NF, A1B 3X9 CANADA

BUSSARAWIT, SOMCHAI  
PHUKET MARINE BIOLOGICAL CENTR  
PO BOX 60  
PHUKET, 83000 THAILAND  
p- 66-76-391128; f- 66-76-391127

BUSTER, PETER P.T.M  
GREVENBICHTSTRAAT 66  
5043 MD TILBURG, THE NETHERLANDS  
[thebus@pi.net](mailto:thebus@pi.net)

BUSTOS, EDUARDO  
INSTITUTO DE FOMENTO PESQUERO  
AVE. DIEGO PORTALES 1450  
PUERTO MONTT, CHILE  
f- 56 65-259-995; [ebustos@fop.cl](mailto:ebustos@fop.cl)

BYRNE, MARIA  
UNIVERSITY OF SYDNEY  
DEPT EMBRYOLOGY & HISTOLOGY F13  
SYDNEY NSW 2006, AUSTRALIA  
p- 61-2-9351-5166; f- 61-2-9351-2813  
[mbyrne@anatomy.su.oz.au](mailto:mbyrne@anatomy.su.oz.au)



CAFFI, MARGARITA G.  
UNIVERSIDADE DE CONCEPCION  
DEPTO DE ZOOLOGIA  
CASILLA 1367  
CONCEPCION, CHILE

CALTAGIRONE, ANGELA  
LBMEB  
FACULTE DES SCIENCES DE LUMINY  
MARSEILLE, CEDEX 9, 13288 FRANCE  
p- 91-269165; f- 91-411265; [calta@com.univ-mrs.fr](mailto:calta@com.univ-mrs.fr)

CAMARGO, TANIA MARIA  
UNIVERSIDADE DE SAO PAULO  
INSTITUTO OCEANOGRAFICO  
SAO PAULO, BRAZIL

CAMERON, R. ANDREW  
CALIFORNIA INSTITUTE TECHNOLOGY  
DIVISION BIOLOGY 156-29  
PASADENA, CA 91125  
p- 626-395-8421; f- 626-793-3047; [acameron@cco.caltech.edu](mailto:acameron@cco.caltech.edu)

CAMPBELL, ALAN  
PACIFIC BIOLOGICAL STATION  
DEPT FISHERIES & OCEANS  
NANAIMO, B.C., V9R 5K6 CANADA  
p- 250-756-7124; f- 250-756-7138; [campbella@dfo-mpo.gc.ca](mailto:campbella@dfo-mpo.gc.ca)

CAMPBELL, ANDREW C.  
QUEEN MARY & WESTFIELD COLLEGE  
SCHOOL OF BIOLOGICAL SCIENCES  
UNIVERSITY LONDON, MILE END RD  
LONDON, E1 4NS ENGLAND, U.K.  
p- 44-1-71-775-3298; f- 44-1-81-983-0973  
[a.c.campbell@qmw.ac.uk](mailto:a.c.campbell@qmw.ac.uk)

CAMPBELL, DAVID B.  
RIDER COLLEGE  
BIOLOGY DEPARTMENT  
2083 LAWRENCEVILLE ROAD  
LAWRENCEVILLE, NJ 08648-3099  
p- 609-895-5418; f- 609-895-5782; [campbell@rider.edu](mailto:campbell@rider.edu)

CANDIA-CARNEVALI, M. DANIELA  
UNIV. DEGLI STUDI DI MILANO  
DIPARTIMENTO DI BIOLOGIA  
VIA CELORIA 26  
MILANO, 20133 ITALY  
p- 39-02-2277-4475; f- 39-02-2277-4472  
[cadmdn@imiucca.esi.unimi.it](mailto:cadmdn@imiucca.esi.unimi.it)

CANNON, LESTER R.  
QUEENSLAND MUSEUM  
SENIOR CURATOR, WORMS  
PO BOX 4101  
SOUTH BRISBANE, QLD, 4101 AUSTRALIA  
p- +617-3840-7724; f- +617-3846-1226  
[Lcannon@mailbox.uq.edu.au](mailto:Lcannon@mailbox.uq.edu.au)

CARCAMO, ALFONSO G.  
UNIVERSIDAD DE CHILE-OSORNO  
CASILLA 933  
OSORNO, CHILE

CARDER, NANCY  
6503 LA PALOMA CT.  
CARLSBAD, CA 92009

CAREY JR, ANDREW G.  
OREGON STATE UNIVERSITY  
SCHOOL OF OCEANOGRAPHY  
CORVALLIS, OR 97331  
p- 503-754-3504; [acarey@oce.orst.edu](mailto:acarey@oce.orst.edu)

CARNEY, ROBERT S.  
LOUISIANA STATE UNIVERSITY  
COASTAL RESOURCES LABORATORY  
BATON ROUGE, LA 70803  
p- 504-388-6511; f- 504-388-6326; [carney@wr3600.cwr.lsu.edu](mailto:carney@wr3600.cwr.lsu.edu)

CARPENTER, ROBERT C.  
CALIFORNIA STATE UNIVERSITY  
DEPT. OF BIOLOGY  
NORTHRIDGE, CA 91330

CARSON, SALLY  
PORTOBELLO MARINE LABORATORY  
P.O. BOX 8  
PORTOBELLO, DUNEDIN, NEW ZEALAND

CASTILLO, JUAN CARLOS  
ECOLOGIA MARINA  
FAC. C BIOLÓGICAS, UNIVERSIDAD  
CATOLICA, CASILLA 114-D  
SANTIAGO, CHILE  
p- 56-2-222-4561; f- 56-2-222-5515

CASTRO, LILY ROMINA  
C/O CICESE  
P.O. BOX 434843  
SAN DIEGO, CA 92143

CASTRO MANSO, CYNTHIA LARA DE  
DEPARTAMENTO DE ZOOLOGIA  
UNIVERSIDAD PARANA, CX-P 19-020  
81.504 CENTRO POLITECNICO  
CURITIBA-PARANA, BRAZIL

CHAET, A.B.  
UNIVERSITY OF WEST FLORIDA  
DEPT. OF CELL AND MOLEC. BIOL.  
PENSACOLA, FL 32514

CHAO, CHI-MING  
UNIVERSITY OF SOUTH FLORIDA  
DEPT BIOL, #4014  
TAMPA, FL 33620-5150  
[cchao@chuma.cas.usf.edu](mailto:cchao@chuma.cas.usf.edu)

CHAO, SHYH-MIN  
NATL MUSEUM NATURAL SCIENCE  
DIV COLLECTION & RESEARCH  
1, KUAN CHIEN RD  
TAICHUNG 404, TAIWAN  
f- 086-4-3222290; [chaosm@nmns1.nmns.edu.tw](mailto:chaosm@nmns1.nmns.edu.tw)

CHEN, CHANG-PO  
INSTITUTE OF ZOOLOGY  
ACADEMIA SINICA  
NANKANG, TAIPEI 115, TAIWAN  
p- 88-62-789-9548; f- 88-62-785-8059;  
zoep@ccvax.sinica.edu.tw

CHIA, FU-SHIANG  
HONG KONG UNIV SCI & TECHNOL  
DEPARTMENT OF BIOLOGY  
CLEAR WATER BAY  
KOWLOON, HONG KONG  
p- 852-2358-7348; f- 852-2358-1559; bofschia@usthk.ust.hk

CHICCA, ANGIE  
912 DELFERN ROAD  
BUTTONWILLOW, CA 93206  
cure701@aol.com

CHIU, SEIN TUCK  
HONG KONG BAPTIST COLLEGE  
DEPARTMENT OF BIOLOGY  
224 WATERLOO ROAD  
KOWLOON, HONG KONG

CINCINNATI, UNIVERSITY OF  
GEOLOGY DEPARTMENT  
OLD TECH BUILDING  
CINCINNATI, OH 45221

CINTRA BUENROSTRO, CARLOS E.  
UNIV AUTONOMA DE BAJA CALIFORNIA SUR  
CARR. AL SUR KM. 5.5, A.P. 19-B  
LA PAZ, B.C.S., 23080 MEXICO  
p- (112) 111-40; f- (112) 124-77; ccintra@calafia.uabcs.mx

CLARK, AILSA McGOWN  
GYLLYNGDUNE, SOUTH ROAD  
WIVELSFIELD GREEN, HAYWARDS HEATH  
SUSSEX, RH17 7QS ENGLAND, U.K.  
p- 01444 471357

CLARK, ROGER N.  
1839 ARTHUR STREET  
KLAMATH FALLS, OR 97603  
p- 541-883-7582; insignis@cadsnet.uet

CLEMENTS, LEE ANN J.  
JACKSONVILLE UNIVERSITY  
CHAIR, DEPT BIOL & MARINE SCI  
2800 UNIVERSITY BLVD N  
JACKSONVILLE, FL 32211  
p- 904-744-3950 ext 7322; f-904-745-7573;  
lclemen@junix.ju.edu

CLOUSE, RONALD M.  
457 7TH AVE, 1R  
BROOKLYN, NY 11215  
p- 718-499-4351; f- 212-845-1684; clouser@deshaw.com

COBB, JAMES L.S.  
GATTY MARINE LAB  
ST. ANDREWS  
FIFE, SCOTLAND, U.K.  
f- 334 76161

COLON-JONES, D. E. IZABETH  
RSMAS, UNIVERSITY OF MIAMI  
DIV. MARINE BIOLOGY FISHERIES  
4600 RICKENBACKER CAUSEWAY  
MIAMI, FL 33149-1098  
p- 305-361-4642; f- 305-361-4600; ljones@rsmas.miami.edu

CONAND, CHANTAL  
UNIVERSITE DE LA REUNION  
LAB ECOLOGIE MARINE  
15 AVENUE RENE CASSIN  
SAINT DENIS, CEDEX 9, 97715 FRANCE  
p- 262-93-81-78; f- 262-93-81-66; conand@univ-reunion.fr

CONLU, PRUDENCIA  
UNIVERSITY OF PHILIPPINES IN  
THE VISAYAS, COLLEGE OF FISHERIES  
MIAGAO, ILOILO, THE PHILIPPINES

CONSTABLE, ANDREW J.  
ASNRM  
DEAKIN UNIVERSITY  
P.O. BOX 423, WARRNAMBOOL  
VICTORIA 3280, AUSTRALIA  
p- 61-55-633099; f- 61-55-633462; aconst@deakin.edu.au

COPPARD, SIMON  
QUEEN MARY & WESTFIELD COLLEGE  
SCHOOL OF BIOLOGICAL SCIENCES  
UNIVERSITY LONDON, MILE END RD  
LONDON, E1 4NS ENGLAND, U.K.  
p- 44-1-71-775-3298; f- 44-1-81-983-0973

COSTA, HENRIQUE R.  
DPTO BIOLOGIA MARINA, UFRJ  
B1 A CCS-I FUNDAO  
RIO DE JANEIRO, RJ, 21910 BRAZIL

COSTELLOE, JOHN  
UNIVERSITY COLLEGE  
ZOOLOGY DEPARTMENT  
GALWAY, IRELAND

COX, ROBERT  
UNIVERSITY OF MICHIGAN  
DEPT GEOLOGICAL SCIENCE  
ANN ARBOR, MI 48109

CREASER, EDWIN P.  
DEPT MARINE RESOURCES  
MARINE SCIENCES LABORATORY  
W. BOOTHBAY HARBOR, ME 04575  
p- 207-633-9518; f- 207-633-9579

CREASER, EMMA  
UNITY COLLEGE  
DEPT BIOLOGY  
HC78, BOX 1  
UNITY, ME 04988-9502  
emma@chuma.cas.usf.edu

CRUMP, ROBIN G.  
ORIELTON FIELD CENTRE  
PEMBROKE, DYFED, SA71 5EZ WALES, U.K.  
p- 1-64-666-1225; f- 1-64-666-1737

CUENCA, CATHERINE  
MUSEUM HISTOIRE DE NANTES  
12 RUE VOLTAIRE  
NANTES, 44000 FRANCE

CUNHA DE JESUS, DORA MARIA  
RUA DOS GAMAS, No. 7-3o, A  
SINES P-7520, PORTUGAL  
p- 351-936-26-099-28

CUTRESS, BERTHA M.  
APT. 106  
440 N.W. ELKS DRIVE  
CORVALLIS, OR 97330-3747  
p- 541-758-1726

DAFNI, JACOB  
EILAT COLLEGE, ACADEMIC DIRECTOR  
PO BOX 1301  
EILAT, 88112 ISRAEL  
p- 972-7-6372383; f- 972-7-6304556; [jdafni@netvision.net.il](mailto:jdafni@netvision.net.il)

DALBY, JR., JAMES E.  
UNIVERSITY ALBERTA  
9832-86 AVE  
EDMONTON, ALBERTA, T6E 2L6 CANADA  
[jedalby@freenet.edmonton.ab.ca](mailto:jedalby@freenet.edmonton.ab.ca)

DAVID, BRUNO  
UNIVERSITE DE BOURGOGNE  
CENTRE DE SCIENCES DE LA TERRE  
6 BD GABRIEL  
DIJON, 21000 FRANCE  
p- +33 3 80 39 63 71; f- +33 3 80 39 63 87  
[bdavid@u-bourgogne.fr](mailto:bdavid@u-bourgogne.fr)

DAVID, JEROME  
UNIVERSITE DE REIMS  
FACULTE DES SCIENCES  
LAB SCI DE LA TERRE, BP347  
REIMS, CEDEX, 51062 FRANCE  
p- 33-26-05-33-68; f- 33-26-05-32-79

DAVOULT, DOMINIQUE  
STATION MARINE  
ERS 395 DU CNRS  
28 AVENUE FOCH, BP 80  
WIMEREUX, 62930 FRANCE  
p- 33-3-21-99-29-29; f- 33-3-21-99-29-01  
[dom@loalit.univ-littoral.fr](mailto:dom@loalit.univ-littoral.fr)

DAY, ROB W.  
UNIVERSITY MELBOURNE  
DEPT. OF ZOOLOGY  
GATE 12, ROYAL PARADE  
PARKVILLE, VICTORIA 3052, AUSTRALIA

DAYTON, PAUL K.  
MAIL CODE 0201  
SCRIPPS INSTITUTION OCEANOGR  
9500 GILMAN DRIVE  
LA JOLLA, CA 92093  
p- 619-534-6470; f- 619-534-6500; [pdayton@ucsd.edu](mailto:pdayton@ucsd.edu)

DE CELIS, ALEJANDRO K.  
NATIONAL MUSEUM  
EXECUTIVE BUILDING  
RIZAL PARK, ERMITA  
MANILA, THE PHILIPPINES

DE RIDDER, CHANTAL J.M.  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM  
p- 32-2-650-2966; f- 32-2-650-2796; [cridder@ulb.ac.be](mailto:cridder@ulb.ac.be)

DE WIT, WALTER M.J.  
DIEPESTEEG 25  
6994 CC DE STEEG, THE NETHERLANDS  
p- 08309-54344; f- 08309-51718

DEAN, JULIETTE  
UNIVERSITY OF CAMBRIDGE  
DEPT OF EARTH SCIENCES  
DOWNING STREET  
CAMBRIDGE, CB3 9DF ENGLAND, U.K.  
p- +44 1223 333 446; f- +44 1223 333 450  
[jd10006@esc.cam.ac.uk](mailto:jd10006@esc.cam.ac.uk)

DEARBORN, JOHN H.  
UNIVERSITY OF MAINE  
DEPARTMENT OF ZOOLOGY  
5751 MURRAY HALL  
ORONO, ME 04469-5752  
p- 207-581-2552; [dearborn@maine.maine.edu](mailto:dearborn@maine.maine.edu)

DEBENHAM, PATTY  
318 E. VICTORIA ST., APT. C  
SANTA BARBARA, CA 93101

DeGREEF, YVES  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM

DEL VALLE, ROSA  
INSTITUTO DE OCEANOLOGIA  
AVE 1ra No. 18406  
RPTO. FLORES, PLAYA  
HAVANA, CUBA  
[oceano@ceniai.cu](mailto:oceano@ceniai.cu)

DELAVault, ROBERT  
UNIVERSITE D'ORLEANS  
LAB BIOL CELLULAIRE & ANIMALE  
ORLEANS CEDEX, 45045 FRANCE

DELMAS, P.  
UNIVERSITE D'AIX-MARSEILLE II  
LAB. DE ZOOL. MARINE, CERAM  
AVE ESC., NORM-NIEMEN  
MARSEILLE CEDEX 13, F-13397 FRANCE

DEMARGNE, MICHAEL  
RUE DE L'ANCIENNE MAIRIE 38730  
VIRIEU SUR BOURBRE, FRANCE

DEPARTMENT, AQUACULTURE  
SOUTHEAST ASIAN FISHERIES CTR.  
P.O. BOX 256  
ILOILO CITY, THE PHILIPPINES

DEUTZMANN, HELMUT  
REINALDSTR. 3  
RATINGEN, 40882 GERMANY

DEVIN, MICHAEL G.  
NATIONAL SCIENCE FOUNDATION, SUITE 1070  
4201 WILSON BLVD  
ARLINGTON, VA 22230  
p- 703-306-1993; f- 703-306-0091; [mdevin@nsf.gov](mailto:mdevin@nsf.gov)

DIACANTONI, ANA MARCOPOULOU -  
UNIVERSITY OF ATHENS  
SUBFAC. SCIENCE OF EARTH  
93 MARATHONODROMOU STR.  
MAROUSSI, ATHENS, 15125 GREECE

DIEHL, WALTER J.  
MISSISSIPPI STATE UNIVERSITY  
DEPT BIOLOGICAL SCIENCE  
PO DRAWER GY  
MISSISSIPPI STATE, MS 39762-5759  
p- 601-325-7576; f- 601-325-7939; [wjdiehl@ra.msstate.edu](mailto:wjdiehl@ra.msstate.edu)

DOBSON, WILLIAM E.  
APPALACHIAN STATE UNIVERSITY  
DEPT BIOLOGY  
BOONE, NC 28608  
p- 704-262-6910; f- 704-262-2127; [dobsonwe@appstate.edu](mailto:dobsonwe@appstate.edu)

DOI, TERUO  
KYUSHU UNIVERSITY 33  
DEPT BIOLOGY, FAC SCIENCE  
HIGASHI-KU  
FUKUOKA 812, JAPAN  
p- 81-92-641-1101 ext 4419 ; f- 81-92-632-2741  
[tedoisch@mbox.n.c.kyushu-u.ac.jp](mailto:tedoisch@mbox.n.c.kyushu-u.ac.jp)

DOLMATOV, IGOR Y.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- (4232) 31-11-78; f- (4232) 31-09-00; [aissa@vld.global-one.ru](mailto:aissa@vld.global-one.ru)

DOMINGUEZ ALONSO, PATRICIO  
UNIVERSIDAD COMPLUTENSE DE MADRID  
DEPTO DE PALEONTOLOGIA  
FAC DE CIENCIAS GEOLOGICAS  
MADRID, 28040 SPAIN  
p- 341 394 4856; f- 341 394 4849;  
[padomin@eucmax.sim.ucm.es](mailto:padomin@eucmax.sim.ucm.es)

DONOVAN, STEPHEN K.  
THE NATURAL HISTORY MUSEUM  
DEPT PALAEONTOLOGY  
CROMWELL ROAD  
LONDON, SW7 5BD ENGLAND, UK

DOTAN, AARON  
TEL AVIV UNIVERSITY  
DEPARTMENT OF ZOOLOGY  
RAMAT-AVIV, 69978 ISRAEL

DOWNEY, MAUREEN E.  
443 SUTHERLAND ROAD  
FRIDAY HARBOR, WA 98250  
p- 206-378-3641

DROZDOV, ANATOLY L.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; [faribm@visenet.marine.su](mailto:faribm@visenet.marine.su)

DRUMMOND, ANNE E.  
UNIVERSITY OF NATAL  
DEPT ZOOLOGY & ENTOMOLOGY  
P BAG X01  
SCOTTSVILLE, 3209 SOUTH AFRICA  
p- (0331) 260-5104; f- (0331) 260-5105  
[drummond@zoology.unp.ac.za](mailto:drummond@zoology.unp.ac.za)

DUBOIS, PHILIPPE  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM  
p- 32-2-650-2839; f- 32-2-650-2796  
[phdubois@ulb.ac.be](mailto:phdubois@ulb.ac.be)

DUBOUCHET, ALEJANDRO  
CENTER FOR MARINE CONSERVATION  
1725 DESALES ST, SUITE 600, NW  
WASHINGTON, DC 20036  
p- 202-429-5609 ext. 260;  
[dubouca@dccmc.mhs.compuserve.com](mailto:dubouca@dccmc.mhs.compuserve.com)

EBERT, THOMAS A.  
SAN DIEGO STATE UNIVERSITY  
DEPARTMENT OF BIOLOGY  
SAN DIEGO, CA 92182-4614  
p- 619-595-5965; f- 619-594-5676  
[tebert@sunstroke.sdsu.edu](mailto:tebert@sunstroke.sdsu.edu)

EBLE, GUNTHER J.  
SMITHSONIAN INSTITUTION  
NATIONAL MUSEUM OF NATURAL HISTORY  
ROOM E121  
WASHINGTON, DC 20560  
[ebleg@nmah.si.edu](mailto:ebleg@nmah.si.edu)

ECKELBARGER, KEVIN  
UNIVERSITY OF MAINE  
DARLING MARINE CENTER  
25 CLARK'S COVE ROAD  
WALPOLE, ME 04573  
p- 207-563-3146; f- 207-563-3119

ECKERT, JAMES D.  
16 WEST HAMPTON RD.  
ST. CATHERINE'S  
ONTARIO, L2T 3E5 CANADA

ECKHAUT, IGOR  
UNIVERSITE DE MONS-HAINAUT  
LAB DE BIOLOGIE MARINE  
19 AVE MAISTRIAU  
7000 MONS, BELGIUM  
p- 32-65-37-34-39; f- 32-65-37-34-34; [biomarum@umh.ac.be](mailto:biomarum@umh.ac.be)

ECKELERS, DIRK  
TRJOMFLAAN 149  
1160 DUDERGEM, BELGIUM  
p- 00322 6753879; [dirk.eekelers@skynet.be](mailto:dirk.eekelers@skynet.be)

EERNISSE, DOUGLAS J.  
CALIFORNIA STATE UNIVERSITY  
DEPT BIOLOGICAL SCIENCES  
FULLERTON, CA 92834-6850  
[deernisse@fullerton.edu](mailto:deernisse@fullerton.edu)

ELDREDGE, LUCIUS G.  
PACIFIC SCIENCE ASSOCIATION  
1525 BERNICE STREET  
PO BOX 17801  
HONOLULU, HI 96817-0801  
p- 808-848-4139; f- 808-847-8252  
[psa@bishop.bishop.hawaii.org](mailto:psa@bishop.bishop.hawaii.org)

ELISEIKINA, MARINA G.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- (4232) 31-11-78; f- (4232) 31-09-00; [aisa@vid.global.one.ru](mailto:aisa@vid.global.one.ru)

ELLERS, OLAF W.  
BOWDOIN COLLEGE  
BIOLOGY DEPT  
BRUNSWICK, ME 04011  
p- 207-725-3808; f- 207-725-3405; [oellers@polar.bowdoin.edu](mailto:oellers@polar.bowdoin.edu)

ELLINGTON, W. ROSS  
FLORIDA STATE UNIVERSITY  
DEPT. OF BIOLOGICAL SCI., B157  
TALLAHASSEE, FL 32306

EMERSON, CAROLYN J.  
MEMORIAL UNIV. OF NEWFOUNDLAND  
BIOLOGY DEPARTMENT  
ST. JOHN'S, NF, A1B 3X9 CANADA

EMLET, RICHARD B.  
UNIVERSITY OF OREGON  
OREGON INST MARINE BIOLOGY  
CHARLESTON, OR 97420  
p- 541-888-2581 ext 211; f- 541-888-3250  
[remlett@oimb.uoregon.edu](mailto:remlett@oimb.uoregon.edu)

EMSON, ROLAND  
KING'S COLLEGE  
DIVISION LIFE SCIENCES  
CAMPDEN HILL ROAD  
LONDON, W87 AH ENGLAND, U.K.  
p- +44 171 333 4489; f- +44 171 333 4500  
[roland.emson@kcl.ac.uk](mailto:roland.emson@kcl.ac.uk)

ENDELMAN, LEONID G.  
PALEONTOLOGICAL INSTITUTE  
RUSSIAN ACADEMY OF SCIENCES  
PROF SOYUSNAYA UL.123  
MOSCOW, 117647 RUSSIA

ENGSTROM, NORMAN  
NORTHERN ILLINOIS UNIVERSITY  
COLLEGE LIBERAL ARTS & SCIENCES  
OFFICE OF DEAN  
DEKALB, IL 60115  
p- 815-753-7960; f- 815-753-5904; [t30enl1@corn.cso.niu.edu](mailto:t30enl1@corn.cso.niu.edu)

ESCOUBET, P.  
MARINELAND-AQUARIUMS  
306 AVENUE MOZART  
ANTIBES, 06600 FRANCE

ETNIER, SHELLEY  
DUKE UNIVERSITY  
243 BIOSCI  
BOX 90325  
DURHAM, NC 27708-0325  
f- 919-684-6168

ETTENSohn, FRANK R.  
UNIVERSITY OF KENTUCKY  
DEPT GEOLOGICAL SCIENCES  
101 SLOANE BUILDING  
LEXINGTON, KY 40506-0053  
p- 606-257-1401; f- 606-323-1938; [fettens@pop.uky.edu](mailto:fettens@pop.uky.edu)

EVDOKIMOV, VLADIMIR V.  
TINRO  
PACIFIC RESEARCH FISHERY CENTER  
4 SHEVCHENKO ALLEY  
VLADIVOSTOK, 690600 RUSSIA  
p- 7 4232 257783; f- 7 4232 259504; [root@tinro.marine.su](mailto:root@tinro.marine.su)

EYLERS, JOHN P.  
N.C. MUSEUM OF LIFE & SCIENCE  
PO BOX 15190, 433 MURRAY AVE.  
DURHAM, NC 27704  
p- 919-220-5429; f- 919-220-5575

FANKBONER, PETER V.  
SIMON FRASER UNIVERSITY  
DEPT. OF BIOLOGICAL SCIENCES  
BURNABY, B.C., V5A 1S6 CANADA  
p- 604-291-4475

FARMANFARMAIAN, A. VERDI  
RUTGERS UNIVERSITY  
NELSON BIOLOGY LAB  
604 ALLISON RD  
PISCATAWAY, NJ 08854-8082  
p- 732-445-3118 or 609-921-2770; f- 732-445-3118  
[farman@biology.rutgers.edu](mailto:farman@biology.rutgers.edu) OR [vfarman@aol.com](mailto:vfarman@aol.com)

FAY, ROBERT O.  
OKLAHOMA GEOLOGICAL SURVEY  
ENERGY CENTER  
100 E. BOYD, ROOM N 131  
NORMAN, OK 73019-0628  
p- 405-325-3031

FECHTER, HUBERT  
 ZOOLOGISCHE STAATSSAMMLUNG  
 MUNCHHAUSENSTR. 21  
 MUENCHEN 60, D-8000 GERMANY

FEDER, HOWARD M.  
 UNIV. OF ALASKA, FAIRBANKS  
 INSTITUTE OF MARINE SCIENCE  
 FAIRBANKS, AK 99775  
 p- 907-474-7956; f- 907-474-7204; feder@ims.alaska.edu

FELDMAN, ABBY L.  
 UNIVERSITY COLLEGE  
 ZOOLOGY DEPARTMENT  
 GALWAY, IRELAND  
 p- 353-91-750379; f- 353-91-750526; abby.l.feldman@ucg.ie

FELL, F. JULIAN  
 BOX 222  
 1555 WELLS PLACE  
 ERRINGTON, B.C., V0R 1V0 CANADA  
 p- 250-248-4295; f- 250-248-4295; jfell@macn.bc.ca

FERAL, JEAN-PIERRE  
 OBSERVATOIRE OCEANOGR DE BANYULS  
 DEPT BIOL CELLULAIRE & MOLECULAIRE  
 BP 44  
 BANYULS-SUR-MER CEDEX, 66651 FRANCE  
 p- 33-68-88-73-18; f- 33-68-88-73-98; feral@arago.univ-perp.fr

FERBER, ILANA  
 7 MOSHE HESS ST.  
 JERUSALEM, 94 185 ISRAEL

FERGUSON, JOHN C.  
 ECKERD COLLEGE  
 BOX 12560  
 ST. PETERSBURG, FL 33733  
 p- 813-864-8441; f- 813-864-7964; fergusjc@eckerd.edu

FERNANDEZ, CATHERINE  
 EQUIPE ECOSYSTEMES LITTORAUX (EQEL)  
 UNIV DE CORSE, UFR DES SCIENCES  
 B.P. 52  
 CORTE, F-20250 FRANCE  
 p- +33 495 45 00 61 or 495 45 00 55; f- +33 495 46 24 41  
 cfernan@univ-corse.fr

FERRAND, JEAN-GUY  
 UNIVERSITE D'ORLEANS  
 LAB BIOL CELLULAIRE & ANIMALE  
 UER SCIENCES  
 ORLEANS CEDEX, 45046 FRANCE

FIERRO, JUAN F.T.  
 MUSEO DE HISTORIA NATURAL DE CONCEPCION  
 CASILLA 1054  
 CONCEPCION, CHILE

FISHELSON, LEV  
 TEL-AVIV UNIVERSITY  
 DEPT. OF ZOOLOGY  
 155 HERZL ST.  
 TEL-AVIV, ISRAEL  
 p- 972-3-6409812; f- 972-3-6409403; zool@taunos

FLAMMANG, PATRICK  
 UNIVERSITE DE MONS-HAINAUT  
 LAB DE BIOLOGIE MARINE  
 19 AVE MAISTRILAU  
 7000 MONS, BELGIUM  
 p- +32-65-373439; f- +32-65-373434  
 patrick.flammang@umh.ac.be

FLEMING, TIMOTHY P.  
 2025 OROFINO GULCH  
 HELENA, MT 59601

FOLLOSCO, MINDA P.  
 DE LA SALLE UNIVERSITY  
 MAR BIOL STA - COLLEGE OF SCIENCE  
 2401 TAFT AVE, BOX 3819  
 MANILA 1004, PHILIPPINES  
 p- (+63-2) 524-04-51; f- (+63-2) 524-04-51  
 cosmpf@mail.dlsu.edu.ph

FOLTZ, DAVID W.  
 LOUISIANA STATE UNIVERSITY  
 DEPT BIOLOGICAL SCIENCES  
 RM 508 LIFE SCIENCES BLDG  
 BATON ROUGE, LA 70803-1715  
 p- 504-388-1737; f- 504-388-2597; dfoltz@unix1.sncc.lsu.edu

FORET, TIMOTHY W.  
 UNIV OF SOUTH FLORIDA  
 DEPARTMENT OF BIOLOGY  
 4202 EAST FOWLER AVE, LIF 136  
 TAMPA, FL 33620-5150  
 p- 813-632-0476; tforet@chuma.cas.usf.edu

FOSTER, MERRILL W.  
 BRADLEY UNIVERSITY  
 DEPT GEOLOGICAL SCIENCES  
 1501 WEST BRADLEY AVE  
 PEORIA, IL 61625-0427  
 p- 309-677-2352; fossil@bradley.bradley.edu

FOUDA, MOUSTAFA  
 AL-ASHAR UNIVERSITY  
 DEPT. OF ZOOLOGY  
 NASR-CITY  
 CAIRO, EGYPT

FOURNIER, DANIEL  
 MUSEUM D'HISTOIRE NATURELLE  
 1 RUE DOLOMIEU  
 GRENOBLE, F-3800 FRANCE

FOX, DAVID J.  
 UNIV TENNESSEE, KNOXVILLE  
 DIVISION OF BIOLOGY  
 M303 WALTERS LIFE SCI BLDG  
 KNOXVILLE, TN 37996-0830  
 p- 423-974-2978; f- 423-974-4057; djfox@utk.edu

FRANKEL, EDGAR  
 UNIVERSITY OF TECHNOLOGY  
 GEOLOGY DEPARTMENT  
 PO BOX 123, BROADWAY  
 SYDNEY, NSW 2007, AUSTRALIA  
 p- (02)-9514-1762; f- (02)-9514-1755; e.frankel@uts.edu.au

FRANKLIN, JUAN T.FIERRO  
MUSEO REGIONAL DE CONCEPCION  
CASILLA 1054  
CONCEPCION, CHILE

FRANKLIN, SUE  
SYDNEY UNIVERSITY  
ZOOLOGY DEPARTMENT A08  
SYDNEY, NSW 2006, AUSTRALIA

FRANZEN-BENGTSON, CHRISTINA  
SWEDISH MUSEUM NAT HIST  
DEPT PALAEOZOOLOGY  
BOX 50007  
STOCKHOLM, S-10405 SWEDEN  
p- 46-8-666-4177; f- 46-8-666-4184

FREEMAN, STEVEN M.  
UNIVERSITY OF NORTH WALES  
SCHOOL OF OCEAN SCIENCES  
MENAI BRIDGE  
ANGLESEY, GWYNEDD, NORTH WALES, U.K.  
p- 01248-351151; osp481@sos.bangor.ac.uk

FREST, TERENCE  
2517 NORTHEAST 65TH ST.  
SEATTLE, WA 98115-7125

FUJITA, TOSHIHIKO  
NATIONAL SCIENCE MUSEUM  
DEPARTMENT OF ZOOLOGY  
HYAKUNIN-CHO 3-23-1  
TOKYO 169-0073, JAPAN  
p- +81 3 3364 7121; f- +81 3 3364 7104; fujita@kahaku.go.jp

FUKUYAMA, ALLAN K.  
7019 157th ST. SW  
EDMONDS, WA 98026  
p- 206-745-3349; f- 206-745-3349

GAGE, JOHN D.  
SCOTTISH ASSOC. MARINE SCIENCE  
PO BOX 3  
OBAN, ARGYLL, PA34 4AD SCOTLAND, U.K.  
p- 0044(0) 1631 567821; f- 0044(0) 1631-565518;  
jdg@dml.ac.uk

GAGNON, JEAN-MARC  
CANADIAN MUSEUM OF NATURE  
CHIEF OF INVERTEBRATE COLLNS  
PO BOX 3443, STATION D  
OTTAWA, ONTARIO, K1P 6P4 CANADA  
p- 613-364-4066; f- 613-364-4027; jmgagnou@mus-nature.ca

GAHN, FOREST  
2810 STRATFORD AVE, APT 4  
CINCINNATI, OH 45220  
fjg@geology.byu.edu

GALLEMI, JAUME  
MUSEU DE GEOLOGIA  
KEEPER OF PALEONTOLOGY  
PARC DE LA CIUTADELLA SN  
BARCELONA, 08003 SPAIN  
p- 34.3.319.68.95; f- 34.3.319.93.12; mgeolbcn@ix.intercom.es

GARRISON, ROB  
BATELLE OCEAN SCIENCES  
397 WASHINGTON STREET  
DUXBURY, MA 02332  
rdg@nantucket.net

OR

GARRISON, ROB  
HARBORLIFE  
11 UNION STREET  
NANTUCKET, MA 02554  
p- 508-228-2649; f- 508-228-2649  
rdg@nantucket.net

GEBRUK, ANDREY V.  
P.P. SHIRSHOV INST OCEANOLOGY  
RUSSIAN ACADEMY OF SCIENCES  
NAKHIMOVSKY PR., 36  
MOSCOW, 117218 RUSSIA  
p- +7 095 129 21 18; f- +7 095 124 59 83  
mironov@bentos.ioras.msk.ru

GENTIL, FRANCK A.  
UNIVERSITE PARIS 6  
STATION BIOLOGIQUE BP74  
ROSCOFF, F-29682 FRANCE  
p- (33)98.29.23.15; f- (33)98.29.23.24  
gentil@sb-roscoff.fr

GEORGE, SOPHIE B.  
GEORGIA SOUTHERN UNIV  
BIOLOGY DEPT  
LANDRUM BOX 8042  
STATESBORO, GA 30460-8042  
p- 912-681-0599; f- 912-681-0845;  
georges@gsaix2.cc.gason.edu

GERONIMO, ABELARDO L.  
DE LA SALLE UNIVERSITY  
DEPARTMENT OF BIOLOGY  
2401 TAFT AVENUE  
MANILA 1004, PHILIPPINES

GHYOOT, MARIANNE  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM

GIBSON, MICHAEL A.  
THE UNIVERSITY OF TENNESSEE  
DEPT GEOSCIENCE AND PHYSICS  
222 EPS BUILDING  
MARTIN, TN 38238-5039  
p- 901-587-7435; f- 901-587-7443  
mgibson@utm.edu

GIELAZYN, MICHEL LYNN  
MARINE SCIENCE PROGRAM  
UNIV SOUTH CAROLINA  
COLUMBIA, SC 29208  
p- 803-777-3508; f- 803-777-3935  
gielazyn@biol.sc.edu

GIL CID, DOLORES  
UNIVERSIDAD COMPLUTENSE DE MADRID  
DEPTO DE PALEONTOLOGIA  
FAC DE CIENCIAS GEOLOGICAS  
MADRID, 28040 SPAIN  
p- +34 1 3944856; f- +34 1 3944849  
gilcid@eucmos.sim.ucm.es

GINANOVA, TALIA T.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- (4232) 31-11-78; f- (4232) 31-09-00  
aisa@vld.globalone.ru

GIORDANO DE FREITAS, SOLANGE  
MUSEU NACIONAL QUINTA DA BOA  
VISTA/UFRJ, DEPTO INVERTEBR.  
SAO CRISTOVAO, RJ, 20942 BRAZIL

GIUDICE, GIOVANNI  
DIPARTIMENTO DI BIOLOGIA  
CELLULARE E DELLO SVILUPPO  
VIALE DELLE SCIENZE  
PALERMO, 90128 ITALY  
p- 0039-91-424786; f- 0039-91-420897  
dipbio@mbox.unipa.it

GLUCHOWSKI, EDWARD L.  
SILESIAN UNIVERSITY  
DEPT OF EARTH SCIENCES  
BEDZINSKA STR 60  
41-200 SOSNOWTEC, POLAND  
p- 48-32-667271 (433); f- 48-32-664351

GLYNN, PETER W.  
RSMAS  
UNIVERSITY OF MIAMI  
4600 RICKENBACKER CAUSEWAY  
MIAMI, FL 33149  
p- 305-361-4151

GOGGIN, LOUISE C.  
CSIRO MARINE LABORATORIES  
GPO BOX 1538  
HOBART, TAS 7001, AUSTRALIA  
p- 61-3-6232-5101; f- 61-3-6232-5485  
louise.goggin@marine.csiro.au

GOLDBERG, ARTHUR S.  
SOUTHAMPTON COLLEGE  
OF LONG ISLAND UNIVERSITY  
DIVISION OF NATURAL SCIENCES  
SOUTHAMPTON, NY 11968  
p- 516-287-8406; f- 516-287-4094

GOLDEN, JULIA  
UNIVERSITY OF IOWA  
DEPT GEOLOGY, CURATOR PALEONTOLOGIC COLLN  
121 TROWBRIDGE HALL  
IOWA CITY, IA 52242-1379  
p- 319-335-1822; f- 319-335-1821; j-golden@uiowa.edu

GOLDSCHMID, ALFRED  
UNIVERSITAT SALZBURG  
ZOOLOGISCHES INSTITUT  
AKADEMIESTR 26  
SALZBURG A-5020, AUSTRIA

GONGADZE, GURAM  
TBILISI STATE UNIVERSITY  
DEPT GEOLOGY & PALEONTOLOGY  
CHAVCHAVADZE AVE 1  
TBILISI, 380028 GEORGIA  
p- +995-32-221103; f- +995-32-221103; erekle@tsu.edu.ge

GOODING, RICHARD U.  
19 HIGHGATE PARK  
ST. MICHAEL, BH10, BARBADOS, WEST INDIES  
p- 809-427-9436

GOUVEIA-MONTEIRO, ANA MARIA  
IBILCE - UNESP  
DEPTO. ZOOLOGIA  
CAIXA POSTAL 136  
SAO JOSE DO RIO PRETO, SP, 15054-000 BRAZIL  
p- 0172-24-4966; f- 0172-24-8692  
anamaria@condor.polo.ibilce.unesp.br

GRABOWSKY-KAAIALII, GAIL L.  
CHAMINADE UNIVERSITY  
DEPT BIOLOGY  
3140 WAIALAE AVE  
HONOLULU, HI 96816-1578  
p- 808-735-4807; f- 808-735-4846

GRANGE, KEN R.  
NZ OCEANOGRAPHIC INSTITUTE  
P.O. BOX 14901  
KILBIRNIE  
WELLINGTON, NEW ZEALAND

GRAS, HERIBERT  
UNIV. KOLN  
ZOOLOGICAL INSTITUTE  
WEYERTAL 119  
5000 KOLN 41, GERMANY

GREENSTEIN, BENJAMIN J.  
SMITH COLLEGE  
DEPARTMENT OF GEOLOGY  
NORTHAMPTON, MA 01063  
p- 413-585-3947; f- 413-585-3786; bgreenst@science.smith.edu

GROSJEAN, PHILIPPE  
UNIVERSITE LIBRE DE BRUXELLES  
LAB DE BIOL MARINE  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM  
p- 32-2-650.29.70; f- 32-2-650.27.96; phgrosje@nlb.ac.be  
or phgrosjean@compuserve.com

GROSZE NIPPER, MARION  
NIWA  
GATE 10, SILVERDALE ROAD  
PO BOX 11-115  
HILLCREST, HAMILTON, NEW ZEALAND  
nipper@hamilton.niwa.cri.nz



GROVES, CATHY  
NATURAL HISTORY MUSEUM L.A. COUNTY  
ECHINODERMS SECTION  
900 EXPOSITION BLVD.  
LOS ANGELES, CA 90007  
p- 213-744-3527; f- 213-746-2999; [cgroves@lam.mus.ca.us](mailto:cgroves@lam.mus.ca.us)

GRUZOV, E.N.  
ZOOLOGICAL INSTITUTE  
ACADEMY OF SCIENCES  
Leningrad 199164, RUSSIA

GRYGIER, MARK J.  
LAKE BIWA MUSEUM  
OROSHIMO 1091  
KUSATSU, SHIGA, 525-0001 JAPAN  
p- +81-77-568-4829; f- +81-77-568-4850; [grygier@lbm.go.jp](mailto:grygier@lbm.go.jp)

GUDMUNDSSON, JON EGGERT  
MIDVANGUR 41  
220 HAFNARFJORDUR, ICELAND  
p- 898-5740; [midvangur@islandia.is](mailto:midvangur@islandia.is)

GUENSBURG, THOMAS E.  
ROCK VALLEY COLLEGE  
PHYSICAL SCIENCE DIVISION  
3301 N. MULFORD ROAD  
ROCKFORD, IL 61101  
f- 815-654-4438

GUERRAZZI, MARIA C.  
RUA TENENTE HARAUDO E. DE SOUZA SANTOS 233  
APTO 3 - ED VISTA ALEGRE  
CAMPINAS-SP, GUANABARA, 13070-600 BRAZIL  
p- 055-019-243-2841; f- 055-019-239-3124  
[cospra@obelix.unicamp.br](mailto:cospra@obelix.unicamp.br)

GUILLE, ALAIN  
LABORATOIRE ARAGO  
OBSERVATOIRE OCEANOLOGIQUE  
BANYULS-SUR-MER, 66650 FRANCE  
p- 68 88 00 40; f- 68 88 16 99  
[aguille@oob-arago.univ-perp.fr](mailto:aguille@oob-arago.univ-perp.fr)

GUILLOU, MONIQUE  
UMR CNRS 6539, ECOLOGIE BENTHIQUE  
FACULTE DES SCIENCES  
6 AVE VICTOR LE GORGEU, BP 809  
BREST CEDEX, 29285 FRANCE  
p- (33)(0) 2 98 01 62 73; f- (33)(0) 2 98 01 63 11  
[mguillou@univ-brest.fr](mailto:mguillou@univ-brest.fr)

GUISADO ARANGUIZ, CHITA B.  
UNIVERSIDAD CATOLICA DEL NORTE  
DEPARTAMENTO DE BIOLOGIA MARINA  
CASILLA 117  
COQUIMBO, CHILE

GURREA, ISIDRE  
BLESA 43  
BARCELONA, 08004 SPAIN  
p- (34-3) 442-5142; f- (34-3) 454 1801

GUTIERREZ, JUAN E.  
UNIVERSIDAD DE CHILE  
INSTITUTO INVEST. OCEANOLOGIAS  
CASILLA 1240  
ANTOFAGASTA, CHILE

GUTT, JULIAN  
ALFRED-WEGENER-INSTITUTE FUR  
POLAR UND MEERESFORSCHUNG  
COLUMBUS-STRASSE  
BREMERHAVEN, D-27568 GERMANY  
p- +49-471-4831333; f- +49-471-4831149  
[jgutt@awi-bremerhaven.de](mailto:jgutt@awi-bremerhaven.de)

HADEL, VALERIA FLORA  
CEBIMar-USP  
UNIVERSIDADE DE SAO PAULO  
C.P. 83  
SAO SEBASTIAO-SP, 11600-970 BRAZIL  
p- 5-50-12-452-1655; f- 5-50-12-452-1052  
[vahadel@usp.br](mailto:vahadel@usp.br)

HAGEN, NILS T.  
BODO COLLEGE  
DEPT OF FISHERIES & NAT. SCI.  
N-8002 BODO, NORWAY  
p- 47-75-51-73-55; f- 47-75-51-73-49  
[Nils.Hagen@hibo.no](mailto:Nils.Hagen@hibo.no)

HAMADA, SPENCER  
WEST GEORGIA COLLEGE  
BIOLOGY DEPARTMENT  
CARROLLTON, GA 30118

HAMEL, JEAN-FRANCOIS  
1003 CHEMIN DE LA MONTAGNE  
ORFORD, QUEBEC, J1X 3W3 CANADA  
p- 819-843-7005; f- 819-843-7005; [seve@sympatico.ca](mailto:seve@sympatico.ca)

HAMZA HASSAN, MOHAMED  
NAT'L INST OCEANOGR & FISHERIES  
RED SEA AND SUEZ CANAL BRANCH  
P.O. BOX 182  
SUEZ, EGYPT  
p- 064 228862

HARMELIN, JEAN-GEORGES  
STATION MARINE D'ENDOUME  
13007 MARSEILLE, FRANCE

HARRIOTT, VICKI  
UNIVERSITY OF QUEENSLAND  
ZOOLOGY DEPARTMENT  
ST. LUCIA  
BRISBANE, QLD 4067, AUSTRALIA

HARRIS, LARRY G.  
UNIVERSITY OF NEW HAMPSHIRE  
ZOOLOGY DEPARTMENT  
DURHAM, NH 03824  
p- 603-862-3897; f- 603-862-3784  
[lharris@christa.unh.edu](mailto:lharris@christa.unh.edu)

HARROLD, CHRISTOPHER  
MONTEREY BAY AQUARIUM  
RESEARCH DIVISION  
886 CANNERY ROW  
MONTEREY, CA 93940  
p- 408-649-6466; [charrold@mbayaq.org](mailto:charrold@mbayaq.org)

HARTMANN, G.  
ZOOLOGISCHES INSTITUT  
ZOOLOGISCHES MUSEUM  
MARTIN LUTHER KING PLATZ 3  
2 HAMBURG 13, GERMANY

HAUDE, REIMUND  
INST GEOL & PALAONT  
GOLDSCHMIDT-STR 3  
GOTTINGEN, D-37077 GERMANY  
p- +49-551-397957; f- +49-551-397996  
[rhaude@uni-goettingen.de](mailto:rhaude@uni-goettingen.de)

HAVARDSSON, BJORGOLFUR  
UNIVERSITY OF BERGEN  
DEPT. FISHERIES & MARINE BIOLOGY  
BERGEN HIGH TECHNOLOGY CENTER  
BERGEN, 5020 NORWAY  
p- 47-55544496; f- 47-55544450  
[bjorgolfur.havardsson@ifm.uib.no](mailto:bjorgolfur.havardsson@ifm.uib.no)

HAY, MARK  
INSTITUTE OF MARINE SCIENCES  
UNIV NORTH CAROLINA, CHAPEL HILL  
3431 ARENDELL STREET  
MOREHEAD CITY, NC 28557  
p- 919-726-6841; f- 919-726-2426  
[seaweed@email.unc.edu](mailto:seaweed@email.unc.edu)

HAYASHI, HIROSHI  
NAGOYA UNIVERSITY  
SUGASHIMA MARINE BIOL. LAB.  
SUGASHIMA  
TOBA, MIE 517, JAPAN

HECKER, R. T.  
PALEONTOLOGICAL INSTITUTE  
ACADEMY OF SCIENCE USSR  
LENINSKY PROSPECT 33  
MOSCOW V-71, RUSSIA

HEDDLE, DUNCAN  
UNIVERSITY OF ABERDEEN  
DEPARTMENT OF ZOOLOGY  
TILLYDRONE AVE  
ABERDEEN, AB9 2TN SCOTLAND, UK  
p- 1224-272888; f- 1224-272396

HEINZELLER, THOMAS E.  
UNIVERSITY OF MUNICH  
DEPT. NEUROANATOMY  
PETTENKOFERSTRASSE 11  
MUNICH, D-80336 GERMANY  
p- 49-89-51-60-48-64; f- 49-89-51-60-48-57  
[heinzell@anat.med.uni-muenchen.de](mailto:heinzell@anat.med.uni-muenchen.de)

HELLER, JAMES A.  
THE UNIVERSITY OF TENNESSEE  
DEPT. OF GEOLOGICAL SCIENCES  
KNOXVILLE, TN 37921

HENDLER, GORDON  
L.A. COUNTY MUSEUM, NAT HIST  
LIFE SCIENCES  
900 EXPOSITION BLVD.  
LOS ANGELES, CA 90007  
p- 213-763-3526; f- 213-746-2999; [hendler@bcf.usc.edu](mailto:hendler@bcf.usc.edu) OR  
[hendler@amh.org](mailto:hendler@amh.org)

HERDENDORF, CHARLES E.  
OHIO STATE UNIVERSITY  
ZOOLOGY DEPT.  
1507 CLEVELAND ROAD EAST, #410  
HURON, OH 44839-9725  
p- 419-433-3266; f- 419-433-3266; [herdendorf.1@osu.edu](mailto:herdendorf.1@osu.edu)

HERRERA, JOAN  
UNIVERSITY OF FLORIDA  
DEPARTMENT OF ZOOLOGY  
GAINESVILLE, FL 32611  
[herrera@zoo.ufl.edu](mailto:herrera@zoo.ufl.edu)

HERRING, P.J.  
INST OCEANOGRAPHIC SCIENCES  
BROOK ROAD, WORMLEY  
GODALMING  
SURREY, GU8 SUB ENGLAND, U.K.  
p- 1428-684141; f- 1428-683824

HESS, HANS  
IM GERSTENACKER 8  
CH-4102 BINNINGEN, SWITZERLAND  
p- (061) 421-4221; f- (061) 421-4253; [hans.hess@bluewin.ch](mailto:hans.hess@bluewin.ch)

HICKMAN, JR., CLEVELAND P.  
WASHINGTON AND LEE UNIVERSITY  
DEPT BIOLOGY  
LEXINGTON, VA 24450  
p- 540-463-8896; f- 540-463-8012; [hickman.c@wlu.edu](mailto:hickman.c@wlu.edu)

HIDAKA, MICHIO  
UNIVERSITY OF THE RYUKYUS  
COLLEGE OF SCIENCE, DEPT BIOLOGY  
SENBARU 1, NISHIHARA-CHO  
OKINAWA 903-01, JAPAN

HIGHSMITH, RAYMOND C.  
UNIVERSITY OF ALASKA  
INSTITUTE OF MARINE SCIENCES  
FAIRBANKS, AK 99775-7220  
p- 907-474-7836; f- 907-474-5804; [highsmith@ims.alaska.edu](mailto:highsmith@ims.alaska.edu)

HILL, ROBERT B.  
UNIV OF RHODE ISLAND  
DEPT BIOLOGICAL SCIENCES  
BIOLOGICAL SCIENCES CENTER  
KINGSTON, RI 02881-0816  
p- 401-874-2669; f- 401-874-4256; [gsy101@uriacc.uri.edu](mailto:gsy101@uriacc.uri.edu)

HILL, SOPHIE  
3807 ROCINANTE BLVD., #207B  
TAMPA, FL 33613-4852  
p- 813-971-4174; [shill@chuma.cas.usf.edu](mailto:shill@chuma.cas.usf.edu)

HIMMELMAN, JOHN H.  
UNIVERSITE LAVAL  
DEPARTMENT DE BIOLOGIE  
QUEBEC, G1K 7P4 CANADA  
p- 418-656-5230; f- 418-656-2339  
[john.himmelman@bio.ulaval.ca](mailto:john.himmelman@bio.ulaval.ca)

HOBERG, MAX K.  
UNIVERSITY OF ALASKA FAIRBANKS  
INSTITUTE MARINE SCIENCE  
FAIRBANKS, AK 99775-1080  
p- 907-474-7066; f- 907-474-7204; [fnmkh@uaf.edu](mailto:fnmkh@uaf.edu)

HODGSON, ALAN N.  
RHODES UNIVERSITY  
DEPT ZOOLOGY & ENTOMOLOGY  
P.O. BOX 94  
GRAHAMSTOWN 6140, SOUTH AFRICA  
p- (461) 318526; f- (461) 24377; [zoah@giraffe.ru.ac.za](mailto:zoah@giraffe.ru.ac.za)

HOFFMAN, JENNIFER  
FRIDAY HARBOR LABS  
620 UNIVERSITY RD  
FRIDAY HARBOR, WA 98250  
p- 206-543-1484 [hoffrau@u.washington.edu](mailto:hoffrau@u.washington.edu)

HOLTERHOFF, PETER F.  
UNIVERSITY OF ARIZONA  
DEPARTMENT OF GEOSCIENCES  
GOULD-SIMPSON BLDG.  
TUCSON, AZ 85721  
p- 520-621-4618; f- 520-621-2672; [holterho@ccit.arizona.edu](mailto:holterho@ccit.arizona.edu)

HOOD, SARAH C.  
P.O. BOX 14502  
RENO, NV 89507-4502  
p- 702-827-1883; [hood@med.unr.edu](mailto:hood@med.unr.edu)

HOOPER, ROBERT G.  
MEMORIAL UNIVERSITY, NF  
DEPARTMENT OF BIOLOGY  
ST. JOHN'S, NF, A1B 3X9 CANADA  
p- 709-737-7494; f- 709-737-3018;  
[rhooper@morgan.ucs.mun.ca](mailto:rhooper@morgan.ucs.mun.ca)

HOPKINS, THOMAS S.  
THE UNIVERSITY OF ALABAMA  
SCIENTIFIC COLLECTIONS FACILITY  
DEPT BIOL SCI, BIODIVERSITY & SYSTEMATICS  
TUSCALOOSA, AL 35487-0344  
p- 205-348-1791; f- 205-348-6460; [thopkins@biology.as.ua.edu](mailto:thopkins@biology.as.ua.edu)

HOROWITZ, ALAN STANLEY  
INDIANA UNIVERSITY  
DEPT GEOLOGICAL SCIENCES  
1005 EAST TENTH STREET  
BLOOMINGTON, IN 47405-1403  
p- 812-855-3536; f- 812-855-7899  
[horowitz@gismo.geology.indiana.edu](mailto:horowitz@gismo.geology.indiana.edu)

HOSHI, MOTONORI  
TOKYO INST. TECHNOLOGY  
DEPARTMENT OF LIFE SCIENCE  
4259 NAGATSUTA  
YOKOHAMA 226, JAPAN  
p- 81-45-924-5720; f- 81-45-924-5777; [mhoshi@bio.titech.ac.jp](mailto:mhoshi@bio.titech.ac.jp)

HOTCHKISS, FREDERICK H.C.  
26 SHERRY ROAD  
HARVARD, MA 01451  
p- 800-225-8330 EXT 138; f- 617-899-1552  
[hotchkiss@panametrics.com](mailto:hotchkiss@panametrics.com)

HOTTENROTT, SUSAN I.  
SMITHSONIAN INSTITUTION  
NAT. MUSEUM OF NATURAL HISTORY  
ROOM W319, MAIL STOP 163  
WASHINGTON, DC 20560  
p- 202-786-2578; f- 202-357-3043  
[sih@gwis2.circ.gwu.edu](mailto:sih@gwis2.circ.gwu.edu)

HSUEH, PAN-WEN  
NAT'L MUSEUM NATURAL SCIENCE  
INVERTEBRATE ZOOLOGY  
1 KUAN CHIEN RD.  
TAICHUNG, TAIWAN  
p- 04-322-6940; f- 04-322-2290

HUDA, ISHRAT ARA  
ZOOLOGICAL SURVEY DEPARTMENT  
NISHTAR ROAD  
KARACHI, PAKISTAN

HULBERT, ALAN W.  
UNIVERSITY OF NORTH CAROLINA  
ZOOLOGY DEPARTMENT  
WILMINGTON, NC 28403

ILAN, MICHA  
TEL AVIV UNIVERSITY  
DEPT ZOOLOGY  
TEL AVIV, 69978 ISRAEL  
p- +972-3-6408613; f- +972-3-6409403  
[milan@ccsg.tau.ac.il](mailto:milan@ccsg.tau.ac.il)

IMAOKA, TOHRU  
KATATA 2804-3  
SHIRAHAMA, NISHIMURO  
WAKAYAMA, 649-22, JAPAN

IRIMURA, SEIICHI  
NATIONAL SCIENCE MUSEUM  
DEPT ZOOLOGY  
3-23-1 HYAKUNINCHO, SHINJUKU-KU  
TOKYO 169, JAPAN  
p- 81-3-3364-2311; f- 81-3-3364-7104

ISAEVA, VALERIA V.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; [faribm@visenet.marine.su](mailto:faribm@visenet.marine.su)

ISHIDA, YOSHIAKI  
HITOTSUBASHI HIGH SCHOOL  
1-12-13, HIGASHIKANDA CHIYODA-KU  
TOKYO 101-0031, JAPAN  
p- 33-862-6061; f- 33-687-1862; [y-ishida@msi.biglobe.ne.jp](mailto:y-ishida@msi.biglobe.ne.jp)

IVY, W. GRISILDA  
TRC OF CMFRI  
90 NORTH BEACH ROAD  
TUTICORIN  
TAMIL NADU, 628001 INDIA

IWATA, K. S.  
OKAYAMA UNIVERSITY  
DEPARTMENT OF BIOLOGY  
TSUSHIMA NAKA 3 CHOME  
OKAYAMA 700, JAPAN

JABLONSKI, DAVID  
UNIVERSITY OF CHICAGO  
DEPT. GEOPHYSICAL SCIENCES  
5734 S. ELLIS AVENUE  
CHICAGO, IL 60637  
p- 312-702-8163; f- 312-702-9505

JACOBS, CASIMIRA  
51 8TH AVENUE  
SEA CLIFF, NY 11579  
[casimiraj@aol.com](mailto:casimiraj@aol.com)

JACOBSEN, NANCY A.  
MONTEREY BAY AQUARIUM RESEARCH INST  
P.O. BOX 628  
MOSS LANDING, CA 95039-0628  
p- 408-775-1718; f- 408-775-1718; [jana@mbari.org](mailto:jana@mbari.org)

JAECKLE, WILLIAM B.  
ILLINOIS WESLEYAN UNIVERSITY  
DEPT BIOLOGY  
PO BOX 2900  
BLOOMINGTON, IL 61702  
p- 309-556-3779; f- 309-556-3864; [wjaeckle@titan.iwu.edu](mailto:wjaeckle@titan.iwu.edu)

JAGT, JOHN W.M.  
NATUURHISTORISCH MUSEUM MAASTRICHT  
DE BOSQUETPLEIN 6-7  
PO BOX 882  
NL-6200 AW MAASTRICHT, NETHERLANDS  
p- +31 43 350 5479; f- +31 43 350 5475;  
[mail@nhmmaastricht.nl](mailto:mail@nhmmaastricht.nl)

JAMES, DANIEL B.  
TRC OF CMFRI  
90 NORTH BEACH ROAD  
TUTICORIN  
TAMIL NADU, 628001 INDIA  
p- 0461-320102; f- 0461-322274

JAMIESON, GLEN S.  
PACIFIC BIOLOGICAL STATION  
FISHERIES RESEARCH BRANCH  
NANAIMO, B.C., V9R 5K6 CANADA  
p- 604-756-7223; f- 604-756-7138; [jamiesong@pbs.dfo.ca](mailto:jamiesong@pbs.dfo.ca)

JANGOUX, MICHEL  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM  
[mjangoux@ulb.ac.be](mailto:mjangoux@ulb.ac.be)

JANIES, DANIEL A.  
AMERICAN MUSEUM OF NATURAL HISTORY  
DEPARTMENT OF INVERTEBRATES  
CENTRAL PARK WEST AT 79TH STREET  
NEW YORK, NY 10024-5192  
p- 212-769-5639; f- 212-769-5783; [djanies@amnh.org](mailto:djanies@amnh.org)

JARAMILLO, EDUARDO  
UNIVERSIDAD AUSTRAL DE CHILE  
INSTITUTO DE ZOOLOGIA  
CASILLA 567  
VALDIVIA, CHILE

JEAL, FRANK  
TRINITY COLLEGE  
ZOOLOGY DEPARTMENT  
DUBLIN 2, IRELAND

JEFFERIES, RICHARD P. S.  
THE NATURAL HISTORY MUSEUM  
DEPT PALEONTOLOGY  
CROMWELL ROAD  
LONDON, SW7 5BD ENGLAND, U.K.  
p- +44 171 938 8713; f- +44 171 938 9277  
[R.Jefferies@nhm.ac.uk](mailto:R.Jefferies@nhm.ac.uk)

JEFFERY, CHARLOTTE H.  
THE NATURAL HISTORY MUSEUM  
DEPT PALAEONTOLOGY  
CROMWELL ROAD  
LONDON, SW7 5BD ENGLAND, U.K.  
p- 0171-938-9228; f- 0171-938-9277; [chj@nhm.ac.uk](mailto:chj@nhm.ac.uk)

JELL, PETER A.  
QUEENSLAND MUSEUM  
P.O. BOX 3300  
SOUTH BRISBANE, QLD, 4101 AUSTRALIA  
p- 617-3840-7664; f- 617-3846-1226; [peter@qm.qld.gov.au](mailto:peter@qm.qld.gov.au)

JELLETT, JOANNE F.  
47 WAKE UP HILL ROAD  
RR#1, CHESTER BASIN  
NOVA SCOTIA, B0J 1K0 CANADA  
[jbiotek@atcon.com](mailto:jbiotek@atcon.com)

JENSEN, MARGIT  
ZOOLOGICAL MUSEUM  
UNIVERSITY OF COPENHAGEN  
UNIVERSITETSPARKEN 15  
COPENHAGEN, DK 2100 DENMARK  
p- 45-3532-1116; f- 45-3532-1010

JOHNSON, SONKE  
UNIV NORTH CAROLINA, CHAPEL HILL  
DEPT BIOLOGY  
CB#3280, COKER HALL  
CHAPEL HILL, NC 27599-3280  
p- 919-962-5017; f- 919-962-1625; [soukejo@email.unc.edu](mailto:soukejo@email.unc.edu)

JOHNSON, CRAIG R.  
UNIVERSITY OF TASMANIA  
DEPT. OF ZOOLOGY  
GPO BOX 252C  
SANDY BAY, TAS 7001, AUSTRALIA  
p- 61-3-6220-2615; f- 61-3-6220-2745  
craig.johnson@zoo.utas.edu.au

JONES, IRA  
CALIFORNIA STATE UNIVERSITY  
DEPARTMENT OF BIOLOGY  
LONG BEACH, CA 90840

JOST, PETER M.  
KANT OBERFORSTAMT, ZURICH  
KASPAR-ESCHER-HAUS  
ZURICH CH-8090, SWITZERLAND

JUNIO-MENEZ, ANNETTE R.  
MARINE SCIENCE INSTITUTE  
UNIVERSITY OF THE PHILIPPINES  
BOX 1, DILIMAN  
QUEZON CITY, 1101 PHILIPPINES  
p- 632-922-3921; f- 632-924-7678; menez@msi.upd.edu.ph

JUNQUEIRA, ANDREA O.R.  
UNIV FEDERAL DO RIO DE JANEIRO  
DEPT BIOLOGIA MARINHA  
CCS BI. A  
RIO DE JANEIRO, RJ, 21949-900 BRAZIL  
p- 55 21-527 8152; f- 55 21 280 2394; ajunq@acd.ufrj.br

KAMMER, THOMAS W.  
WEST VIRGINIA UNIVERSITY  
DEPT GEOLOGY & GEOGRAPHY  
PO BOX 6300  
MORGANTOWN, WV 26506-6300  
p- 304-293-5603 ext. 4331; f- 304-293-6522;  
tkammer@wvu.edu

KAO, M. H.  
MEMORIAL UNIV. OF NEWFOUNDLAND  
DEPARTMENT OF BIOLOGY  
ST. JOHN'S  
NEWFOUNDLAND, A1B 3X9 CANADA

KASYANOV, VLADIMIR L.  
INSTITUTE MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- 7(4232) 310905; f- 7(4232) 310900; aisa@vid.global-one.ru

KATSURA, SHIGERU  
TOKUSHIMA UNIVERSITY  
SCHOOL DENTISTRY, ORAL ANATOMY  
TOKUSHIMA, JAPAN

KAWAMURA, KAZUHIRO  
HOKKAIDO CENTRAL FISHERIES  
EXPERIMENTAL STATION  
YOICHI  
HOKKAIDO, JAPAN

KAWAUCHI, GISELE YUKIMI  
INSTITUTO DE BIOCIENCIA - USP  
DEPARTAMENTO DE ZOOLOGIA  
C.P. 11461  
SAO PAULO - SP, 05422-970 BRAZIL  
p- (011) 8187575; f- (011) 8187416; ykawauch@nsp.br

KEEGAN, BRENDAN F.  
UNIVERSITY COLLEGE  
DEPT ZOOLOGY  
GALWAY, IRELAND  
p- 91-24411; f- 91-25700; brendan.keegan@ucg.ie

KEESING, JOHN  
SOUTH AUSTRALIAN RESEARCH &  
DEVELOPMENT INST  
P.O. BOX 120  
HENLEY BEACH, 5022 AUSTRALIA  
p- 61-8-200-2401 ; f- 61-8-200-2481;  
keesing.john@pi.sa.gov.au

KELLEY, SCOTT  
5233 CAMERON CREEK CT., #263  
FT WORTH, TX 76132  
scott-echinoman@worldnet.att.net

KELLY, MAEVE S.  
SCOTTISH ASSOC. MARINE SCIENCE  
DUNSTAFFNAGE MARINE LAB  
PO BOX 3  
OBAN, ARGYLL, PA34 4AD SCOTLAND, U.K.  
p- +44 1631 567 833; f- +44 1631 565 518; mke@dml.ac.uk

KELLY, STUART M.  
7224 16TH AVENUE  
TAKOMA PARK, MD 20912

KELSO, DONALD  
GEORGE MASON UNIVERSITY  
DEPT BIOLOGY  
4400 UNIVERSITY DRIVE  
FAIRFAX, VA 22030

KEOUGH, M. J.  
UNIVERSITY OF MELBOURNE  
ZOOLOGY DEPARTMENT  
ADELAIDE, S.A., AUSTRALIA

KERR, ALEXANDER M.  
OSBORN ZOOLOGICAL LABORATORIES  
DEPT ECOLOGY & EVOLUTIONARY BIOL  
YALE UNIVERSITY  
NEW HAVEN, CT 06520-8106  
p- 203-772-7946; f- 203-432-3854; alexander.kerr@yale.edu

KEUSKAMP, DOM  
LEIGH MARINE LABORATORY  
UNIVERSITY OF AUCKLAND  
PO BOX 349  
WARKWORTH, NEW ZEALAND  
p- 64-9-4226111; f- 64-9-4226113;  
d.keuskamp@auckland.ac.nz

KIKUCHI, TAJI  
KYUSHU UNIVERSITY  
AMAKUSA MARINE BIOLOGICAL LAB  
TOMIOKA, REIHOKU CHO,  
AMAKUSA, KUMAMOTO 863-25, JAPAN

KLIKUSHIN, VLADIMIR  
PETERSBURG PALEONTOLOGICAL LAB  
8 LINE 19, NO. 3  
ST. PETERSBURG, 199034 RUSSIA  
p- 218-65-97

KLINGER, THOMAS S.  
BLOOMSBURG UNIVERSITY  
DEPT BIOLOGY  
400 E. SECOND STREET  
BLOOMSBURG, PA 17815-1301  
p- 717-389-4118; f- 717-389-3028  
tkdinger@bloomu.edu

KNOTT, K. EMILY  
DEPT ECOLOGY & EVOLUTION  
SUNY, STONY BROOK  
STONY BROOK, NY 11794-5245  
p- 516-632-8588; f- 516-632-7626;  
keknot@life.bio.sunysb.edu

KOBAYASHI, NAOMASA  
HIROSHIMA JOGAKUIN UNIVERSITY  
LAB ENVIRONMENTAL BIOLOGY  
USHIDA-HIGASHI, HIGASHI-KU  
HIROSHIMA 732, JAPAN  
p- 082-228-0386; f- 082-228-2924

KOGO, ICHIZO  
10-17 IKEDAMINAMIMACHI  
NEYAGAWA CITY  
OSAKA 572-0034, JAPAN  
p- 0720-29-4114; f- 0720-29-4114

KOJIMA, MANABU  
TOYAMA UNIVERSITY  
DEPARTMENT OF BIOLOGY  
GOFUKU 3190  
TOYAMA SHIKEN 930, JAPAN

KOLATA, DENNIS R.  
ILLINOIS STATE GEOLOGICAL SURV  
BASIN ANALYSIS & GEOPHYSICS SEC  
615 EAST PEABODY DRIVE  
CHAMPAIGN, IL 61820-6964  
p- 217-244-2189; f- 217-333-2830;  
kolata@geoserv.isgs.uiuc.edu

KOMATSU, MIEKO  
TOYAMA UNIVERSITY  
DEPT BIOLOGY  
FACULTY OF SCIENCE  
3190 TOYAMA 930, JAPAN  
p- 96-445-6632; f- 76-445-6549;  
miekok@scil.sci.toyama-u.ac.jp

KRISHNAN, MARY BAI  
MARINE BIOLOGICAL STATION  
ZOOLOGICAL SURVEY OF INDIA  
12, LEITHCASTLE STREET  
MADRAS 28, INDIA

KRISHNARAJAH, PADMINI  
UNIVERSITY OF JAFFNA  
DEPARTMENT OF ZOOLOGY  
JAFFNA, SRI LANKA

KROLL, DIETER K.  
INSTITUT FUR OKOLOGIE  
ABT HYDROBIOLOGIE  
POSTFACH 103764  
ESSEN, 45117 GERMANY  
p- 0201-183-3209; f- 0201-183-2529

KROPACH, CHAIM  
IOLR  
PO BOX 8030  
HAIFA, ISRAEL

KURIHARA, TAKEO  
SEIKAI NATIONAL FISHERIES RESEARCH INSTITUTE  
KOKUBU-MACHI 49  
NAGASAKI 850, JAPAN  
p- 81-958-22-8158; f- 81-958-21-4494;  
kurihara@snlaffrc.go.jp

KUSHLINA, VERONIKA B.  
PALEONTOLOGICAL INSTITUTE  
PROFSOJUZNAYA UL. 123  
GSP-7 V-321  
MOSCOW, 1171868 RUSSIA

KYTE, MICHAEL A.  
URS GREINER, INC  
SENIOR MARINE BIOLOGIST  
2401 4TH AVE, SUITE 1000  
SEATTLE, WA 98121-1459  
p- 206-674-1868; f- 206-674-1801  
mkyte@ursgreiner.com

LaBARBARA, MICHAEL  
THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF ANATOMY  
1025 EAST 57th STREET  
CHICAGO, IL 60637

LAHAYE, MARIE-CHRISTINE  
UNIVERSITE LIBRE DE BRUXELLES  
LABORATOIRE BIOL. MARINE CP 160  
AVE F.D. ROOSEVELT 50  
BRUXELLES, B-1050 BELGIUM

LAMBERT, PHILIP  
ROYAL BRITISH COLUMBIA MUSEUM  
NATURAL HISTORY SECTION  
BOX 9815, STN PROV GOVT  
VICTORIA, B.C., V8W 9W2 CANADA  
p- 250-387-6513; f- 250-387-5360  
plambert@rbml01.rbcm.gov.bc.ca

LANDEIRA FERNANDEZ, ANA MARIA  
CENT DE CIENC DA SAUDE, CIDADE UNIV  
DEPTO BIOCHEMISTRY  
BL E SL 38  
RIO DE JANEIRO, CEP, 21941-590 BRAZIL  
p- (5521) 270-1635; f- (5521) 270-8647  
landeira@server.bioqmed.ufrj.br

LANE, DAVID J.W.  
NATIONAL UNIVERSITY OF SINGAPORE  
SCHOOL OF BIOLOGICAL SCIENCES  
LOWER KENT RIDGE ROAD  
119260 SINGAPORE  
p- 65-874-2964; f- 65-779-2486; sbslaned@nus.edu.sg

LANE, N. GARY  
INDIANA UNIVERSITY  
DEPT GEOLOGICAL SCIENCES  
1005 EAST TENTH STREET  
BLOOMINGTON, IN 47405  
p- 812-855-7994; f- 812-855-7899; lane@indiana.edu

LANG, GUNTER  
NATIONAL UNIVERSITY SINGAPORE  
DEPT ZOOLOGY  
KENT RIDGE  
0511 SINGAPORE

LARES, MICHAEL  
UNIVERSITY OF SOUTH FLORIDA  
DEPT BIOLOGY  
TAMPA, FL 33620  
lares@chuma.cas.usf.edu

LARRAIN, ALBERTO P.  
UNIVERSIDAD DE CONCEPCION  
DEPARTAMENTO DE BIOLOGIA  
CASILLA 2407  
CONCEPCION, CHILE  
p- 56-234985; f- 56-240280; alarrain@halcon.dpi.udec.cl

LAWRENCE, ANDREW  
UNIVERSITY OF HULL  
DEPT BIOLOGICAL SCIENCES  
COTTINGHAM ROAD  
HULL, HU6 7RX ENGLAND, UK  
p- 44 1482 465506; f- 44 1482 465458  
a.j.lawrence@biosci.hull.ac.uk

LAWRENCE, JOHN M.  
UNIV OF SOUTH FLORIDA  
DEPT BIOLOGY  
4202 EAST FOWLER AVE, LIF 136  
TAMPA, FL 33620-5150  
p- 813-974-2549; f- 813-974-3263; lawr@chuma.cas.usf.edu

LE MENN, JEAN  
LAB PALEONTOLOGIE ET STRATIGRAPHIE  
DU PALEOZOIQUE -UFR SCIENCES  
BP809, 6 AV LE GORGEU  
BREST CEDEX, 29287 FRANCE  
p- 33-02-98-01-61-89; f- 33-02-98-01-66-20  
jean.le-menn@univ-brest.fr

LECLERC, MICHAEL  
ORLEANS UNIVERSITY  
BIOLOGY DEPT, UER SCIENCES  
ORLEANS, 45045 FRANCE

LEELING, BEATRIX  
ZOOLOGISCHES INSTITUT & MUSEUM  
UNIVERSITAT HAMBURG  
MARTIN LUTHER KING PLATZ 3  
HAMBURG 13, GERMANY

LEIBSON, NINA L.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; faribm@visenet.marine.su

LEISMAN, JULIANNE  
FLORIDA INST OF TECHNOLOGY  
DEPT. OF BIOLOGICAL SCIENCES  
150 W. UNIVERSITY BLVD.  
MELBOURNE, FL 32901-6988

LEMBO, LUIZ  
UNICAMP  
DEPTO DE ZOOLOGIA - INST BIOLOGIA  
C.P. 6109  
CAMPINAS - SP, 13083-970 BRAZIL

LESSER, MICHAEL P.  
UNIVERSITY OF NEW HAMPSHIRE  
DEPT ZOOL & CENTER FOR MAR BIOL  
SPAULDING LIFE SCIENCE BUILDING  
DURHAM, NH 03824-3544  
p- 603-862-3442; f- 603-862-3784; mpl@christa.unh.edu

LESSIOS, HARILAOS A.  
SMITHSONIAN TROP RESEARCH INST  
UNTT 0948, APO AA  
MIAMI, FL 34002-0948  
p- 507-228-4304; f- 507-228-0516; lessiosh@naos.si.edu

LEVERONE, JAY R.  
MOTE MARINE LABORATORY  
1600 THOMPSON PARKWAY  
SARASOTA, FL 34234  
p- 813-388-4441; f- 813-388-4312

LEVIN, VALERY S.  
KamchatNIRO  
NABEREZHNYAYA STR, 18  
PETROPAVLOVSK-KAMCHATSKY, 683002 RUSSIA  
p- (415-22)2-59-55; f- (415-22)2-37-05  
mail@kamniro.kamchatka.su

LEVINGS, C. D.  
PACIFIC ENVIRONMENT INSTITUTE  
4160 MARINE DRIVE  
WEST VANCOUVER, B.C., V7V 1N6 CANADA

LEVITAN, DONALD R.  
FLORIDA STATE UNIVERSITY  
DEPT BIOLOGICAL SCIENCE, B-142  
TALLAHASSEE, FL 32306-2043  
p- 904-644-2524; f- 904-644-9829; levitan@irisl.sb.fsu.edu

LIAO, YULIN  
ACADEMIA SINICA  
INSTITUTE OF OCEANOLOGY  
7 NANHAI ROAD  
QINGDAO, 266071 PEOPLE'S REPUBLIC OF CHINA  
p- 0532-2879062; f- 0532-2870882

LITVINOVA, NINA M.  
RUSSIAN ACADEMY OF SCIENCES  
INSTITUTE OF OCEANOLOGY  
23 KRASIKOVA  
MOSCOW, 117218 RUSSIA  
p- 129-21-18; f- (095) 124-59-83

LORDSON, JINBERT  
TRC OF CMFRI  
90 NORTH BEACH ROAD  
TUTICORIN  
TAMIL NADU, 628 001 INDIA  
p- 91-20102

LOVELY, ERIC C.  
UNIVERSITY OF NEW HAMPSHIRE  
DEPT ZOOLOGY  
SPAULDING LIFE SCIENCE BUILDING  
DURHAM, NH 03824-3544  
p- 603-743-4585; [ec1@christa.unh.edu](mailto:ec1@christa.unh.edu)

LUBCHENCO, JANE  
OREGON STATE UNIVERSITY  
DEPARTMENT OF ZOOLOGY  
CORDLEY 3029  
CORVALLIS, OR 97331  
[lubchenj@bcc.orst.edu](mailto:lubchenj@bcc.orst.edu)

LUCAS, JOHN S.  
JAMES COOK UNIVERSITY  
SCHOOL BIOLOGICAL SCIENCES, DEPT AQUACULTURE  
TOWNSVILLE, QLD 4811, AUSTRALIA  
p- +61 7 4781 4412; f- +61 7 4781 4585  
[john.lucas@jcu.edu.au](mailto:john.lucas@jcu.edu.au)

MACURDA, JR., D. BRADFORD  
THE ENERGISTS  
10260 WESTHEIMER, SUITE 300  
HOUSTON, TX 77042  
p- 713-781-6881; f- 713-781-2998; [brad@energists.com](mailto:brad@energists.com)

MACZYNSKA, STEFANIA S.  
UL. CZERNIAKOWSKA 20 M 121  
WARSZAWA, 00-714 POLAND

MAGNIEZ, PIERRE  
MUSEUM D'HISTOIRE NATURELLE  
LAB BIOL. INVERTEBRES MARINES  
55 RUE DE BUFFON  
PARIS 75005, FRANCE

MAGSINO, RICHARD  
MARINE SCIENCE INSTITUTE  
UNIVERSITY OF THE PHILIPPINES  
BOX 1, DILIMAN,  
QUEZON CITY, 1101 THE PHILIPPINES  
p- 632-922-3921/ 632-920-5301 Loc. 7430; f- 632-924-7678  
[rickym@msi01.cs.upd.edu.ph](mailto:rickym@msi01.cs.upd.edu.ph)

MAH, CHRISTOPHER L.  
CALIFORNIA ACADEMY OF SCIENCES  
DEPT INVERT ZOOLOG & GEOLOGY  
GOLDEN GATE PARK  
SAN FRANCISCO, CA 94118-4599  
p- 415-750-7093; f- 415-750-7090; [cmah@cas.calacademy.org](mailto:cmah@cas.calacademy.org)  
or [clmah@sfsu.edu](mailto:clmah@sfsu.edu)

MAHARAVO, JEAN  
CENTRE NATIONAL DE RECHERCHES  
D'OCEANOGRAPHIQUES - DIRECTOR  
B.P. 68, (207) NOSY-BE, MADAGASCAR  
p- 19.261.8.613.73

MAIER, MARTA S.  
UNIV BUENOS AIRES, FAC CIENC EX Y NAT  
DEPTO QUIMICA ORGANICA  
PABELLON 2, CID UNIVERSITARIA  
BUENOS AIRES 1428, ARGENTINA  
p- 00541-782-0529; f- 00541-782-0529  
[maier@quimor.qo.fcen.uba.ar](mailto:maier@quimor.qo.fcen.uba.ar)

MAJEROWICZ, EUGENE  
4449 PRESIDIO DRIVE  
LOS ANGELES, CA 90008

MAKRA, ATHENA  
UNIVERSITY COLLEGE GALWAY  
MARTIN RYAN INSTITUTE, DEPT ZOOLOGY  
GALWAY, IRELAND  
p- 091-524411 ext 3302; f- 091-525005  
[athena.makra@seaweed.ucg.ie](mailto:athena.makra@seaweed.ucg.ie)

MALLEFET, JEROME C.  
CATHOLIC UNIVERSITY OF LOUVAIN  
LAB ANIMAL PHYSIOLOGY  
5 PL CROIX DU SUD  
B-1348 LOUVAIN-LA-NEUVE, BELGIUM  
p- +32 10 47 8750; f- +32 10 47 3476  
[mallefet@bani.ucl.ac.be](mailto:mallefet@bani.ucl.ac.be)

MANCHENKO, GENNADY P.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; [faribm@visenet.marine.su](mailto:faribm@visenet.marine.su)

MANNI, RICCARDO  
UNIV DEGLI STUDI DI ROMA "LA SAPIENZA"  
DIP. DI SCIENZE DELLA TERRA  
PIAZZALE ALDO MORO, 5  
ROME, 00185 ITALY  
p- 0039-6-49914315; f- 0039-6-4454729  
[manni@axrma.uniroma1.it](mailto:manni@axrma.uniroma1.it)

MANNIFIELD, KAY  
TRINITY COLLEGE  
DEPT GEOLOGY  
MUSEUM BUILDING  
DUBLIN 2, REPUBLIC OF IRELAND  
p- 353-1-608-2010; f- 353-1-671-2821  
[mannifk@tcd.ie](mailto:mannifk@tcd.ie)



MAPLES, CHRISTOPHER G.  
KANSAS GEOLOGICAL SURVEY  
1930 CONSTANT AVE.  
LAWRENCE, KS 66047  
maples@msmail.kgs.ukans.edu

MARAN, ALEKSANDRA A.  
NATURAL HISTORY MUSEUM  
NJEGOSEVA 51  
BELGRADE, 11000 YUGOSLAVIA  
p- 381-11-444-22-39; f- 381-11-444-22-63

MARCOS-DIEGO, CONCEPCION  
UNIVERSIDAD DE MURCIA  
DEPARTAMENTO DE ECOLOGIA  
FACULTAD DE BIOLOGIA  
MURCIA, 30100 SPAIN  
p- 34-68-833000; f- 34-68-363963

MARKOV, ALEXANDER V.  
PALEONTOLOGICAL INSTITUTE  
OF RUSSIAN ACADEMY OF SCIENCES  
PROF SOYUZNA YA STR. 123  
MOSCOW, 117647 RUSSIA  
p- +7 095 952 4006; f- +7 095 954 3815; pbul@paleo.msk.ru

MARQUES, V.M.A.M.  
DEPT ZOOLOGIA & ANTROPOLOGIA  
FACULDADE CIENCIAS DE LISBOA  
RUA DA ESCOLA POLITECNICA  
1200 LISBON, PORTUGAL

MARSH, LOISETTE M.  
WESTERN AUSTRALIAN MUSEUM  
FRANCIS STREET  
PERTH, WESTERN AUSTRALIA, 6000 AUSTRALIA  
p- 61-8938-32742; f- 61-89328-8686

MARSHALL, CHARLES  
UNIVERSITY OF CALIFORNIA  
DEPT EARTH & PLANETARY SCIENCES  
LOS ANGELES, CA 90024  
iashcrm@mvs.oac.ucla.edu

MARTIN, R.ERIK  
APPLIED BIOLOGY, INC.  
PO BOX 974  
JENSEN BEACH, FL 34958

MARTIN, RICHARD B.  
CSIRO MARINE LABORATORIES  
DIVISION OF FISHERIES  
GPO BOX 1538, HOBART  
TASMANIA 7001, AUSTRALIA  
p- 61-2-325-222; f- 61-2-325-000  
martin@ml.csiro.au

MARTINEZ, PRISCILLA C.  
CHARLES DARWIN RESEARCH STATION  
P.O. BOX 17-01-3891  
QUITTO, ECUADOR  
p- 593-5-526-147; f- 593-4-564-636;  
martinez@ecdarwin.org.ec

MASCARENHAS, BERNARDO JOSE DE A.  
MUSEU NACIONAL  
DPTO DE INVERTEBRADOS  
QUINTA DA BOA VISTA S/No  
SAO CRISTOVAO, RJ, 20940-040 BRAZIL

MASSIN, CLAUDE  
INST ROYAL SCIENCES NATURELLES  
DE BELGIQUE  
RUE VAUTIER 29  
1040 BRUXELLES, BELGIUM  
p- 322.627.43.47; f- 322.646.44.33; massin@kbinirsmb.be

MATERIA-ROWLAND, CHRISTINE J.  
COASTAL AND MARINE PROGRAM  
DEPT ENVIRONMENT & LAND MANAGEMENT  
GPO BOX 510E  
HOBART, TASMANIA, 7001 AUSTRALIA  
p- +61-02-33-3742; f- +61-02-34-8730; christr@delm.tas.gov.au

OR

MATERIA-ROWLAND, CHRISTINE J.  
MARINE & COASTAL RESEARCH TASMANIA  
PO BOX 188  
SANDY BAY, TASMANIA, 7006 AUSTRALIA  
p- +61-3-6267-4302; f- +61-3-6267-4133; mcrt@tassie.net.au

MATTOS-SEGOVIA, ELIO  
UNIVERSIDAD ARTURO PRAT  
DEPARTAMENTO DE INGENIERIA  
CASILLA 121  
IQUIQUE, CHILE  
p- 56-057-447070; f- 56-057-441009

MATURO, JR., FRANK  
UNIVERSITY OF FLORIDA  
ZOOLOGY DEPARTMENT  
GAINESVILLE, FL 32611

MAUBON, ROGER M.  
MUSEUM D'HISTOIRE NATURELLE  
CHEMIN DE LA SOURCE, DEPT PALEO  
CIDEX 429B  
ST. ISMIER, 38330 FRANCE  
p- 04-76-52-05-66

MAYTIA, LIC SUSANA  
MUSEO NACIONAL DE HISTORIA NAT  
CC399  
MONTEVIDEO, URUGUAY

McBRIDE, SUSAN C.  
UC SEA GRANT EXTENSION PROGRAM  
SUITE 4  
2 COMMERCIAL STREET  
EUREKA, CA 95501  
p- 707-443-8369; f- 707-445-3901; scmcbride@ucdavis.edu

McCARTHY, DANIEL  
FLORIDA STATE UNIVERSITY  
DEPT BIOLOGY  
TALLAHASSEE, FL 32304

McCLINTOCK, JAMES B.  
UNIV OF ALABAMA AT BIRMINGHAM  
DEPT BIOLOGY  
UAB STATION  
BIRMINGHAM, AL 35294-1170  
p- 205-975-2525; f- 205-975-6097  
biof004@uabdpo.dpo.uab.edu

McEACHERN, RICHARD  
71 WORCESTER ST, #2  
BOSTON, MA 02118  
p- 617-375-0097; rickgmc3@email.msn.com

McEDWARD, LARRY R.  
UNIVERSITY OF FLORIDA  
DEPT ZOOLOGY  
POB 118525  
GAINESVILLE, FL 32611  
p- 352-392-8738; f- 352-392-3704  
mcedward@zoo.ufl.edu

McGEE, PAULA E.  
MILWAUKEE PUBLIC MUSEUM  
DEPT. OF GEOLOGY  
800 WEST WELLS STREET  
MILWAUKEE, WI 53233-1478

McINTOSH, GEORGE CLAY  
ROCHESTER MUSEUM & SCIENCE CTR  
657 EAST AVE.  
PO BOX 1480  
ROCHESTER, NY 14620

McKENZIE, J. DOUGLAS  
SCOTTISH ASSOC. MARINE SCIENCE  
DUNSTAFFNAGE MARINE LABORATORY  
P.O. BOX 3  
OBAN, ARGYLL, PA34 4AD SCOTLAND, U.K.  
p- +44 1631 567 832; f- +44 1631 565 518  
dmck@dml.ac.uk

McKINNEY, MICHAEL  
UNIVERSITY OF TENNESSEE  
DEPT. GEOLOGY  
KNOXVILLE, TN 37966

McKNIGHT, DONALD  
N.Z. OCEANOGRAPHIC INSTITUTE  
P.O. BOX 14901  
KILBIRNIE, WELLINGTON, NEW ZEALAND  
p- 4-386-1189; f- 4-386-2153

McLELLAND, JERRY A.  
USM INSTITUTE OF MARINE SCIENCES  
GULF COAST RESEARCH LABORATORY  
P.O. BOX 7000  
OCEAN SPRINGS, MS 39566  
p- 288-374-5550; f- 288-374-5559  
jmcllell@seahorse.ims.usm.edu

McMAHON, MICHAEL M.  
716 RUNDLE HALL  
111 UNIVERSITY GATE, NW  
CALGARY, ALBERTA, T2N 4V8 CANADA  
mmmcmaho@acs.ucalgary.ca

McNAMARA, KENNETH J.  
WESTERN AUSTRALIAN MUSEUM  
EARTH & PLANETARY SCIENCES  
FRANCIS STREET  
PERTH, W.A. 6000, AUSTRALIA  
p- +61 8 9427 2755; f- +61 8 9427 2882  
mcnamk@museum.wa.gov.au

MEDEIROS-BERGEN, DOT E.  
BOSTON UNIVERSITY  
BOSTON, MA  
p- 617-353-2878; f- 617-353-5868

MEIJER, LAURENT  
CNRS  
STATION BIOLOGIQUE, B.P. 74  
29682 ROSCOFF CEDEX, FRANCE  
p- 33 (0) 2.98.29.23.39; f- 33 (0) 2.98.29.23.42  
meijer@sb-roscoff.fr

MELIKOV, OKTAI HAMZA  
AZERBAIJAN STATE OIL ACADEMY  
AZERBAIJAN INSTITUTE OF OIL & CHEMISTRY  
AZADLIG AVE 20  
BAKU, 370010 AZERBAIJAN  
f- (994)-12-930 806

MENGE, BRUCE A.  
OREGON STATE UNIVERSITY  
DEPT ZOOLOGY  
CORVALLIS, OR 97331  
f- 503-737-0501; mengeb@bcc.orst.edu

MERCIER, ANNIE  
1003 CHEMIN DE LA MONTAGNE  
ORFORD, QUEBEC, J1X 3W3 CANADA  
p- 819-843-7005; f- 819-843-7005; seve@sympatico.ca

MESSING, CHARLES G.  
NOVA SOUTHEASTERN UNIVERSITY  
OCEANOGRAPHIC CENTER  
8000 NORTH OCEAN DRIVE  
DANIA, FL 33004  
p- 954-920-1909; f- 954-921-7764; messingc@ocean.nova.edu

MEYER, CHRISTIAN A.  
NATURMUSEUM SOLOTHURN  
KLOSTERPLATZ 2  
CH-4500 SOLOTHURN, SWITZERLAND  
p- 0041-32-622-7021; f- 0041-32-622-7052  
100256.2743@compuserve.com

MEYER, DAVID L.  
UNIVERSITY OF CINCINNATI  
DEPT GEOLOGY  
PO BOX 210013  
CINCINNATI, OH 45221-0013  
p- 512-556-6931; meyer@ucbeh.san.uc.edu

MILLER, ROBERT J.  
UNIV MASSACHUSETTS, BOSTON  
DEPT BIOLOGY  
100 MORRISSEY BLVD  
BOSTON, MA 02125  
p- 617-287-6638; bmiller@soest.hawaii.edu

MINER, BEN  
24992 VIA DEL RIO  
LAKE FOREST, CA 92630  
cowfishes@aol.com

MINTZ, LEIGH W.  
CALIFORNIA STATE UNIV, HAYWARD  
CURRICULUM & ACADEMIC PROGRAMS, WA859  
25800 CARLOS BEE BLVD  
HAYWARD, CA 94542-3011  
p- 510-885-3716; f- 510-885-4777; [lmintz@csuhayward.edu](mailto:lmintz@csuhayward.edu)

MIRONOV, ALEXANDER  
USSR ACADEMY OF SCIENCES  
INSTITUTE OF OCEANOLOGY  
KRASIKOVA 23  
MOSCOW, 117218 RUSSIA  
p- 095-129-21-18; f- 095-124-59-83  
[mirosov@bentos.ioras.msk.ru](mailto:mirosov@bentos.ioras.msk.ru)

MITROVIC-PETROVIC, JOVANKA R.  
FACULTY OF MINING & GEOLOGY  
KAMENICKA 6, PO BOX 227  
11000 BEOGRAD, YUGOSLAVIA  
p- (011) 632-166; f- (011) 335-539

MLADENOV, PHILIP V.  
UNIVERSITY OF OTAGO  
DEPT MARINE SCIENCE  
PO BOX 56  
DUNEDIN, NEW ZEALAND  
p- +64 3 479 8306; f- +64 3 479 8336  
[philip.mladenov@stonebow.otago.ac.nz](mailto:philip.mladenov@stonebow.otago.ac.nz)

MOCRETSOVA, NINA D.  
PACIFIC RESEARCH INSTITUTE  
OF FISHERIES AND OCEANOGRAPHY  
4, SHEVCHENKO ALLEY  
VLADIVOSTOK, 690600 RUSSIA

MOELLER, CHRIS  
UNIV OF ALABAMA AT BIRMINGHAM  
DEPT BIOLOGY, CAMPBELL HALL  
1300 UNIVERSITY BOULEVARD  
BIRMINGHAM, AL 35294-1170  
[bio036@uabdp.dpo.uab.edu](mailto:bio036@uabdp.dpo.uab.edu)

MONTAGUE, CHRISTOPHER  
503 EL DORADO BLVD APT 1404  
WEBSTER, TX 77598  
[montague@mbian.utmb.edu](mailto:montague@mbian.utmb.edu)

MOOI, RICHARD  
CALIFORNIA ACADEMY OF SCIENCES  
INVERTEBRATE ZOOLOGY  
GOLDEN GATE PARK  
SAN FRANCISCO, CA 94118  
p- 415-750-7086; f- 415-750-7090; [rmooi@cas.calacademy.org](mailto:rmooi@cas.calacademy.org)

MOONEY, ROBERT C.  
UNIVERSITY OF BRITISH COLUMBIA  
CTR APPLIED CONSERV BIOL, FAC FORESTRY  
270-2357 MAIN MALL  
VANCOUVER, B.C., V6T 1Z4 CANADA  
p- 604-228-2390; f- 604-822-5410; [rmooney@unixg.ubc.ca](mailto:rmooney@unixg.ubc.ca)

MOORE, ABIGAIL M.  
C/O RUMAH KAMILIA  
LANGIRIA, PANRANG LUHUK  
BIRA, BULUKUMBA  
SULSEL, INDONESIA  
f- 00.33.321.864378; [abigailmoore@hotmail.com](mailto:abigailmoore@hotmail.com)

MOORE, ANDREW  
GATTY MARINE LAB  
EAST SANDS  
ST. ANDREWS, FIFE, SCOTLAND, U.K.

MORENO-FORERO, SILVIA K.  
INVEMAR  
A.A. 1016  
SANTA MARTA, COLOMBIA  
[macro@santamarta.cetcol.net.co](mailto:macro@santamarta.cetcol.net.co)

MORGAN, KATHERINE  
UNIV OF FLORIDA  
DEPT ZOOLOGY  
PO BOX 118525  
GAINESVILLE, FL 32611-8525  
p- 352-392-1107; [kmorgan@zoo.ufl.edu](mailto:kmorgan@zoo.ufl.edu)

MORISHITA, AKIRA  
NAGOYA UNIVERSITY  
DEPT EARTH SCIENCES  
CHIKUSA, NAGOYA, JAPAN

MORRILL, JOHN B.  
NEW COLLEGE-USF  
DIVISION NATURAL SCIENCES  
5700 NORTH TAMiami TRAIL  
SARASOTA, FL 34243-2197  
p- 941-359-4370; f- 941-359-4396

MOTOKAWA, TATSUO  
TOKYO INSTITUTE OF TECHNOLOGY  
FACULTY OF SCIENCE, DEPT BIOL  
2-12-1 O-OKAYAMA, MEGURO-KU  
TOKYO 152, JAPAN  
p- 81-3-5734-2659; f- 81-3-5734-2946  
[tmotokaw@bio.titech.ac.jp](mailto:tmotokaw@bio.titech.ac.jp)

MOUCHATY, SUZETTE  
UNIVERSITY OF LUND  
DEPT GENETICS, c/o ULFUR ARNASON  
SOLVEGATAN 29  
LUND S 22362, SWEDEN  
[suzette@bio.tamu.edu](mailto:suzette@bio.tamu.edu)

MOURA-BRITTO, MAURO DE  
RUA RIO GRANDE DO SUL  
907/63-B  
CURITIBA, PR, 80610-100 BRAZIL  
p- 041-2438484

MU, A.T.  
INST GEOLOGY AND PALEONTOLOGY  
ACADEMIA SINICA  
NANJING, PEOPLE'S REPUBLIC OF CHINA

MU, EN-ZHI  
INST GEOLOGY AND PALEONTOLOGY  
ACADEMIA SINICA  
NANJING, PEOPLES REPUBLIC OF CHINA

MUKAI, HIROSHI  
HOKKAIDO UNIVERSITY  
AKKESHI MARINE BIOLOGICAL STA.  
AKKESHI, HOKKAIDO 088-11, JAPAN  
p- 0153-52-2056; f- 0153-52-2042

MUNAR-BERNAT, JAIME  
C/O JOSE ALEMANY  
VICH 6 1-3  
E-07010 PALMA DE MALLORCA  
BALEARIC ISLANDS, SPAIN  
p- 292009

MUNK, ERIC J.  
ALASKA FISHERIES SCIENCE CENTR  
KODIAK INVESTIGATIONS  
P.O. BOX 1638  
KODIAK, AK 99615-1638  
p- 907-487-5961; f- 907-487-5960; [emunk@afsc.noaa.gov](mailto:emunk@afsc.noaa.gov)

NAGAHAMA, YOSHITAKA  
NATIONAL INSTITUTE BASIC BIOL  
LAB OF REPRODUCTIVE BIOLOGY  
OKAZAKI 444, JAPAN

NAIDENKO, TAMARA K.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- 4232-311-143; f- 4232-310-900  
[tazibm@visenet.iasnet.com](mailto:tazibm@visenet.iasnet.com)

NAKAI, SAORI  
TOKAI UNIVERSITY SAGAMI HIGH SCHOOL  
3-33-1, SONAN  
SAGAMIHARA 228-0812  
JAPAN  
p-011-81-427-42-1251; f-011-81-427-42-1159  
[tokaisagami@tmj.biglobe.ne.jp](mailto:tokaisagami@tmj.biglobe.ne.jp)

NAKAMURA, RAYMOND K.  
VANCOUVER AQUARIUM  
P.O. BOX 3232  
VANCOUVER, B.C., V6B 3X8 CANADA  
p- (604)-685-3364; f- (604)-631-2529  
[nakamur@vancouver-aquarium.org](mailto:nakamur@vancouver-aquarium.org)

NAKANO, EIZO  
IWASAKIDAI 2-706  
NISSIN 470-0135, JAPAN  
p- 81-5617-2-4673; f- 81-5617-2-4673  
[enakano@amy.ne.jp](mailto:enakano@amy.ne.jp)

NATEEWATNANA, ANUWAT  
PHUKET MARINE BIOL. CENTER  
P.O. BOX 60  
PHUKET 83000, THAILAND

NEBELSICK, JAMES H.  
INSTITUT GEOL. PALAEONTOLOGY  
UNIVERSITAT TUBINGEN  
SIGWARTSTR. 10  
TUBINGEN, D-72076 GERMANY  
p- +49 7071 297 546; f- +49 7071 949 040  
[nebelsick@uni-tuebingen.de](mailto:nebelsick@uni-tuebingen.de)

NEILL, BRUCE J.  
LEWIS AND CLARK COLLEGE  
DEPT BIOLOGY  
0615 SW PALATINE HILL ROAD  
PORTLAND, OR 97219-7899  
p- 503-768-7502; f- 503-768-7658  
[bneill@lclark.edu](mailto:bneill@lclark.edu)

NEIRA, RAUL  
UNIVERSIDAD DE VALLE  
DEPARTAMENTO DE BIOLOGIA  
P.O. BOX 26513  
CALI, COLOMBIA  
[rneira@biologia.univalle.edu.co](mailto:rneira@biologia.univalle.edu.co)

NEMOTO, SHIN-ICHI  
OCHANOMIZU UNIVERSITY  
TATEYAMA MARINE LABORATORY  
KOH-YATSU, UMI-NO-HOSHI  
TATEYAMA, CHIBA 294-03, JAPAN

NEPOTE, ANA CLAUDIA  
LOS PINOS #460, FRACC. LOS PINOS  
C.P. 45120  
ZAPOPAN, JALISCO, MEXICO  
p- 813-06-93; [cnepote@maiz.cucba.udg.mx](mailto:cnepote@maiz.cucba.udg.mx)

NESTLER, HELMUT  
MAX-HAGEN-WEG 6  
GREIFSWALD, D-17491 GERMANY  
p- 49-3834-864551; f- 49-3834-864572

NEUMANN, CHRISTIAN  
FREIEN UNIVERSITAT BERLIN  
INSTITUT FUR PALAONTOLOGIE  
MALTESERSTR. 74-100, HAUS D  
BERLIN, D-12249 GERMANY  
p- +49 30 779 2284; f- +49 30 776 2070  
[paleont@zedat.fu-berlin.de](mailto:paleont@zedat.fu-berlin.de)

NICHOLS, DAVID  
UNIVERSITY OF EXETER  
HATHERLY LABORATORIES  
16 STRATHAM DRIVE  
EXETER, EX4 4PD ENGLAND, U.K.  
p- 01392.254463; f- 01392.263700  
[d.nichols@exeter.ac.uk](mailto:d.nichols@exeter.ac.uk)

NICOSIA, UMBERTO  
UNIV DEGLI STUDI DI ROMA "LA SAPIENZA"  
DIP. DI SCIENZE DELLA TERRA  
PIAZZALE ALDO MORO, 5  
ROME, 00185 ITALY  
p- 0039-6-49914800; f- 0039-6-4454729

NIESEN, THOMAS  
SAN FRANCISCO STATE UNIVERSITY  
DEPT MARINE BIOLOGY, DIV BIOL  
1600 HOLLOWAY AVE.  
SAN FRANCISCO, CA 94019  
p- 415-338-6387; f- 415-338-2295  
tniesen@sfsu.edu

NISHIHIRA, MORITAKA  
TOHOKU UNIVERSITY  
FACULTY OF SCIENCE  
BIOLOGICAL INSTITUTE  
SENDAI 980-77, JAPAN  
p- (81) 22-217-6681; f- (081) 22-217-6686  
j23067@cctu.cc.tohoku.ac.jp

NOJIMA, SATOSHI  
KYUSHU UNIVERSITY  
AMAKUSA MARINE BIOLOGICAL LAB.  
TOMIOKA, REIHOKU-CHO, AMAKUSA  
KUMAMOTO-KEN 863-25, JAPAN  
p- +81-969-35-0003; f- +81-969-35-2413  
satosca@mbox.nc.kyushu-u.ac.jp

NORRIS, DANIEL R.  
UNIVERSITY OF GUAM  
MARINE LABORATORY, UOG STATION  
MANGILAO, GM 96923  
p- 671-472-3002; f- 671-472-3002; dnorris@uog.pacific.edu

O'CONNOR, BRENDAN D.  
AQUA-FACT INTERNATIONAL  
12 KILKIERRIN PARK  
LIOSBAUN, GALWAY, IRELAND  
p- 353-91-756812; f- 353-91-756888

O'HARA, TIMOTHY D.  
MUSEUM OF VICTORIA  
DIVISION NATURAL HISTORY  
71 VICTORIA CRESCENT  
ABBOTSFORD, VICTORIA, 3067 AUSTRALIA  
p- 613-9284-0206; tohara@pioneer.mov.vic.gov.au

O'LOUGHLIN, P. MARK  
95 BOND STREET  
IVANHOE 3079, AUSTRALIA  
p- 61-3-9-499-7245; f- 61-3-9-499-7122

O'NEILL, PATRICIA  
UNIVERSITY OF WESTERN AUSTRALIA  
DEPT ZOOLOGY  
NEDLANDS, W.A. 6000, AUSTRALIA

OGURO, CHITARU  
TOYAMA UNIVERSITY  
DEPT BIOLOGY  
TOYAMA 930, JAPAN

OHTA, SUGURU  
UNIVERSITY OF TOKYO  
OCEAN RESEARCH INSTITUTE  
15-1, 1-CHOME, MINAMIDAI  
NAKANO-KU, TOKYO 164, JAPAN  
p- (+81) 3-5351-6471; f- (+81) 3-5351-6471  
sohta@ori.u-tokyo.ac.jp

OJEDA, F. PATRICIO  
PONT UNIV CATOLICA DE CHILE  
DEPARTAMENTO DE ECOLOGIA  
CASILLA 114-D  
SANTIAGO, CHILE  
p- 56-2-686-2729 ; f- 56-2-222-5515; pojeda@genes.bio-puc.cl

OJI, TATSUO  
UNIVERSITY OF TOKYO  
GEOLOGICAL INSTITUTE  
7-3-1 HONGO  
TOKYO 113, JAPAN  
p- 81-33-812-2111 ext 4506; f- 81-33-815-9490  
oji@geol.s.u-tokyo.ac.jp

OKADA, MINORU  
SCIENCE EDUCATION INST OSAKA PREF  
KARITA 4-CHOME, SUMIYOSHI-KU  
OSAKA 558, JAPAN

OLAVE, SERGIO  
INSTITUTO DE FOMENTO PESQUERO  
CASILLA 78  
CASTRO, CHILE

OLSZEWSKA-NEJBERT, DANUTA  
WARSAW UNIVERSITY  
INSTITUTE OF GEOLOGY  
AL. ZWIRKI I WIGURY 93  
WARSZAWA, 02-089 POLAND  
p- 22-20-51 INT.39; f- 48-22-22-02-48  
danuolsz@albit.geo.uw.edu.pl

OLVER, JANE  
LANCE'S COTTAGE  
PARKGATE ROAD, NEWDIGATE  
SURREY, RH5 5DY ENGLAND, U.K.  
p- 01306 631368

ORLER, PARICIA MABEL  
CADIC CC.92 USHUALA  
TIERRA DEL FUEGO, ARGENTINA  
postmaster@liarau.1000.ar

OTSU, INES  
INST INVESTIGACIONES OCEANOLOG  
UNIVERSIDAD DE CHILE  
CASILLA 1240  
ANTOFAGASTA, CHILE

PABIAN, ROGER K.  
UNIVERSITY OF NEBRASKA  
CONSERVATION & SURVEY DIVISION  
P.O. BOX 880517  
LINCOLN, NE 68588-0517  
p- 402-472-7564; f- 402-472-2410  
rpabian@unlinfo.unl.edu

PAGETT, RICHARD M.  
ENVIRONMENTAL MANAGEMENT & TRAINING  
HUNTERS BROOK HOUSE  
HOGGS LANE, PURTON  
WILSHIRE, SN5 9HQ ENGLAND U.K.  
p- +44 1793-771867; f- +44 1793-772663  
emt@patrol-i-way.co.uk

PAINE, ROBERT T.  
UNIVERSITY OF WASHINGTON  
DEPT ZOOLOGY  
SEATTLE, WA 98195

PALUMBI, STEVE  
HARVARD UNIVERSITY  
PROF, DEPT ORGANISMIC & EVOLUTIONARY BIOL  
BIOLABS, 16 DIVINITY AVE  
CAMBRIDGE, MA 02173  
p- 617-496-8633; f- 617-496-5854  
spalumbi@oeb.harvard.edu

PARDO, ROBERTO A.  
UNIVERSIDAD DEL VALLE  
DEPTO DE BIOLOGIA  
P.O. BOX 26513  
CALI, COLOMBIA  
p- 57-2-3393243; f- 57-2-5580150  
ropardo@hypatia.univalle.edu.co

PARMA, SARA GRACIELA  
CIUDAD UNIVERSITARIA. PAB II  
DEPTO DE CIENCIAS GEOLOGICAS  
FACULTAD DE CS. EX. Y NAT.  
BUENOS AIRES, 1428 ARGENTINA  
p- 781-8213; f- 781-8213; sagrapa@tango.gl.fcen.uba.ar

PARSLEY, RONALD L.  
TULANE UNIVERSITY  
DEPT GEOLOGY  
NEW ORLEANS, LA 70118  
p-504-862-3191; f- 504-865-5199  
parsley@mailhost.tcs.tulane.edu

PASTOR, XAVIER  
LAB OCEANOGRAFICODE BALEARES  
MUELLE DE PELAIRES S/N  
PALMA DE MALLORCA  
BALEARIC ISLANDS, SPAIN

PAUL, C.R.C.  
LIVERPOOL UNIVERSITY  
DEPT EARTH SCIENCES  
BROWNLOW STREET  
LIVERPOOL, L69 3BX ENGLAND, U.K.  
p- +151 794 5181; f- +151 794 5170; crcp@liv.ac.uk

PAULS, SHEILA MARQUES  
UNIVERSIDAD CENTRAL VENEZUELA  
INSTITUTO DE ZOOLOGIA TROPICAL  
APARTADO 47058  
CARACAS 1041-A, VENEZUELA  
p- 582-605-2303; f- 582-605-2204; spauls@reacciun.ve

PAWSON, DAVID L.  
SMITHSONIAN INSTITUTION  
NAT MUSEUM OF NATURAL HISTORY  
ROOM W323, MAIL STOP 163  
WASHINGTON, DC 20560-0163  
p- 202-786-2127; f- 202-357-3043  
pawson.david@nmnh.si.edu

PEARCE, CHRISTOPHER M.  
UNIVERSITY OF DALHOUSIE  
DEPT BIOLOGY  
HALIFAX, N.S., B3H 4J1 CANADA

PEARSE, JOHN S.  
UNIV CALIFORNIA, SANTA CRUZ  
INSTITUTE OF MARINE SCIENCES  
SANTA CRUZ, CA 95064  
p- 408-459-2455; f- 408-459-4882; pearse@darwin.ucsc.edu

PENCHASZADEH, PABLO E.  
UNIV. SIMON BOLIVAR  
INTECMAR  
APARTADO 80659  
CARACAS, VENEZUELA  
p- 58-2-906-3052; f- 58-2-906-3064; ppenchas@usb.ve

PENNINGTON, J.TIMOTHY  
MBARI  
7700 SANDHOLDT ROAD  
P.O. BOX 628  
MOSS LANDING, CA 95039  
p- 408-647-3715; f- 408-649-8587; peti@wave.mbari.org

PEREZ-RUZAFÁ, ANGEL  
UNIVERSIDAD DE MURCIA  
DEPARTAMENTO DE ECOLOGIA  
FACULTAD DE BIOLOGIA  
MURCIA, 30100 SPAIN  
p- 34-68-833000; f- 34-68-363963; angelpr@fcu.um.es

PETR, VACLAV  
CHARLES UNIVERSITY  
ZOOLOGICAL LIBRARY, FAC SCIENCE  
VINICNA 7  
128 44 PRAHA 2, CZECH REPUBLIC  
vpetr@mail.natur.cuni.cz

PHILIPPE, MICHEL  
MUSEUM D'HISTOIRE NATURELLE  
28, BD DES BELGES  
LYON, 69006 FRANCE  
p- 72.69.05.00; f- 78.94.62.25

PIEPENBURG, DIETER  
INSTITUTE FOR POLAR ECOLOGY  
UNIVERSITAET KIEL  
WISCHHOFSTR. 1-3, GEBAUDE 12  
KIEL, D-24148 GERMANY  
p- +49-431-600-1264; f- +49-431-600-1210  
dpiepenburg@ipoe.de

PIKE, ARLENE J.  
DALLAS MUSEUM OF NAT HIST  
P.O. BOX 150349  
DALLAS, TX 75315

PINELA, JEAN E.  
UNIVERSIDAD AUSTRAL DE CHILE  
INSTITUTO DE ZOOLOGIA  
CASILLA 567  
VALDIVIA, CHILE

PODOLSKY, ROBERT D.  
HOPKINS MARINE STATION  
100 OCEANVIEW BLVD  
PACIFIC GROVE, CA 93950  
p- 408-655-6238; f- 408-375-0795  
podolsky@leland.stanford.edu

POMORY, CHRISTOPHER  
UNIVERSITY OF SOUTH FLORIDA  
DEPT BIOLOGY  
TAMPA, FL 33620

PORETZKAJA, E. S.  
V-34, 1 LINE, 10 APRTM. 21  
LENINGRAD, 199034 RUSSIA

PORTELL, ROGER W.  
FLORIDA MUSEUM OF NATURAL HISTORY  
DEPT NATURAL SCIENCES, UNIV FLORIDA  
P.O. BOX 117800  
GAINESVILLE, FL 32611-7800  
p- 352-392-0065; f- 352-846-0287  
portell@flmnh.ufl.edu

PRESTEDGE, GEOFFREY K.  
16 GEEVES CRESCENT  
MIDWAY POINT  
TASMANIA 7171, AUSTRALIA  
p- 03-62652674

PROKOP, RUDOLF JAN  
NATIONAL MUSEUM  
DEPT. OF PALAEONTOLOGY  
VACLAVSKE NAM. 68  
115 79 PRAHA 1, CZECH REPUBLIC  
p- 42-2-24497262; f- 42-2-24226488  
ais@nm.anet.cz

PROPP, MIKHAIL V.  
INSTITUTE OF MARINE BIOLOGY  
RUSSIAN ACAD. SCI.  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- 423-231-11-49; f- 423-231-09-00;  
faribm@visenet.iasnet.com

PUTCHAKARN, SUMAITT  
BURAPHA UNIVERSITY  
INSTITUTE OF MARINE SCIENCE  
BANGSAEN, CHONBURI, 20131 THAILAND  
p- 66-38-391671; f- 66-38-391674

RAHAMAN, ABDUL ABDUL  
SRI VASAVI COLLEGE  
PROFESSOR OF ZOOLOGY  
ERODE-G38 31B, INDIA

RAJAKUMAR, C. P.  
UNIVERSITY COLLEGE  
DEPT ZOOLOGY  
PALAYAM, TRIVANDRUM  
KERALA STATE, 695 034 INDIA  
p- 04-6515-2503

RAM MOHAN, M. K.  
TUTICORIN RESEARCH CENTRE - CMFRI  
93, NORTH BEACH ROAD  
TUTICORIN - 628001  
TAMILNADU, INDIA  
p- 320102, 320274

RAYMOND, ALAN M.  
UNIVERSITY OF ST. ANDREWS  
GATTY MARINE LAB  
ST. ANDREWS  
FIFE, KY16 8LB, SCOTLAND, U.K.

REGIS, MARIE-BERTHE  
FACUL SCI & TECH DE ST. JEROME  
(CERAM) CASE 341  
AVE ESCADRILLE NIEMEN-NORMANDIE  
MARSEILLE CEDEX 20, 13397 FRANCE  
p- 91.28.80.99; f- 91.28.80.30

REGNAULT, SERGE  
MUSEUM D'HISTOIRE NATURELLE, 12  
RUE VOLTAIRE  
NANTES, 44000 FRANCE

REGNELL, GERHARD  
GEOLOGISKA INSTITUTIONEN  
SOLVEGATAN 13  
S-223 62 LUND, SWEDEN  
p- 46-121-475; f- 46-121-477

REICH, MIKE  
ERNEST-MORITZ-ARNDT-UNIV GREIFSWALD  
INSTITUT GEOLOGISCHE WISSENSCHAFTEN  
F.-L.-JAHN-STRASSE 17a  
GREIFSWALD, D-17489 GERMANY  
p- 49-3834-864552; f- 49-3834-864572  
reichmi@uni-greifswald.de

REY, DANIEL  
VILA I VILA 17 79  
BARCELONA, 08004 SPAIN  
p- (343) 451-9052; f- (343) 451-9087

RHO, BOON JO  
EWA WOMENS UNIVERSITY  
DIR OF NATURAL HISTORY MUSEUM  
SEOUL 120, KOREA

RICHMOND, MATT  
SCHOOL OF OCEAN SCIENCES  
MENAI BRIDGE  
ANGLESEY, LL59 5EY NORTH WALES, U.K.  
p- 44-1248-354557; f- 44-1248-354557

RINGVOLD, HALLDIS  
PB 125  
STOREBOE, 5392 NORWAY  
halldis.ringvold@imr.no

ROBBINS, STEVEN J.  
PO BOX 3468  
SHAWNEE, KS 66203

ROBEL, TOM  
1236 SE 86TH AVE  
PORTLAND, OR 97216  
cubeez@aol.com

ROBERTS, DAI  
THE QUEEN'S UNIVERSITY, BELFAST  
SCHOOL BIOLOGY AND BIOCHEMISTRY  
BELFAST, BT9 7BL NORTHERN IRELAND, U.K.  
p- +1232 245133; f- +1232 236505

ROBINSON, SHAWN M.C.  
DEPT. FISHERIES AND OCEANS  
BIOLOGICAL STATION  
ST. ANDREWS, N.B., EOG 2XO CANADA  
p- 506-529-8854 ext. 5932; f- 506-529-5862  
robinson@wolves.sta.dfo.ca

ROCCATAGLIATA, ALEJANDRO J.  
UNIVERSIDAD DE BUENOS AIRES  
FACULTAD DE CIENCIAS EX. Y NAT  
PABELLON 2, CID UNIVERSITARIA  
BUENOS AIRES 1428, ARGENTINA  
p- 54-1-782-0529; f- 54-1-787-2696  
alerkt@quimor.qo.fcen.uba.ar

RODRIGUEZ, EVELYN  
INST. ZOOL. TROPICAL, FAC. DE CIENCIAS  
UNIV CENTRAL VENEZUELA, PASEO LOS ILUSTRE  
LOS CHAGUARAMOS, APDO. 47058  
CARACAS 1041-A, VENEZUELA  
p- 605-2208; f- 605-2136  
fprovenz@strix.cienc.ucv.ve

RODRIGUEZ, SEBASTIAN R.  
PONT. UNIV. CATOLICA DE CHILE  
DEPARTAMENTO DE ECOLOGIA  
CASILLA 114-D  
SANTIAGO, CHILE  
p- 56-2-686-2797; f- 56-2-222-5515  
esrodrig@genes.bio.puc.cl

ROGERS-BENNETT, LAURA  
FRIDAY HARBOR LABS  
UNIVERSITY OF WASHINGTON  
620 UNIVERSITY ROAD  
FRIDAY HARBOR, WA 98250  
p- 360-378-2165; f- 206-543-1273;  
rogersb@hfl.washington.edu

ROMINAS-CASTRO, LILY  
NATIONAL INSTITUTE FISHERIES  
P.O. BOX 1306, ENSENADA  
BAJA CALIFORNIA, 22800 MEXICO  
p- 617-46085; f- 617-46135

ROSE, EDWARD P.F.  
ROYAL HOLLOWAY, UNIV OF LONDON  
DEPT GEOLOGY  
EGHAM  
SURREY, TW20 0EX ENGLAND, U.K.  
p- 44-1-78-444-3589; f- 44-1-78-447-1780  
rose@sunl.gl.rhbc.ac.uk

ROTMAN CLARK, HELEN E.S.  
N.Z. OCEANOGRAPHIC INSTITUTE  
NIWAR  
PO BOX 14-901, KILBIRNIE  
WELLINGTON, NEW ZEALAND  
p- 4-386-3000; f- 4-386-0574

ROUX, MICHEL  
UNIV DE REIMS CHAMPAGNE-ARDENNE  
LAB DES SCIENCES DE LA TERRE  
2 ESPLANADE ROLAND GARROS  
REIMS, 51100 FRANCE  
p- 03-26-77-3681; f- 03-26-77-36-94;  
michel.roux@univ-reims.fr

ROWE, FRANK  
GOLDBROOK BOARDING KENNELS  
NUTTERY VALE, CROSS STREET  
HOXNE  
SUFFOLK, IP21 5BB ENGLAND, U.K.  
p- 01379-668-267; f- 01379-668-267

ROY, MICHAEL S.  
UNIVERSITY OF OTAGO  
DEPT ZOOLOGY  
PO BOX 56  
DUNEDIN, NEW ZEALAND  
f- +643 479 7584; michael.roy@stonebow.otago.ac.nz

ROZHNOV, SERGEI V.  
PALEONTOLOGICAL INSTITUTE  
RUSSIAN ACADEMY OF SCIENCES  
PROFZOYUSNAYA STR. 123  
V-321 MOSCOW, 117647 RUSSIA  
p- 7-095-952-40-06; f- 7-095-954-38-15  
lenin33@paleo.msk.su

RUMRILL, STEVEN S.  
SOUTH SLOUGH NATIONAL ESTUARINE RESERVE  
P.O. BOX 5412  
CHARLESTON, OR 97420

RYABUSHKO, VITALY  
INSTITUTE OF BIOLOGY OF THE SOUTHERN SEAS  
DEPT ANIMAL PHYSIOLOGY  
2 NAKHIMOV AVE.  
SEVASTOPOL, 335001 UKRAINE

SABA, MASAKI  
581-60 SAKURA-MACHI  
MATSUSAKA CITY, MIE PREF., JAPAN  
p- 0598-26-3642

SAMYN, YVES  
VRJE UNIVERSITEIT BRUSSEL  
LAB ECOLOGY & SYSTEMATICS  
PLEINLAAN 2  
1050 BRUSSEL, BELGIUM  
p- 00322 6293443; f- 00322 6293403; ysamyn@vub.ac.be

SANCHEZ, PATRICIO  
UNIVERSIDADE CATOLICA  
FACULTAD DE CIENC. BIOLÓGICAS  
CASILLA 114-D  
SANTIAGO, CHILE



SANFORD, ERIC  
OREGON STATE UNIVERSITY  
DEPT ZOOLOGY  
CORVALLIS, OR 97331  
p- 503-737-5359; [sanforde@bcc.orst.edu](mailto:sanforde@bcc.orst.edu)

SANO, MINORU  
TOHOKU UNIVERSITY  
FAC AGRIC, DEPT APPLIED BIO-SCI  
1-1, TSUTSUMIDORI AMAMIYAMACHI  
SENDAI, JAPAN  
[msano@bios.tohoku.ac.jp](mailto:msano@bios.tohoku.ac.jp)

SAPP, JANN  
YORK UNIVERSITY  
CHAIR, DEPT SCIENCE STUDIES  
4700 KEELE STREET  
NORTH YORK, ONTARIO, CANADA  
p- 416-736-5213; [jsapp@um2.yorku.ca](mailto:jsapp@um2.yorku.ca)

SASTRY, DWADASI R.K.  
ANDAMAN AND NICOBAR REGIONAL STATION  
ZOOLOGICAL SURVEY OF INDIA, HADDO  
PORT BLAIR, 744102 INDIA

SATO, HIDEKI  
NAGANO UNIVERSITY  
FACULTY OF SOCIAL SCIENCE  
SHIMONOGO, UEDA,  
NAGANO 386-12, JAPAN

SAUER DE AVILA PIRES, TERESA C.  
CIUDADE UNIVERSITARIA  
DEPTO DE ZOOLOGICA/UFRJ  
ILHA DO FUNDÃO, CCS-SALA A1-117  
RIO DE JANEIRO, 21.941 BRAZIL

SCALLY, KEVIN  
CANTERBURY HEALTH LIMITED  
CHRISTCHURCH HOSP, DENTAL SERV  
P.O. BOX 1600  
CHRISTCHURCH, NEW ZEALAND  
p- 64-3640-250; f- 64-3640-246

SCHEIBLING, ROBERT E.  
UNIVERSITY OF DALHOUSIE  
DEPT BIOLOGY  
HALIFAX, N.S., B3H 4J1 CANADA  
p- 902-494-3515; f- 902-494-3736; [rescheib@ac.dal.ca](mailto:rescheib@ac.dal.ca)

SHELTEMA, RUDOLF S.  
WOODS HOLE OCEANOGRAPHIC INST.  
DEPT BIOLOGY  
WOODS HOLE, MA 02543  
p- 508-289-2337; f- 508-457-2169; [rscheltema@whoi.edu](mailto:rscheltema@whoi.edu)

SCHINNER, G. O.  
INSTITUT FÜR ZOOLOGIE  
UNIVERSITÄT WIEN  
ALTHANSTRASSE 14  
VIENNA A-1090, AUSTRIA  
f- 222-313-36-778; [schinner@zoo.univie.ac.at](mailto:schinner@zoo.univie.ac.at)

SCHMINCKE, SABINE  
UNIV WÜRZBURG  
PALAEONTOLOGISCHES INSTITUT  
PLEICHERWALL 1  
WÜRZBURG 8700, GERMANY

SCHOPPE, SABINE  
VISCA-GTZ ECOLOGY PROGRAM  
VISAYAS STATE COLLEGE AGRICULTURE  
BAYBAY, LEYTE 6521-A, THE PHILIPPINES  
p- 0063-912-501-9921; f- 0063-912-500-1898  
[ecovisca@mozcom.com](mailto:ecovisca@mozcom.com)

SCHROEDER, W.  
DAUPHIN ISLAND SEA LAB  
MAR ENVIRON SCI CONSORTIUM  
P.O. BOX 369-370  
DAUPHIN ISLAND, AL 36528

SCHUETZ, ALLEN W.  
JOHNS HOPKINS UNIVERSITY  
SCH HYGIENE & PUBLIC HEALTH  
615 N. WOLFE ST.  
BALTIMORE, MD 21205-2179  
p- 410-955-3117; f- 410-955-0792;  
[aschuetz@phnet.sph.jhu.edu](mailto:aschuetz@phnet.sph.jhu.edu)

SCHUMACHER, HELMUT  
UNIVERSITÄT ESSEN  
INST. FÜR ÖKOLOGIE  
POSTFACH 10 37 64  
ESSEN 1, D4300 GERMANY

SEETO, JOHNSON  
MARINE STUDIES PROGRAMME  
THE UNIVERSITY OF SOUTH PACIFIC  
P.O. BOX 1168  
SUVA, FIJI  
p- (679) 313900; f- (679) 301490; [seeto\\_j@usp.ac.fj](mailto:seeto_j@usp.ac.fj)

SERAFY, D. KEITH  
LONG ISLAND UNIVERSITY  
DEPT BIOLOGY  
SOUTHAMPTON, LONG ISLAND, NY 11968  
p- 516-287-8408; f- 516-287-8419

SEVASTOPULO, GEORGE  
UNIVERSITY OF DUBLIN  
TRINITY COLLEGE, DEPT GEOLOGY  
DUBLIN 2, IRELAND  
p- 353-1-608-2010; f- 353-1-671-2821; [gsevspul@tcd.ie](mailto:gsevspul@tcd.ie)

SEWELL, MARY  
UNIVERSITY SOUTHERN CALIFORNIA  
DEPT BIOLOGICAL SCIENCES  
LOS ANGELES, CA 90089-0371  
p- 213-740-5794 ; f- 213-740-8123; [marys@bcf.usc.edu](mailto:marys@bcf.usc.edu)

SHEPHERD, SCORESBY A.  
S.A. RESEARCH & DEVELOPMENT INSTITUTE (SARDI)  
P.O. BOX 120  
HENLEY BEACH, SA, 5022 AUSTRALIA  
p- 08-200-2427; f- 08-200-2482  
[shepherd.scoresby@pi.sa.gov.au](mailto:shepherd.scoresby@pi.sa.gov.au)

SHICK, J. MALCOLM  
UNIVERSITY OF MAINE  
DEPT. BIOLOGICAL SCIENCES  
5751 MURRAY HALL  
ORONO, ME 04469-5751  
p- 207-581-2551; f- 207-581-2537; [shick@maine.maine.edu](mailto:shick@maine.maine.edu)

SHIRAI, HIROKO  
NATIONAL INST FOR BASIC BIOLOG  
LAB OF REPRODUCTIVE BIOLOGY  
OKAZAZI, AICHI-KEN 444, JAPAN

SHIRLEY, THOMAS C.  
JUNEAU CENTER FOR FISHERIES &  
OCEAN SCIENCES, UAF  
11120 GLACIER HWY.  
JUNEAU, AK 99801  
p- 907-465-6449; f- 907-465-6447  
[jftcs@acad1.alaska.edu](mailto:jftcs@acad1.alaska.edu)

SIBUET, MYRIAM  
IFREMER - CENTRE DE BREST  
DRO/EP  
BP 70  
PLOUZANE, 29280 FRANCE  
p- 33-02-9822-4303; f- 33-02-9822-4547  
[msibuet@ifremer.fr](mailto:msibuet@ifremer.fr)

SIDES, LIZ  
TRINITY COLLEGE  
ENVIRONMENTAL SCIENCE UNIT  
DUBLIN 2, IRELAND

SIEGEL, I. MYRA  
PO BOX 6202  
CAPE ELIZABETH, ME 04107-0002

SIMMS, MICHAEL J.  
CHELTENHAM & GLOUCESTER COLLEGE  
OF HIGHER EDUCATION  
DEPT GEOGRAPHY & GEOLOGY  
CHELTENHAM, GL50 4AZ ENGLAND, U.K.

SIMPSON, RODNEY D.  
UNIVERSITY OF NEW ENGLAND  
SCHOOL BIOLOGICAL SCIENCES, ZOOLOGY  
ARMIDALE NSW 2351, AUSTRALIA  
p- 61-2-6773-5010; f- 61-2-6773-5011  
[rsimpson@metz.une.edu.au](mailto:rsimpson@metz.une.edu.au)

SINGLETARY, ROBERT L.  
UNIVERSITY OF BRIDGEPORT  
BRIDGEPORT, CT 06601-2449  
p- 203-576-4271; f- 203-576-4766  
[robert@cse.bridgeport.edu](mailto:robert@cse.bridgeport.edu)

SKOLD, MATTIAS  
PORTOBELLO MARINE LABORATORY  
PO BOX 8  
PORTOBELLO, DUNEDIN, NEW ZEALAND  
p- +64 (0)3 479 5823; f- +64 (0)3 479 5825  
[mattias.skold@stonebow.otago.ac.nz](mailto:mattias.skold@stonebow.otago.ac.nz)

SLATTERY, MARC  
UNIVERSITY OF MISSISSIPPI  
DEPT PHARMACOGNOSY  
SCHOOL OF PHARMACY  
UNIVERSITY, MS 38677  
p- 601-232-1053; f- 601-232-7026  
[mslatter@sunset.backbone.olemiss.edu](mailto:mslatter@sunset.backbone.olemiss.edu)

SLOAN, NORMAN A.  
3734 RUTHERFORD CRESCENT  
NORTH VANCOUVER, BC, V7N 2C7 CANADA  
p- 604-990-0123; f- 604-990-0523; [nsloan@fisheries.com](mailto:nsloan@fisheries.com)

SMILEY, SCOTT  
DIRECTOR,  
FISHERY INDUSTRIAL TECHNOLOGY CENTER  
118 TRIDENT WAY  
KODIAK, AK 99615-7401  
p- 907-486-1500; f- 907-486-1540  
[fists@aurora.alaska.edu](mailto:fists@aurora.alaska.edu)

SMIRNOV, ALEXEI V.  
ZOOLOGICAL INSTITUTE  
ACADEMY OF SCIENCES  
UNIVERSITetskAYA NAB.,1  
ST. PETERSBURG, 199034 RUSSIA  
p- 7 812 218 1311; f- 7 812 218 2941  
[sav@aster.zin.ras.spb.ru](mailto:sav@aster.zin.ras.spb.ru)

SMIRNOV, IGOR S.  
ZOOLOGICAL INSTITUTE  
ACADEMY OF SCIENCES  
UNIVERSITetskAYA NAB.,1  
ST. PETERSBURG, 199034 RUSSIA  
p- 7-812-218-13-11; f- 7-812-218-29-41  
[sav@aster.zin.ras.spb.ru](mailto:sav@aster.zin.ras.spb.ru)

SMITH, ALBERT C.  
P.O. BOX 12153  
PANAMA CITY, FL 32401-9153  
p- 850-814-3423

SMITH, ANDREW B.  
THE NATURAL HISTORY MUSEUM  
DEPT PALAEONTOLOGY  
CROMWELL ROAD  
LONDON, SW7 5BD ENGLAND, U.K.  
p- 44-1-71-938-8925; f- 44-1-71-938-9277  
[a.smith@nhm.ac.uk](mailto:a.smith@nhm.ac.uk)

SOLIS-MARIN, FRANCISCO A.  
INST CIENC DEL MAR Y LIMNOL, UNAM  
LAB DE ECOLOGIA DE EQUINODERMOS  
APDO. POST. 70-305  
MEXICO, D.F., 04510 MEXICO  
p- 525-622-58-02; f- 525-616-07-48  
[fsolis@mar.icmyl.unam.mx](mailto:fsolis@mar.icmyl.unam.mx)

SOLOVJEV, ANDREY N.  
PALEONTOLOGICAL INSTITUTE  
RUSSIAN ACADEMY OF SCIENCES  
PROFZOYUSNAYA STR 123  
MOSCOW V-321, 117647 RUSSIA  
p- 7 095 952 4006; f- 7 095 954 3815  
[lenin33@paleo.msk.su](mailto:lenin33@paleo.msk.su)

SONNENHOLZNER, JORGE I.  
P.O. BOX 599-000  
MIAMI, FL 33159  
biotecno@impsat.net.ec

OR

SONNENHOLZNER, JORGE I.  
CARRERA INTERNACIONAL CIA. LTDA. CDLA.  
IETEL MZ, VII VILLA IX  
P.O. BOX 09-02-142A  
GUA YAQUIL, ECUADOR  
p- (593) 4 642-314-315 or (593) 4 388 009; f- (593) 4 642-315;  
biotecno@impsat.net.ec

SOUTH, G. ROBIN  
UNIVERSITY OF THE SOUTH PACIFIC  
INSTITUTE OF MARINE RESOURCES  
P.O. BOX 1168  
SUVA, FIJI

SPENCER, LARRY T.  
PLYMOUTH STATE COLLEGE  
DEPT NATURAL SCIENCE  
BOYD HALL  
PLYMOUTH, NH 03264  
p- 603-535-2322; f- 603-535-2723; lts@plymouth.edu

SPONER, RENATE  
UNIVERSITY OF OTAGO  
DEPT MARINE SCIENCE  
PO BOX 56, DUNEDIN, NEW ZEALAND  
p- +643 479 8306; f- +643 479 8336  
renate.sponer@stonebow.otago.ac.nz

SPRINKLE, JAMES  
UNIVERSITY OF TEXAS  
DEPT GEOLOGICAL SCIENCES  
AUSTIN, TX 78712  
p- 512-471-4264; f- 512-471-9425  
echino@mail.utexas.edu

STANCYK, STEPHEN E.  
UNIV SOUTH CAROLINA  
MARINE SCIENCE PROGRAM  
COLUMBIA, SC 29208  
p- 803-777-3944; f- 803-777-3935; stancyk@sc.edu

STENKIL, MARGARETA  
NATURAL HISTORY MUSEUM  
BOX 406  
MALMO S20124, SWEDEN  
p- 46-4-0344414; f- 46-4-0344364

STEWART, BRIAN G.  
UNIVERSITY OF OTAGO  
DEPT MARINE SCIENCE  
P.O. BOX 56  
DUNEDIN, NEW ZEALAND  
p- 64-3-479-7463; f- 64-3-479-8336  
brian.stewart@stonebow.otago.ac.nz

STICKLE JR., WILLIAM B.  
LOUISIANA STATE UNIVERSITY  
ZOOLOGY & PHYSIOLOGY DEPT.  
BATON ROUGE, LA 70803  
p- 504-388-1739; f- 504-388-1763; zostic@lsuvm.sncc.lsu.edu

STOKES, ROBERT B.  
KINGSTON UNIVERSITY  
SCHOOL OF GEOLOGICAL SCIENCES  
KINGSTON UPON THAMES  
SURREY, KT1 2EE ENGLAND, U.K.

STORC, RICHARD  
SMETANOVA 380  
MNICHovice 251 64, CZECH REPUBLIC  
store@prfdec.natur.cuni.cz

STRATHMANN, RICHARD R.  
UNIVERSITY OF WASHINGTON  
FRIDAY HARBOR LABORATORIES  
620 UNIVERSITY ROAD  
FRIDAY HARBOR, WA 98250  
p- 360-378-2165; f- 206-543-1273; strath@fhl.washington.edu

STUBBS, T.  
UNIVERSITY OF ST. ANDREWS  
GATTY MARINE LAB  
FIFE, KY16 8L3 SCOTLAND, U.K.

STUMP, RICHARD J.  
2/5 CLEVELAND TCE  
TOWNSVILLE, QLD 4810, AUSTRALIA  
p- 077-216272; f- 077-216272; rstump@enternet.com.au

SULLIVAN, KATHLEEN M.  
UNIVERSITY MIAMI  
MARINE CONSERVATION SCIENCE  
DEPT BIOLOGY  
BOX 249118  
CORAL GABLES, FL 33124

SUMIDA, PAULO Y.G.  
UNIVERSITY OF SOUTHAMPTON  
DEPT OCEANOGRAPHY  
SOUTHAMPTON, SO17 1BJ ENGLAND, U.K.  
p- (01703) 592490; f- (01703) 593059; ps3@soton.ac.uk

SUMRALL, COLIN D.  
UNIVERSITY OF TEXAS  
DEPT GEOLOGICAL SCIENCE  
AUSTIN, TX 78712

SUTER, SHERMAN J.  
SMITHSONIAN INSTITUTION  
NAT MUSEUM OF NATURAL HISTORY  
ROOM E121  
WASHINGTON, DC 20560  
p- 202-633-9322; suters@nmnh.si.edu

TABLADO, ALEJANDRO  
MUS. ARGENTINA CS. NATURALES  
"BERNARDINO RIVADAVIA"  
AVDA. ANGEL GALLARDO 470  
1405 BUENOS AIRES, ARGENTINA  
p- (54-1) 982-1154; f- (54-1) 982-5243; aletab@muanbe.gov.ar

TAHERA, QASEEM  
UNIVERSITY OF KARACHI  
MARINE REFERENCE COLLECTION  
& RESOURCE CENTRE  
KARACHI-75270, PAKISTAN  
p- 4961365

TAJIKA, KEN-ICHI  
NIHON UNIVERSITY  
SCHOOL OF MEDICINE, OYAGUCHI  
DEPT BIOLOGY  
ITABASHI, TOKYO 173, JAPAN

TAKAHASHI, KEIICHI  
INTERNATIONAL CHRISTIAN UNIVERSITY  
DEPT BIOL  
10-2, OSAWA 3-CHOME  
MITAKA-SHI, TOKYO 181, JAPAN  
p- (81) 422-33-3349; f- (81) 422-33-1449  
keiichi@icu.ac.jp

TAKI, JYO  
HOKKAIDO ABASHIRI FISHERIES  
EXPERIMENTAL STATION  
ABASHIRI, HOKKAIDO 099-31, JAPAN

TALBOT, TIFFANY D.  
UNIV SOUTH FLORIDA  
DEPT BIOLOGY  
4202 E FOWLER AVE  
TAMPA, FL 33620-5150  
p- 813-974-2878; ttalbot@chuma.cas.usf.edu

TAVARES, YARA A. G.  
CENTRO DE ESTUDOS DO MAR  
UNIVERSIDADE FEDERAL DO PARANA  
AV BEIRA MAR S/No. PONTAL DO SUL  
PARANAGUA, PARANA, 83255-000 BRAZIL  
p- (041) 4551333; f- (041) 4551105;  
ytavares@aica.cem.ufpr.br

TEGNER, MIA  
SCRIPPS INST OF OCEANOGRAPHY  
DEPT ZOOLOGY  
PKO A001  
LA JOLLA, CA 92093

TELFORD, MALCOLM  
UNIVERSITY OF TORONTO  
DEPT ZOOLOGY  
TORONTO, ONTARIO, M5S 1A1 CANADA  
p- 416-978-4843; f- 416-978-8532; telford@zoo.toronto.edu

TERRY, RICHARD E.  
UNIVERSITY OF CINCINNATI  
DEPT GEOLOGY  
CINCINNATI, OH 45221

THANDAR, AHMED S.  
UNIVERSITY OF DURBAN WESTVILLE  
DEPT ZOOLOGY  
P/BAG X54001  
DURBAN, 4000 SOUTH AFRICA  
p- 27(31) 2044120; f- 27(31) 2044790;  
thandar@pixie.udw.ac.za

THIERRY, JACQUES  
UNIVERSITE DE BOURGOGNE  
CENTRE DES SCIENCES DE LA TERRE  
6 BD GABRIEL  
DIJON, 21000 FRANCE  
p- 33-3-80-39-63-62; f- 33-3-80-39-63-87  
jthierry@satie.u-bourgogne.fr

THOMASSIN, BERNARD  
CENT.D'OCEANOGRAPHIE MARSEILLE  
STATION MARINE D'ENDOUME  
H TRAVERSE LA BATTERIE LIONS  
13007 MARSEILLE, FRANCE

THORNDYKE, MICHAEL C.  
DIRECTOR OF RESEARCH  
ROYAL HOLLOWAY, UNIVERSITY OF LONDON  
SCHOOL OF BIOLOGICAL SCIENCES  
EGHAM, SURREY, TW20 0EX ENGLAND, U.K.  
p- (++44) (0) 1784-443766; f- (++44) (0) 1784-470756  
m.thorndyke@rhnbc.ac.uk

THORSEN, MARIANNE S.  
UNIVERSITY OF COPENHAGEN  
MARINE BIOLOGICAL LABORATORY  
STRANDPROMENADEN 5  
DK-3000 HELSINGOR, DENMARK  
p- +45 49 213344; f- +45 49 261165  
marilab@vm.uni-c.dk

TIAGO, CLAUDIO  
CEBIMar-USP  
UNIVERSIDADE DE SAO PAULO  
C.P. 83  
SAO SEBASTIAO-SP, 11600-970 BRAZIL  
p- +55 12 462-6455; f- +55 12 462-6646  
clgtiago@usp.br

TIEFENTHALER, LIESL  
SOUTHERN CALIFORNIA COASTAL  
WATER RESEARCH PROJECT  
7171 FENWICK LANE  
WESTMINSTER, CA 92683-5218  
lieslt@scwrp.org

TOMINAGA, HIDEYUKI  
FUKUI PREFECTURAL FUKUI COMMERCIAL  
HIGH SCHOOL  
4-8-19 KENTOKU  
FUKUI CITY, FUKUI PREF, 910 JAPAN  
p- (+81) 776-24-5180; f- (+81) 776-24-5181  
kashipan@po.infosphere.or.jp

TOMMASI, LUIZ ROBERTO  
CIDADE UNIVERSITARIA, BUTANTA  
INSTITUTO OCEANOGRAFICO DA USP  
CAIXA POSTAL NO 9075  
SAO PAULO, S.P., 05508-900 BRAZIL  
tommasi@mandic.com.br

TRONCOSO, JUAN F.  
MUSEO HISTORIA NATURAL  
CASILLA 1054  
CONCEPCION, CHILE  
p- 310932-227311; f- 41-225796; jmtronco@fundch.cl

TURNER, RICHARD L.  
FLORIDA INST. OF TECHNOLOGY  
DEPT BIOLOGICAL SCIENCES  
150 W. UNIVERSITY BLVD.  
MELBOURNE, FL 32901-6975  
p- 407-768-8000 ext.8196; f- 407-984-8461; rturner@fit.edu

TUTERA, PETER  
87 GRAHAM ROAD  
ROSANNA EAST, 3084 AUSTRALIA  
p- (03) 457-3448; f- (03) 480-5740

TYLER, PAUL A.  
SOUTHAMPTON OCEANOGRAPHY CENTRE  
DEPT OCEANOGRAPHY  
EUROPEAN WAY  
SOUTHAMPTON, SO14 3ZH ENGLAND, U.K.  
p- 1703-592557; f- 1703-593059; pat8@soc.soton.ac.uk

UBAGHS, GEORGES J.C.  
AVENUE BOIS LE COMTE 28  
4140 SPRIMONT, BELGIUM  
p- 04.368.64.40

UEHARA, TSUYOSHI  
UNIVERSITY OF THE RYUKYUS  
COLLEGE OF SCIENCE, DEPT BIOLOGY  
SENBARU 1, NISHIHARA-CHO  
OKINAWA 903-01, JAPAN  
p- 98-895-8897; ueharago@sci.u.ryukyu.ac.jp

URBINA, MEDARDO BURGOS  
UNIVERSIDAD DE CONCEPCION  
INSTITUTO CENTRAL DE BIOLOGIA  
CONCEPCION, CHILE

vJUTERZENKA, KAREN  
INSTITUTE OF POLAR ECOLOGY  
WISCHHOFSTR. 1-3  
GEB 12  
KIEL, D-24148 GERMANY  
p- +49 431 6001268; f- +49 431 6001210;  
kvjuterzenka@ipoe.de

VADAS, ROBERT L.  
UNIVERSITY OF MAINE  
DEPT PLANT BIOLOGY & PATHOLOGY  
5722 DEERING HALL  
ORONO, ME 04469-5722  
p- 207-581-2974; f- 207-581-2969  
vadas@maine.maine.edu

VADET, ALAIN  
67 BLVD EURVIN  
BOULOGNE SUR MER, 62200 FRANCE  
p- 03 21 31 87 13

VAIL, LYLE  
LIZARD ISLAND RESEARCH STATION  
PMB 37  
CAIRNS, QUEENSLAND, 4870 AUSTRALIA  
p- 61-70-60-3977; f- 61-70-60-3977  
lizard@amsg.austmus.gov.au

VALENTINCIC, TINE  
INSTITUTE OF BIOLOGY  
ASKERCEVA 12  
LJUBLJANA 61000, YUGOSLAVIA

VALENTINE, JOHN  
UNIVERSITY SOUTH ALABAMA  
DAUPHIN ISLAND SEA LAB  
BOX 369-370  
DAUPHIN ISLAND, AL 36528  
p- 334-361-7546; f- 334-361-7540  
jvalenti@jaguar1.usouthal.edu

VAN DER HAM, RAYMOND W.J.M.  
PIET HEIN STRAAT 6  
2628 RK DELFT, THE NETHERLANDS  
p- 015-2612611

VAN HOUT, TESSA  
GROOTREESDIJK 72  
2460 KASTERLEE, BELGIUM  
p- 0032 14 85.10.73; f- 0032 14 85.10.73; tvhout@vub.ac.be

VANDENSPIEGEL, DIDIER  
UNIVERSITE DE MONS-HAINAUT  
LAB DE BIOLOGIE MARINE  
19 AVE MAISTRIAU  
7000 MONS, BELGIUM  
p- 32-65-37-34-33; f- 32-65-37-34-34; biomarum@umh.ac.be

VARAKSINA, GALINA S.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; faribm@visenet.marine.su

VASKOVSKY, V. E.  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; vvas@imb.marine.su

VASQUEZ, JULIO  
UNIVERSIDAD CATOLICA DEL NORTE  
DEPARTAMENTO DE BIOLOGIA MARINA  
CASILLA 117  
COQUIMBO, CHILE  
p- 56-51-321-263; f- 56-51-311-287  
jvasquez@socompa.cecun.ucn.cl

VEGA, JUAN TORRES  
INST CIENC DEL MAR Y LIMNOL, UNAM  
LAB DE ECOLOGIA DE EQUINODERMOS  
APDO. POST. 70-305  
MEXICO, D.F., 04510 MEXICO  
p- 525-62258-02

VELAQUE, MARC  
UNIV. DES SCIENCES DE LUMINY  
LABORATOIRE D'E.B.V.M.  
CASE 901-70 RT LEON LACHAMP  
13288 MARSEILLE CEDEX 9, FRANCE

VELARDE, RONALD G.  
CITY OF SAN DIEGO  
MARINE BIOLOGY LABORATORY  
4918 NORTH HARBOR DR  
SAN DIEGO, CA 92106  
p- 619-692-4903; f- 619-692-4902; [rgv@sddpc.sannet.gov](mailto:rgv@sddpc.sannet.gov)

VENTURA, CARLOS RENATO R.  
UNIV FEDERAL RIO DE JANEIRO  
MUSEU NACIONAL, DEPT INVERTEBRADOS  
QUINTA DA BOA VISTA, SAO CRISTOVAO  
RIO DE JANEIRO, RJ, 20940-040 BRAZIL  
p- +55-21-568-1314; f- +55-21-568-1314  
[ventura@acd.ufrj.br](mailto:ventura@acd.ufrj.br)

VICKERY, MINAKO  
UNIV OF ALABAMA AT BIRMINGHAM  
DEPT BIOLOGY, CAMPBELL HALL  
1300 UNIVERSITY BOULEVARD  
BIRMINGHAM, AL 35294-1170  
[minakos@norm.dpo.uab.edu](mailto:minakos@norm.dpo.uab.edu)

VIKTOROVSKAYA, GALINA I.  
TINRO  
PACIFIC RESEARCH FISHERY CENTER  
4 SHEVCHENKO ALLEY  
VLADIVOSTOK, 690600 RUSSIA  
p- 7-423-225-95-04; f- 7-423-225-77-83  
[root@tinro.marine.su](mailto:root@tinro.marine.su)

VILLIER, LOIC  
RESERVE NATURELLE DE TOARCEN  
DISTRICT DE THOUARS  
BP 183  
THOUARS CEDEX, 79103 FRANCE  
p- 05.49.96.14.01; f- 05.49.96.35.32

VISTISEN, BODIL K.  
UNIVERSITY OF COPENHAGEN  
MARINE BIOLOGICAL LABORATORY  
STRANDPROMENADEN 5  
DK-3000 HELSINGOR, DENMARK  
p- +45 49 213344; f- +45 49 261165

VIVIANI, CARLOS A.  
UNIVERSIDAD DE LA SERENA  
CAMPUS ENRIQUE MOLINA  
LA SERENA, CHILE

VOLBEHR, UTE  
INSTITUTO DE LA PATAGONIA  
UNIVERSIDAD DE MAGALLANES  
CASILLA 113-D  
PUNTA ARENAS, CHILE  
f- 56-61-210567; [uvolbehr@aoniken.fc.umag.cl](mailto:uvolbehr@aoniken.fc.umag.cl)

von BRAND, ELISABETH  
UNIVERSIDAD CATOLICA DEL NORTE  
DEPTO BIOLOGIA MARINA  
CASILLA 117  
COQUIMBO, CHILE  
p- (56) 51-321263; f- (56) 51-311287  
[evonbran@socompa.cecun.ucn.cl](mailto:evonbran@socompa.cecun.ucn.cl)

VOOGT, PETER A.  
UNIVERSITY OF UTRECHT  
CHEMICAL ANIMAL PHYSIOLOGY  
5 PRINCETON PLEIN  
3584 CC UTRECHT, THE NETHERLANDS

WAKELEY, CAROLYN  
MEC ANALYTICAL SYSTEMS  
2433 IMPALA DRIVE  
CARLSBAD, CA 92008

WALENKAMP, J. H.C.  
RIJKSMUSEUM VAN NAT. HISTORIE  
RAAMSTEEG 3  
LEIDEN 2311 PL, THE NETHERLANDS

WALKER, CHARLES W.  
UNIVERSITY OF NEW HAMPSHIRE  
DEPT ZOOLOGY  
DURHAM, NH 03824  
[cwwalker@christa.unh.edu](mailto:cwwalker@christa.unh.edu)

WAREN, ANDERS H.  
NATURHISTORISKA RIKSMUSEET  
SEKTIONEN FOR EVERTebrATZOOLOGI  
BOX 50007, S-104 05  
STOCKHOLM 50, SWEDEN  
p- 46-8-6664086; f- 46-8-6664125  
[anders.waren@nrm.se](mailto:anders.waren@nrm.se)

WASSON, KRISTINA  
UNIV ALABAMA, BIRMINGHAM  
BIOLOGY DEPT, UAB STATION  
1300 UNIVERISTY BLVD  
BIRMINGHAM, AL 35294-1170  
p- 205-934-8313; f- 205-975-6097  
[biof028@uabdpo.dpo.uab.edu](mailto:biof028@uabdpo.dpo.uab.edu)

WATERS, JOHNNY A.  
WEST GEORGIA COLLEGE  
DEPT GEOLOGY  
CARROLLTON, GA 30118  
[jwaters@uga.cc.uga.edu](mailto:jwaters@uga.cc.uga.edu)

WATTS, STEPHEN A.  
UNIV OF ALABAMA AT BIRMINGHAM  
DEPT BIOLOGY  
UAB STATION  
BIRMINGHAM, AL 35294-1170  
p- 205-934-8308; f- 205-975-6097  
[biof015@uabdpo.dpo.uab.edu](mailto:biof015@uabdpo.dpo.uab.edu)

WEBER, WALTER  
ZOOLOG. INSTITUTE, ANIMAL PHYSIO  
UNIVERSITY OF COLOGNE  
15 COLOGNE 41  
WEYERTAL 119, GERMANY

WEBSTER, GARY D.  
WASHINGTON STATE UNIVERSITY  
DEPT GEOLOGY & PHYSICAL SCIENCE 1228  
PULLMAN, WA 99164-2812  
p- 509-335-4369; f- 509-335-7816; [webster@wsu.edu](mailto:webster@wsu.edu)

WELSCH, ULRICH  
ANATOMISCHE ANSTALT  
UNIVERSITÄT MÜNCHEN  
PETTENKOFERSTRASSE 11  
MÜNCHEN, 80336 GERMANY  
p- +49 89 5160 4821; f- +49 089 5160 4897  
welsch@anat.med.uni.muenchen.de

WHITE, CHRIS  
NOVA UNIV OCEANOGRAPHIC CENTER  
8000 NORTH OCEAN DRIVE  
DANIA, FL 33004  
p- 954-722-1731; f- 305-947-8559  
whitec@ocean.nova.edu

WIDDISON, ROSANNE  
UNIVERSITY OF BIRMINGHAM  
DEPT EARTH SCIENCES  
EDGBASTON  
BIRMINGHAM, B15 2TT ENGLAND, UK  
p- +44 121 4592230; f- +44 121 4144942  
R.E.Widdison@bham.ac.uk

WIEDENMEYER, W.  
INSTITUT FÜR MEERESKUNDE  
ABT. FISCHEREIBIOLOGIE  
DUSTERNBROOKER WEG 20  
KIEL, D-24105 GERMANY

WILKIE, IAIN C.  
GLASGOW CALEDONIAN UNIV  
DEPT BIOLOGICAL SCIENCES  
COWCADDENS ROAD  
GLASGOW, G4 0BA SCOTLAND, U.K.  
p- 0141-331-3207; f- 0141-331-3208  
i.Wilkie@gcal.ac.uk

WILLCOX, MARK S.  
LIVERPOOL JOHN MOORES UNIV  
BIOLOGICAL & EARTH SCIENCES  
BYROM STREET  
LIVERPOOL, L3 3AF ENGLAND, U.K.  
p- 00 44 151-231-2026; f- 00 44 151-298-1014  
m.willcox@livjm.ac.uk

WILLIAMSON, JANE E.  
THE UNIVERSITY OF NEW SOUTH WALES  
SCHOOL OF BIOLOGICAL SCIENCE  
SYDNEY NSW 2052, AUSTRALIA  
p- (02) 9385 2080; f- (02) 9385 1558;  
j.williamson@unsw.edu.au

JANELLE WOOD  
FLORIDA INSTITUTE OF TECHNOLOGY  
DEPT BIOLOGICAL SCIENCES  
150 W UNIVERSITY BLVD  
MELBOURNE, FL 32901-6975  
janelle@winnie.fit.edu

WOODLEY, JEREMY D.  
DISCOVERY BAY MARINE LABORATORY  
P.O. BOX 35  
DISCOVERY BAY, JAMAICA, WEST INDIES  
woodley@mcmaster.ca

WORHEIDE, GERT  
INSTITUT UND MUSEUM  
FÜR GEOLOGIE & PALÄONTOLOGIE  
GOLDSCHMIDTSTR 3  
GOTTINGEN, D-37077 GERMANY  
p- 49-551-397945; f- 49-551-397996; gwoerhe@gwdg.de

WRAY, GREGORY A.  
SUNY AT STONY BROOK  
DEPT ECOLOGY & EVOLUTION  
STONY BROOK, NY 11794-5245  
p- 516-632-8506; f- 516-632-7626  
gwwray@life.bio.sunysb.edu

YAKOVLEV, SERGHEY N.  
INSTITUTE OF MARINE BIOLOGY  
RUSSIAN ACAD SCI  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
p- 7-423-231-09-06; f- 7-423-231-09-00  
faribm@visenet.iasnet.com

YAKOVLEV, YURI  
INSTITUTE OF MARINE BIOLOGY  
PALCHEVSKY 17  
VLADIVOSTOK, 690041 RUSSIA  
f- 4232-310-900; faribm@visenet.marine.su

YAMAGUCHI, MASASHI  
UNIVERSITY OF THE RYUKYUS  
DEPT MARINE SCIENCES  
SENBARU 1, NISHIHARA  
OKINAWA 903-01, JAPAN  
p- +81-98-895-8561 ; f- +81-98-895-2414  
coral@sci.u-ryukyu.ac.jp

YANAGISAWA, TOMIO  
OGASAWARA RESEARCH STATION  
TOKYO METROPOLITAN UNIV.  
CHICHI-JIMA, OGASAWARA  
TOKYO 100-21, JAPAN  
p- 04998-2-2981; f- 04998-2-2981

YOKOTA, YUKIO  
AICHI PREFECTURAL UNIVERSITY  
DEPT APPLIED INFO TECH, BIOL LAB  
NAGAKUTE, AICHI  
AICHI 480-1198, JAPAN  
p- +81-561-64-1111 ext 3308 or 3320; f- +81-561-64-1108

YOSHIZATO, KATSUTOSHI  
HIROSHIMA UNIVERSITY  
DEPT BIOL SCIENCE  
1-3-1, KAGAMIYAMA  
HIGASHI-HIROSHIMA, 724, JAPAN  
p- 81-824-24-7440; f- 81-824-24-1492  
kyoshiz@ne.ipc.hiroshima-u.ac.jp

YOUNG, CRAIG  
HARBOR BRANCH OCEANOGR INST  
DEPT LARVAL ECOLOGY  
5600 OLD DIXIE HIGHWAY  
FORT PIERCE, FL 34946  
p- 407-465-2400 ext 303; f- 407-488-0757; youngc@hboi.edu

YUND, PHIL  
DARLING MARINE CENTER  
193 CLARKS COVE RD  
WALPOLE, ME 04573  
p- 207-563-3146 EXT. 217; f- 207-563-3119  
philyund@maine.maine.edu

ZAGHBIB-TURKI, D.  
DEPT SCIENCES DE LA TERRE  
FACULTE DES SCIENCES DE TUNIS  
CAMPUS UNIVERSITAIRE  
TUNIS 1060, TUNISIA  
p- 216-1-512-600; f- 216-1-500-666

ZAVODNIK, DUSAN V.  
CENTER MARINE RESEARCH ROVINJ  
"RUDJER BOSKOVIC" INSTITUTE  
ROVINJ, HR-52210 CROATIA  
p- 385-52-811-544; f- 385-52-813-496

ZEIDLER, WOLFGANG  
SOUTH AUSTRALIAN MUSEUM  
NORTH TERRACE  
ADELAIDE, S.A. 5000, AUSTRALIA  
p- +618 2077491; f- +618 2077222;  
samuseum@ozemail.com.au

ZITT, JIRI  
CZECH ACADEMY OF SCIENCES  
GEOLOGICAL INSTITUTE  
ROZVOJOVA 135  
165 00 PRAGUE 6, CZECH REPUBLIC  
p- 24-31-14-21; f- 24-31-15-78; zitt@gli.cas.cz



## ☆ CURRENT RESEARCH ☆

ADAMS, NIKKI L. - effects of and defenses against ultraviolet (UV) radiation on reproduction and development of marine invertebrates; currently examining whether UV affects gametogenesis or accumulation of cellular defenses against UV radiation such as mycosporine-like amino acids and small molecule antioxidants in the gonads and gametes of the green sea urchin *Strongylocentrotus droebachiensis*; investigating how these defenses might protect embryos and larvae of echinoderms against UV radiation.

AGATSUMA, YUKI - herbivorous-algae interaction; ecological studies on population dynamics of the sea urchin *Hemicentrotus pulcherrimus*.

AHEARN, CYNTHIA - taxonomy of South African holothuroids; checklist of North American echinoderms for the American Fisheries Society with Chris Mah, Susan Hottenrott, Phil Lambert and Chuck Messing.

ALBI, YVONNE Z. - a Paleocene echinoid from the Santa Monica Mountains, Los Angeles County, California. A newly noted schizasterid.

ALI, MOHAMED SAID M. - study of some Jurassic and Cretaceous echinoids of Sinai, Egypt.

ALLEN, JOHN A. - deep-sea benthos of the Atlantic.

ALLISON, WILLIAM R. - I am a coral reef ecologist, and so am generally interested in Echinoderms. I have however, a particular interest in all facets of the life and times of *Culcita* spp. I am looking into the taxonomy and ecology of the species in Maldives, with special interest in its feeding ecology, completing research on reef survey methods and the status of Maldivian reefs.

ALVA, VICTOR - trophic ecology of benthonic suspension organisms

ANDACHT, TRACY M. - studying the mechanism of dorsoventral polarity disruption and inhibition of fertilization envelope elevation by nickel chloride in the sea urchin embryo, *Lytechinus variegatus*.

ANDERSEN, AASMUND - study of chemically induced predator responses on *Strongylocentrotus droebachiensis*.

ANDERSON, OWEN - commercial fisheries research and marine ecology; population biology of commercial species of sea urchins in New Zealand, and the collection and identification of shallow water and deep-sea echinoderms.

ANDERSON, ROLAND C. - an escape action of the asteroid *Poraniopsis inflata* in response to other sea stars.

ARAKAKI, YUJI - Taxonomy of the sea urchin, *Echinometra mathaei* and *E. oblonga*.

ARCHER, JEFFREY E. - commercial potential of Bech de Mer in New Zealand; enhancement of red rock lobster (effects of the captive environment on behaviour).

ASHA, PAYIKAT - breeding, seed-production and sea-ranching of sea cucumber *Holothuria scabra*.

AUSICH, WILLIAM I. - early radiation and phylogeny of crinoids; crinoid classification; crinoid taphonomy; Lower Mississippian crinoid macroevolution.

BALSER, ELIZABETH J. - mechanisms of asexual reproduction in echinoderm larvae.

BANGI, HELEN GRACE P. - culture and management of the sea urchin *Tripneustes gratilla*.

BARTSCH, ILSE - epi- and endozoa of ophiuroids.

BASCH, LARRY V. - environmental effects on sea urchin (*Strongylocentrotus*) reproduction and development; influences of larval abundance and condition on settlement and recruitment of sea urchins; echinoderm larval nutrition; polar echinoid growth and secondary production; kelp forest ecology.

BAUER, JOHN C. - echinoid disease studies under laboratory conditions - using the bathyal sea urchin *Palaeopneustes cristatus*. The suspected pathogen is a prokaryote. The specimens were collected by submersible from the Harbor Branch Oceanographic Institution.

BAUMILLER, TOMASZ K. - ecology and functional morphology of recent isocrinids; taphonomy of arms and stalks of articulates and advanced cladids vs. other Paleozoic taxa; diversity of Permian and Triassic crinoids and effects of the P/T extinction; patterns of turnover and extinction of Paleozoic crinoids; ecology of Seirocrinus; borings in Paleozoic pelmatozoans.

BAZHIN, ALEXANDER - monitoring the condition of sea urchin populations (*Strongylocentrotus droebachiensis*, *S. polyacanthus*) along the Kamchatka peninsula shore.

BEAVER, HAROLD H. - structure and function of blastoid summit plates.

BECKER, JOHANN - marine invertebrates of Brazilian oceanic islands, including especially echinoderms.

BEDDINGFIELD, STEVE D. - interrelationships between different species within discrete communities; environmental influences on the population dynamics and life history characteristics of organisms; ecology of flora and fauna of marine benthic ecosystems; reproductive and nutritional biology of marine invertebrates.

BEGBIE, KIRSTEN M. - studies on the hyponeural nervous system of the brittlestar, *Ophiura ophiura*.

BELL, BRUCE M. - Edrioasteroids.

BENEJAM DE, CARLA - occurrence of brooding *Amphiodia* sp. in Monterey Bay (California)

BENTLEY, ANDREW C. - biology of the sand dollar, *Echinodiscus bisperforatus* along the southeastern coast of South Africa, encompassing growth, reproduction, genetics, larval biology etc.

BERENTS, PENELOPE B. - collection manager of marine invertebrates at th. Australian Museum.

BERGEN, MARY - The Southern Bight Pilot Project - a survey of soft bottom benthic communities between 10 & 200 m between Point Conception, California and the Mexican border.

BERTRAM, DOUGLAS F. - evolution and ecology of modes of development in echinoids

BIERMANN, CHRISTIANE H. - Population genetic structure in the circumantarctic sea urchin genus *Sterechinus*; Reproductive isolation and population genetics in the *Strongylocentrotidae* (Echinoidea); Camarodont phylogeny.

BILLETT, DAVID S.M. - environmental impact on the deep sea; taxonomy of the genus *Mesothuria* (Holothuroidea).

BIRENHEIDE, RUDIGER - morphology, physiology and biomechanics of crinoids.

BIRKELAND, CHARLES E. - coral reef management.

BIRYUKOVA, INGA V. - chemoreception; chemosensory systems and its morphogenesis in the marine invertebrates.

BLAKE, DANIEL B. - Cretaceous asteroids of Texas; Ordovician stelleroids; stelleroids of Seymour Island.

BLUHM, BODIL A. - age determination.

BLUHM, HARTMUT - Holothuroidea as possible indicators for physical disturbance impacts in the deep sea.

BOCKELIE, JOHAN F. - Rhombiferan cystoids, Scandanavia.

BONASORO, FRANCESCO - regeneration of crinoids.

BORZONE, CARLOS A. - Matinhos sandy beach replenishment and its impact on the benthic macrofaunal nearshore community; echinoderms of Parana's coastal waters, Brazil.

BOSCH, ISIDRO M. - UV-B effects on embryos and larvae of Antarctic echinoderms during springtime ozone depletion.

BOUDOURESQUE, CHARLES F. - effect of the invasive introduced alga *Caulerpa taxifolia* on *Paracentrotus lividus*: population dynamics and diet; long term changes of *Paracentrotus lividus* (sea urchin) populations in a protected area and a non-protected area.

BOURGOIN, ALLAIN - studying the possibility of commercializing the green sea urchin *Strongylocentrotus drobachiensis* on the northeastern coast of New Brunswick.

BREGMAN, YURIY E. - Bioproductional properties (size-age structure, longevity, growth, recruitment, elimination) of local populations of echinoderms and molluscs inhabiting far-eastern coastal waters of Russia.

**BRETON, GERARD** - regional fauna of fossil asteroids (Cretaceous, France); asteroid phylogeny.

**BREY, THOMAS** - polar echinoderm population dynamics; Antarctic ophiuroid growth; Antarctic asteroid food; Antarctic holothuroid metabolism.

**BROWER, JAMES C.** - taxonomy, functional morphology, paleoecology, ontogeny and phylogeny of Ordovician crinoids and blastozoans from the northern midcontinent of North America.

**BUITRON-SANCHEZ, BLANCA E.** - Cenozoic echinoderms (Stelleroidea and echinoidea) from Baja California, Mexico.

**BURCH, BEATRICE L.** - working on forams in gut of *Chaetodiadema pallidum* and in the surrounding sediments.

**BURNS, CASEY** - three possible new species of echinoids from the Eocene of Oregon at the Burke Museum in Seattle.

**BUSSARAWIT, SOMCHAI** - taxonomic study of echinoderms from the Andaman Sea, west coast of Thailand.

**BYRNE, MARIA** - life history evolution, echinoderm reproduction and development, ophiuroid functional morphology, echinoderm fisheries.

**CALTAGIRONE, ANGELA** - sea urchin aquaculture.

**CAMERON, R. ANDREW** - A promoter trap strategy for finding embryonic gene regulatory regions in the sea urchin genome; The spatial expression of known patterning genes in sea urchin larval development; A microsatellite analysis of homozygosity in an inbred line of sea urchins.

**CAMPBELL, ALAN** - sea urchin population dynamics ecology and fisheries.

**CAMPBELL, ANDREW C.** - zoogeography of Indian Ocean echinoderms.

**CAMPBELL, DAVID B.** - feeding behavior of *Asterias*.

**CANDIA-CARNEVAL, M. DANIELA** - crinoid arm regeneration; structure, physiology and biomechanics of complex musculo-skeletal systems (echinoid lantern, ophiuroid masticatory apparatus).

**CHAO, SHYH-MIN** - population dynamics of the shallow-water holothurians of Taiwan; systematics of the echinoderms from Taiwan.

**CHEN, CHANG-PO** - ontogenesis of skeletal plate patterns, gonad, and gonapores in the progenerative *Sinaechinocyamus mai*.

**CHICCA, ANGIE** - volunteer collector for Birch Aquarium at Scripps Institution of Oceanography

**CLARK, ROGER N.** - seastars of the Aleutian Islands, Alaska (North Pacific) of the families Pterasteridae, Solasteridae, Myxasteridae, Goniasteridae.

CLOUSE, RONALD M. - taxonomy and behavior of *Bohadschia marmorata* and *B. bivittata* (Holothuroidea) from Micronesia.

COLON-JONES, D. ELIZABETH - rearing *Diadema* larvae; rearing coral larvae; studying the sediment regime on Biscayne National Park reefs; examining calcification rates of corals.

CONAND, CHANTAL - Beche-de-Mer Bulletin 10 (No. 9 -1997); holothurian fisheries (Indian Ocean, Madagascar); asexual reproduction in sea cucumbers; population biology of the sea urchin *Colobocentrotus atratus*; biodiversity of reef echinoderms (La Reunion).

CREASER, EDWIN P. - management of green sea urchin resources of State of Maine.

CRUMP, ROBIN G. - asteroid development and ecology.

CUNHA DE JESUS, DORA MARIA - ecologic and biogeographic considerations on the Portuguese echinoderm fauna.

CUTRESS, BERTHA M. - deep sea Holothuroidea (Echinodermata) of Puerto Rico.

DAFNI, JACOB - echinoid growth.

DALBY, JR., JAMES E. - growth of arctic ophiuroids.

DAVOULT, DOMINIQUE - studies on ecology and functioning (fluxes of carbon and nitrogen at the water-sediment interface) of coastal benthic communities in the English Channel and the North Sea, with special reference to a dominant species, the ophiuroid *Ophiothrix fragilis* (Abildgaard); studies of interactions between physics (hydrodynamism) and biology (behaviour) for nutrition (suspension-feeding) and recruitment (settlement of larvae on adults).

DAYTON, PAUL K. - benthic ecology.

DE RIDDER, CHANTAL J.M. - symbioses in echinoids; food and feeding mechanisms in echinoids; taxonomy and biogeography of Antarctic echinoids.

DE WIT, WALTER M.J. - fossil echinoderms in fluvial and ice-age deposits of Holland.

DEAN, JULIETTE - Ordovician divergence of asteroids and ophiuroids.

DEARBORN, JOHN H. - functional morphology of ophiuroid tube feet; identification of Gulf of Maine and Antarctic ophiuroids and crinoids from collections on hand.

DEBENHAM, PATTY - population genetics of the red sea urchin *Strongylocentrotus franciscanus*.

DEVIN, MICHAEL G. - benthic species diversity of the Bahamian slope (depth 300 m to 900 m) - the fauna is dominated by echinoderms, particularly echinoids.

DIEHL, WALTER J. - effects of environmental stress on multilocus heterozygosity-growth relationships in invertebrates.

DOBSON, WILLIAM E. - population biology of *Ophiura sarsi* on continental slope off North Carolina; use of skeletal growth bands in ophiuroid ossicles as biological markers for sublethal predation and population ecology experiments.

DOLMATOV, IGOR Y. - mechanisms of regeneration, their formation and changes in individual development of marine invertebrates.

DOMINGUEZ, PATRICIO - working on early echinoderms, especially Cambrian and Ordovician Pelmatozoans and Carroids from Spain.

DONOVAN, STEPHEN K. - Tertiary crinoids of Barbados and Carriacou; Miocene echinoids of Grand Cayman; the fossil record of asteroids in the Antillean region; graduate students currently documenting echinoid faunas from the Eocene (Jamaica) and Pleistocene (Jamaica and Barbados) of the Caribbean.

DRUMMOND, ANNE E. - intra and interspecific agnostic behaviour in echinoids; wave action and consequences for *E. mathaei*, *S. variolaris*, *D. savignyi*.

EBLE, GUNTHER J. - evolutionary dynamics in disasteroids, holasteroids and spatangoids; post-metamorphic spatangoid development; phylogeny of disasteroids, early holasteroids and early spatangoids.

EEKELERS, DIRK - biodiversity and distribution of asteroids on the coral reefs of Kenya.

ELISEIKINA, MARINA G. - mechanisms of regeneration, their formation and changes in individual development of marine invertebrates.

ELLERS, OLAF W. - growth of sand dollar teeth; catch collagen.

EMLET, RICHARD B. - functional morphology of echinoderm larval evolution of echinoid life histories and development.

ETNIER, SHELLEY - comatulid crinoids.

ETTENSohn, FRANK R. - Systematics, paleoecology and functional morphology of the pelagic crinoid *Saccocoma*; Paleocology of a Late Ordovician crinoid garden community; Paleocology of a Late Ordovician edrioasteroid firmground.

EVDOKIMOV, VLADIMIR V. - research of reproductive process of sea urchins; reproduction and development of marine invertebrates; influence of monochromatic light on the sea urchins reproductive process.

FARMANFARMAIAN, A. VERDI - growth hormone and nitrogen retention.

FAY, ROBERT O. - Ovachita Belt bibliography.

FEDER, HOWARD M. - the deep benthic environment in Port Valdez, Prince William Sound, Alaska; the feeding biology of the sea star *Pycnopodia helianthoides* in Prince William Sound, Alaska; the deep benthos in Prince William sound 16 months after the Exxon Valdez oil spill; the macrofauna (infauna and epifauna--which includes large numbers of sea-star species) in the southeastern Chukchi Sea.

**FERAL, JEAN-PIERRE** - structure of habitat and dispersal strategies; effects of developmental modes on genetic structure and evolutionary processes (mainly in echinoids - annelids and molluscs also used).

**FERGUSON, JOHN C.** - madreporite functions and water volume relationships in echinoderms - currently on echinoids and holothuroids.

**FERNANDEZ, CATHERINE** - growth, nutrition and biochemical composition of sea urchin *Paracentrotus lividus* in rearing fed with different types of artificial food.

**FLAMMANG, PATRICK** - adhesive systems of echinoderm podia; ultrastructure, biochemistry of the adhesive and deadhesive substance, and adhesive force measurements.

**FOLLOSCO, MINDA P.** - artificial culture of economically important sea cucumber.

**FORET, TIMOTHY W.** - regeneration rates of *Luidia* in the field and the energetics of regenerative development; have begun thesis examining the prevalence of subcuticular bacteria in Gulf Coast (Florida) asteroids.

**FOSTER, MERRILL W.** - Ordovician echinoderms from western Virginia; Atlantic Ocean brachiopods; Antarctic and subAntarctic brachiopods; paleobiology of Pennsylvanian invertebrates in Illinois.

**FOX, DAVID J.** - analysis of articulation in the arms of *Ophiocoma echinata* and *Ophiocoma wendtii*.

**FRANKEL, EDGAR** - coral reef lagoon sedimentation; coastal lakes, N.S.W.; volcanic ash - Mediterranean Sea; tectonics - eastern Mediterranean sea (ODP160).

**FREEMAN, STEVEN M.** - impact and population dynamics of seastar predation on sublittoral communities. In particular, *Astropecten irregularis* on soft-bottom communities and *Asterias rubens* on commercial mussel beds, off the coast of Anglesea, North Wales; the relationship between the sea star *Astropecten irregularis* and its commensal polyniid *Acholoe astercola*.

**FUJITA, TOSHIHIKO** - biology of *Coscinasterias acutispina*; ecology of Recent and fossil *Ophiura sarsii*; taxonomy of Japanese ophiuroids and asteroids.

**FUKUYAMA, ALLAN K.** - looking at recovery of intertidal invertebrates in Prince William Sound, Alaska following the 1989 Exxon Valdez oil spill and am particularly interested in molluscan and echinoderm assemblages and the contrast in recovery patterns between areas that were treated with hot-water, high pressure treatment with areas that were oiled and untreated.

**GAGE, JOHN D.** - deep-sea biology: shelf-edge benthic fluxes, and sediment community dynamics; deep-sea brittle star growth, spatial distribution and demographic modelling.

**GAGNON, JEAN-MARC** - bioturbation by and foraging behaviour of deepwater echinoderms: observations in mesocosms.

**GALLEMI, JAUME** - Cretaceous echinoids (Tethyan - worldwide); systematics, biostratigraphy and palaeoecology.

**GARRISON, ROB** - sea urchin aquaculture.

GEBRUK, ANDREY V. - deep-sea holothurians (order Elasipodida and, in part, Fam. Synallactidae)

GENTIL, FRANCK A. - population dynamics of ophiuroid species in soft-bottom community of the English Channel.

GEORGE, SOPHIE B. - maternal effects on larval growth and development of echinoderms; morphological and behavioral responses of echinoderm larvae to salinity gradients.

GIBSON, MICHAEL A. - continuing work on biotic interactions of Lower Devonian of West Tennessee; also studying traces of echinoids from the Coon Creek Formation (Cretaceous) and the tiering relationships present within the ichnofauna.

GIL CID, DOLORES - Cambrian and Ordovician echinoderms and trilobites from Spain; palaeological aspects, morphology and function.

GINANOVA, TALIA T. - mechanisms of muscle regeneration.

GIUDICE, GIOVANNI - regulation of heat shock protein (hsp) synthesis in sea urchin embryos; apoptosis in sea urchin development; regulation of ribosomal RNA synthesis in sea urchin development.

GLUCHOWSKI, EDWARD L. - Fammenian crinoids from the Holy Cross Mts, South Poland.

GOGGIN, LOUISE C. - biological control of the northern Pacific seastar; *Asterias amurensis* in Australian waters.

GOLDBERG, ARTHUR S. - investigating antiarthritic properties of echinoderms.

GONGADZE, GURAM - Late Cretaceous and Paleogene echinoids of the Caucasus (classification, paleobiogeography, stratigraphy).

GOODING, RICHARD U. - Animals associated with Caribbean diadematids; animals associated with diadematid echinoids, worldwide.

GRABOWSKY-KAAIA, GAIL L. - Albatross recolonization project via the Audubon Society and HI Dept. of Fish and Wildlife.

GREENSTEIN, BENJAMIN J. - taphonomy of crown-of-thorns starfish; comparative taphonomy of caribbean reefs; mode of formation of Pliocene shell beds.

GROSJEAN, PHILIPPE - biology of the European violet sea urchin *Paracentrotus lividus* under intensive land-based aquaculture.

GROVES, CATHY - *Heliaster* biogeography and systematics.

GUENSBURG, THOMAS E. - edrioasteroids, early crinoids, paleoecology of echinoderms.

GUERRAZZI, MARIA C. - natural history and the feeding behavior of the starfish *Echinaster brasiliensis*.



**GUILLOU, MONIQUE** - Reproduction/Recruitment: responses of sea-urchin population to environmental changes; Biodiversity: seaweed-urchin interaction.

**GURREA, ISIDRE** - echinoids from the Cretaceous and Cenozoic age, Mediterranean region (specifically Western Europe).

**GUTT, JULIAN** - polar benthos ecology.

**HADEL, VALERIA FLORA** - respiratory metabolism of *Chiridota rotifera* (small holothuroid found in beaches of coarse sand).

**HAGEN, NILS T.** - sea urchin outbreak dynamics: ecological interactions in a macroparasite/sea urchin/kelp forest system. Echiniculture/closed cycle cultivation of sea urchins: broodstock management, photoperiodic control of gametogenesis, growth, feeding, design of cultivation equipment.

**HAMZA HASSAN, MOHAMED** - ecology and biology of echinoderms from Gulf of Suez - Red Sea.

**HAUDE, REIMUND** - stratigraphy and constructional morphology of scyphocrinoids; Devonian and Carboniferous holothuroids; Lower Devonian echinoderms of Argentina.

**HAVARDSSON, BJORGOLFUR** - the effect of caroteins in feed and environmental temperature on the gonad color and gonad development of the sea urchin *Strongylocentrotus drobachiensis* (Mueller, 1776). The purpose of the experiment is to develop feed suitable for controlling the quality of the urchin gonad in echinoculture.

**HEINZELLER, THOMAS E.** - comparative, mainly neuroanatomical, morphology (TEM, histochem.) of crinoids with special attention to milleri-, bourgeti- and cyrtocrinids; entoparasitic myzostomids of crinoids, mutual effects on host and parasite on an ultrastructural basis.

**HENDLER, GORDON** - behavior and functional morphology of deep-sea ophiuroids; taxonomy of Okinawan ophiuroids (with S. Irimura); systematics and natural history of eastern Pacific ophiuroids.

**HERDENDORF, CHARLES E.** - invertebrate fauna associated with deep-sea (>2000 m) shipwrecks; invertebrate fauna of New Zealand (North Island) estuaries and tidal flats; brisingid fauna of North Atlantic Ocean; echinoid (esp. sand dollars) invasion of New Zealand estuaries following diversion of freshwater inflow.

**HESS, HANS** - New starfish from the Middle Jurassic (Bajocian) of northern Switzerland; Crinoid ossicles from the Lower Jurassic (Pliensbachian) of Arzo, Switzerland; Remains of Saccocomids from the Upper Jurassic of Germany (Sieverts-Doreck collection, on loan from Stuttgart Museum).

**HICKMAN, JR., CLEVELAND P.** - preparation of a field guide to the echinoderms of the Galapagos Islands.

**HIGHSMITH, RAYMOND C.** - intertidal studies in Cook Inlet, Alaska.

**HILL, ROBERT B.** - mechanical properties of holothurian muscle and body wall.

**HOBERG, MAX K.** - investigating the diet of the sea star *Pycnopodia helianthoides* from eelgrass

habitats in Prince William Sound following the Exxon Valdez oil spill.

HODGSON, ALAN N. - spermatozoan morphology of *Patiriella*.

HOFFMAN, JENNIFER - the effects of ultraviolet radiation on marine invertebrate embryos and larvae, with a focus on echinoids.

HOLTERHOFF, PETER F. - Late Paleozoic crinoid paleoecology and systematics; P-Tr extinction and eradication of the Crinoidea.

HOOPER, ROBERT G. - aquaculture of *Strongylocentrotus drobachiensis*.

HOROWITZ, ALAN STANLEY - bibliography of the fossil Blastoidea and database of blastoid taxa (with J. Waters).

HOSHI, MOTONORI - molecular mechanism of sperm-egg interactions in starfish and sea urchins; structure and function of glycosphingolipids in starfish and sea urchins; 1-methyladenine signal transduction in starfish oocytes.

HOTCHKISS, FREDERICK H.C. - echinoderm pentamerism; teratology of sea stars; Paleozoic ophiuroid morphology, evolution and classification; isolated ophiuroid vertebrae and ossicles, Devonian, Bohemia (with Petr and Prokop); new Canadian finds of Ordovician stelleroids (with D.M. Rudkin); ophiuroids from Upper Windsor Group, Mississippian, Nova Scotia (with P. von Bitter).

HOTTENROTT, SUSAN I. - systematics and cladistic analysis of *Ophiomusium* and *Ophiosphalma*; preliminary notes on a troglobitic ophiuroid from the Bahamas.

ILAN, MICHA - the study of sponge chemical (and structural) defenses against echinoderm predators; echinoderms which live in association with sponges; the impact of coral reef sea urchins on corals recruitment.

IRIMURA, SEIICHI - taxonomy of Japanese Ophiuroidea; SEM observation on disk granules of Ophiuroidea; vertebra form of Ophiuroidea.

IVY, W. GRISILDA - seed production and sea ranching of sea cucumbers.

JABLONSKI, DAVID - onshore-offshore and latitudinal patterns in the origins of higher taxa, and their subsequent shifts in environmental and latitudinal distribution; studying post-Paleozoic echinoids and stalked crinoids; studying mainly molluscan but some echinoid mass extinction and recovery patterns, especially at the Cretaceous-Tertiary boundary.

JACOBSEN, NANCY A. - identification and logging of occurrences of invertebrates, vertebrates and geologic features in the Monterey Bay; working especially with asteroidea analysis (WWW images and information will be available in the near future).

JAECKLE, WILLIAM B. - nutrient distribution among tissue in planktonic larvae of echinoderms; asexual reproduction by asteroid larvae; sites and mechanisms of nutrient assimilation by larvae.

JAGT, JOHN W.M. - Latest Cretaceous-early Palaeogene echinoderms (holothurians excepted) from

type area of the Maastrichtian Stage; late Maastrichtian echinoderm- 'lagerstatte' with bourgueticrinine crinoids and ophiolpidid and ophiacanthid ophiuroids; high-diversity ophiuroid faunas of Campanian and Maastrichtian age from northeast Germany (with M. Kutscher).

JAMES, DANIEL B. - Seed production in sea cucumbers.

JAMIESON, GLEN S. - sea urchin abundance surveys; near-shore community population dynamics.

JANIES, DANIEL A. - phylogenetic analyses of the evolution of development among asteroids.

JEFFERY, CHARLOTTE H. - Maastrichtian and Palaeocene echinoids; larval strategy in recent and fossil Temnopleuroid echinoids.

JELL, PETER A. - Australian Palaeozoic echinoderms. Just completing a volume of Memoirs of the Queensland Museum which will include:- Silurian and Devonian crinoids of Victoria; Lower Devonian echinoderms (crinoids, blastoids asterozoans) of the Bokkeveld Series in South Africa; Upper Devonian crinoids of the Canning Basin, WA; latest Ordovician to Devonian carroids of Victoria (4 papers with Marcello Ruta); Carboniferous and Permian crinoids of Australia (2 papers with Gary Webster).

JOHNSEN, SONKE - absorption spectra of echinoderm visual pigments.

JUINIO-MENEZ, ANNETTE R. - culture and population genetics of marine invertebrates (sea urchin); development of mass culture techniques for *Tripneustes gratilla*.

JUNQUEIRA, ANDREA O.R. - population dynamics of echinoids.

KAMMER, THOMAS W. - web page: <http://www.geo.wvu.edu/~kammer/welcome.htm>

KASYANOV, VLADIMIR L. - cellular mechanisms of reproductive strategies of marine invertebrates.

KAWAUCHI, GISELE YUKIMI - reproduction and dispersion - apodous holothurians.

KELLY, MAEVE S. - feasibility of commercial echinoculture in Scotland (*Psammechinus miliaris*); echinoderm/subcuticular bacteria symbioses.

KERR, ALEXANDER M. - ecology, character evolution, diversification and molecular systematics of aspidochirote holothuroids.

KEUSKAMP, DOM - recruitment of the endemic New Zealand echinoid *Evechinus chloroticus* (Echinometridae). Specifically focussing on settlement variability, natural recruitment variability, and experimental manipulation of processes operating immediately post-settlement (using cultured recruits), as well as aspects of development and the chemical ecology of settlement. Especially interested in the effects of sediment on survivorship during and after and settlement, and techniques available to determine the nature of these effects. Also, the peculiarities of a marine reserve (as my major study site). Determining the relative influence these processes have on recruitment at several scales may have implications for the (small) roe fishery in New Zealand.

KLINGER, THOMAS S. - digestion in echinoids, asteroids, and holothuroids; population biology of tropical holothuroids; manufactured feeds suitable for the mariculture of echinoids.

KNOTT, K. EMILY - A comprehensive phylogeny of the Asteroidea (using molecular techniques; hopefully with representatives from every family). A study of the molecular events involved during asexual reproduction in asteroid larvae. An analysis of possible gene flow between trans-Atlantic asteroid species.

KOBAYASHI, NAOMASA - marine pollution bioassay by using sea urchins; spawning periodicity of sea urchins.

KOGO, ICHIZO - Class Crinoidea - taxonomy.

KRISHNARAJAH, PADMINI - holothuria fishery in Jaffna lagoon, northern part of Sri Lanka.

KURIHARA, TAKEO - activity rhythms of starfish; distributional patterns of starfish.

KYTE, MICHAEL A. - ophiuroid (worldwide) and asteroid (NE Pacific) taxonomy and behavior; sea cucumber ecology.

LAMBERT, PHILIP - description of two new species of *Pentamera* and a Phylloporid (Holothuroidea) from the west coast.

LANDEIRA, ANA MARIA - characterization of a Ca<sup>2+</sup>-atpase from sea cucumber muscle.

LANE, DAVID J.W. - The Echinodermata: a biological tool for the control and protection of marine benthic environments in Singapore waters.

LANE, N. GARY - completing three papers on Famennian (latest Devonian) crinoids from China, Britain, and Germany.

LAWRENCE, JOHN M. (University of South Florida) with Stephen Watts, James McClintock and Anne Boettger (University of Alabama at Birmingham)

El Nino mass mortalities of the starfish *Luidia clathrata* and the sea urchin *Lytechinus variegatus* in the eastern Gulf of Mexico, 1998. Heavy rains during the spring of 1998 have diluted the sea water resulting in mass mortality of *Luidia clathrata* in Tampa Bay, Florida. *L. clathrata* has been monitored in Tampa Bay since 1967. It has survived past decreases in salinity to 16-17 o/oo resulting from typical summer rains. In spring 1998 El Nino associated rains decreased the salinity to 14 o/oo salinity in shallow parts of the Bay to ca. 3 meters, resulting in elimination of the population. Although dead and dying individuals were seen, it is possible others may have migrated to deeper waters. *Luidia clathrata* continued to be found in the Bay at depths of 5 meters or more. High amounts of fresh water into the shallow bays near the Florida panhandle cities of Port St. Joe and Panama City killed large numbers of *Lytechinus variegatus*. Immigration has resulted in some re-population, but many of these individuals show evidence of spine loss and subsequent spine regeneration. This mass mortality of echinoderms resulting from decreased salinity is similar to that noted near Caracas, Venezuela several years ago.

LE MENN, JEAN - Paleozoic North-African crinoids (calyx and dissociated columnals); benthic communities, polynomorphes and medium to high frequencies cycles.

LEISMAN, JULIANNE - recruitment study of brittlestars in the Banana River; also, aspects of regeneration.

LESSER, MICHAEL P. - molecular biology of photoperiod regulation of gametogenesis in sea urchins; Identification and transmission of bacterial symbionts in *Amphipholis squamata*.

LESSIOS, HARILAOS A. - molecular phylogeny of *Diadema*; gene flow in sea urchins; population dynamics of *Diadema antillarum*; effects of sea urchins on coral recruitment.

LEVERONE, JAY R. - reproductive cycles of *Astropecten* and *Luidia* in lower Tampa Bay.

LEVIN, VALERY S. - shallow water Holothuroidea; systematics, biology feeding and fisheries.

LEVITAN, DONALD R. - ecological and evolutionary consequences of sperm limitation in echinoderms; echinoid grazing pressure in the Caribbean.

LIAO, YULIN - Fauna Sinica: Echinodermata: Ophiuroidea.

LITVINOVA, NINA M. - Revision of the genus *Ophiomyces* (Ophiacanthidae); new species and genus *Ophiuraster* (Ophiuridae); ophiuroids of New Caledonia.

LORDSON, JINBERT - seed production and sea ranching of sea cucumbers.

LOVELY, ERIC C. - coexistence of hydroid predators in *Tubularia larynx* colonies.

MACURDA, JR., D. BRADFORD - modern crinoids and blastoids.

MACZYNSKA, STEFANIA S. - Cretaceous and Tertiary echinoids particularly from Poland.

MAGSINO, RICHARD M. - population genetics of the blue-coral reef starfish *Linckia laevigata*. The techniques used in the analysis of its population structure in relation to gene flow levels among populations in the South China Sea are the protein allozyme electrophoresis and RFLP (restriction fragment length polymorphism) analysis of PCR-amplified products of its mtDNA.

MAH, CHRISTOPHER L. - I am currently finishing up a phylogeny and systematic revision of the *Brisingida*. I am concurrently describing a new genus and species of brisingid from Tasmanian seamounts. I am interested in eventually working a a phylogeny and systematic revision of the forcipulate clade, especially the zoroasterids. I have broad interests in asteroid phylogeny of deep-sea and Indo-Pacific taxa, especially Hawaii.

MAHARAVO, JEAN - study about proliferation of *Salmaciella erythraxis* in Ambaro Bay (Nosy-Be) Northwest coast of Madagascar.

MAIER, MARTA S. - isolation and structural elucidation of secondary polar metabolites from echinoderms of the South Atlantic Ocean.

MAKRA, ATHENA - arm regeneration in *Acrocnida brachiata* (Ophiuroidea); microdistribution of *A. brachiata* in Little Killary, west coast of Ireland bioturbation.

- MALLEFET, JEROME C.** - luminescent ophiuroids; morphological, physiological, ecological aspects.
- MANNI, RICCARDO** - systematics, morpho-functionality, ontogenesis and evolution of Jurassic non-isocrinid crinoids.
- MANNIFIELD, KAY** - Dinantian crinoids from northwest Ireland; exploring Camerate ?extinction; crinoid palaeoecology, autecology and palaeobiology; also looking at carbonate reefal environments etc.
- MARAN, ALEKSANDRA A.** - Palaeoecological research of Lower Cretaceous Echinoidea from eastern Serbia (YU); irregular echinoids, especially genus *Heteraster*, *Toxaster*, (Spatangoids) and *Holaster*, biostratigraphy, palaeoecology, taphonomy; Cretaceous echinoids from Serbia (YU); Lower Cretaceous echinoids (Urgonian) and accompanying macro and micro fauna; Lower Cretaceous foraminifers (Orbitolinids).
- MARCOS-DIEGO, CONCEPCION** - study of benthic fauna and flora from the southern of the Livingston Island (South Shetland, Antarctica).
- MARSH, LOISETTE M.** - guide to the shallow-water echinoderms of Australia.
- MARTINEZ, PRISCILLA C.** - population and reproductive biology of the sea cucumber *Isostichopus fuscus* in the Galapagos Islands.
- MASCARENHAS, BERNARDO JOSE DE A.** - pattern of distribution of asteroidea from Guanabara Bay, Rio de Janeiro, Brazil.
- MASSIN, CLAUDE** - holothurian taxonomy, Easter Island, Indonesia, Papua New Guinea.
- MATERIA-ROWLAND, CHRISTINE J.** - developing a manual on coastal and marine monitoring; biological analysis and sediment chemistry analysis of the impact of the aquaculture industry on benthic fauna.
- MATTOS-SEGOVIA, ELIO** - the assessment of bioinducers of the settlement in larvae of sea urchin *Loxechinus albus*.
- MAUBON, ROGER M.** - preparing inventories (or catalogs) of historical collections of Echinoderms in institutions like Museum of Nancy (Paul Thiery), Museum of Chambéry (Savin, Demoly) and Museum of La Rochelle; addendum (1998) to inventories (1994) of echinoderms in Grenoble, Museum of Natural History.
- McBRIDE, SUSAN C.** - 1. Density/ration study with small (25 mm) *Strongylocentrotus franciscanus* using the extruded diet most recently developed by J.M. and A.D. Lawrence. Planned duration - 6 months. 2. Growth study of small (15 mm) *S. franciscanus* using *Nereocystis luetkeana* and the extruded diet - planned duration 1-2 years. 3. Growth study with medium (40 mm) *S. franciscanus* using the extruded diet - planned duration - 1 year. 4. Growth study of *Parastichopus californicus* using 30, 40 and 50% protein meals developed by Lawrence and Lawrence and the extruded diet.
- McCLINTOCK, JAMES B.** - chemical ecology of echinoderms from the Gulf of Mexico and Antarctica

McEDWARD, LARRY R. - simulation models of larval planktotrophy in marine invertebrates; effects of endosulfan on larval development of sea urchins.

McKENZIE, J. DOUGLAS - subcuticular bacteria in echinoderms; antifouling mechanisms of echinoderms.

McLELLAND, JERRY A. - identification and ecology of the local echinoderm fauna from the Gulf of Mexico and Caribbean areas.

McNAMARA, KENNETH J. - Neogene species of the clypeasteroid *Peronella* from Western Australia; Paleocene spatangoids from the Carnarvon Basin, Western Australia; Miocene echinoids from the Carnarvon Basin, Western Australia; Eocene echinoids from the Bremer Basin, Western Australia; fauna of Australia - spatangoids, holasteroids, clypeasteroids, cassiduloids (with Rich Mooi); general echinoid morphology, physiology and biogeography.

MEDEIROS-BERGEN, DOT E. - selective constraints on brittlestar life histories.

MELJER, LAURENT - molecular mechanisms of cell cycle regulation, using starfish oocytes and sea urchin embryos as cellular models; circadian control of the cell division cycle; identification of novel anti-mitotic compounds, with potential anti-tumor activity, using mechanism-based screening assays (purified cell cycle regulating enzymes; detection of inhibitors of cell cycle regulating enzymes in extracts prepared from marine invertebrates (collaboration with Dr. G.R. Pettit, Cancer Research Institute, Arizona State University, Tempe, Arizona).

MELIKOV, OKTAI HAMZA - investigation, evolutionary, systematic and development of orders Spatangoid, Holasteroid and Holoctypoid of Azerbaijan (late Cretaceous and Eocene).

MESSING, CHARLES G. - systematics and biogeography of comatulids; growth, morphology, distribution and taphonomy of Isocrinidae.

MEYER, CHRISTIAN A. - Tertiary asteroids from the Eggenburg area (Austria); Fossilium catalogus Austriae, Part Asterozoa.

MILLER, ROBERT J. - evolution and biogeography of the Elasipoda (Holothuroidea).

MIRONOV, ALEXANDER - Taxonomy and biogeographic history of recent holasteroid echinoids.

MITROVIC-PETROV, JOVANKA R. - study of some Cretaceous and Neogene echinoids of Serbia and Monte Negro (taxonomy, paleoecology, functional morphology, taphonomy); study of some Cretaceous and Neogene echinoids of Greece (together with A. Marcopoulou-Diacantoni - Athens).

MLADENOV, PHILIP V. - biology, ecology and population genetics of asexual echinoderms; parthenogenesis in echinoderms; population and evolutionary genetics of *Amphipholis squamata*, sea cucumber fisheries of the Cook Islands; ecology and systematics of New Zealand brittle stars.

MONTAGUE, CHRISTOPHER - regeneration capabilities of sea stars in closed systems.

MOONEY, ROBERT C. - red sea urchin (*Strongylocentrotus franciscanus*) management by the Hesquiaht First Nation: implications for community structure and the successful establishment of a

commercial sea urchin fishery.

MOORE, ABIGAIL M. - trying to set up a community-based project aiming to combine consensus-based local management of marine resources with various other initiatives to improve the economic and educational status of the villagers. This may be combined with trials of reef repair system and re-seeding of some species. Also possible involvement in one or more holothurian pen-culture projects for rearing juveniles to maturity before processing them.

MORGAN, KATHERINE - lecithotrophy in starfish; the evolution of developmental patterns and life cycle evolution.

MORRILL, JOHN B. - cytoembryology of *Echinometra lucunter*.

MOTOKAWA, TATSUO - biology of stalked crinoids; catch connective tissue.

MOUCHATY, SUZETTE - molecular systematics of the Mellitidae.

MUKAI, HIROSHI - ecosystem study in tropical and boreal seagrass beds; bioturbation and restructural effects on material flow at interface of sea floor.

NAIDENKO, TAMARA K. - cryopreservation of sea urchin embryos and larvae bioassay by using sea urchin eggs and embryos.

NAKAI, SAORI - echinoids of the family Temnopleuridae.

NAKAMURA, RAYMOND K. - involved with AQUAVAN, an educational outreach program for the Vancouver Aquarium. I travel around the province of British Columbia bringing seashore life, including sea stars, sea urchins and sea cucumbers into schools to teach children about aquatic conservation.

NAKANO, EIZO - The role of extracellular matrix in development.

NEBELSICK, JAMES H. - taphonomy of reef echinoids; Lower Miocene echinoid palaeobiogeography.

NEILL, BRUCE J. - biogeography, systematics and population biology of echinometrids.

NEPOTE, ANA CLAUDIA - holothurians of Marietas islands, Nayarit, Banderas Bay, Mexico; systematics of holothurians of Banderas Bay, Mexico (central Pacific).

NESTLER, HELMUT - Maastrichtian echinoids from the chalk of Rugen (North Germany); Cretaceous echinoids from South Yemen.

NEUMANN, CHRISTIAN - phylogeny and paleoecology of Toxasterid echinoids; echinoids and gastropod predation; Cretaceous echinoids from the Betic Cordillera (Spain); functional morphology of Cretaceous echinoids.

NICHOLS, DAVID - reproductive cyclicity in the New Zealand crinoid *Oxycomanthus plectrophorum*; seasonality in resource allocation in the English Channel starfish *Luidia ciliaris*.

NICOSIA, UMBERTO - systematics and palaeology of Jurassic crinoids; evolution and stratigraphy of



non-isocrinid crinoids.

NISHIHIRA, MORITAKA - effect of heart urchins on coral community structure of the sandy bottom.

NOJIMA, SATOSHI - feeding effects of *Acanthaster planci* on recruits of corals.

O'CONNOR, BRENDAN D. - bioturbation rates of infaunal echinoderms; connection between hydrographic features and high density ophiuroid populations.

O'HARA, TIMOTHY D. - echinoderms of Macquarie Island (final stages); patterns of diversity for faunal assemblages on subtidal reefs off central Victoria (Ph.D. thesis, University of Melbourne).

OJEDA, F. PATRICIO - ontogenetic changes in the diet of *Loxechinus albus*: an ecophysiological approach. Ecology of intertidal rockpools: role of sea urchins and fishes in determining community patterns.

OJI, TATSUO - paleontology and biology of stalked crinoids; especially regeneration of crown and arms, and evolutionary history of isocrinines.

OLSZEWSKA-NEJBE, DANUTA - studying the irregular echinoids in the North European Province; stratigraphy and paleobiogeography.

OLVER, JANE - Mesozoic irregular echinoids; extant British species.

PABIAN, ROGER K. - Late Pennsylvanian-Early Permian crinoids, associated faunas, epibionts, paleoecology, and biostratigraphy.

PAGETT, RICHARD M. - Caspian Sea: literature review.

PARDO, ROBERTO A. - ecology and population dynamics of echinoderms (particularly echinoids and ophiuroids) - currently, population dynamics of sand dollars.

PARMA, SARA GRACIELA - Tertiary echinoids from Patagonia and La Pampa Province, Argentina.

PAULS, SHEILA MARQUES - distribution of the echinoids in coral communities.

PEARCE, CHRISTOPHER M. - marine invertebrate settlement, metamorphosis, recruitment.

PENCHASZADEH, PABLO E. - Ecology of sand dollars (*Mellita* spp.); trophic ecology of asteroids.

PENNINGTON, J. TIMOTHY - primary production in the central California upwelling zone; brachiopod larvae of the Monterey Bay Submarine Canyon.

PEREZ-RUZAFI, ANGEL - wetlands and coastal lagoons of Galapagos Islands (Ecuador) - basis for its protection and management; Iberic fauna; study of benthic fauna and flora from the southern of Livingston Island (South Shetland, Antarctica); design of new algorithms for the primary productivity and water quality prediction in coastal zones using remote sensing techniques.

PETR, VACLAV - preparation of a photographic, comprehensive book, "Atlas of Echinoderms of the

Barrandian area". This book will be written in English and published at the end of 1998.

PHILIPPE, MICHEL - Miocene echinoids.

PIEPENBURG, DIETER - ecology of brittle stars in Arctic and Antarctic seas.

PODOLSKY, ROBERT D. - biochemistry of temperature adaptation in gametes of *Strongylocentrotus* spp.; evolution of egg accessory structures in free-spawning invertebrates.

PORTELL, ROGER W. - echinoid biostratigraphy of Florida (especially undescribed Miocene taxa); occurrence of phosphatic echinoids, brachiopods, and annelids from the Upper West Florida slope, eastern Gulf of Mexico.

PRESTEDGE, GEOFFREY K. - study of Pittwater, S.E. Tasmania, re: the regrowth of *Zostera* sp., also *Codium* sp. beds now that nutrient levels in the water have decreased with upgrading of local sewerage treatment plants, and to see if several species of echinoderms return if the above species of algae recover sufficiently.

PUTCHAKARN, SUMAITT - taxonomic study of echinoderms from the eastern coast, the Gulf of Thailand.

RAJAKUMAR, C. P. - biology and ecology of certain Indian echinoderms; investigating the bioactive substances of Indian echinoderms.

RAM MOHAN, M. K. - reproductive biology (including reproductive cycles), induced maturation and cross fertilization of echinoderms, especially holothurians.

REGIS, MARIE-BERTHE - population dynamics of regular echinoids in the Mediterranean; enzymatic study of the nutrition of *Paracentrotus lividus* (Echinodermata: Echinoidea).

REICH, MIKE - fossil holothurians, especially holothurian sclerites of the European boreal Upper Cretaceous; holothurian remains of Oligocene clays (Rupelian) of northern Germany; Jurassic and Cretaceous calcareous ring elements with comparisons to recent holothurians.

REY, DANIEL - Cretaceous and Tertiary echinoids of Spain.

ROBINSON, SHAWN M.C. - green sea urchin fishery ecology; roe enhancement of the green sea urchin; development of artificial diets for sea urchins.

ROCCATAGLIATA, ALEJANDRO J. - chemistry of physiologically active compounds isolated from starfishes and brittle stars in the South Atlantic Ocean.

RODRIGUEZ, SEBASTIAN R. - subtidal brown macroalgae forests as food sources for intertidal organisms: role in determining community patterns in the rocky intertidal environment.

ROGERS-BENNETT, LAURA - examining the impact of larval feeding history on the growth and success of newly settled red sea urchins; examining the survival of newly settled urchins exposed to micro-predators in the benthos; spatial patterns in the growth and survival of juvenile red abalone.

ROSE, EDWARD P.F. - Jurassic irregular echinoids; Cenozoic holoctypoid echinoid *Echinoneus*.

ROTMAN CLARK, HELEN E.S. - systematics of Southern Ocean asteroids and ophiuroids.

ROUX, MICHEL - Taxonomy, ontogeny, ecology of recent and fossil Articulata (Crinoidea).

ROWE, FRANK - Indo-west Pacific echinoderms and their systematics and zoogeography; Indian Ocean echinoderms with A.C. Campbell.

ROY, MICHAEL S. - molecular evolution of ophiuroids: phylogeny, phylogeography, population genetics in *Amphipholis squamata*, *Ophiactis savignyi*, *Ophiocoma scolopendrina*.  
(<http://www.dnapop.zi.ku.dk>)

SABA, MASAKI - taxonomic studies of Japanese sea-stars.

SAMYN, YVES - distribution and biodiversity of holothuroids along the Kenyan coast; feeding biology of commercial holothuroids from Kenya; reproductive biology of commercial holothuroids from Kenya; distribution and biodiversity of regular echinoids along the Kenyan coast.

SANFORD, ERIC - foraging behavior, recruitment, and growth of *Pisaster ochraceus*.

SANO, MINORU - population ecology of *Strongylocentrotus nudus*.

SASTRY, DWADASI R.K. - echinoderms of coral reefs.

SCALLY, KEVIN - tooth form function and evolution of invertebrate dental systems, especially tooth sharpening behaviour (thegosis).

SCHELTEMA, RUDOLF S. - larval dispersal - most recently in the Antarctic.

SCHOPPE, SABINE - The Echinoderms of Leyte, Philippines - a practical field guide.

SCHUETZ, ALLEN W. - development of a new model for multiparameter analyses of perturbations of gametic and embryonic processes.

SEETO, JOHNSON - taxonomy of Fiji echinoderms.

SERAFY, D. KEITH - zoogeography of Atlantic echinoids.

SEWELL, MARY - life-history and early development in echinoderms; temperature effects on larval development; holothurian reproduction and ecology; larval physiology.

SHEPHERD, SCORESBY A. - food web studies; comparison between abalone and sea urchins.

SHICK, J. MALCOLM - effects of UV on echinoid eggs and embryos; dietary accumulation of mycosporine-like amino acids by echinoids.

SHIRLEY, THOMAS C. - predator-prey and competitive interactions between sea otters, crabs and starfish in Glacier Bay, Alaska.

SIBUET, MYRIAM - deep sea ecology and deep sea echinoderms; cold deep environments; deep sea basins.

SKOLD, MATTIAS - The role of environmental factors in regulating sexual and asexual reproduction in sea stars. Genetics of sexual and asexual populations of the sea star *Coscinasterias muricata* around New Zealand. Population dynamics, growth, regeneration, feeding and predator-prey interactions in brittle stars. Structuring mechanisms in marine benthic populations; interactions between burrowing heart urchins (*Brissopsis lyrifera*) and brittle stars (*Amphiura chiajei*). Ecotoxicology and fate of contaminants in marine environments, especially infaunal brittle stars.

SLOAN, NORMAN A. - sea cucumber fisheries.

SMILEY, SCOTT - annotated catalogue of holothurians with synonymies; annual cycle of *Parastichopus californicus*, changing conditions of body wall muscles.

SMIRNOV, ALEXEI V. - deep-water holothurians from New Caledonia; Arctic and North Pacific echinoderms fauna; taxonomy of apodid holothurians.

SMIRNOV, IGOR S. - taxonomic studies of arctic and antarctic ophiuroids, creation of illustrated computer key for arctic brittle-stars and data bases on ophiuroids of Arctic and Southern Oceans.

SMITH, ANDREW B. - morphological and molecular phylogenies of echinoderms; Maastrichtian and Palaeocene echinoids.

SOLIS-MARIN, FRANCISCO A. - evolution of echinoids; taxonomy of the phylum.

SOLOVJEV, ANDREY N. - Holasteroid and spatangoid echinoids (evolution, classification, paleoecology); echinoids on the Cretaceous/Paleogene boundary.

SONNENHOLZNER, JORGE I. - systematic evaluation of the reef echinoderms at the Machalilla National Park, Manabi, Ecuador; ecology of the sand dollar *Mellita longifissa* Michelin intertidally at the Machalilla National Park, Manabi, Ecuador.

SPENCER, LARRY T. - symbiotic relationship between *Holothuria atra* and the polka-dot crab in the Hawaiian sublittoral zone.

SPONER, RENATE - molecular evolution of ophiuroids: phylogeny, phylogeography, population genetics in *Amphipholis squamata*, *Ophiactis savignyi*, *Ophiocoma scolopendrina*. (<http://www.dnapop.zi.ku.dk>)

STANCYK, STEPHEN E. - population biology, predation and regeneration of *Ophiura sarsi*; sublethal predation of echinoderms; use of markers and growth rings of ophiuroid ossicles for age/growth studies

STEWART, BRIAN G. - reproductive biology of *Astrobrachion constrictum* and *Ophiopsammus maculata* (Echinodermata: Ophiuroidea); growth rate and reproduction in *Stichopus mollis* (Echinodermata: Holothuroidea).

STICKLE JR., WILLIAM B. - investigating seasonal and latitudinal adaptations of *Leptasterias* spp. populations to temperature from the physiological perspective.

- STORC, RICHARD - ophiuroids and asteroids from the Upper Cretaceous (Cenomanian-Turonian) of the Bohemian Cretaceous Basin (Czech Republic).
- STRATHMANN, RICHARD R. - developmental plasticity of larvae; limits on the aggregation of embryos; evolution of rates of development of embryos.
- STUMP, RICHARD J. - population dynamics of *Acanthaster planci* (L.).
- SUMIDA, PAULO Y.G. - ecology and ontogeny of the post-larval development in deep-sea ophiuroids
- TABLADO, ALEJANDRO - systematics of Asteroidea from southwestern Atlantic and Antarctic Peninsula.
- TAHERA, QASEEM - an illustrated key to the echinoderms of Pakistan.
- TAKAHASHI, KEIICHI - physiology of the madreporite; physiology of echinoid spine muscle and catch apparatus; motile mechanism of echinoderm sperm flagella.
- TALBOT, TIFFANY D. - salinity tolerances and other factors of *Ophiophragmus filigraneus*.
- TAVARES, YARA A. G. - ecology, histology, morphology studies of *Mellita quinquiesperforata* in beaches of Parana's State, relation between morphodynamics and spatial distribution.
- TELFORD, MALCOLM - collagen in tooth support mechanism of clypeasteroids; podial forces in *Asterias*; computer simulation of *Dendraster* distribution.
- THANDAR, AHMED S. - Monograph of the southern African holothuroid fauna. Study of the deep sea holothuroids collected off the southern African east and west coasts.
- THIERRY, JACQUES - Jurassic (Mesozoic) echinoids - France and some western Europe countries; morphology and relation with palaeoenvironment changes (overall sea-level variation).
- THORNDYKE, MICHAEL C. - molecular and cellular aspects of neuronal development; environmental influences on development; neuronal regeneration; neuropeptides, biochemistry and physiology.
- THORSEN, MARIANNE S. - the ecophysiology of the irregular sea urchin *Echinocardium cordatum* - interactions with gut microbiota.
- TIEFENTHALER, LIESL - research on the red brittlestar *Amphiodia urtica*.
- TOMINAGA, HIDEYUKI - biology of the sand dollar and heart urchin, especially key-hole urchins: *Echinodiscus tenuissimus* and *Astrichypeus manni* in Japan, and brooding spatangoids like *Abatus*, encompassing population study, growth, development, age determination.
- TRONCOSO, JUAN F. - identifying collections of Antarctic echinoderms in the Natural History Museum of Concepcion, Chile; studying several species of echinoderms from the Pacific coast Eight Region; the conservation problems of the echinoderms of Chile and their future projection.

TUTERA, PETER - monograph of the irregular echinoids of Prydz Bay, Antarctica; new *Pachycentrotus* species.

UBAGHS, GEORGES J.C. - new echinoderms from the Upper Cambrian of the Montagne Noire (southern France).

v.JUTERZENKA, KAREN - ecology of Arctic ophiuroids and their function within the benthic food web (within the framework of AOSGE).

VADAS, ROBERT L. - ecology and reproductive biology of sea urchins along the coast of Maine. Funded by NOAA Sea Grant (1995-1997); temporal and spatial variability in reproduction and roe yield in green sea urchins. Tentatively funded by Maine Dept. Mar. Res. (1996-1997).

VADET, ALAIN - Triassic echinoids of St. Cassian; evolution of Triassic and Jurassic echinoids.

VALENTINE, JOHN - continuing investigations of sea urchin herbivory and predation on sea urchins in the Florida Keys.

VAN DER HAM, RAYMOND W.J.M. - *Hemiaster* and *Echinogalerus* of the Upper Cretaceous of NW Europe.

VAN HOUT, TESSA - distribution of *Echinothrix diadema* in Kenyan reefs.

VANDENSPIEGEL, DIDIER - the defensive mechanism of the Echinodermata: structure and functions of the Cuvierian tubules.

VEGA, JUAN TORRES - study of the echinoids and ophiuroids collected on the Campanas Oceanograficas Proibe I-II-III-IV-V.

VELARDE, RONALD G. - benthic infauna and trawl invertebrates of the Southern California Bight, taxonomy and distributional ecology (in conjunction with other monitoring agencies in southern California).

VIKTOROVSKAYA, GALINA I. - reproduction of invertebrates in artificial and natural conditions.

VILLIER, LOIC - Cretaceous and Jurassic asteroids of the Aquitaine Basin (France) dealing with taxonomy (based on isolated ossicles in a Tethyan region, weakly known), skeletal ontogeny, evolutionary trends (ontogenetic and ecological constraints, biogeographic exchanges) and relations between biodiversity and paleoenvironmental changes.

VISTISEN, BODIL K. - studying the two brittle stars *Ophiura albida* and *Amphiura filiformis* concerning their tolerance towards hypoxi with and without the presence of hydrogenesulphide.

WAREN, ANDERS H. - gastropods parasitic on echinoderms.

WASSON, KRISTINA - reproduction and factors that control reproduction in echinoids.

WATTS, STEPHEN A. - steroid metabolism in echinoids.

WEBSTER, GARY D. - Carboniferous and Permian crinoids of Australia - with Peter Jell; Early Carboniferous crinoid faunas of the western U.S.

WELSCH, ULRICH - innervation of the juxtaligamental cells in crinoids; analysis of the connective tissue of crinoids.

WHITE, CHRIS - crinoids.

WIDDISON, ROSANNE - Ph.D. dissertation (started 10/97) entitled, Palaeobiology of Silurian crinoids. Involves a complete taxonomic review of UK Silurian collections and establishment of crinoid communities in UK. Also looks at the variations in US and UK faunas.

WILKIE, IAIN C. - functional morphology and mechanics of the echinoid lantern; functional morphology and mechanics of the ophiuroid mouth-frame; organisation, mechanics and physiology of echinoderm connective tissues; autotomy mechanisms of echinoderms and other invertebrates.

WILLCOX, MARK S. - molecular phylogeny of asteroids; genetic basis to salinity adaptation in asteroids.

WILLIAMSON, JANE E. - An autogenic shift in the response of the echinoid, *Holopneustes purpurascens*, to host plant chemistry (current Ph.D. at the University of New South Wales). Intense grazing by the sea urchin *Heliocidaris erythrogramma* on algal community structure (group project).

WORHEIDE, GERT - actinopaleontology and ecology of *Astrosclera willeyana* Lister 1900 (Demospongiae) (for Ph.D. thesis); taphonomy of coral reef echinoids.

WRAY, GREGORY A. - evolution of body-patterning genes in echinoderms; evolution of echinoderm larvae; phylogeny of echinoids.

YAMAGUCHI, MASASHI - supervising a thesis on *Acanthaster planci*.

YANAGISAWA, TOMIO - larval development from plutei to metamorphosis of the sea urchins in the Ogasawara (Bonin) Islands.

YOKOTA, YUKIO - extracellular matrix and morphogenesis in the sea urchin; phylogenetic analysis of yolk proteins in sea urchins and starfishes; functions of vitellogenin and vitellogen in the sea urchin and starfish.

YOSHIZATO, KATSUTOSHI - molecular evolution of invertebrate collagen.

YUND, PHIL - fertilization processes, gamete toxicology, and the genetic differentiation of populations of *Strongylocentrotus drobachiensis*.

ZAVODNIK, DUSAN V. - biodiversity of the Adriatic Sea invertebrates - Echinoderm distributional patterns.

ZITT, JIRI - Lower Cretaceous crinoids of West Carpathians; crinoids and echinoids of the Bohemian Cretaceous Basin (late Cenomanian- early Turonian).

## ☆ THESES AND DISSERTATIONS ☆

### AUSTRALIA

#### Ph.D. Dissertation

Jane Williamson. (in progress). An autogenic shift in the response of the echinoid, *Holopneustes purpurascens*, to host plant chemistry. University of New South Wales, Australia.

### BELGIUM

#### Masters Thesis

Dirk Eekelers. (in progress). Distribution and biodiversity of asteroids in Kenya's coral reefs. Vrije Universiteit Brussel, Belgium.

Tessa van Hout. 1996. Distribution of *Echinothrix diadema* on the Kenyan Coast. Vrije Universiteit Brussel, Belgium.

Yves Samyn. 1995. Reproduction of two non-commercial sea urchins (Echinodermata: Echinoidea) in the Mombasa Marine National Park, Kenya. Vrije Universiteit, Brussel.

### CZECH REPUBLIC

#### Ph.D. Dissertation

Richard Storc. (in progress). Ophiuroidea from the Upper Cretaceous of the Bohemian Cretaceous Basin (Czech Republic). Charles University, Praha.

### ECUADOR

#### Ph.D. Dissertation

Sonnenholzner, J. (in progress). Desarrollo y optimización de pruebas inmunitarias en *Echinometra vanbrunti* (Echinodermata: Echinoidea) para la identificación de biomarcadores de estrés ambiental. Universidad de Guayaquil.



## FRANCE

### Thèse Doctorat Ecologie

Fernandez, C. 1996. Croissance et nutrition de *Paracentrotus lividus* dans le cadre d'un projet aquacole avec alimentation artificielle., Univ. Corse, Fr., 279pp.

## GERMANY

### Ph. D. Dissertation

Reich, M. 1997. Die Holothurienreste (Echinodermata) der Schreibkreide (Unter-Maastrichtium), Insel Rügen/Ostsee. [Holothurian remains (Echinodermata) from the White Chalk (Lower Maastrichtian), Isle of Rügen/Baltic Sea]. - Unpublished Diploma-Thesis, University of Greifswald, vol. I: 96 pp., 17 figs., 5 tables., vol. II: 8 encl.; Greifswald.

### Masters Thesis

Bluhm, B. (1997). On the ecology of regular sea urchins in the northern Barents Sea [in German]. Kiel University.

## INDIA

### Masters Thesis

M.K. Ram Mohan. 1993. Studies on the salinity tolerance of the venerid clam, *Paphia malabrica* (Chemnitz). Cochin University of Science and Technology, India.

## JAPAN

### Ph.D. Dissertation

Shimizu, M. 1992. Studies on the ultrastructure and growth of skeletons of the test and spines in the sea urchin, *Strongylocentrotus intermedius*. Hokkaido University, Japan.

## **Master of Science**

Yuji Arakaki. 1989. A comparative ecological and reproductive study on the four types of sea urchin *Echinometra mathaei* (Blainville) on Okinawa reef flat. Dept. of Biology, University of the Ryukyus.

## **NEW ZEALAND**

### **PhD Dissertation**

M. Lamare. 1997. Recruitment ecology of the sea urchin *Evechinus chloroticus* in the New Zealand coastal habitat. University of Otago.

### **Masters Thesis**

Jeff Archer. 1996. The reproductive and larval biology and ecology of the temperate holothurian *Stichopus mollis* (Hutton). Leigh Marine Laboratory.

Jane Williamson. Distribution patterns and life-history features of the intertidal encrusting alga *Pseudolithoderma* sp. University of Auckland, New Zealand.

## **NORWAY**

### **Masters Thesis**

Haldis Ringvold. 1996. Artsbestemmelse og utbredelse av sjoestjerner (Echinodermata: Asteroidea) rundt Faeroeyene (Identification and distribution of starfishes (Echinodermata: Asteroidea) around the Faroe Islands). Norwegian University of Science and Technology (NTNU), Trondheim Biological Station, Norway.

## **PAKISTAN**

### **Ph.D. Dissertation**

Qaseem Tahera. (in progress). Systematics, reproduction and larval distribution of holothuroids and echinoids inhabiting the Arabian Sea. University of Karachi, Karachi, Pakistan.

## PORTUGAL

### Degree - Marine Biology and Fisheries

Dora Maria Cunha de Jesus. 1998. Ecologic and biogeographic considerations on the Portugese echinoderm fauna. University of Algarve.

## UNITED KINGDOM

### Masters Thesis

Moore, Abigail Mary - (submitted 1998) - A study of the holothurian resources and some other invertebrate fisheries combined with work aiming to interpret a 1993 Landsat TM satellite image for the new Wakatobi National Marine Park in SE Sulawesi, Indonesia. The University of Hull, UK. (The MSc course title is Global Biodiversity, Monitoring and Conservation at The University of Hull, UK).

## UNITED STATES

### Masters Thesis

Michel Lynn Gielazyn. 1997. Subsurface feeding behavior of the burrowing ophiuroid *Microphiopholis gracillima* (Stimpson) (Echinodermata). University of South Carolina.

Robert Miller. (in progress). Rapid ingestion of sinking organic matter by bathyal surface deposit-feeders, as indicated by Th-234. University of Massachusetts, Boston.

### Ph. D. Dissertation

Tracy M. Andacht. 1998. Functional studies in early development of the sea urchin: I. Elevation of the fertilization envelope. II. Commitment of the dorsal-ventral axis. Duke University, North Carolina.

Christiane H. Biermann. 1997. Reproductive isolation and the molecular evolution of sperm bindin in stronglylocotrotid sea urchins. Dept Ecology and Evolution, SUNY at Stony Brook, NY.

## ☆ INFORMATION REQUESTS ☆

Bauer, John - please inform me of any echinoid diseases or mortalities. I can be contacted at the following address: 7794 Cloverfield Circle, Boca Raton, Florida 33433, USA.

Dora Jesus - would appreciate literature on the genus *Schizaster* (Echinoidea) living, Mediterranean Sea and Atlantic Ocean, especially taxonomic.

K. Emily Knott - I am hoping to collect sea stars in the Cape Verde Islands and possibly the Canary Islands at some time during the next year. If you have had some experiences collecting in these areas, please send me email at [kekknott@life.bio.sunysb.edu](mailto:kekknott@life.bio.sunysb.edu) I would love to talk to you.

Also, I am still collecting any EtOH preserved or frozen sea star tissue for molecular work to help my efforts in producing a comprehensive asteroid phylogeny. If you wish to make a donation to my cause, contact me at [kekknott@life.bio.sunysb.edu](mailto:kekknott@life.bio.sunysb.edu). Thanks!

Richard Magsino - I am working on the population genetics starfish, *Linckia laevigata*. I would like to contact researchers working on the population genetics of starfishes or any other echinoderms using protein allozyme electrophoresis and other DNA-level genetic markers (e.g. mtDNA RFLPs). My samples came from the South China Sea region in the Southeast Asia. Please contact [rickym@msi01.cs.upd.edu.ph](mailto:rickym@msi01.cs.upd.edu.ph)

Chris Mah - I am always interested in obtaining asteroid material from deep-sea Central Pacific and Indian Oceans. Especially brisingidans, forcipulates and goniasterids. Please contact [cmah@cas.calacademy.org](mailto:cmah@cas.calacademy.org)

Abigail Moore - I would like to have contact with anyone with experience in - attempting regulation (by consensus, enforcement or a mixture) of holothurian exploitation, especially "on the ground", working with fishing communities, not just designing regulations.

- artisanal pen-culture of juveniles, especially working with communities with low economic and educational status.
- improving returns to fishing communities (post-harvest mainly)
- education programmes for coastal communities
- collection of local environmental knowledge

I would also like to contact anyone with similar types of experience or interest based on any tropical coastal species, not just holothurians. I am very keen to pursue options for reconciling the conservation of biodiversity with the needs of coastal human populations. My immediate concerns are based in Sulawesi, Indonesia, but many of the challenges are common throughout the Indo-Pacific and often beyond. Parks etc can only be an option for a minority of the vast areas involved, if only because of the costs of both setting up and running them. I feel that low-cost low-tech largely local resource based approaches need to be found, which could affordably and realistically be applied more widely than Marine Parks. Hence the pilot project I am involved in - which is still at a preparatory stage. Please contact [abigailmoore@hotmail.com](mailto:abigailmoore@hotmail.com)

M.K. Ram Mohan - seeks references on reproductive biology, induced maturation and cross fertilization of echinoderms, also triploid or polyploid studies.

Payikat Sahadevan Asha (Tuticorin, India) requests reprints on the induced maturation, spawning and asexual reproduction in holothurians.

Tahera, Q. - would appreciate any publication on echinoderms related to taxonomy, systematics, reproduction, larval distribution and biodiversity.

## ☆ ANNOUNCEMENTS ☆

Giudice, G. - organized an "ICRO" theoretical-practical course on "sea urchin eggs and embryos as model cells" which was held in Oristano, Sardinia, Italy (International Marine Centre) from September 17 - October 1, 1997, to which 18 people from 14 countries participated. I also organized (same location) a satellite symposium on "cell division and sea urchin development".

Grygier, M.J. - has prepared a checklist of all nominal extant species of Myzostomida (not fossil *Myzostomites*) including original name, any subsequent spellings and generic reassignments and supposed synonymies, and notes concerning outstanding nomenclatural issues. It is up-to-date as of mid-July, 1997. Copies of this "List of Nominal Species of Myzostomida" are available upon request from Mark J. Grygier ([grygier@lbm.go.jp](mailto:grygier@lbm.go.jp)).

Václav Petr - Zoological Library, Charles University, Praha.

My personal bibliography is now accessible at the location <http://lib.natur.cuni.cz/BIBLIO/PETR.HTM> and also includes some free available articles (especially the article on the first occurrence of a brittlestar bed in Bohemia and my large article on the extinctions in the fossil record). This bibliography will be continually updated.

\*\*\*\*\*

From Dora Maria Cunha de Jesus -

The Echinoderm Specialist Vasco M.A.M. Marques, (Dept. Zoologia & Antropologia, Fac. Ciências de Lisboa, Rua Da Escola Politécnica, P-1200 Lisboa, Portugal) died in 1985 with cancer. His Ph.D. Dissertation was published after his death by the Instituto Hidrográfico (Portugese Navy), in 1987, under the title: "A Plataforma Continental do Algarve. Definição Qualitativa das Biocenoses de Substrato Móvel" (The Algarve's Continental Shelf. Qualitative definition of soft bottom biocenoses).

\*\*\*\*\*

From Elizabeth Balsler -

Readers are encouraged to attend the **Society of Integrative and Comparative Biology Annual Meeting, Jan 6-10, 1999, in Denver**. Of particular interest to echinoderm biologists is a symposium titled "Evolution of Starfishes: Morphology, Molecules, Development, and Paleobiology".

\*\*\*\*\*

### ☆ ECHINODERM WEB PAGES ☆

Francesco Bonasoro - <http://imiucca.csi.unimi.it/~echino/Sece7.htm>

Thomas Brey - <http://www.awi-bremerhaven.de>

Jon Eggert - (contact: [midvangur@islandia.is](mailto:midvangur@islandia.is)). Reference Page  
[http://www.islandia.is/~midvangur/new\\_page\\_8.htm](http://www.islandia.is/~midvangur/new_page_8.htm)

Reimund Haude - <http://www.gwdg.de/~uggpwww/>

Thomas Kammer - <http://www.geo.wvu.edu/~kammer/welcome.htm>

Alexander Kerr - [http://peaplant.biology.yale.edu:8001/~jklab/alex\\_kerr.html](http://peaplant.biology.yale.edu:8001/~jklab/alex_kerr.html)

Lucas, J. - URL Aquaculture: <http://www.jcu.edu.au/dept/Aquaculture/aquacult.htm>

Christopher Mah - CAS Echinoderm Web Page  
[www.calacademy.org/research/izg/echinoderm/](http://www.calacademy.org/research/izg/echinoderm/)

Charles G. Messing - comatulid crinoid web pages  
<http://www.nova.edu/ocean/messing/crinoids/w1title.html>

Philip Mladenov - <http://gandalf.otago.ac.nz:800/Marine/marine.htm>

Mike Reich - <http://www.uni-greifswald.de>

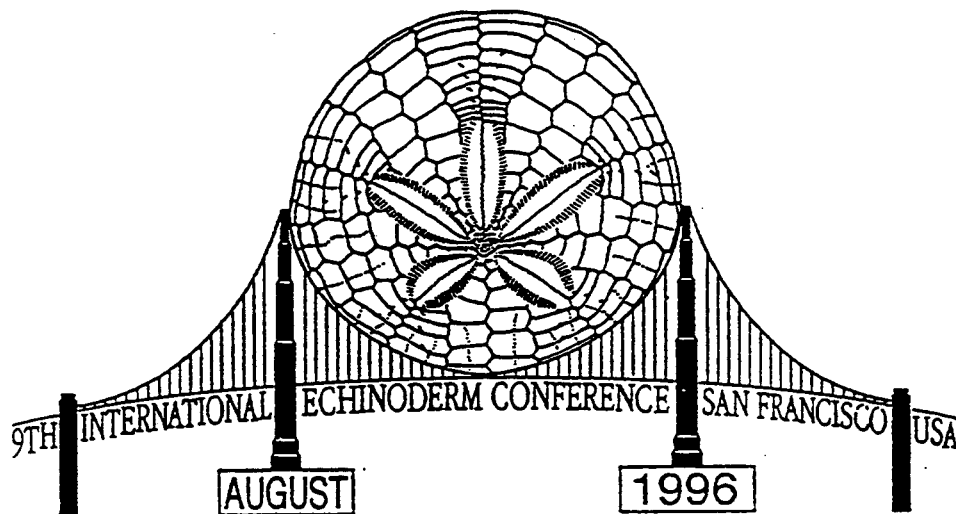
Mattias Skold - <http://www.otago.ac.nz/MarineScience>

☆ RECENT ECHINODERM PUBLICATIONS AND PAPERS IN PRESS ☆

Visit the California Academy of Sciences web page

<http://www.calacademy.org/research/izg/echinoderm/conference/>

Complete list of articles and abstracts [in] Mooi, R. and Telford, M. (Eds.) Echinoderms San Francisco. Proceedings of the 9th IEC, San Francisco, California. Balkema, Rotterdam



- Agatsuma, Y., K. Matsuyama, and A. Nakata. 1996. Seasonal changes in feeding activity of the sea urchin *Strongylocentrotus nudus* in Oshoro Bay, southwestern Hokkaido. *Nippon Suisan Gakkaishi*, 62:592-597. (in Japanese).
- Agatsuma, Y., and T. Kawai. 1997. Seasonal migration of the sea urchin *Strongylocentrotus nudus* in Oshoro Bay of southwestern Hokkaido, Japan. *Nippon Suisan Gakkaishi*, 63:557-562. (in Japanese).
- Agatsuma, Y., K. Matsuyama, A. Nakata, and N. Nishikawa. 1997. Marine algae succession on coralline flats after removal of sea urchins in Suttu Bay on the Japan Sea coast of Hokkaido, Japan. *Nippon Suisan Gakkaishi*, 63:672-680. (in Japanese).
- Agatsuma, Y., S. Nakao, S. Motoya, K. Tajima, and T. Miyamoto. Relationship between year-to-year fluctuations in recruitment of juvenile sea urchins *Strongylocentrotus nudus* and seawater temperature off

- the Sea of Japan coast in southwestern Hokkaido. Fisheries Science. (in press).
- Agatsuma, Y. Gonadal growth of the sea urchin *Strongylocentrotus nudus* sampled from tropically poor coralline flats and fed excess kelp *Laminaria religiosa*. Fisheries Science (in press).
- Agatsuma, Y. Ecological studies on the population dynamics of the sea urchin *Strongylocentrotus nudus*. Sci. Rep. Hokkaido Fish. Exp. Stn. (in Japanese) (in press).
- Ameziane, N., and M. Roux. 1997. Biodiversity and historical biogeography of stalked crinoids (Echinodermata). Biodiversity and Conservation, 6:1557-1570, 8 fig., 1 tabl.
- Arakaki, Y., T. Uehara, and I. Fagoonee. 1998. Comparative studies of the genus *Echinometra* from Okinawa and Mauritius. Zool. Sci. 15:159-168.
- Aronson, R. B., and D. B. Blake. 1997. Predation and the paleoecology of suspension-feeding echinoderms. In Echinoderms: Notes for a Short Course. Paleontological Society Papers 2, 1997.
- Aronson, R.B., D.B. Blake, and T. Oji. 1997. Retrograde community structure in the Late Eocene of Antarctica. Geology, 25(10):903-906.
- Aronson, R.B., and W.F. Precht. 1997. Stasis, biological disturbance, and community structure of a Holocene coral reef. Paleobiology, 23(3):326-346.
- Ausich, W.I. 1996. Phylum Echinodermata, p. 242-261. In R.M. Feldmann (ed.), Fossils of Ohio. Ohio Division of Geological Survey, Bulletin 70.
- Ausich, W.I. 1997. Regional Encrinites: A Vanished Lithofacies. In Brett, C.E., and G.C. Baird (eds.). Paleontological Events Stratigraphic, Ecological, and Evolutionary Implications. Columbia University Press, New York, N.Y. Chapter 19, pp. 509-519.
- Ausich, W.I. 1997. Calyx plate homologies and early evolutionary history of the Crinoidea. Paleontological Society Papers, 3:289-304.
- Ausich, W.I., T.W. Kammer, and D.L. Meyer. 1997. Middle Mississippian disparid crinoids from the midcontinental United States. J. Paleont., 71(1):131-148.
- Baker, A.N. 1998. The rediscovery of *Echinus elevatus* Hutton 1872 in New Zealand, and a new name for *Acanthotrema* Baker & Rowe 1990 (Echinodermata: Echinoidea). Journal of the Royal Society of New Zealand, 28(2):281-286.
- Balsler, E. 1998. Cloning by ophiuroid echinoderm larvae. Biol. Bull., 194:187-193.
- Blake, D.B., and R.B. Aronson. 1998. Eocene Stelleroids (Echinodermata) at Seymour Island, Antarctic Peninsula. J. Paleont., 72(2):339-353.
- Blake, D.B., R. Reid, III. 1998. Some Albian (Cretaceous) asteroids (Echinodermata) from Texas and their Paleobiological Implications. Journal of Paleontology, 72:512-532
- Blake, D.B., and R.B. Aronson. 1998. Eocene echinoderms of Seymour Island, Antarctica, p. 9-12. In R. J. Mooi and M. L. Telford (eds.), Echinoderms, San Francisco; A. A. Balkema, Rotterdam, 923 p.
- Blake, D.B. 1998. Morphological characters of early asteroids and ophiuroids, p. 5-7. In R. J. Mooi and M.L. Telford (eds.), Echinoderms, San Francisco; A. A. Balkema, Rotterdam, 923 p.
- Blake, D.B., G. Breton, and S. Gofas. 1996. A new genus and species of Asteriidae (Asteroidea; Echinodermata) from the Upper Cretaceous (Coniacian) of Angola, Africa. Paläont. Z., 70 (1/2):181-187.
- Bourseau, J.P., J. David, M. Roux, D. Bertrand, and V. Clochard. 1998. Une nouvelle espèce du genre *Balanocrinus* (Crinoïdes pédonculés) provenant du Kimméridgien inférieur des environs de La Rochelle (Charente maritime, France). Géobios, Lyon, 31, 2: 215-227, 8 fig.
- Bluhm, A.B., P. Piepenburg, and K.v. Juterzenka. (in press). Distribution, standing stock, growth, mortality and production of *Strongylocentrotus pallidus* (Echinodermata: Echinoidea) in the northern Barents Sea. Polar Biology.



- Boudouresque, C.-F., R. Lemée, X. Mari, and A. Meinesz. 1996. The invasive alga *Caulerpa taxifolia* is not a suitable diet for the sea urchin *Paracentrotus lividus*. *Aquatic Botany*, 53:245-250.
- Breton, G., and V. Decombe. 1997. Comparaison des faunes d'astérides de deux gisements cénomaniens de Basse-Normandie (France) et du Devon (Angleterre).
- Breton, G. 1997. Deux étoiles de mer du nord-est du bassin de Paris (France): leurs alliés actuels sont des fossiles vivants. *Bull. Trim. Soc. Géol. Normandie et Amis Muséum du Havre*, 84, 1, 1er trim:23-34.
- Brower, J.C. 1997. Homocrinid crinoids from the Upper Ordovician of northern Iowa and southern Minnesota. *Journal of Paleontology*, 71:442-458.
- Brower, J.C. Pleurocystitid rhombiferan echinoderms from the Middle Ordovician Galena Group of northern Iowa and southern Minnesota. *Journal of Paleontology*. (in press).
- Bryan, P.J., D. Rittschof, and J.B. McClintock. 1996. Bioactivity of echinoderm ethanolic body-wall extracts: an assessment of marine bacterial attachment and macroinvertebrate larval settlement. *Journal of Experimental Marine Biology and Ecology*, 196:79-96.
- Bryan, P.J., J.B. McClintock, and T.S. Hopkins. 1997. Structural and chemical defenses of echinoderms from the northern Gulf of Mexico. *Journal of Experimental Marine Biology and Ecology*, 210:173-186.
- Bryan, P.J., J.B. McClintock, and M. Hamann. 1997. Behavioral and chemical defenses of marine prosobranch gastropod *Calliostoma canaliculatum* in response to sympatric seastars. *Journal of Chemical Ecology*, 23(3): 645-.
- Byrne, M. 1996. Starfish wanted, dead or alive. *New Sci.* 2052: 53
- Byrne, M. 1996. Viviparity and intragonadal cannibalism in the diminutive asterinid sea stars *Patiriella vivipara* and *P. parvivipara*. *Mar. Biol.*, 125: 551-567.
- Byrne, M. and A. Cerra. 1996. Evolution of intragonadal development in the diminutive asterinid sea stars *Patiriella vivipara* and *P. parvivipara* with an overview of development in the Asterinidae. *Biol. Bull.* 191:17-26.
- Byrne, M. and R.K. Siegel. 1997. Comparison of vitellogenic mechanisms in the oligolecithal eggs of *Heliocidaris tuberculata* and the macrolecithal eggs of *H. erythrogramma* (Echinoidea). *Echinoderms: San Francisco*. Balkema, Rotterdam (in press).
- Byrne, M., M.G. Morrice and B. Wolf. 1997. Introduction of the northern Pacific asteroid *Asterias amurensis* to Tasmania: reproduction and current distribution. *Mar. Biol.* 127: 673-685.
- Byrne M., A. Cerra, T. Nishigaki and M. Hoshi. 1997. Infestation of the testes of the Japanese sea star *Asterias amurensis* by the ciliate *Orchitophyra stellarum*: a caution against the use of this ciliate for biological control. *Dis. aquat Org.* 28: 235-239.
- Byrne, M., A. Cerra, T. Nishigaki and M. Hoshi. 1997. Male infertility: a new phenomenon affecting Japanese populations of the sea star *Asterias amurensis* (Asteroidea) due to introduction of the parasitic ciliate *Orchitophyra stellarum* to Japan. In: R. Mooi et al (eds). *Echinoderms: San Francisco*. Balkema, Rotterdam (in press).
- Cameron, R. A., and E.H. Davidson. 1997. LiCl perturbs ectodermal Veg1 lineage allocations in *Strongylocentrotus purpuratus* embryos. *Dev. Biol.* 187:236-239.
- Cameron, R. A., and J.A. Coffman. 1999. Gene expression and early cell fate specification in embryos of the purple sea urchin (*Strongylocentrotus purpuratus*). In press in: *Cell Fate and Lineage Determination*, Sally Ann Moody, ed. Academic Press, San Diego.
- Campbell, A.C., and F.W.E. Rowe. 1997. A new species in the asterinid genus *Patiriella* (Echinodermata, Asteroidea) from Dhofar, southern Oman: a temperate taxon in a tropical locality. *Bull. Nat. Hist. Mus. Lond. (Zool.)*, 63(2):129-136.
- Candia Carnevali M.D., F. Bonasoro, and A. Biale. 1997. Pattern of bromodeoxyuridine incorporation in the

- advanced stages of arm regeneration in the feather star *Antedon mediterranea*. *Cell Tissue Res.*, 289:363-374.
- Candia Carnevali M.D., F. Bonasoro, M. Patruno, and M.C. Thorndyke. Cellular and molecular mechanisms of arm regeneration in crinoid echinoderms: the potential of the arm explants. *Dev., Genes & Evol.*, (submitted).
- Cerra, A. and M. Byrne. 1997. Ultrastructure of the extracellular matrix in developing *Patiriella* and the presence of associated bacteria. *Inv. Repro. and Develop.* 31: 337-343.
- Cerra, A. and M. Byrne. 1997. Cell surface features and the extracellular matrix around the larvae of *Patiriella* species with planktonic, benthic and intragonadal development: implications for larval nutrition. In: R. Mooi et al (eds). *Echinoderms*: San Francisco. *Balkema*, Rotterdam (in press).
- Chao, S.-M. 1998. Shallow-water sea cucumbers of Taiwan. (ISSBN 957-8503-54-7) [In Chinese].
- Chee, F. and M. Byrne. 1997 Visualisation of the developing nervous system in the larvae of the sea star, *Patiriella regularis* using confocal microscopy and computer generated 3-D reconstructions. *Inv. Repro. and Develop.* 31: 151-158.
- Chen, C.-P., and Chao, C.-M. 1997.. Reduction of growth rate as the major process in the miniaturization of the sand dollar *Sinaechinocyamus mai*. *Biol. Bull.*, 193: 90-96.
- Clough, L.M., W.G. Ambrose, C.J. Ashjian, D. Piepenburg, P.E. Renaud, and S.L. Smith. 1997. Meroplankton abundance in the Northeast Water Poly-nya: Insights from oceanographic parameters and benthic abundance patterns. *J. Mar. Syst.*, 10: 343-357.
- Clouse, R.M. 1997. Note. End-plate spicules in *Bohadschia marmorata* (Jaeger) (Holothuroidea: Holothuriidae). *Micronesica* 30(1):187-192.
- Clouse, R.M. 1997. Burying behavior in an Indo-Pacific sea cucumber, *Bohadschia marmorata* Jaeger (Holothuroidea): a circadian, not circatidal, rhythm. *Micronesica*, 30(2):245-257.
- Conand, C. A. Jerome, N. Dijoux, and J. Garryer. 1998. Fission in a population of *Stichopus chloronotus*, on Reunion Island, Indian Ocean. *Bêche-de-mer Information Bulletin*, 10:15-23.
- Conand, C., M. De San, G. Refeno, G. Razafintseho, E. Mara, N. Galet-Lalande, and S. Andriajatovo. 1998. Gestion durable de la filière holothuries a Madagascar. *Bêche-de-mer Information Bulletin*, 10:7-9.
- Conand, C. 1998. Asexual reproduction by fission in indo-pacific tropical holothurian populations (Echinodermata: Holothuroidea): characteristics of the phenomenon and consequences on populations. 8th Intern. Congress Invert. Reprod. Development, Amsterdam, August 98, abstract.
- Conand, C. 1997. Are holothurian fisheries for export sustainable? Intern. Cong. Reefs, Panama, 2:2021-2026.
- Conand, C., P. Chabanet, P. Cuet, and Y. Letourneur. 1997. The carbonate budget of a fringing reef in La Reunion. Intern. Cong. Reefs, Panama, 1:953-958.
- Conand, C. 1997. FAO identification Guide to the Western Central Pacific: holothurians. FAO, (in press).
- Conand, C. 1997. Editorial. S.P.C. *Bêche-de-mer Information Bull.*, 9:1.
- Conand, C. 1997. Mise en oeuvre de la gestion durable de la ressource en holothuries. Rapport de l'intervention à titre d'expert pour le GREEN/COI: 28p + 5 annexes.
- Conand, C., and S. Bonneau (ed). 1997. Récifs coralliens de la Réunion. *Bulletin de Vie Océane*, NS, 12 p.
- Conand, C., L. Bigot, P. Chabanet, and J.P. Quod. 1997. Manuel méthodologique pour le suivi de l'état de santé des récifs coralliens su Sud-Ouest de l'Océan Indien. Rapport de l'intervention à titre d'expert pour le GREEN/COI: 20 p. + 5 annexes.
- Conand, C., N. Galet-Lalande, H. Randriamiarana, G. Razafintseho, and M. Desan. 1997. Sea cucumbers in Madagascar: difficulties in the fishery and sustainable management. S.P.C. *Bêche-de-mer Information Bull.*, 9:4-5.
- Conand, C., C. Morel, and R. Mussard. 1997. A new case of asexual reproduction in holothurians: Fission in

- Holothuria leucospilota* populations on Reunion Island in the Indian Ocean. S.P.C. Bêche-de-mer Information Bull., 9:5-11.
- Conand, C. 1997. Gestation durable des holothuries à Madagascar. Séminaire international sur les Récifs coralliens, Nosy Bé, 7 p. (Submitted).
- David, J., C.G. Messing, and M. Roux. 1997. Modélisation de la production de sables crinoïdiques à partir d'expériences in-situ sur le talus bathyal des Bahamas. Conséquences sur l'interprétation des calcaires à Entroques jurassiques. 6ème Congrès de Sédimentologie. Livre des résumés, Publ. ASF, Paris, 2-7: 71, poster.
- David, J., M. Roux, N. Ameziane, C. Messing, and T. Beaumiller. 1998. Discontinuités taxonomiques ou gradients écologiques et ontogéniques dans l'évaluation de la diversification. L'exemple des pentacrines. RST Brest, résumé.
- David, J., C. Messing, M. Roux, N. Ameziane, and T. Beaumiller. (in press). Mesures directes et modélisation de la croissance rapide d'un crinoïde pédonculé bathyal (Echinodermata) au large des Bahamas. C.R. Acad. Sci. Paris, sér. III, 8 p., 2 fig., 1 tabl.
- Deheyn, D., J. Mallefet, and M. Jangoux. 1997. Intraspecific variations of bioluminescence in a polychromatic population of *Amphipholis squamata* (Echinodermata: Ophiuroidea). J. mar. Biol. Ass. U.K., 77:1213-1222.
- Deheyn, D., V. Alva, and M. Jangoux. 1996. Fine structure of the photogenous areas in the bioluminescent ophiuroid *Amphipholis squamata* (Echinodermata, Ophiuroidea). Zoomorphology, 116:195-204.
- De Ridder, C. 1996. *Centrostephanus longispinus* (Philippi, 1845). In: Background information on invertebrates of the habitats directive and the Bern Convention. Part. III- Mollusca and Echinodermata. Council of Europe, Nature and Environment, 81:525-529.
- Donovan, S.K., and D.L. Pawson. 1998. Proximal growth of the column in bathycriinid crinoids (Echinodermata) following decapitation. Bull. Mar. Sci., 61(3):571-579.
- Donovan, S.K. 1997. Comparative morphology of the stems of the extant bathycriinid *Democrinus* Perrier and the Upper Palaeozoic platycrinids (Echinodermata, Crinoidea). *Bulletin of the Mizunami Fossil Museum*, 23 (for 1996): 1-27, pls 1-11. [Corrigendum. 1998 (in press). *Bulletin of the Mizunami Fossil Museum*, 24 (for 1997): 203.]
- Donovan, S.K. 1997. Crinoids. *National Geographic*, 191 (no. 4): 1 p. [Letter.]
- Donovan, S.K., and J.S.H. Collins. 1997. Unique preservation of an *Echinometra* Gray (Echinodermata: Echinoidea) in the Pleistocene of Jamaica. *Caribbean Journal of Science*, 33: 123-124.
- Donovan, S.K., W.L. Dickson, W.D. Boyce, and J.S. Ash. 1997. A new species of stalked crinoid (Echinodermata) of possible late Silurian age from central Newfoundland. *Atlantic Geology*, 33: 11-17.
- Donovan, S.K., and D.N. Lewis. 1997. Fossils explained 19: Post-Palaeozoic crinoids. *Geology Today*, 13: 112-116.
- Donovan, S.K., R.K. Pickerill, D.G. Mikulic, and J. Kluessendorf. 1997. Upright crinoids of the Thornton Reef, Wenlock (Silurian) of Illinois, U.S.A. *Geological Journal*, 32 (for 1996): 369-378.
- Donovan, S.K. 1996. Use of the SEM in interpreting ancient faunas of sea urchins. *Microscopy and Analysis* (UK edition), No. 54 (July) :35.
- Ebert, T.A. 1996. Adaptive aspects of phenotypic plasticity in echinoderms. *Oceanologica Acta*, 19(3-4):347-355.
- Ebert, T.A. 1996. The consequences of broadcasting, brooding, and asexual reproduction in echinoderm metapopulations. *Oceanologica Acta*, 19(3-4):217-226.
- Eeckhaut, I., M.J. Grygier, and D. Deheyn. 1998. Myzostomida from Papua New Guinea with related Indo-West Pacific records and descriptions of five new species. Bull. Mar. Sci., 63(2): in press.

- Eeckhaut, I. 1998. *Mycomyzostoma calcidicola* gen. nov. sp. nov., the first extant parasitic myzostome infesting crinoid stalks, with a nomenclatural appendix by M.J. Grygier. Species Diversity 3(1): in press.
- Ellers, O. & Telford, M. 1997. Muscles advance the teeth in sand dollars and other sea urchins. Proc. R. Soc. Lond. B 264: 1525-1530.
- Ellers, O., 1997. Book Review of Echinoderm Studies 5, M. Jangoux and J.M. Lawrence, eds., A.A. Balkema, publ. The Quarterly Review of Biology.
- Ellers, O., and M. Telford. 1996. Advancement mechanics of growing teeth in sand dollars (Echinodermata, Echinoidea): a role for mutable collagenous tissue. Proc. R. Soc. Lond. B 263: 39-44.
- Emler, R.B., and O. Hoegh-Guldberg. 1997. Effects of egg size on postlarval performance: experimental evidence from a sea urchin. Evolution, 51(1):141-152.
- Fernandez, C. (in press): Seasonal changes in the biochemical composition of the edible sea urchin *Paracentrotus lividus* (Echinodermata : Echinoidea) in a lagoonal environment. PSZNI Marine Ecol.
- Fernandez, C., and A. Caltagirone. 1998. Comportement alimentaire de *Paracentrotus lividus* (Echinodermata: Echinoidea) en milieu lagunaire. Rapp. Comm. int. Médit., 35 (2) : 538-539.
- Fernandez, C., and C.F. Boudouresque. 1998. Evaluating artificial diet for small *Paracentrotus lividus* (Echinodermata: Echinoidea). Echinoderms: San Francisco. Mooi & Telford (eds). Balkema publ., Rotterdam, 651-656.
- Fernandez, C. 1997. Effect of diet on the biochemical composition of *Paracentrotus lividus* (Echinodermata: Echinoidea) under natural and rearing conditions. Comp. Biochem. Physiol., 118 A (4) : 1377-1384.
- Fernandez, C., and C.F. Boudouresque. 1997. Phenotypic plasticity of *Paracentrotus lividus* (Echinodermata: Echinoidea) in a lagoonal environment. Mar. Ecol. Prog. Ser. 152 :145-154.
- Fernandez, C., E. Dombrowski, and A. Caltagirone. 1995. Gonadic growth of adult sea urchins, *Paracentrotus lividus* (Echinodermata: Echinoidea) in rearing: The effect of different diet types. In Echinoderm Research 1995, Emson, Smith and Campbell (eds.), Balkema, Rotterdam: 269-275.
- Fiege, D., and Y. Liao. 1996. *Penilpidia ludwigi* (Marenzeller, 1893) (Holothurioidea: Elpidiidae) rediscovered from the eastern Mediterranean Sea. In: Uiblein, F., J. Ott, and M. Stachowitsch (eds.). Deep-sea and extreme shallow-water habitats: affinities and adaptations. Biosystematics and Ecology Series, 11:61-66.
- Flachier, A.J., J. Sonnenholzner, D. Pérez, L. Jaramillo, and E. Espinoza. 1997. Diagnóstico ecológico y socioeconómico del área marino-costera del Parque Nacional Machalilla (PNM). Parte I: Evaluación del área marina del PNM. Proyecto INEFAN-GEF, 174 pp. Quito, Ecuador.
- Francour, P. 1997. Predation on holothurians: A literature review. Invertebrate Biology 116(1):52-60.
- Frenzel, P., M. Reich, and K. Winn. 1997. An Eemian marine microfauna from the well Dagebüll (Pleistocene, northwest Germany). - [In:] Ferguson, D. K. and Kollmann, H. A. (eds.): Second European Palaeontological Congress. Climates: Past, Present and Future, Vienna 1997. 28; Wien.
- Frick, J.E., E.E. Ruppert, and J.P. Wourms. 1996. Morphology of the ovotestis of *Synaptula hydriformis* (Holothuroidea, Apoda): an evolutionary model of oogenesis and the origin of egg polarity in echinoderms. Invertebrate Biology, 115(1):46-66.
- Fujita, T., Y. Ishida, and S. Irimura. 1997. Ophiuroids collected from the deep waters of Sagami Bay, central Japan. National Science Museum Monographs No. 12:257-268, pl. 1.
- Ganteaume, A., J. Gobert, P. Malestroit, V. Ménager, P. Francour, and C.-F. Boudouresque. 1998. *In vitro* consumption of *Caulerpa taxifolia* (Chlorophyta) by accustomed and non-accustomed *Paracentrotus lividus* (Echinoid): Seasonal variations. J. Mar. Biol. Ass. U.K., 78:239-248.
- Garland, B.N., and F.R. Ettensohn. 1998. Paleoecology and taphonomy of a Middle Ordovician edrioasteroid firmground, central Kentucky (abstract). Journal of the Kentucky Academy of Science, 59:103-104.
- Garland, B.N., and F.R. Ettensohn. 1998. Life and times on a Middle Ordovician edrioasteroid firmground from

- the Lexington Limestone, central Kentucky. Geological Society of America Abstracts with Programs, 30:13.
- Garrett, K., P.V. Mladenov, and G.P. Wallis. 1997. Evidence of amictic reproduction in the brittle-star *Ophiomyxa brevirima*. Marine Biology 129:169-174.
- Gebruk, A.V., P.A. Tyler, and D.S.M. Billett. 1997. Pelagic juveniles of the deep-sea elaspodid holothurians: New records and review. Ophelia, 46(2):153-164.
- Gielazyn, M.L., S.E. Stancyk, and W.P. Piegorsch. (in prep). Experimental evidence of subsurface feeding by the burrowing ophiuroid *Microphiopholis gracillima* (Stimpson) (Echinodermata).
- Gillan, D., and C. De Ridder, 1997. Morphology of an iron oxide-encrusted biofilm forming on the shell of a burrowing bivalve (Mollusca). Aquat. Microb. Ecol., 12:1-10.
- Graeve, M., G. Kattner, and D. Piepenburg. 1997. Lipids in Arctic benthos: does the fatty acid and alcohol composition reflect feeding and trophic interactions? Polar Biol., 18: 53-61.
- Grygier, M.J., and K. Nomura. 1998. Cysticolous Myzostomida, *Notopharyngoides platypus* from *Comanthina nobilis* (Echinodermata: Crinoidea), at Kushimoto, Honshu, Japan. Species Diversity 3(1): in press.
- Goggin, C.L., and C. Bouland. The ciliate *Orchitophrya stellarum* c.f. and other parasites and commensals of the northern Pacific seastar *Asterias amurensis* from Japan. International Journal for Parasitology. (In press).
- Gunnarsson, J.S, M.T. Schaanning, K. Hylland, M. Sköld, D.Ø. Eriksen, J.A. Berge, and J. Skei. 1996. Interactions between eutrophication and contaminants: III. Mobilization and bioaccumulation of Hg and Cd from marine sediments. Marine Pollution Bulletin, 33(1-6):80-89.
- Hagdorn, H., E. Gluchowski, and A. Boczavowski. 1996. The crinoid fauna of the *Diplopora* dolomite (Middle Muschelkalk, Upper Anisian) at Piekary Śląskie in Upper Silesia. Geol. Paläont. Mitt. Innsbruck, 21:47-87.
- Hamano, T., M. Kondo, Y. Ohhashi, T. Tateishi, H. Fujimura, and T. Sueyoshi. 1996. The whereabouts of edible sea cucumber *Stichopus japonicus* juveniles released in the wild. Suisanzoshoku, 44(3): 249-254.
- Hart, M.W., M. Byrne and M.J. Smith. 1997. Molecular phylogenetic analysis of life-history evolution in asterinid starfish. Evolution 51: 1846-1859.
- Harvey, E.W., and W.I. Ausich. 1997. Phylogeny of calceocrinid crinoids (Paleozoic: Echinodermata): Biogeography and mosaic evolution. J. Paleont. 71(2):299-305.
- Haude, R. (1997): Nudicorona, eine devonische Holothurie. - Fossilien, 1: 50-57.
- Haude, R. (1998): Seelilien mit Schwimmboje: Die Scyphocrinoiden. -Fossilien, 4: 217-225.
- Haude, R. & Walliser, O.H. (1998): Conodont-based Upper Silurian - Lower Devonian range of scyphocrinoids in SE. Morocco. - In: Gutierrez-Marco, J.-C. & Rabano, I. (eds), Proc. 6th Int. Graptolite Conf. & 1998 Field Meeting Int. Subcomm. Silur. Strat., ITGE - Temas Geol.-Miner., 23: 94-96.
- Hendler, G., and M.J. Grygier. 1997. Babysitting brittlestars: first report of intergeneric symbiosis among Ophiuroidea. American Zoologist 37(5):43A [Abstract 149].
- Hendler, G., M.J. Grygier, E. Maldonado, and J. Denton. (Submitted MS). Babysitting brittlestars: heterospecific symbiosis between Ophiuroidea (Echinodermata). Submitted to Invert. Biol.
- Herrera, J.C., S. McWeeney, and L.R. McEdward. 1996 Diversity of energetic strategies among echinoid larvae and the transition from feeding to nonfeeding development. Oceanologica Acta 19:313-322.
- Herrig, E., P. Frenzel, and M. Reich. 1997. Zur Mikrofauna einer Ober-Campan-Scholle von der Halbinsel Wittow (NW Rügen/Ostsee). [On the microfauna of an Upper Campanian glacial erratic lump from the peninsula Wittow (Northwestern Rügen/Baltic Sea)]. - Freiburger Forschungshefte (C: Paläontologie, Stratigraphie, Fazies), 468 (5) [K.-A. TRÖGER-Festschrift]: 129-169, 5 figs., 6 pls.; Freiberg.
- Herrig, E., H. Nestler, P. Frenzel, and M. Reich. 1996. Discontinuity surfaces in the high Upper Cretaceous of Northeastern Germany and their reflection by fossil associations. - [In:] J. Reitner, F. Neurweiler, and F. Gunkel. (eds.): Global and Regional Controls on Biogenic Sedimentation. II. Cretaceous Sedimentation. Research Reports. - Göttinger Arbeiten zur Geologie und Paläontologie, Sb3: 107-111, 2 figs., 1 pl.;

Göttingen.

- Hess, H., W.I. Ausich, C.E. Brett, and M.J. Simms, editors. 1998. Fossil Crinoids. Cambridge University Press. (To be presented at the 5th European Conference on Echinoderms, Milano, Sept. 1998: Habitat and lifestyle of crinoids from some fossil assemblages.
- Hoegh-Guldberg, O., and R.B. Emlet. 1997. Energy use during the development of a lecithotrophic and a planktotrophic echinoid. *Biol. Bull.*, 192:27-40.
- Hollertz, K., M. Sköld, and R. Rosenberg. (in press). Interactions between two deposit feeding echinoderms; the heart-urchin *Brissopsis lyrifera* (Forbes) and the brittle-star *Amphiura chiajei* (Forbes). *Hydrobiologia*.
- Hooper, R.G., F.M. Cuthbert, and T. McKeever. 1997. Feasibility trials for sea urchin aquaculture using natural feeds. *Bulletin of the Aquaculture Association of Canada*, 97(1):5-7.
- Hotchkiss, F.H.C. 1998. A 'rays as appendages' model for the origin of pentamerism in echinoderms. *Paleobiology*, 24(2): 200-214.
- Hylland, K., M. Sköld, J.S. Gunnarsson, and J. Skei. 1996. Interactions between eutrophication and contaminants: IV. Effects on sediment dwelling organisms. *Marine Pollution Bulletin*, 33(1-6): 90-99.
- Isaeva, V.V., and V.L. Kasyanov. Evaluation of fibrillar actin in the oocytes of sea star species with different reproductive strategies. (in press).
- James, D.B. 1996. Inception report on sea cucumber culture in Laamu Atoll, Maldives. TCP/MDV/4452. FAO, Bangkok. 23 pp.
- James, D.B., A.J. Lordson, W.G. Ivy, and A.D. Gandhi. 1996. Experiments on rearing of the juveniles of *Holothuria scabra* Jaeger produced in the hatchery. *Proc. Sym. Aquaculture for 2000 A.D. (Ed.) Samuel Paul Raj*. Pp. 207-214. Madurai Kamaraj.
- James, D.B. 1995. Animal associations in echinoderms. *J. mar. biol. Ass. India*, 37(1&2):272-276.
- James, D.B. 1997. Sea cucumber hatchery and culture prospects. *National Aquaculture Week*. 6 pp.
- James, D.B., and G. Ruparani. 1996. New resources for the Indian Beche-de-mer industry and their management. *Fourth Indian Fisheries Forum. Organised by the School of Marine Sciences, Cochin University of Science and Technology during 24-28 November 1996*, p. 221 (abstract).
- James, D.B. 1996. Notes on the family Goniasteridae (Echinodermata: Asteroidea) from the Indian Seas. *J. mar. biol. Ass. India*, 38(1&2):133-138.
- James, D.B., and M. Badrudeen. 1997. Observations on the landings of the sea cucumber *Holothuria spinifera* at Rameswaram by Chanku Madi. *Mar. Fish. Infor. Serv., T. & E. Ser.*, 149: 6-8.
- James, D.B., and K.J. Mathew. 1996. On *Sterechimus antarcticus* Koehler (Camerodonta: Echinoidea: Echinodermata) collected from coastal waters of Antarctica off Queen Maud Land. *J. mar. biol. Ass. India*, 38 (1&2): 139-141.
- Jefferies, R.P.S., N.A. Brown, and P.E.J. Daley. 1996. The early phylogeny of chordates and echinoderms and the origin of chordate left-right asymmetry and bilateral symmetry. *Acta Zoologica (Stockholm)*, 77(2):101-122.
- Jesus, D., and L. Cancela da Fonseca. 1997. Fauna Equinológica do Sudoeste de Portugal: 1ºs Resultados. *Actas do 9º Congresso do Algarve, Vilamoura*.
- Jesus, D., and L. Cancela da Fonseca. (submitted). Echinoderm new species for the southwest coast of Portugal. *Bol. Inst. Oceanog. Español, publ. esp. for the 2nd Symposium on the Atlantic Iberian Continental Margin*.
- Kammer, T.W., T.K. Baumiller, and W.I. Ausich. 1997. Species longevity as a function of niche breadth: evidence from fossil crinoids. *Geology*, 25(3):219-222.
- Kammer, T.W., T.K. Baumiller, and W.I. Ausich. 1998. Evolutionary significance of differential species longevity in Osagean-Meramecian (Mississippian) crinoid clades. *Paleobiology*, 24(2): (in press).
- Kobayashi, N. 1997. Observing environmental pollution-marine pollution bioassay using sea urchin eggs. *Scientist Publ. Co. Ltd., Tokyo*. (in Japanese).

- Kogo, I. (in press). Crinoids from Japan and its adjacent seas.
- Lamare, M.D., and B.G. Stewart. (in press). Mass spawning in the sea urchin *Evechinus chloroticus* (Echinodermata: Echinoidea) in a New Zealand fiord. *Marine Biology*.
- Lambert, P. 1997. Sea Cucumbers of British Columbia, Southeast Alaska and Puget Sound. *Royal British Columbia Museum Handbook*. UBC Press. 166 pp.
- Lane, N. G., J. A. Waters, and C. G. Maples. March, 1997. Echinoderm faunas of the Hongeguleleng Formation, Late Devonian (Famennian), Xinjiang-Uygur Autonomous Region, People's Republic of China. *Paleontological Society, Memoir* 47, 43 p.
- Lawrence, J.M., C.M. Pomory, J. Sonnenholzner, and C.-M. Chao. 1998. Bilateral symmetry of the petals in *Mellita tenuis*, *Encope micropora*, and *Arachnoides placenta* (Echinodermata: Clypeasteroidea). *Invertebrate Biology*, 117(1):94-100.
- Lawrence, J.M., J. Vásquez, B.D. Robbins, and A. Vega. 1996. Lack of plasticity of the body form, Aristotle's lantern and spines of *Tetrapygyus niger* (Echinodermata: Echinoidea). *Gayana Oceanol.* 4(2):93-97.
- Levin V.S., and E.N.Gudimova. 1997. Taxonomical interrelations of holothurians *Cucumaria frondosa* and *C. japonica* (Dendrochirotida, Cucumariidae). *Zoologicheskyy zhurnal*, 76(5): 575-584.
- Levin V.S., and E.N.Gudimova. 1997. Age changes in larval and juvenile skeleton of the sea cucumber *Cucumaria japonica*. *Biologiya Morya*, 23(1):46-50.
- Levin V.S. On the Latin name of Japanese sea cucumber. *Biologiya Morya*. (in press).
- Levin V.S. Feeding by shallow water holothuroids (Echinodermata) and its effect on the environment. (in press).
- Liao, Y., and A.M. Clark. 1996. On a new species of *Ophidiaster* (Echinodermata: Asteroidea) from southern China. *Bull. nat. Hist. Mus. Lond. (Zool.)*, 62(1): 37-39.
- Liao, Y. 1997. *Fauna Sinica: Echinodermata: Holothuroidea*. Science Press, Beijing, 334 pp. (In Chinese, with English summary and key).
- Liao, Y. (in press). On a deep sea Echinoderm collection from the Red Sea and the Gulf of Aden.
- Mah, C. 1998. New records, taxonomic notes, and a checklist of Hawaiian starfish. *Bishop Museum Occasional Papers*, No. 55:65-71.
- Manni, R., and U. Nicosia. 1997. A history of cyrtocrinid evolution. *Palaeopelagos*, 6 (1996):3-17.
- Manni, R., and U. Nicosia. *Saccocoma* as a normal benthonic stemless crinoid: an opportunistic reply within mud-dominated facies. *Palaeopelagos*, 7 (1997): (in press).
- Marsh, L.M. Hitch-hiking ophiuroids. *In: Proceedings of the 9th International Echinoderm Conference, San Francisco, CA, USA, 5-9 August 1996*. Balkema, Rotterdam (eds. R. Mooi and M. Telford).
- Massin, C. 1996. Holothurians (Echinodermata) collected on the Mediterranean continental slope during the DEPRO96 cruise. *Mésogée*, 55:43-48.
- Massin, C. 1997. First record of a Psolidae (Holothuroidea, Echinodermata) in the Mediterranean Sea (Sicilian Channel). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Biologie*, 67:101-106.
- Maubon, R.M. (in press). Inventories of echinids from collection Paul Thiery (1925). (Basic collection for the book, "Lambert & Thiery, Catalogue raisonné", 1925, 2760 p. And 500 pictures).
- McBride, S.C., W.D. Pinnix, J. M. Lawrence, A.L. Lawrence, and T.J. Mulligan. 1997. The effect of temperature on production of gonads by the sea urchin *Strongylocentrotus franciscanus* fed natural and prepared diets. *Journal of the World Aquaculture Society*. 28(4):357-369.
- McClintock, J.B., Baker, B.J., Baumiller, T.K. and Messing, C.G. Lack of chemical defense in two species of stalked crinoids: support for the predation hypothesis for Mesozoic bathymetric displacement. *J. Exp. Mar. Biol. Ecol.*
- McEdward, L.R. 1997. Reproductive strategies of marine benthic invertebrates revisited: Facultative feeding by planktotrophic larvae. *American Naturalist* 150(1):48-72.

- McEdward, L.R. and D.A. Janies. 1997 Relationships among development, ecology, and morphology in the evolution of echinoderm larvae and life cycles. *Biological Journal of the Linnean Society* 60:381-400.
- McEdward, L.R. 1996 Experimental manipulation of parental investment in echinoid echinoderms. *American Zoologist*. 36:169-179.
- McEdward, L.R. 1995. Evolution of pelagic direct development in the starfish *Pteraster tessellatus* (Asteroidea: Velatida). *Biological Journal of the Linnean Society*. 154:299-327.
- McKnight, D.G., and H.E.S. Clark. 1996. *Enigmaster scalaris*, n. gen., n. sp., a puzzling sea-star (Echinodermata, Asteroidea) from the Auckland Islands. *Journal of the Royal Society of New Zealand*, 26(2):205-214.
- Messing, C.G. 1997. Living Comatulids. pp. 3-30 *IN*: Waters, J. & Maples, C. (eds.), *Geobiology of Echinoderms*. Paleontological Society Papers, vol. 3. Carnegie Mus. Nat. Hist., Pittsburgh.
- Messing, C.G. (n press). A Revision of the Recent Indo-West Pacific Comatulid Genus *Comaster* Agassiz. Part 1: The type species of *Comaster* and *Phanogenia* Lovén (Echinodermata: Crinoidea: Comasteridae). *Invertebrate Taxonomy*.
- Messing, C.G. An initial re-assessment of the distribution and diversity of the East Indian shallow-water crinoid fauna. *IN*: Mooi, R. & Telford, M. (eds.) *Echinoderms*: San Francisco. Balkema, Rotterdam.
- Miller, B.A., and R.B. Emlet. 1997. Influence of nearshore hydrodynamics on larval abundance and settlement of sea urchins *Strongylocentrotus franciscanus* and *S. purpuratus* in the Oregon upwelling zone. *Mar. Ecol. Prog. Ser.*, 148:83-94.
- Miller, D.J., and S.K. Donovan. 1996. Geomorphology, stratigraphy and palaeontology of Wait-a-Bit Cave, central Jamaica. *Tertiary Research*, 17(1+2):33-49.
- Mironov, A.N. 1997. Holasteroid sea urchins. 4. *Echinisigra*. *Zoologicheskij Zhurnal*, 76(2):173-186.
- Mladenov, P.V. Class Ophiuroidea. In: *New Zealand Coastal Invertebrates*. Steve C. de Cook ed. (in press)
- Mladenov, P.V. and Campbell, A. 1998. Resource evaluation of the sea cucumber, *Stichopus mollis*, in the environmentally sensitive Fiordland region of New Zealand. *Echinoderms*: San Francisco, Rich Mooi and Malcolm Telford (eds), pp 481 - 487.
- Mladenov, P.V., R.M. Allibone, and G.P. Wallis. 1997. Genetic differentiation in the New Zealand sea urchin, *Evechinus chloroticus* (Echinodermata: Echinoidea). *New Zealand Journal of Marine and Freshwater Research* 31:261-269.
- Mladenov, P.V. 1996. Environmental factors influencing asexual reproductive processes in echinoderms. *Oceanologica Acta* 19: 227-235.
- Mooi, R. 1997. Sand dollars of the genus *Dendraster* (Echinoidea: Clypeasteroidea): Phylogenetic systematics, heterochrony, and distribution of extant species. *Bull. Mar. Sci.*, 61(2):343-375.
- Moore, A. (in press). Preliminary results of a holothurian survey of the new Wakatobi National Marine Park, SE Sulawesi, Indonesia. *SPC Beche-de-mer Bulletin*, number 10.
- Mooi, R. 1997. Sand dollars of the genus *Dendraster* (Echinoidea: Clypeasteroidea): Phylogenetic systematics, heterochrony, and distribution of extant species. *Bull. Mar. Sci.* 61(2):343-375.
- Morris, V.B., M. Frommer, and M. Byrne. 1997. Homeobox gene sequences identified in the sea urchin *Holopneustes purpureescens* Agassiz. In: R. Mooi et al (eds). *Echinoderms*: San Francisco. Balkema, Rotterdam (in press).
- Morris, V.B., J. Brammall, M. Frommer and M. Byrne. 1997. Hox-type and non-Hox homeobox gene sequences in genomic DNA of the sea urchin *Holopneustes purpureescens*. *Gene* 201: 107-110.
- Nebelsick, J.H., B. Schmid, and M. Stachowitsch. 1997. The encrustation of fossil and recent sea-urchin tests: ecological and taphonomic significance. *Lethaia*, 30:271-284.
- Nestler, H. (in press). Kretazische und eozäne Echiniden aus dem Südjemem. Berlin, *Zeitschrift für Geologische*



Wissenschaften.

- Oji, T., and S. Amemiya. 1998. Survival of crinoid stalk fragments and its taphonomic implications. *Paleontological Research*, 2(1):67-70.
- Okaji, K., T. Ayukai and J.S. Lucas. 1997. Food limitation in the growth and development of Crown-of-thorns starfish larvae in the Great Barrier Reef. *Proceedings of the 8th International Coral Reef Symposium 1*: 621-626.
- Okaji, K., T. Ayukai and J.S. Lucas. 1997. Selective uptake of dissolved free amino acids by larvae of the crown-of-thorns starfish. *Proceedings of the 8th International Coral Reef Symposium 1*: 613-616.
- Okaji, K., T. Ayukai and J.S. Lucas. 1997. Selective feeding by larvae of the crown-of-thorns starfish, *Acanthaster planci* (L.). *Coral Reefs* 16: 47-50.
- Palagiano, E., F. Zollo, L. Minale, M. Iorizzi, P. Bryan, J. McClintock, and T. Hopkins. 1996. Isolation of 20 glycosides from the starfish *Henricia downeyae*, collected in the Gulf of Mexico. *J. Nat. Prod.*, 59:348-354.
- Pearse, V.B., J.S. Pearse, M. Byrne and G. Hendler. 1997. Discovery of an accessible population of *Ophiocanops*, off NE Sulawesi, Indonesia. In: R. Mooi et al (eds). *Echinoderms*: San Francisco. Balkema, Rotterdam (in press).
- Peterson, K. J., R.A. Cameron, and E.H. Davidson. 1997. Set-aside cells in maximal indirect development: Evolutionary and developmental significance. *BioEssays* 19:623-631.
- Petr, V., R.J. Prokop, M. Mihaljevič, and O. Šebek. 1997. Chemical composition of the crinoid skeletal remains (Echinodermata) in the weathered limestones of the Bohemian Lower Devonian (Barrandian area). *Journal of the Czech Geological Society*, 42(1-2):41-58, 1 text-fig, 48 graphs. Praha.
- Piepenburg, D., W.G. Ambrose, A. Brandt, P.E. Renaud, M.J. Ahrens, and P. Jensen. 1997. Benthic community patterns reflect water column processes in the Northeast Water polynya (Greenland). *J. Mar. Syst.*, 10: 467-482.
- Piepenburg, D., and M.K. Schmid. 1997. A photographic survey of the epibenthic megafauna of the Arctic Laptev Sea shelf: Distribution, abundance, and estimates of biomass and organic carbon demand. *Mar. Ecol. Prog. Ser.*, 147: 63-75.
- Piepenburg, D., J. Voss, and J. Gutt. 1997. Assemblages of sea stars (Echinodermata: Asteroidea) and brittle stars (Echinodermata: Ophiuroidea) in the Weddell Sea (Antarctica) and off Northeast Greenland (Arctic): a comparison of diversity and abundance. *Polar Biol.*, 17: 305-322.
- Portell, R.W., and C.W. Oyen. Occurrence of the regular urchin *Eucidaris tribuloides* from the Tamiami Formation (Pliocene) of Florida. *Tulane Studies in Geology and Paleontology* 30(2):99-104.
- Price, A.R.G., and F.W.E. Rowe. 1996. Indian Ocean echinoderms collected during the Sindbad Voyage (1980-81): 3. Ophiuroidea and Echinoidea. *Bull. Nat. Hist. Mus. Lond. (Zool.)*, 62(2): 71-82.
- Prokop, R.J., and V. Petr. (1996). *Kuzbassocrinus* cf. *bystrowi* Yeltyschewa, 1957 (Crinoidea, col.) From the Lower Devonian Koněprusy Limestone of the Barrandian area (Czech Republic). *Journal of the Czech Geological Society*, 41(3-4):220-222, pl. I, figs. 1-6. (Czech summary). Praha.
- Prokop, R.J., and V. Turek. 1997. The crinoid holdfast *Lichenocrinus* Hall, 1866 in the Ordovician of Bohemia (Czech Republic). *Bulletin of the Czech Geological Survey*, 72(3):307-310.
- Prokop, R.J., and V. Petr. 1997. The genus *Pygmaeocrinus* Bouška, 1947 (Crinoidea, Inadunata), in the Devonian of the Barrandian area (Czech Republic). *Acta Musei Nationalis Pragae, Series B, Historia Naturalis*, 53(1-2):1-10, pls. 1-8. Praha.
- Prestedge, G.K. The distribution and biology of *Patiriella vivipara* (Echinodermata: Asteroidea: Asterinidae) a seastar endemic to southeast Tasmania. (prospective journal: *Records of the Australian Museum*).
- Rajpal, V., and A.S. Thandar. (in press). *Neocucumis kilburni* sp. Nov. (Echinodermata: Holothuroidea: Cucumariidae) from the east coast of South Africa, with a key of the genus *Neocucumis*. *S. Afr. J. Zool.*

- Reich, M., P. Frenzel, and E. Herrig. 1996. Zur qualitativen Verteilung der Mikrofossilien in der Rügener Schreibkreide (oberes Unter-Maastrichtium, NE-Deutschland). [The qualitative distribution of the microfossils from the Rügen White Chalk (late Lower Maastrichtian, Northeastern Germany)]. - Greifswalder Geowissenschaftliche Beiträge, 3: 5-20, 3 figs., 1 table.; Greifswald.
- Reich, M. 1996. Holothurienreste (Echinodermata) aus der Weißen Schreibkreide (Unter-Maastrichtium) der Insel Rügen (Norddeutschland). [Holothurian remains (Echinodermata) from the White Chalk of the Isle of Rügen (Northern Germany)]. - Terra Nostra (Schriften der Alfred-Wegener Stiftung), 96/6: 72; Bonn.
- Reich, M. 1997. Holothurienreste (Echinodermata) aus der Oberkreide - ein Überblick. [Upper Cretaceous holothurians (Echinodermata) - a summary]. - Zeitschrift der Deutschen Geologischen Gesellschaft, 148 (1): 71-79, 1 fig., 1 table.; Stuttgart.
- Reich, M. 1997. *Tricalclamnella cretacea* paragen. et parasp. nov. (Echinodermata) aus dem Maastrichtium Norddeutschlands. [*Tricalclamnella cretacea* paragen. et parasp. nov. (Echinodermata) from the Maastrichtian of northern Germany]. - Greifswalder Geowissenschaftliche Beiträge, 4:113-119, 2 figs., 1 pl.; Greifswald.
- Reich, M. 1997. Holothurienreste (Echinodermata) aus dem Eemium der Kernbohrung DA-1 bei Dagebüll (Pleistozän, NW-Deutschland). [Holothurian remains (Echinodermata) from the Eemian of the Dagebüll Well DA-1 (Pleistocene, Northwestern Germany)]. - Meyniana, 49: 139-149, 1 Abb., 2 Tab., 1 Taf.; Kiel.
- Reich, M. 1997. Fossile Holothurienreste (Echinodermata) aus Geschieben - Ein Überblick. [Fossil holothurian remains (Echinodermata) from glacial erratic boulders - an overview]. - [In:] Zwanzig, M. & Löser, H. (Hrsg.): Berliner Beiträge zur Geschiebeforschung.: 81-89, 2 tables., pl. 15; Dresden (CPress-Verlag).
- Reich, M. & Weller, H. (in press): Erster Nachweis von Holothurien aus dem Devon des Harzes (Deutschland). [The first record of holothurians from the Devonian of the Harz Mts. (Germany)]. - Neues Jahrbuch für Geologie und Paläontologie, Monatshefte; Stuttgart.
- Roccheri, M.C., L. Bosco, M.E. Ristuccia, D. Cascino, G. Giudice, A.O. Oliva, and A.M. Rinaldi. 1997. Sea urchin mitochondrial matrix contains a 56-Kda chaperomine-like protein. *Biochemical and Biophysical Research Communications*, 234, 646-650. Academic Press, San Diego, New York, Boston, London, Sydney, Tokyo, Toronto.
- Roccheri, M.C., G. Barbata, F. Cardinale, C. Tipa, L. Bosco, A.O. Oliva, D. Cascino, and G. Giudice. 1997. Apoptosis in sea urchin embryos. *Biochemical and Biophysical Research Communications*, 240, 359-366. Academic Press, San Diego, New York, Boston, London, Sydney, Tokyo, Toronto.
- Rogers, C.N., J.E. Williamson, D.G. Carson, P.D. Steinberg. 1998. Diel vertical movement by mesograzers on seaweeds. *Mar. Ecol. Prog. Ser.* (in press).
- Roux, M., N. Ameziane, and J. David. 1997. Compromis adaptatifs et ontogenèse chez les crinoïdes pédonculés. *Géobios*, Lyon, M.S. 2 1:319-327, 7 fig.
- Roux, M. 1997. Classification et ontogenèse chez les crinoïdes: une révision nécessaire de la hiérarchie des caractères. *Bull. Soc. Zool. Fr.*, 1 2 2 (4) : 371-378, 3 fig.
- Roux, M., and D.L. Pawson. (in press). Two new species of hyocrinid crinoids (Echinodermata), with comments on presumed giant-dwarf gradients related to seamounts and abyssal plains. *Pacific Science*, 4 pl.
- Rowe, G.T., G.S. Boland, E.G. Escobar Briones, M.E. Cruz-Kaegi, A. Newton, D. Piepenburg, I. Walsh, and J. Deming. 1997. Sediment community biomass and respiration in the Northeast Water Polynya, Greenland: a numerical simulation of benthic lander and spade core data. *J. Mar. Syst.*, 10: 497-515.
- Samyn, Y., N.A. Muthiga, and N. Dars. (in preparation). Indicative results on the reproductive periodicity of the tropical sea urchin *Echinothrix calamaris* (Pallas, 1774).
- Samyn, Y., and N.A. Muthiga. (in preparation). Reproductive status of the tropical sea urchin *Echinothrix diadema* (Linnaeus, 1758) thriving in the Mombasa Marine National Park, Kenya.

- Sartoretto, S., and P. Francour. 1997. Quantification of bioerosion by *Sphaerechimus granularis* on 'coralligène' concretions of the western Mediterranean. *J. Mar. Biol. Ass. U.K.*, 77:565-568.
- Schroeter, S.C., J.D. Dixon, T.A. Ebert, and J.V. Rankin. 1996. Effects of kelp forests *Macrocystis pyrifera* on the larval distribution and settlement of red and purple sea urchins *Strongylocentrotus franciscanus* and *S. purpuratus*. *Mar. Ecol. Prog. Ser.*, 133:125-134.
- Sconzo, G., G. Amore, G. Capra, G. Giudice, D. Cascino, and G. Ghersi. Identification and characterization of a constitutive hsp75 in sea urchin embryos. *BBRC* 234: 24-29.
- Sconzo, G., F. Geraci, R. Melfi, D. Cascino, G. Spinelli, G. Giudice, and R. Sirchia. 1997. Sea urchin HSF *in vitro* and in transgenic embryos. *BBRC* 240: 436-441.
- Sconzo, G., D. Cascino, G. Amore, F. Geraci, and G. Giudice. 1997. Effect of the IMPase inhibitor L690, 330 on sea urchin development. *Cell Biol. Inter.* 21.
- Sedova, L.G., N.M. Aminina, Yu. E. Bregman, and A.V. Podkorytova. Impact of some artificial foods on sea urchins *Strongylocentrotus intermedius* gonads development and their roe quality. (in press).
- Sköld, M. (in press). Escape responses in four epibenthic brittle stars (Ophiuroidea: Echinodermata). *Ophelia*.
- Sköld, M., and J.S.G. Gunnarsson. 1996. Somatic and germinal growth of the infaunal brittle stars *Amphiura filiformis* and *A. chiajei* in response to organic enrichment. *Marine Ecology Progress Series* Vol. 142: 203-214.
- Smirnov, A. 1997. New apodid holothurians (Holothurioidea, Apodida) from the New Caledonian continental slope collected during "BIOGEOCAL" expedition 1987. *Zoosystema*, 19(1): 15-26.
- Smith, A.C. 1997. Treasures from the Sea for Medicine. Med-Marine Publications, Panama City, Florida. 57 pp.
- Solis-Marín, F.A., H. Reyes-Bonilla, M.D. Herrero-Pérezrul, O. Arizpe-Covarrubias, and A. Laguarda-Figueras. 1997. Systematics and distribution of the echinoderms from Bahía de la Paz. *Ciencias Marinas*, 23(2):249-263.
- Solis-Marín, F.A., A. Laguarda-Figueras, and A. Leija-Tristán. 1997. Morphology, systematics, and distribution of *Meoma ventricosa grandis* and *M. ventricosa ventricosa* (Echinodermata: Echinoidea: Brissidae) along Mexican coasts. *Proc. Biol. Soc. Wash.*, 110(2): 301-309.
- Sroka, S. D., and D. B. Blake. 1997. Echinodermata, p. 223-225. In C. W. Shabica and A. K. Hay (eds.), *Richardson's Guide to the Fossil Fauna of Mazon Creek*. Northeastern Illinois University, Chicago.
- Stewart, B.G. (1998). Observations on induced spawning and ovulation in the snake star *Astrobrachion constrictum* (Echinodermata: Ophiuroidea). In: Mooi, R. and Telford, M. (eds.) *Echinoderms San Francisco*. Proceedings of the 9th IEC, San Francisco. Balkema. Amsterdam. pp. 431-436.
- Stewart, B.G. (1998). Can a snake stars earn its keep? Feeding and cleaning behaviour in *Astrobrachion constrictum* (Echinodermata: Ophiuroidea), a euryalid brittle-star that lives in association with the black coral *Antipathes fiordensis*. *Journal of Experimental Marine Biology and Ecology* 221: 173-189.
- Stewart, B., and P.V. Mladenov. Class Crinoidea. In: *New Zealand Coastal Invertebrates*. Steve C. de Cook ed. (in press).
- Stewart, B., and P.V. Mladenov. 1997. Population structure, growth and recruitment of the euryalinid brittle-star *Astrobrachion constrictum* (Echinodermata: Ophiuroidea) in Doubtful Sound, Fiordland, New Zealand. *Marine Biology* 127: 687-697.
- Stokes, M.D., B.G. Stewart, and D. Epel. (in press). The kinetics of the cortical reaction and respiratory burst following fertilisation of *Sterechinus neumayeri* eggs. *Antarctic Journal of the United States*.
- Štorc, R. 1997. Ophiuroid remains from the nearshore environments of the Bohemian Cretaceous Basin (Cenomanian-Turonian boundary interval). A preliminary report. *Bull. Czech geol. Surv.*, 72(2):171-174. Praha.
- Tahera, Q. 1996. Some shallow water asteroids (Starfishes) of Karachi. *Scientific Khyber* 9(1):73-83.

- Tahera, Q. 1996. A checklist of Echinoderm fauna of Pakistan. *Scientific Khyber* 9(2):103-106.
- Tahera, Q. 1997. Note on *Synaptula recta* Semper, 1868 (Echinodermata, Holothuroidea, Synaptidae) new to Pakistan waters. *Pakistan Journal of Zoology* 29(1): 92-94.
- Telford, M. and O. Ellers. (in press). The moving teeth of echinoids. International Echinoderms Conference, San Francisco.
- Telford, M. & Ellers, O. 1997. Tooth advancement muscles in the sand dollar, *Echinarachnius parma*. *Invertebrate Biology* 116, 255-261.
- Tesoro, V., F. Zito, Y. Yokota, E. Nakano, S. Sciarrino, and V. Matranga. A protein of basal lamina of the sea urchin embryo. *Develop. Growth Differ.* (in press).
- Thandar, A.S. 1996. *Chiridota durbanensis* new species and a new record of *Neothyonidium arthroprocessum* from the east coast of South Africa (Echinodermata: Holothuroidea). *S. Afr. J. Zool.* 31(4): 208-213.
- Thandar, A.S. 1998. A new genus and three new species of deep sea holothuroids from the west coast of South Africa (Echinodermata). *J. Zool. Lond.* 244: 79-88.
- Thandar, A.S. (in press). Some deep-sea holothuroids taken by the R. V. Africana II in 1959, in the collections of the South African Museum. *Ann. S. Afr. Mus.*
- Ubaghs, G.J. Echinodermes nouveaux du Cambrien supérieur de la Montagne Noire (France meridionale). *Geobios*, (in press).
- Ventura, C.R.R., A.P.C. Falcão, J.S. Santos, and C.S. Fiori. 1997. Reproductive cycle and feeding periodicity in the starfish *Astropecten brasiliensis* in the Cabo Frio upwelling ecosystem (Brazil). *Invertebrate Reproduction and Development*, 31:1-3 (1997) 135-141.
- Villier, L., G. Breton, and D. Néraudeau. 1997. Contexte paléocécologique biodiversité et signification biostratigraphique des astérides dans le Campanien stratotypique. *Ann. Soc. Géol. Du Nord*, 5 (2e sér.):181-188.
- Webster, G. D. (in press). Palaeobiogeography of Tethys Permian crinoids. International symposium on the Permian of eastern Tethys: Biostratigraphy, Palaeogeography and Resources. *Proceedings of the Royal Society of Victoria*.
- Webster, G. D. (in press). Distortion in the stratigraphy and biostratigraphy of Timor, a historical review with an analysis of the crinoid and blastoid faunas. International symposium on the Permian of eastern Tethys: Biostratigraphy, Palaeogeography and Resources. *Proceedings of the Royal Society of Victoria*.
- Webster, G.D., and K.J. Houck. 1999. Middle Pennsylvanian, Late Atokan-Early Desmoinesian, echinoderms from an intermountain basin, the Central Colorado Trough. *Journal of Paleontology*.
- Weinberg, S., and C. DeRidder. 1998. *Asthenosoma marisrubri* n.sp. (Echinodermata, Echinoidea) from the Red Sea. *Beaufortia*, 48(3):27-46.
- Williamson, D.I. 1998. Larval transfer in evolution. Chapter 33 (pp.436-453) [In] *Horizontal Gene Transfer*. (Eds.) M. Syvanen & C.I. Kado. Chapman & Hall, London & New York.
- Won, J.H., and B.J. Rho. 1998. Two new species and four new records of Holothuroidea from Korea. *Korean J. Biol. Sci.*, 2:9-20.
- Yokota, Y., and S. Amemiya. 1998. A putative vitellogenin in coelomic fluid of echinothurioid sea urchins, *Araeosoma owstoni* and *Asthenosoma ijimai*. *Comp. Biochem. Physiol.* 119A, 801-805.
- Zito, F., V. Tesoro, D.R. McClay, E. Nakano, and V. Matranga. 1998. Ectoderm cell-ECM interaction is essential for sea urchin embryo skeletogenesis. *Dev. Biol.* 196:184-192.

## ☆ HOW I BEGAN TO STUDY ECHINODERMS. ☆ PART 8.

**John Lucas, James Cook University, Australia**

I began to study echinoderms due to a villain.

My story goes back to the late 60s and early 70s when I was a new lecturer at James Cook University in northern Queensland. My PhD at University of Western Australia had been on various aspects of the biology of an insignificant group of spider crabs. It involved experimental studies on their ecophysiology. Thus, when I was appointed to JCU in 1968, I went there with plans to research crustaceans of the Great Barrier Reef. My plans were soon dashed. It was only possible to get out to the reefs nearest to Townsville by a 3 hour boat trip and these boat trips were organised by a shell-collectors' club. The trips only went out in winter months on days of spring low tides (to enable the shell-collectors to walk on the reef at low tide) and they only went out in calm weather. I waited through months of cancelled trips, due to bad weather, before I got out to the Great Barrier Reef. The coral reef community that I saw was overwhelming in beauty and complexity. It did not seem possible to take any component and research it in a sensible fashion. Thus, I gave up the idea of working on crustaceans of the GBR and looked to working on the intertidal crabs of the local mangroves (more than 40 crab species).

Then along came *Acanthaster planci*, the Crown-of-thorns starfish, "eating its way southwards" along the GBR in the late 60s. The late Dr Robert Endean, who was always prepared to give a strong opinion, stirred up public concern through the media. There was sufficient public concern about this villainous starfishes' threat to the GBR that Queensland government funds were made available for research into its ecology and coral damage. By chance, I became involved in a minor way with the Queensland government group that was researching the starfish. Although the larvae of *Acanthaster* were totally different to those of the crustaceans that I had previously worked with, I offered to have a go at rearing these larvae and was successful. There they were: tiny 5-armed starfish that subsequently grew and added arms.

Federal government funding was allocated for research on *Acanthaster* and I had a head start in the competition for funding with my experience of researching the early lifecycle. I then started from the hypothesis that the high fecundity of this starfish is the source of "plagues" in combination with environmental factors that strongly influence the survival of the initial tens of millions of eggs and larvae. Hence I engaged in a series of laboratory studies on the lifecycle of *Acanthaster* and environmental factors influencing the various stages. The problem of

access to the GBR was solved through obtaining enough funding to hire a small fast boat to go out to the reef according to my needs for starfish. The problem of identifying a manageable research topic was solved by the villain.

Ultimately, I teamed up with the eminent echinodermologist, Dr. Chuck Birkeland of University of Guam, to produce a book, "*Acanthaster planci*: Major Management Problem of Coral Reefs", CRC Press. We complemented each other's interests, in that Chuck's interests were primarily in field studies while mine were primarily in laboratory studies. Unfortunately, the book did not become an international best seller (probably its price ensured that it was strictly in the category of a library purchase).

The Crown-of-thorns starfish is still a "villain" in the destruction that it causes to many coral reefs in the Indo-Pacific region. We now know a lot about its biology and ecology, but there are still fundamental questions about the "plagues" that remain unanswered. These big questions are now in hands of the newer generation of coral reef ecologists and echinodermologists.



**Ram Mohan M.K.** (MRC of CMFRI, Tamilnadu, India).

After completing the course work of my Ph.D. program, I was fortunate to be put under Dr. D.B. James, the eminent Echinoderm specialist, to work on Echinoderms. At that time I had very limited knowledge of echinoderms, particularly confined to starfishes. Later we were asked to give two credit seminars as a part of our program, for which I selected the topics on holothurian resources and reproductive biology of some holothurians seen in India. While preparing for these seminars I had a fair amount of reading on not only holothuroids but also echinoderms in general. Slowly but steadily I developed an interest in the group. At CMFRI, Cochin and also during my brief stay at Tuticorin, I came across a good deal of literature, which gave me more insight into the characteristics of echinoderms, particularly taxonomy, diversity and reproductive features. At present I am doing my research on reproductive biology of holothurians. There is only one word which comes to mind when I think of echinoderms - 'Namasthe' (the Indian equivalent for Salute).





**Payikat Sahadevan Asha. (T.R.C. of CMFRI, Tuticorin, India).**

During my post-graduation, I was not having much idea on sea cucumbers. After that I got through the Agriculture Research Service as a scientist in C.M.F.R.I. I was in Fisheries Environmental Management Division and was very much eager to know about the projects allotted to me. After one month I got the transfer along with the projects allotted. I was surprised to know that I have to work under an eminent Senior Scientist Dr. D.B. James. I was very much enthusiastic to collect much information about sea cucumbers. After my preliminary discussion with Dr. James, I came to know that my knowledge is very poor, and I have to work a lot. When I started working, I could understand that the echinoderm - sea cucumber is an interesting animal group both economically and experimentally and it is the responsibility of all to conserve them as a scavenger of marine environment.



**Robert Singletary (University of Bridgeport, Connecticut)**

In the late 60's I was a new graduate student in Hilary Moore's laboratory. At that time the research focus was on the autoecology of the animals that made up the benthic community of Biscayne Bay. While many of the animals in the community had been studied, no one had tackled the most abundant animals, the brittle stars. Therefore, I naively decided that would be a fruitful research area. I soon found out why these animals were avoided, the brittle part of their name was their most impressive characteristic. It seemed that all you had to do was look at these animals and they would break apart. Additionally, we were in Miami, Florida, within easy reach of coral reefs, and the animals I chose to study lived in the muddy bottoms of turbid Biscayne Bay. Still the research was rewarding, and I was able to visit the reefs to obtain comparative information. I also learned what fascinating animals echinoderms are and I continue to marvel at them.



☆ CONFERENCES AND MEETINGS ☆  
(By Country or Region)

AFRICA

- Conand, C. Gestion durable de la filière holothuries à Madagascar. Séminaire international sur les récifs coralliens, octobre 1997, Nosy-be, Madagascar: 7p.
- Conand, C. Marine research and management programs in La Reunion. First WIOMSA Scientific Symposium, Mombassa, 1997, 2p (abstract).
- Moodley, M., and A.S. Thandar. 1997. The world's Beche-de-mer Fisheries. A review. ZSSA Symp. Zoology and Human Welfare, University of Cape Town, July, 1997.
- Thandar, A.S. 1996. A new species of the holothuroid genus *Paracucumaria* (Echinodermata) from deep waters of the west coast of South Africa. ZSSA Symp., Integrating Zoology and Subdisciplines, University of Pretoria, July 1996.
- Thandar, A.S. 1996. Probable phylogeny of the families of dendrochirotid holothuroids (Echinodermata). 9th S. African Mar. Sci. Symp., University of Cape Town, November 1996.

AUSTRALIA

- Goggin, C.L., N.E. Murphy. How many species of ciliates live in the gonads of seastars? 10th International Congress of Protozoology, Sydney, Australia, 21-25 July 1997.
- Webster, G.D. Palaeobiogeography of Tethys Permian Crinoids. Strzlecki International Symposium on the Permian of eastern Tethys: Biostratigraphy, Palaeogeography and Resources. Melbourne, V., Australia, Nov. 1997.
- Webster, G.D., P.A.Jell, and A.N.Derewetzky. Palaeobiogeography of Permian echinoderms of Australia. International Conference of Palaeobiogeography of Austrasian faunas and floras. Wollongong, NSW, Australia, Dec. 1997.
- Williamson, J.E., R. De Nys, and P.D. Steinberg. Larval responses vs. adult deterrents: ontogenetic shifts in the response of a sea urchin to host plant chemistry. 3rd International Larval Biology Meeting, Melbourne, Australia, January 13-16, 1998.

CANADA

- Hotchkiss, F.H.C., D.M. Rudkin, and S. Anderson. A case for rearmament - the oldest known evidence of regeneration in sea stars. 7th Canadian Paleontology Conference, University of Saskatchewan, Saskatoon, September 26-30, 1997.



- Rudkin, D.M., F.H.C. Hotchkiss, and S. Anderson. A case for rearmament - the oldest known evidence of regeneration in sea stars. [comment: a well-preserved specimen of *Promopalaeaster wilsonae* with two regenerating arms from the Bobcaygeon Formation, Middle Ordovician, Ontario]. **Royal Ontario Museum Nineteenth Annual Research Colloquium, 20 November 1997, Toronto, Canada.**
- Kobayashi, N. Marine ecotoxicology with echinoderm life cycle. **22nd Annual Aquatic Toxicity Workshop. Oct. 2-4, 1995. St. Andrews, New Brunswick, Canada.**

## EUROPE

- Bonasoro, F., M.D. Candia Carnevali, M. Patruno, and F. Sala. 1997. Potenzialità rigenerative in espianti di braccia di crinoidei (*Antedon mediterranea*). **Atti del 58° Congresso U.Z.L., Cattolica, Italy 1997, p.67**
- Candia Carnevali, M.D., F. Bonasoro, M. Patruno, and M.C. Thorndyke. 1997. Cellular and molecular mechanisms of arm regeneration in crinoid echinoderms. **Proceedings of International European AIRR Conference, Cologne, Germany 1997.**
- Fernandez, C., V. Pasqualini, A. Caltagirone, and C.F. Boudouresque. Diminution du stock de *Paracentrotus lividus* (Echinodermata: Echinoidea) dans un milieu lagunaire après une crise haline. **International Symposium of Coastal zone monitoring and medium to long term forecasting. Paris, France, 6-8/10/97.**
- Frenzel, P., M. Reich, and K. Winn. An Eemian marine microfauna from the well Dagebüll (Pleistocene, northwest Germany). **Second European Palaeontological Congress. Climates: Past, Present and Fututre. Vienna, Austria - July 10-12, 1997.**
- Hill, R.B. and F. Rahemtulla. Cellular mechanism as pressure-triggered local degeneration in the body wall of a sea cucumber. A118. **Society for Experimental Biology. Annual Meeting at York (UK), 23-27 March 1998.**
- Jesus, D., and L. Cancela da Fonseca. Echinoderm new species for the southwest coast of Portugal. **2nd Symposium on the Atlantic Iberian Continental Margin, Cádiz, 17-20 September 1997.**
- Jesus, D., and L. Cancela da Fonseca. 1997. Fauna Equinológica do Sudoeste de Portugal: 1ºs Resultados. **Actas do 9º Congresso do Algarve, Vilamoura.**
- Reich, M. Holothurienreste (Echinodermata) aus der Weißen Schreißkreide (Unter-Maastrichtium) der Insel Rügen (Norddeutschland). **66. Jahrestagung der Paläontologischen Gesellschaft in Leipzig (23.-28. September 1996).**

## INDIA

- James, D.B. New resources for the Indian Beche-de-mer industry and their management. **Fourth Indian Fisheries Forum. Organised by School of Marine Sciences, Cochin University of Science and Technology, Kochi. 25 November 1996.**

- James, D.B. On four new species of *Macrophiothrix* (Echinodermata: Ophiuroidea) from the Andamans. **National Conference on Aquaculture. Organised by the Centre for Aquaculture Research and Extension. Dept. Of Zoology, St. Xavier's College, Palayamkottai on 18/12/96.**
- James, D.B. Sea cucumber hatchery and culture prospects. **National Aquaculture Week Workshop at Tuticorin. Organised by the Aquaculture Foundation of India, Madras, 7/2/97.**
- James, D.B. On biotoxicity in echinoderms. **National Symposium on Recent Developments in Natural Products. Organised by the Department of Chemistry, Andhra University, 12/7/97.**
- James, D.B. Sea cucumber culture and seed production at the Indo-Egyptian Workshop on Oceanography with exclusive focus on mariculture. **Organised by the Central Marine Fisheries Research Institute, Kochi, 9/12/97.**

### JAMAICA

- Donovan, S.K. & Paul, C.R.C. 1997. Fossil jigsaws from southeast Jamaica: echinoderms of the Pliocene Bowden shell bed. **Proceedings of the 3rd Conference, Faculty of Natural Sciences, UWI, Mona, January 14-17: 14.**
- Donovan, S.K. & Pawson, D.L. 1997. Proximal growth of the column in bourgueticrinid crinoids (Echinodermata) following decapitation. **Proceedings of the 3rd Conference, Faculty of Natural Sciences, UWI, Mona, January 14-17: 37-38. [Poster.]**

### JAPAN

- Zito, F., V. Tesoro, D.R. McClay, E. Nakano, and V. Matranga. Extracellular matrix and skeletogenesis in the sea urchin embryo. **68th Ann. Meeting of the Zool. Soc. Japan, Nara, Japan, 2-4 Oct. 1997.**

### PAKISTAN

- Tahera, Q., and I. Nayeem. Occurrence of echinoderm larvae in Pakistan waters. **Workshop on Coastal Aquaculture, 23-25 April 1996. Karachi, Pakistan.**
- Tahera, Q. An addition to the existing fauna of the family Cucumariidae (Holothuroidea: Echinodermata) from Pakistan. **17th Pak. Congr. Of Zool., 5-7 April 1997, Karachi, Pakistan.**

## RUSSIA

- Piepenburg, D., and M.K. Schmid. 1996. A photographic survey of the epibenthic megafauna of the Arctic Laptev Sea shelf: distribution, abundance, and estimates of biomass and organic carbon demand [poster]. **3rd Workshop of the Russian-German Project Laptev Sea System in St. Petersburg (Russia), 17-19 October 1996.**

## UNITED STATES

- Adams, N.L. The effects of and defenses against ultraviolet radiation on reproduction and development of sea urchins. **Third Annual EPA STAR Graduate Fellowship Conference, Arlington, VA, June 1998.**
- Andacht, T.M. Metal binding proteins are involved in fertilization envelope elevation in the sea urchin, *Lytechinus variegatus* (Lamarck). **Developmental Biology of the Sea Urchin XI, Marine Biological Laboratories, Woods Hole, MA, 10-14 September 1997.**
- Arakaki, Y. A comparative ecological and reproductive study on the four types of sea urchin *Echinometra mathaei* (Blainville) on Okinawa reef flat. **9th International Echinoderm Conference San Francisco, California, USA, 5-9 August 1996.**
- Bonasoro, F., M.D. Candia Carnevali, C. Moss, and M.C. Thorndyke. Epimorphic versus morphallactic mechanism in arm regeneration of crinoids and asteroids: pattern of cell proliferation/differentiation and cell lineage. **Proceedings of 9th International Echinoderm Conference, San Francisco, U.S.A. 1996.**
- Candia Carnevali, M.D., F. Bonasoro, U. Welsch, and M.C. Thorndyke. Arm regeneration and growth factors in crinoids. **Proceedings of 9th International Echinoderm Conference, San Francisco, U.S.A. 1996.**
- De Ridder, C., and R.L. Brigmon. A symbiotic relationship between spatangoids (Echinoidea) and *Thiothrix* spp. **96th General Meeting of the American Society for Microbiology, New Orleans, Louisiana (USA). May 1996.**
- Donovan, S.K. 1997. Taphonomy of Caribbean Cenozoic echinoids. **Geological Society of America North-Central Section Meeting, Madison, Wisconsin. Geological Society of America Abstracts with Programs, 29(4): 13.**
- Donovan, S.K. & Harper, D.A.T. 1997. Crinoids and brachiopods in the Miocene of the Antillean region. **Geological Society of America Annual Meeting, Salt Lake City, Utah, 20-23 October. Geological Society of America Abstracts with Programs, 29(6): A405.**
- Gielazyn, M.L. Subsurface feeding behavior of the burrowing ophiuroid *Microphiopholis gracillima* (Stimpson) (Echinodermata). **The Benthic Ecology Meeting, Melbourne, Florida, March 1998.**
- Lane, N.G. 1. Age and Revision of Whidborne's (1898) Echinoderms from the Lower Pilton beds (Famennian) of the type Devonian. 2. A time-line for the pre-1700 literature on fossil and living crinoids. **Abstracts. Geological Society of America meeting, Salt Lake City, October 1997.**
- Messing, C.G. 1997. Biozonation on deep-water carbonate mounds and associated hardgrounds in the northeastern Straits of Florida. **Geological Society of America (Southeast Section) Abstracts with Programs 29(3):A58.**

- Miller, R.J. Rapid ingestion of sinking organic matter by bathyal surface deposit-feeders, as indicated by Th-234. **Deep-Sea Biology Meeting, Monterey, California, October 1997.**
- Oyen, C.W., and R.W. Portell. Biostratigraphy, paleobiogeography, and facies relationships of Cenozoic echinoids from Florida. **Geological Society of America Ann. Mtg. Abstr. With Prog. 29(6): 404, Salt Lake City, Utah, October 20-23, 1997.**
- Oyen, C.W., and R.W. Portell. Temporal and areal patterns of fossil echinoids in Florida: another tool to interpret facies distributions. **Georgia Academy of Science Annual Meeting 56(1):57-58, April 24-25, 1998, Savannah, GA.**
- Oyen, C.W., K.B. Fountain, R.W. Portell, and G.H. McClellan. Phosphatized brachiopod, echinoid, and annelid fossils from the upper west Florida slope, eastern Gulf of Mexico. **Geological Society of America SE Section, Abstr. With Prog. 30(4):53-54, Charleston, West Virginia, March 30-31, 1998.**



**Papers on Echinoderms presented at the XIV Zoology National Congress, November 4th -7th 1997, Guanajuato, Guanajuato, México.**

(Communicated by Francisco Solís-Marín).

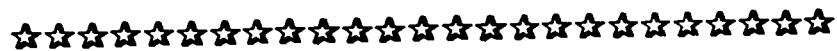
- Nepote G., and C. Ana. Sistemática de los holoturoideos (Echinodermata: Holothuroidea) de Bahía de Banderas, Jalisco, Nayarit, México.
- Gutiérrez Castro, Adriana I., and F.A. Solís-Marín. Equinoideos (Echinodermata: Echinoidea) de profundidad en el Golfo de México.
- Solís-Marín, F.A., and Frontana Uribe Sarita C. *Ocnus suspectus* (Ludwig) (Echinodermata: Holothuroidea) un nuevo registro para el Caribe mexicano.
- Castro-Lozano, E.L, S. Ariza-Mancio, and F.A. Solís-Marín. Nuevo registro de ofiodermátido (Echinodermata : Ophiuroidea) del Caribe Mexicano.
- Lara López, A. L., A. Saucedo García, and F.A. Solís-Marín. Listado. Sistemático de los equinodermos (Echinodermata) del estado de Guerrero, México.
- Benítez Villalobos, F., and A. Estrada Vargas. Los equinodermos de la zona intermareal de Santa Elena, Oaxaca.
- Ariza-Mancio, S., and F.A. Solís-Marín. Crecimiento y distribución de *Rhyncholampas pacificus* A. Agassiz (Echinodermata: Echinoidea).
- Mata Pérez, E. & Laguarda-Figuera, A. Principales factores bio-abióticos que afectan la distribución de la Familia Luidiidae (Echinodermata: Asteroidea), en las costas de México.





**The Fourth Annual Florida Echinoderm Festival was held at Jacksonville University on 25 October 1997, organized by Dr. Lee Ann Clements.**

The next Festival will be at the University of South Florida in autumn, 1998.



**Western Society of Naturalists Meeting, Monterey, California, Dec 26-30, 1997.**

(Communicated by Christopher Mah).

- Ahlgren, M.O. Sheldon Jackson College, Sitka, AK. Seasonal changes in body composition and diet of red sea cucumbers (*Parastichopus californicus*) near Sitka, Alaska.
- Bolden, S.R., and G.C. Jensen. Allegheny College, Meadville, PA and Shannon Pt. Marine Center, Anacortes, WA. Digging for dollars: predator-prey interactions within beds of *Dendraster excentricus*.
- Bingham, B., J. Burr, and K. Chun. Huxley College, Western Wash U. Bellingham, WA; Biol. Dept. U. Puget Sound, Tacoma. WA; Zoology Dept., Brigham Young, U. Provo, UT. Causes and consequences of arm loss in the starfish *Leptasterias hexactis*.
- Dalby, J.E., Jr., W.G. Ambrose, Jr., and P.E. Renaud. Biology Dept. Bates College, Lewiston, Maine. Do ice cover and food supply affect growth of arctic ophiuroids?
- Garza, D.D. and C.D. Robles. Dept. of Ecology, Evolution and Marine Biology, University of Calif, Santa Barbara; Dept. of Biology and Microbiology, UCLA. The effect of freshwater incursions on diel movement of *Pisaster ochraceus* in a Pacific northwest rocky intertidal community.
- James, D.W. Moss Landing Marine Labs. The biology of the sea urchin *Toxopneustes roseus* in rhodolith beds in Baja California Sur, Mexico.
- Konar, B. UC, Santa Cruz. Kelp stand persistence adjacent to urchin Barrens.
- Lambert, P. Royal BC Museum Victoria, B.C. Canada. Recent additions to the holothuroid fauna of the northeastern Pacific Ocean (Echinodermata).
- Mah, C. Dept. of Invert. Zool, CAS, Golden Gate Park, San Francisco, CA. Phylogeny and taxonomic revision of the Brisingida (Asteroidea).

- McAlary, F. and T. Turney. Friday Harbor Labs, WA; Catalina Isl. Conservancy. Kelp, urchins, and ocean climate at Catalina Island.
- McNaught, T. D.C. Univ. of Maine, Darling Marine Center. Are populations regulated by supply or post-settlement mortality? Algal habitat effects on settlement and survival of the green sea urchin.
- Medeiros-Bergen, D.E., and T.A. Ebert. Dept. of Mathematics and Science, Boston University Boston and Dept. of Biology, San Diego State University, San Diego, CA. Selective constraints on brittlestars with contrasting development modes.
- Selivanova, O.N., and E.A. Arkhipova. Kamchatka Inst. of Ecology, Petropavlovsk-Kamchatsky, Russia. Changes in algae-sea urchin communities of the Avacha Bay (Kamchatka) caused by pollution.
- Vicknair, K.E., J.S. Pearse, J.A. Estes, J.B. McClintock. UC Santa Cruz and University of Alabama, Birmingham. When keystones collide: sea otters and sea stars.



**Annual Meeting of the Florida Association of Benthologists St. Petersburg, Florida. 2-3 December 1998.**

(contributed by J.M. Lawrence)

- Tan, Chih-Yi. Variability in size-frequency distributions of populations of the sand dollar *Mellita tenuis* over space and time.
- Hill, Sophie, and John Lawrence. Microhabitats of co-occurring sea urchins *Lytechinus variegatus* and *Arbacia punctulata* on the Florida gulf coast shelf.
- Lawrence, John, Reinaldo Rios, and Paul Llobet. The sand dollar *Mellita tenuis* and the starfish *Luidia senegalensis* at Naples, Florida.



**Annual Meeting of the World Aquaculture Society Las Vegas, Nevada. 15-19 February 1998.**

(contributed by J.M. Lawrence)

- Agatsuma, Yukio. Urchin aquaculture in Japan.
- Burke, Brian G. Sea urchin gonad enhancement: economic feasibility analysis.
- Cook, Elizabeth, and Maeve Kelly. Gonad development and somatic growth in the green sea urchin *Psammechimus miliaris* fed artificial and natural diets.

Garrido, Carolina L., and Bruce J. Barber. Effects of temperature and food ration on gonad growth and gametogenesis of the green sea urchin *Strongylocentrotus droebachiensis*.

Grosjean, Philippe, Christine Spirlet, and Michel Jångoux. Is land-based closed cycle echinoculture (sea urchin aquaculture) a viable alternative to fisheries today?

Kelly, Maeve S. Factors influencing the asomatic and somatic growth of the sea urchin *Psammechinus miliaris* when maintained in polyculture with the Atlantic salmon.

Keesing, John, Karina C. Hall, and Steven M. Clarke. Review of status of world sea urchin fisheries points to opportunities for aquaculture.

Lawrence, Addison, John Lawrence, Joseph Kearnes, and Galen Rokey. The development of prepared feeds for sea-urchin aquaculture.

Lawrence, John, and Alexander Bazhin. The use of life-history characters to evaluate the potential of sea urchins for aquaculture.

Lesser, Michael P., and Charles W. Walker. Over exploitation of the urchin fishery: does history repeat itself and is there anything we can do to insure a sustainable yield to the market.

McBride, Susan C., John Lawrence, and Addison Lawrence. Growth, feeding rate, and feeding efficiency of small sea urchin *Strongylocentrotus franciscanus* fed prepared feeds of three protein levels.

McGinn, Nature A., Michael P. Lesser, and Charles W. Walker. The influence of temperature and photoperiod on vitellogenesis in the green sea urchin *Strongylocentrotus droebachiensis*.

Pantazis, Panos A., and Maeve S. Kelly. Production of artificial diets from cast macroalgal fronds and commercial raw materials for the sea urchin *Psammechinus miliaris*.

Walker, Charles W., and Michael P. Lesser. Manipulation of food and photoperiod out-of-season gametogenesis in the green sea urchin *Strongylocentrotus droebachiensis*: implications for land-based aquaculture.

Watts, Stephen A., S. Anne Boettger, James B. McClintock, and John Lawrence. Assessment of *Lytechinus variegatus* as a fishery and aquaculture candidate in the Gulf of Mexico.



**Papers presented at the Annual Meeting of the Society for Integrative and Comparative Biology, 3-7 January, 1998, Boston, Massachusetts. Abstracts in the American Zoologist, 37(5), 1997.**

(Contributed by J. M. Lawrence)

Cuet, P., P. Chabanet, C. Conand, Y. Letourneur, T. Lison de Loma, D. Mioche, O. Naim, and S. Semple. Eutrophication on the St-Gilles la Saline reef complex (Reunion): a synthesis of pluridisciplinary works. (poster). p.168A.

Flammang, P. What can footprints tell us about temporary adhesion of seastar podia. p.179A.

Hendler, G., and M.J. Grygier. Babysitting brittle stars; first report of intergeneric symbiosis among Ophiuroidea. p.55A.

Hoffman, J.R. The good, the bad, and the ugly: UV-induced developmental difficulties in the sand dollar *Dendraster excentricus*. p.192A.

Janies, D. Xyloplax is an asteroid. p.195A.

- Klinger, T.S., J.A. Sampsell, and C.R. Johnson. Sediment enrichment and nutrient absorption by Aspidochirotida (Echinodermata: Holothuroidea) of Heron Island, Great Barrier Reef. p.56A.
- Lee, S.E. A molecular comparison between species within the diadematid urchin genus *Centrostephanus* (Echinoidea). p.58A.
- Leong, P.K.K., and D.T. Manahan. Changes in Na<sup>+</sup>, K<sup>+</sup>-ATPase activity during development of an Antarctic sea urchin. p.123A.
- Levinton, J.S., and G.A. Wray. The divergence of the animal phyla: slow genetic fizz or Cambrian pop? p.88A. (Echinoderm-chordate).
- Levitan, D.R. The battle of the bulge: selection on egg size in marine invertebrates. p.111A.
- Marsh, A.G., and D.T. Manahan. Energy metabolism in embryos and larvae of an Antarctic sea urchin. p.122A.
- McClintock, J.B., and B.J. Baker. Palatability and chemical defense of eggs, embryos and larvae of Antarctic marine invertebrates. p.111A.
- McEdward, L.R. Simulation models of larval planktotrophy in marine invertebrates. p.111A.
- McGovern, T.M. General and reproductive ecology of the brittle star *Ophiactis savignyi*. p.46A.
- Mooi, R., and B. David. Evolution within a bizarre phylum: advances in understanding skeletal homologies of the earliest echinoderms. p.88A.
- Sampsell, J.A., T.S. Klinger, and C.R. Johnson. Reproductive fission and genetic population structure of *Holothuria atra* and *Holothuria leucospilota* (Echinodermata: Holothuroidea) of Heron Island and Wistari Reefs, Great Barrier Reef. p.57A.
- Schmitt, E.F. The influence of herbivorous fishes on coral reef communities with low sea urchin abundance: a study. p.43A.
- Tollini, C.D., T.S. Klinger, J.M. Lawrence, and A.L. Lawrence. Effect of water flow and protein content of feed on absorption efficiency and production of *Strongylocentrotus droebachiensis* (Echinodermata). p.57A.
- Vickery, M.S., and J.B. McClintock. Regeneration in sea star larvae. p.191A.
- Wasson, K.M., and S.A. Watts. Estradiol, testosterone, and progesterone affect ovarian development in the echinoid *Lytechinus variegatus*. p.183A.
- Wray, G.A., and C.J. Lowe. The origin and diversification of echinoderms: new roles for old genes. p.171A.



**Papers presented at the XVIII Congreso de Ciencias del Mar, Iquique, Chile, 4-8 May 1998.**

(Communicated by J.M. Lawrence)

- Barahona, N., and G. Jerez. La pesquería del erizo (*Loxechinus albus*) en las Regiones X a XII de Chile: 13 años de historia (1985-1997).
- Lawrence, J.M. Energy budgets, life-history strategies and the potential of sea urchins for aquaculture.
- Lozada, E., and P. Figueroa. Sobre la fecundidad del erizo *Loxechinus albus* en Melinka, XI Región.



- Soto, R. Estado actual del conocimiento de los equinodermos en la zona norte de Chile y su relación en eventos "El Niño".
- Stotz, W., C. Valladares, E. Pérez, and S. Marín. Fallas en el reclutamiento de las poblaciones del erizo rojo *Loxechinus albus* en la XII Región: sus implicancias para la administración del recurso.
- Stotz, W., C. Valladares, E. Pérez, and S. Marín. Estimaciones de mortalidad para el erizo rojo *Loxechinus albus* en la XII Región.
- Vásquez, J., and J. Vega. Ecología de asteroideos submareales del norte de Chile.
- Volbehr, U. Ecología y nutrición de *Anasterias antarctica* (Luetken, 1856) (Echinodermata: Asteroidea) y *Pseudechinus magellanicus* (Echinodermata: Echinoidea) en una playa de bloques y cantos: Bahía Laredo, Región de Magallanes.



**North American Echinoderms Meeting, Wallops Island, Marine Science Center, Wallops Island, Virginia, August 16-19, 1998. Program and Abstracts.**

(Communicated by Thomas Scott Klinger)

- Boettger, S.A., S.A. Watts, J.B. McClintock, L.E. Thompson, and J.M. Lawrence. Variations in the distribution and abundance of *Lytechinus variegatus* in Saint Andrew Bay, northern Gulf of Mexico. A10
- Bosch, I., and D.K. Karentz. Effects of UV light on echinoderm development during the Antarctic springtime depletion of ozone. A12
- Christensen, A.B. The effects of declining PO<sub>2</sub> and hypercapnia on the oxygen consumption rate of *Hemipholis elongata* (Echinodermata: Ophiuroidea). A15
- Creaser, E.S. Variation in tubefoot structure along the length of a burrowing brittlestar *Acrocnida brachiata*. A17
- Creaser, E.S., L.L. Robbins, and J.M. Lawrence. An investigation into the relationship between magnesium, echinoderm skeletal proteins and calcium carbonate. A21
- Dale, J. Chemosensory search behavior in the starfish *Asterias forbesi*. A18
- Ferguson, J.C. How do echinoderms maintain fluid balance? A14
- Greer, S.P., C.D. Amsler, and J.B. McClintock. Inhibition of algal spore settlement caused by aqueous and organic extracts of seastar body walls. A13
- Hill, R.B. What is "local degeneration" in holothurian body wall? A18
- Hill, S.K., and J.M. Lawrence. Microhabitats of co-occurring *Lytechinus variegatus* and *Arbacia punctulata* (Echinodermata: Echinoidea) on the Florida Gulf Shelf. A16
- Hotchkiss, F.H.C., and J.M. Lawrence. Origin of abnormal numbers of rays in starfish (Echinodermata). A16
- Hottenrott, S.I. Status of the genera in the ophiuroid family Ophiolepididae: Time to take out the trash? A11
- Klinger, T.S., E.W. Mitcheltree, J.M. Lawrence, and A.L. Lawrence. Effect of temperature, water flow, and feed formulation on feeding, respiration, and production of *Strongylocentrotus droebachiensis* (Echinodermata):

- Echinoidea). A20
- Knott, K. E. Molecular phylogeny of the forcipulatida (Asteroidea).
- Lawrence, J.M., C.M. Pomory, and B. Wawrik. Eccentricity of the apical system and peristome of sand dollars (Echinodermata: Echinoidea). A17
- Lawrence, J.M., and J. Sonnenholzner. The sea urchin *Tripneustes depressus*, the sea cucumber *Selenkothuria theeli*, and the starfish *Phataria unifascialis* (Echinodermata) at Punta Los Frailes and Punta Carnero (Ecuador). A17
- Mah, C. Is the Labidiasteridae (Forcipulatacea: Asteroidea) paraphyletic? A11
- McClintock, J., C. Amsler, B. Baker, S. De Marino, M. Iorizzi, F. Zollo, and L. Minale. The chemical ecology of Antarctic echinoderms. A13
- Pomory, C.M., and M.T. Lares. Regeneration of arms in *Luidia clathrata* (Echinodermata: Asteroidea) in the field, Tampa Bay, Florida. A10
- Turner, R.L. The tagmatized echinoderm. A12
- Turner, R.L., and J.A. Wood. Limits to salinity tolerance of the brackish-water brittlestar *Ophiophragmus filigraneus*. A14
- Walker, C.W., M.P. Lesser, and N.A. McGinn. Manipulation of food and photoperiod promotes out-of-season gametogenesis in the green sea urchin, *Strongylocentrotus droebachiensis*: implications for land-based aquaculture. A19
- Wasson, K.M., and S.A. Watts. Estradiol, testosterone, and progesterone affect ovarian development in the echinoid *Lytechinus variegatus*. A21
- Watts, S.A., S. A.Boettger, J.B. McClintock, and J.M. Lawrence. Gonad production in the sea urchin *Lytechinus variegatus* (Lamarck) fed prepared diets. A20

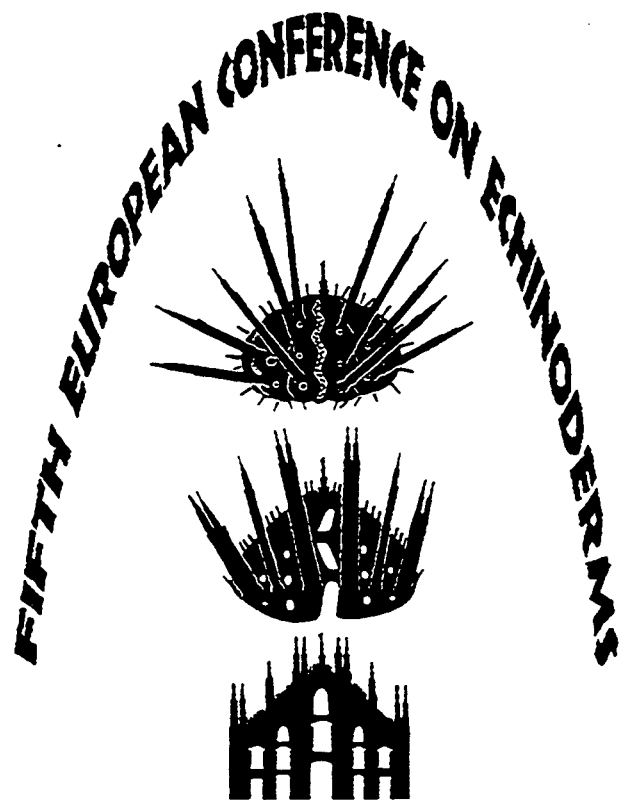


**THE GEOLOGICAL SOCIETY OF AMERICA 32ND ANNUAL MEETING, NORTH-CENTRAL SECTION, MARCH 19-20, 1998, THE OHIO STATE UNIVERSITY, COLUMBUS, OHIO. Abstracts with Programs.**

(Communicated by Daniel Blake)

- Blake, D.B. Broadening of an Adaptive Zone: Self-Burial in Cretaceous Asteroids. A7
- Bodenbender, B.E., and E.J. Hiemstra. Preliminary Investigation of Cystoid Skeletal Crystallography. A7
- Glass, A., and D.B. Blake. Furcaster Stuetz, 1886 (Echinodermata) from the Hunsrueck Slate (Lower Devonian, Emsian) of Germany: A Problematic Mid-Paleozoic Ophiuroid. A19
- Meyer, D.L., A.I. Miller, B.F. Dattilo, and S.M. Holland. Crinoid Morphology Across a Sequence Boundary: Kope to Fairview Formations, Upper Ordovician, Cincinnati Arch Region. A61





**MILANO, 7TH-12TH SEPTEMBER 1998**

University of Milano,  
Department of Biology  
"Luigi Gorini"

**PROGRAM**

### **Organising Committee**

**Chair:** M. Daniela Candia Carnevali

**Members:** Francesco Andrietti  
Francesco Bonasoro  
Erminio Giavini  
Giulio Lanzavecchia  
Giulio Melone

**Secretariat:** Adelaide Terlizzi

### **Scientific Committee**

*M. Daniela Candia Carnevali*  
Università di Milano - Italy

*Bruno David*  
Université de Bourgogne - France

*Jean-Pierre Féral*  
Observatoire Océanologique de Banyuls - France

*Michel Jangoux*  
Université Libre de Bruxelles - Belgium

*Michael C. Thorndyke*  
Royal Holloway University of London  
United Kingdom

*Ulrich Welsch*  
Universität München - Germany

*Iain C. Wilkie*  
Glasgow Caledonian University  
United Kingdom

**LIST OF ABSTRACTS**  
**☆ 5TH EUROPEAN CONFERENCE ON ECHINODERMS ☆**

This is the complete list of abstracts of the 5th European Conference on Echinoderms that will be held in Milan from 7th to 12th September 1998.

Visit the University of Milan web page for more information regarding the conference (including participants, addresses and e-mails).

<http://imiucca.csi.unimi.it/echino/5ece7.htm>

(Communicated by Francesco Bonasoro)

**DEVELOPMENTAL BIOLOGY**  
**Ecology Functional Biology Physiology and Behaviour Paleontology and**  
**Phylogeny Reproductive Biology**

- Vitturi, R., A.M. Pirrone, M.S. Colomba, L.Toia, R. Barbieri. Chromosome mapping of ribosomal RNA genes in sea urchin. Poster
- Barbieri, R., and V. Izzo. Isolation and characterization of L8 ribosomal protein gene in the sea urchin *Paracentrotus lividus*. Poster
- Barbieri, R., V. Izzo, A.M. Pirrone, L.Toia, R. Vitturi, and G.Giudice. Lack of amplification phenomena of ribosomal RNA genes in the oogenesis of the sea urchin *Paracentrotus lividus*. Poster
- Byrne, M. Evolution of larval form in the australian sea-star genus *Patiriella*. Oral
- Long, S., V. Morris, M. Frommer, and M. Byrne. Hox-type homeobox genes in the starfish *Patiriella exigua*. Poster
- Chee, F.C., and M. Byrne. Serotonin-like expression in the larvae of *Patiriella* species (Asteroidea) with different modes of development. Does serotonin have morphogenetic and sensory roles? Oral
- Chen, W., P.W. Beesley, and M.C. Thorndyke. Neural regeneration in *Asterias rubens* and homeobox genes. Poster
- Byrne, M., M. Thorndyke, F. Chee, P. Cisternas, and A. Feldman. Localisation of the neuropeptide S1 in the larvae of the sea star *Patiriella regularis* as revealed by confocal microscopy. Poster
- Torres, M., D. Gil, and P. Dominguez. Stable multimodal fivefold patterns in crinoids and echinoids: a general mathematical approach. Oral
- Coniglio, L., C. Angelini, M.L. Pedrotti, A. Diaspro, M. Robello, and C. Falugi. Onset of a cholinergic-like system during neurogenesis of the sea urchin *Paracentrotus lividus*. Oral
- Cocchiarella, F., A. Piscopo, E. Nargi, M. Piscopo, M. Branno, F. Aniello, and L. Fucci. Long 3'UTRs of *Paracentrotus lividus* embryo mRNAs and mRNA instability. Poster

- De Amaral, P., C. Nunes, P. Gosselin, and M. Jangoux. Comparative morphology of postlarvae in regular and irregular echinoids. Poster
- Giudice, G. The sea-urchin development: present and past. Invited Speaker
- Gosselin, P., and M. Jangoux. GABA and glutamic acid induce the metamorphosis of *Paracentrotus lividus* larvae (Echinodermata, Echinoidea). Poster
- Kelly, M.V., A.J. Hunter, and C.L. Scholfield. Factors affecting larval *Psammechinus miliaris* metamorphosis and survival at metamorphosis with particular reference to its suitability as an aquaculture species. Oral
- Zito, F., S. Sciarrino, G. Toia, A. Cusimano, R. Bonaventura, and V. Matranga. Perturbation of morphogenesis in sea urchin embryos cultured in the presence of a McAb to PI-nectin, an ECM protein. Oral
- Mito, T., and K. Endo. Conservation of the anterior region of hox gene cluster in Echinoderms. Poster
- Roberti, M., P. Loguercio Polosa, C. Musicco, R. Fiore, F. Milella, M.N. Gadaleta, and P. Cantatore. Proteins interacting with mitochondrial DNA in *Paracentrotus lividus* eggs and embryos: in vivo analysis and cDNA cloning. Poster
- Sato, Y., and I. Yazaki. Analysis of the apoptotic effects of L-Glutamine on the larval cells in sea urchin metamorphosis. Poster
- Selvakumaraswamy, P., and M. Byrne. Unusual account of an ectoderm derived coelom and the occurrence of schizocoely in ophiuroid larvae. Oral
- Spirlet, C., P. Gosselin, and M. Jangoux. The structure of the axial complex of *Paracentrotus lividus* (Echinodermata: Echinoidea) at the end of post-larval life. Poster
- Stone, J.R., and G.A. Wray. Developing morphological hypotheses among Echinoderms. Oral
- Vaitilingon, D., and M. Jangoux. Influence of food ration on larval development of the edible sea urchin *Paracentrotus lividus* (Echinodermata) during metamorphic period. Poster
- Wray, G.A. Genes involved in the evolution of Echinoderm morphology. Invited Speaker

## ECOLOGY

### Developmental Biology Functional Biology Physiology and Behaviour Paleontology and Phylogeny Reproductive Biology

- Barnes, D.K.A., S. Steele, D. Maguire, J. Turner. Population dynamics of the urchin *Paracentrotus lividus* at Lough Hyne Ireland. Poster
- Blockmans, B., C. De Ridder. The intradigestive distribution of symbiotic ciliates in *Paracentrotus lividus*. Poster
- Borzone, C.A. Influence of *Mellita quinquesperforata* beds on the structure of subtidal benthic communities of sandy beaches. Poster
- Bulleri, F., L. Benedetti-Cecchi, and F. Cinelli. Experimental analysis on the effects of grazing of *Paracentrotus lividus* and *Arbacia lixula* in shallow subtidal reefs on the west coast of Italy (Western Mediterranean). Oral
- Candia Carnevali, M.D., S. Galassi, F. Bonasoro, G. Dina, M.A. Terlizzi, M. Patrino, and M.C. Thorndyke. PCB-induced environmental stress and the regenerative response in crinoids. Poster

- Catoira Gomez, J.L., and L.J. Móguez Rodríguez. Deformations in skeleton and analitic of tissues in a population of *Echinus esculentus* L. 1758 (Echinodermata, Echinoidea) under oil polluted conditions in a Coruña Bay (Galicia, Spain). Poster
- De Jesus, D.C., and A.D. Abreu. Soft bottom Echinoderms of Madeira Island (Portugal): First results (Systematic). Poster
- Dominguez, P., M.A. Ramos, J.M. Remón, and M. Villena. Echinoderms from the oceanographic expedition fauna (Project fauna ibérica) and Museo Nacional de Ciencias Naturales Collections. Poster
- Emson, R.H. Making the best of it. The ecology of deep sea Echinoderms. Invited Speaker
- Fanelli, G., S. Piraino, L. Esposito, and F. Boero. Echinoderms as keystone species and biodiversity depressors in marine communities. Poster
- Fernandez, C., and A. Caltagirone. Evidence of *Paracentrotus lividus* (Echinodermata: Echinoidea) migration in a coastal lagoon determined from the study of demographic structure. Poster
- Freeman, S.M., C.A. Richardson, and R. Seed. Spatial distribution, abundance and foraging behaviour of *Astropecten irregularis* (Echinodermata: Asteroidea). Oral
- Fujita, T. Population structure of a fissiparous sea star *Coscinasterias acutispina*. Oral
- Goggin, C.L. Biological control of the introduced seastar *Asterias amurensis*. Oral
- Greenwood, A. Asteroid community structure in Lough Hyne Co. Cork. Oral
- Hopkins, T.S., E.K. Knott, and T.A. Tingle. Sympatric speciation of the starfish, *Luidia clathrata* (Say) on the mid-western continental shelf of the Atlantic Ocean and Gulf of Mexico: further evidence. Oral
- Junqueira, A.O.R., and C.R.R. Ventura. Phenotypic variation of *Lytechinus variegatus* (Lamarck) on subtidal hard bottoms, Rio de Janeiro, Brazil. Poster
- Juterzenka, K.V., D. Piepenburg, and M. Schmid. Winning team of omnivores? Response of arctic ophiuroids to organic input. Oral
- Deheyn, D., E. Lamarque, and M. Jangoux. Arm regeneration in *Amphipholis squamata*. Poster
- Lane, D.J.W. A population survey of the "rare" stichopoid sea cucumber, *Thelenota rubralineata*, off northern Sulawesi, Indonesia. Oral
- Lefebvre, A., and D. Davoult. Vertical distribution of the ophioplutei of *Ophiothrix fragilis* (Echinodermata: Ophiuroidea) in the Dover strait (Eastern English Channel). Poster
- Mac Cord, F.S., and L.F.L. Duarte. Patterns of spatial distribution in populations of *Tropiometra carinata* (Lamarck) (Crinoidea: Comatulida) at São Sebastião, São Paulo, Brazil. Poster
- Pastore, M. Echinoderms of the Gulf of Taranto (Mediterranean, Ionian Sea). Poster
- Stabili, L., M. Pastore, and R.A. Cavallo. Microbiological accumulation and survival rates of *Paracentrotus lividus* and *Holothuria polii*. Poster
- Nilsson, H.C. Interaction between water flow, oxygen depletion and sublethal predation on growth of the brittle star *Amphiura filiformis*. Oral
- Penchaszadeh, P.E., and J.M. Lawrence. *Arbacia dufrnesi* (Echinodermata: Echinoidea): a voracious, facultative carnivore of Argentina. Oral
- Scheiblaue, S., and T. Reinthaler. Ecological monitoring of *Holothuria tubulosa* and *H. polii* (Echinodermata: Holothuroidea) in nearshore waters of Elba, Italy. Poster
- Skern, R., N.T. Hagen, and E.N. Hegseth. Benthic algal spores do not survive digestion by *Strongylocentrotus droebachiensis*. Poster
- Stübing, D., W. Hagen, and D. Piepenburg. Feeding ecological of arctic Echinoderms: evidence from lipid and stomach content analyses. Poster

## FUNCTIONAL BIOLOGY

### Developmental Biology Ecology Physiology and Behaviour Paleontology and Phylogeny Reproductive Biology

- Borisovets, E.E., N.V. Lepskaya, and E.V. Yakush. Biological and biochemical features of formation of sea urchin (genus *Strongylocentrotus*) gonad colour. Poster
- Deheyn, D., N. De Bremaeker, D. Vaitilingon, and J. Mallefet. Immunolocalization of SALMFamide neuropeptides S1 and S2 in *Ampipholis squamata* (Ophiuroidea, Echinodermata). Poster
- Grawe-Baumeister, J. Morphological comparison of the Upper Jurassic sea urchin *Gymnocidaris agassizii* and the recent *Heterocentrotus mammillatus* and the palaeoecological conclusions. Oral
- Kaburek, M., and H. Hilgers. The axial-hydrocoel complex of the endemic Mediterranean heart urchin *Schizaster canaliferus* (Echinoida: Spatangoida). Poster
- Lawrence, J.M., and C.M. Pomory. Eccentricity of the test and Aristotle's lantern in sand dollars (Echinodermata: Echinoidea: Clypeasteroidea). Poster
- McKenzie, J.D., C. Bavington, M. Grundy, and N.V. Richardson. Why do Echinoderms not foul? Role of proteoglycans. Oral
- Miguez-Rodriguez, L.J., and V. Urgorri. Morphology of the calcareous structures of *Psolidium complanatum* Cherbonnier, 1969 (Echinodermata, Holothuroidea) using a scanning microscopy. Poster
- Grosjean, P., C. Spirlet, and M. Jangoux. Comparison of three body-size measurements for echinoids and their use in growth and gonadosomatic calculation. Poster
- Stewart, B. Anatomy of the Euryalid snake star *Astrobrachion constrictum* (Echinodermata: Ophiuroidea). Oral
- Welsch, U. The functional bauplan of Echinoderms. Invited Speaker

## PHYSIOLOGY AND BEHAVIOUR

### Developmental Biology Ecology Functional Biology Paleontology and Phylogeny Reproductive Biology

- Andrietti, F., M.D. Candia Carnevali, F. Bonasoro, and I.C. Wilkie. Swimming and righting behaviour in *Antedon mediterranea*. Oral
- Birenheide, R., and T. Motokawa. Influence of K<sup>+</sup> and neurotransmitters of stiffness and contraction of crinoid arm ligament. Poster
- Boettger, S.A., and J.B. McClintock. Behavioural responses of *Lytechinus variegatus* during chronic exposure to inorganic and organic phosphates. Poster
- Montero-Torreiro, M.F., J.L. Catoira-Gomez, G. Mosquera-Tallon, P. Garc a-Mart nez. Seasonal variation in some enzyme activities of mixed-function oxygenase (MFO) system in gonads of the sea urchin *Paracentrotus lividus*. Poster
- De Bremaeker, N., J. Mallefet, F. Baguet. Neuromodulatory effects of catecholamines and purines on the luminescence *Ampipholis squamata* (Ophiuroidea). Oral

- Dupont, S., F. Bieswal, and J. Mallefet. Characterization of a population of *Amphipholis squamata* (Ophiuridea) from Oliveri-Tindari's lagoon (Sicily). Poster
- Hagen, N.T., Å. Andersen, and O.B. Stabell. Alarm response of *Strongylocentrotus droebachiensis* induced by chemical labelling of *Anarhichas lupus*. Oral
- Hill, S.K. The effects of food level and temperature on the energy budget of *Arbacia punctulata* (Arbaciidae) and *Lytechinus variegatus* (Toxopneustidae). Oral
- Hollertz, K. Response to food by the heart urchin *Brissopsis lyrifera*. Oral
- Inoue, M., R. Birenheide, and T. Motokawa. Holothurian neuropeptide NGIYW-amide: localization and effects on muscles. Poster
- Lison De Loma, T., C. Conand, and M.L. Harmelin-Vivien. Nycthemeral feeding rhythm and absorption efficiency of the echinoid *Tripneustes gratilla* on a coral reef of Reunion island (Indian Ocean). Oral
- Mallefet, J. Physiology of Bioluminescence in Echinoderms. Invited Speaker
- McKew, M., and I.C. Wilkie. Organisation and physiology of the compass elevator muscles of the sea-urchin *Echinus esculentus*. Poster
- Stancyk, S.E. Predatory behaviour of Echinoderms. Invited Speaker
- Wilkie, I.C., M.D. Candia Carnevali, and F. Bonasoro. Evidence for the "cellular calcium regulation hypothesis" from "simple" mutable collagenous structure: the brachial and cirral syzygial ligaments of *Antedon mediterranea*. Oral

**PALEONTOLOGY AND PHYLOGENY**  
**Developmental Biology Ecology Functional Biology Physiology and Behaviour**  
**Reproductive Biology**

- Anzalone, L., G. Teruzzi, and A. Smith. The genus *Loriolella* Fucini, 1904, and the origin of irregular echinoids. Poster
- Ausich, W.I. Origin of Crinoids. Invited Speaker
- Baumiller, T.K. A new look at the functional morphology of Blastoids. Oral
- Bohm, J., A.V. Smirnov, and T. Heinzeller. Comparison of the Bourgueticrinid and Isocrinid aboral nervous system, possible phylogenetic implications. Poster
- David, B., B. Laurin, T. Choné, and F. Magniez. Morphological disparity in the genus *Echinocardium* (Echinoidea: Spatangoida). Oral
- Dean, J. The Ordovician divergence of asteroids and ophiuroids. Oral
- De Ridder, C., and S. Weinberg. *Asthenosoma marisrubri* n. sp. and *Asthenosoma varium*, the story of a confusion. Poster
- Dominguez, P. Early evolution of Echinoderms: class Ctenocystoidea revisited. Oral
- Dominguez, P., D. Gil, and M. Torres. Early Rhombifera (Lower Paleozoic Cystoids): morphology and function. Poster
- Gil, M., and P. Dominguez. Taxonomic diversity of lower-middle Cambrian Echinoderms and Carpoids from Spain. Oral



- Gil, D., P. Dominguez, and M. Torres. Ordovician evolutionary faunas of Echinoderms and Carroids from southern Spain. Poster
- Hagdorn, H. *Traumatocrinus*, an extraordinary Triassic crinoid. Oral
- Hagdorn, H. Triassic ophiuroids (*Aspiduriella*) brooding in an empty ceratite shell. Poster
- Haude, R. Phylogeny of Scyphocrinoids (u. Silurian - l. Devonian) in relation to their extraordinary bladder-like root. Oral
- Heinzeller, T., and U. Welsch. The echinoderm complex of hydrocoel/ectoneural cord and the chordate complex of notochord/neural plate - analogous or homologous? Poster
- Hess, H. Habitat and lifestyle of crinoids from some fossil assemblages. Oral
- Ishida, Y., and F. Fujita. Dense population of fossil and extant *Ophiura sarsii* (Echinodermata, Ophiuroidea) in Japan. Oral
- Indeherberge, L., E. Defour, R. van der Ham, and J.W.M. Jagt. What is *Micraster cipliensis* Schlüter, 1897? (Late Cretaceous Echinoids). Poster
- Jagt, J.W.M. Echinoderms and the K/T boundary in the Maastrichtian type (SE Netherlands, NE Belgium). Poster
- Jagt, J.W.M. Notes on two late Cretaceous comatulid crinoid genera. Poster
- Jamies, D. The phylogeny of Echinodermata: total evidence and parameter sensitivity. Oral
- Jefferies, R.P.S. Which way up were the Mitrates? - Flat surface up. Oral
- Jeffery, C.H. Brooding it over: the first occurrence of nonplanktotrophy in echinoids. Oral
- David, B., B. Lefebvre, R. Mooi, R. Parsley. Homalozoans in the light of the extraxial-axial theory of skeletal homologies. Oral
- Lessios, H.A., B.D. Kessing, and J.S. Pearse. World-wide phylogeny of *Diadema*. Oral
- Madon-Senez, C. Plate pattern of echinoid tests: relative length of the labrum and of the sternal plates in recent antarctic schizasterids (Spatangoida). Poster
- Manni, R., and U. Nicosia. The oldest cyrtocrinid, *Nerocrinus petri* n. gen. n. sp., and the Nerocrinidae n. fam. Oral
- McNamara, K.J. Biogeographic evolution of cenozoic Echinoids in western Australia. Oral
- Milsom, C. Rovings of the Roveacrinids. Oral
- Moussa, B., D. Neraudeau, J. Lang, and E.P. Verrecchia. Characterization of the morphological variability in *Linthia* (Maastrichtian/Paleocene Echinoid of Iullemeden Basin; West Africa). Poster
- Nebelsick, J. Taphonomic legacy of predation on Echinoids. Oral
- Nebelsick, J., and A. Kroh. Palaeoecology and taphonomy of *Parascutella* beds from the Lower Miocene of the Eastern Desert, Egypt. Poster
- Néraudeau, D., and J. Roman. Impact of the Messinian crisis on the Mediterranean Echinoid fauna. Oral
- Neumann, C. Cretaceous Echinoids from Jordan. Poster
- Oji, T., and T. Mito. Skeletal development of *Oxycomanthus japonica* and its paleontologic implications. Poster
- Parsley, R.L. The Cincta (Homostelea) as Blastozoans. Oral
- Rose, E.P.F., and J.L. Wood. *Chypeaster* and *Echinolampas* (Echinoidea: Irregularia) from the neogene of south-east Spain, and the Mediterranean Messinian "salinity crisis". Oral
- Rowe, D.A., and S.K. Donovan. Spatangoid echinoids from the eocene of Jamaica. Poster
- Roy, M.S., R. Sponer, and P. Mladenov. Molecular phylogeography of *Ophiactis savignyi* (Ophiurac: Ophiactidae). Poster

- Rozhnov, S.V. The crookedness of the stem and crone of the pelmatozoan echinoderms as a result of heterochrony. Oral
- Sevastopulo, G.D., P.W. Jackson, R.J. Prokop. Functional morphology of *Pygmaeocrinus* (Disparida; Crinoidea). Oral
- Simpson, G.A., and S.K. Donovan. Fore-reef Echinoid faunas in the Pleistocene of the Antillean region: Barbados and Jamaica compared. Poster
- Smirnov, A.V. The origin and evolution of the order apodida (Holothuroidea). Oral
- Smith, A.B., and A.S. Gale. Sea-levels, sequence stratigraphy and Echinoid diversity through the Cretaceous. Oral
- Solovjev, A.N., and A.V. Markov. Fossil Pericosmid Echinoids. Poster
- Sponer, R., P.V. Mladenov, and M.S. Roy. Molecular evolution in *Amphipholis squamata*. Oral
- Sumrall, C.D., and J. Sprinkle. The early ontogeny of the glyptocystitid rhombiferan *Lepadocystis moorei*. Oral
- Thandar, A.S., and V. Rajpal. Some thoughts about the "supergenous" *Thyone* Jaeger (Echinodermata: Holothuroidea). Poster
- Villier, L., and M. Kutscher. New Lower Jurassic evidence of fossil Asteroids and comments on their diversity. Poster
- Widdison, R. Crinoid faunas of the Much Wenlock Limestone Formation of Britain. Poster

## REPRODUCTIVE BIOLOGY

Developmental Biology Ecology Functional Biology Physiology and Behaviour  
Paleontology and Phylogeny

- Barker, M.F. Reproduction and feeding in *Ophiopsammus maculata* (Echinodermata: Ophiuroidea) on the Otago coast, Southeastern New Zealand. Oral
- Bonasoro, F., M.D. Candia Carnevali, F. Sala, M. Patrino, and M.C. Thorndyke. Regenerative potential of crinoid arm explants. Poster
- Candia Carnevali, M.D., F. Bonasoro, M. Trezzi, and A. Giardina. Nerve-dependent myogenesis in arm regeneration of *Antedon mediterranea*. Poster
- Conand, C., and S. Uthicke. Asexual reproduction in population of *Stichopus chloronotus* (Holothuroidea): a comparison between Pacific and Indian Ocean populations. Poster
- Cook, E.J., and M. Kelly. The effects of stocking density on the growth (somatic and gonadal) and survival of the green sea urchin (*Psammechinus miliaris*). Oral
- Poulin, E., Féral JP, Cornudella L, Alvà, V. Selfing and outcrossing in the brood protecting ophiuroid *Amphipolis squamata*. Oral
- Hoshi, M., M. Kawamura, Y. Maruyama, E. Yoshida, M. Ikeda, M. Ogiso, M. Matsumoto. Egg-jelly components responsible for the induction of acrosome reaction in the starfish, *Asterias amurensis*. Oral
- Mladenov, P.V., and Y. Achituv. Morphological and genetic relationships among fissiparous and non-fissiparous populations of the seastar *Asterina burtoni* from the Red and Mediterranean Seas. Oral

- Patrino, M., M.D. Candia Carnevali, F. Bonasoro, P. Beesley, M.C. Thorndyke. Stress and regeneration in crinoids and asteroids. Oral
- Sköld, M., M.F. Barker, and P.V. Mladenov. The role of environmental factors in regulating asexual reproduction in the sea star *Coscinasterias muricata*: effects of food availability and fluctuating temperature. Oral
- Thorndyke, M.C. Regeneration in Echinoderms. Invited Speaker
- Alves, S.L.S., A.D. Pereira, and C.R.R. Ventura. Sexual and asexual reproduction in a population of *Coscinasterias tenuispina* (Lamarck 1816) from Rio de Janeiro, Brazil. Poster
- Carvalho, A.L.P.S., and C.R.R. Ventura. Reproductive cycle of *Asterina stellifera* (Möbius) (Asteroidea: Asterinidae) in the Cabo Frio upwelling region Brazil. Poster
- Ventura, C.R.R. Gametogenesis and growth of two *Astropecten* species from midshelf upwelling region, Cabo Frio, Brazil. Poster
- Young, C.M., S. George, T. Griffin, D. McCarthy, and S. Brooke. The food required for reproduction in bathyal Echinoids. Oral



## ☆ ECHINODERM SPECIALISTS 'KEYWORD' LIST ☆

ABREU, MERCEDES	OPHIUROIDEA
ADAMS, NIKKI	PHYSIOLOGICAL-ECOLOGY BIOCHEMISTRY REPRODUCTION DEVELOPMENT
AGATSUMA, YUKIO	ECHINOIDEA ECOLOGY POPULATION-DYNAMICS
AHEARN, CYNTHIA	TAXONOMY HOLOTHUROIDEA
ALBI, YVONNE	ECHINOIDEA PALEOCENE
ALI, MOHAMED SAID	ECHINOIDEA TERTIARY MESOZOIC
ALLEN, JOHN	BIODIVERSITY FUNCTIONAL-MORPHOLOGY
ALLISON, WILLIAM	TAXONOMY ECOLOGY BIOGEOGRAPHY FORAGING ASTEROIDEA
AMEZIANE-COMINARDI, NADIA	CRINOIDEA
ANDACHT, TRACY	ECHINOIDEA DEVELOPMENT DISPERSAL
ANDERSEN, AASMUND	ECHINOIDEA
ANDERSON, OWEN	ECHINOIDEA MARINE-ECOLOGY POPULATION-BIOLOGY TAXONOMY
ANDERSON, ROLAND	TAXONOMY AQUARIUM-HUSBANDRY NATURAL-HISTORY
ARAKAKI, YUJI	ECHINOIDEA ECHINOMETRA TAXONOMY PHYLOGENY
ARCHER, JEFFREY	LARVAL-BIOLOGY REPRODUCTIVE-BIOLOGY
ARISOLA, AMELIA	CULTURE MEDICINAL-VALUE BIOLOGY
ARONSON, RICHARD	OPHIUROIDEA
ASHA, PAYIKAT SAHADEVAN	HOLOTHUROIDEA REPRODUCTIVE-BIOLOGY NUTRITION GENETICS PHYSIOLOGY
AUSICH, WILLIAM	CRINOIDEA TAPHONOMY PHYLOGENY TAXONOMY
BALSER, ELIZABETH	EVOLUTION DEVELOPMENT MORPHOLOGY PHYSIOLOGY
BARKER, MICHAEL	REPRODUCTION FEEDING OPHIUROIDEA
BARTSCH, ILSE	OPHIUROIDEA
BASCH, LARRY	LARVAE JUVENILES REPRODUCTION ECOLOGY EVOLUTION
BAUER, JOHN	ECHINOIDEA DISEASE BACTERIA
BAUMILLER, TOMASZ	CRINOIDEA ISOCRINIDS FOSSIL RECENT
BAZHIN, ALEXANDER	ECHINOIDEA POPULATION
BEAVER, HAROLD	BLASTOIDS MORPHOLOGY SYSTEMATICS
BECKER, JOHANN	FAUNISTICS TROPICAL-SUBTROPICAL-SOUTH-ATLANTIC-OCEANIC-ISLANDS
BEDDINGFIELD, STEVE	ECOLOGY ENVIRONMENTAL-INFLUENCES REPRODUCTION BIODIVERSITY
BEGBIE, KIRSTEN	OPHIUROIDEA
BELL, BRUCE	EDRIOASTEROIDS TAXONOMY FUNCTIONAL-MORPHOLOGY
BENEJAM DE SUAREZ, CARLA	TAXONOMY REPRODUCTIVE-TECHNIQUE
BENTLEY, ANDREW	ECHINOIDEA GENETICS BIOLOGY PALAEOONTOLOGY
BERGEN, MARY	HOLOTHUROIDEA TAXONOMY
BERTRAM, DOUGLAS	ECHINOIDEA LARVAE EVOLUTION ECOLOGY DEVELOPMENT
BIERMANN, CHRISTIANE	SPECIATION POPULATION-GENETICS MOLECULAR-EVOLUTION
	GAMETIC-REPRODUCTIVE-ISOLATION-(in <i>camarodont</i> urchins)
BIRENHEIDE, RUDIGER	CRINOIDEA PHYSIOLOGY BEHAVIOR MORPHOLOGY
BIRKELAND, CHARLES	CORAL-REEF-ECOSYSTEM-MANAGEMENT
BIRYUKOVA, INGA	CHEMORECEPTION SENSORY-SYSTEMS MIGRATIONS
BLACK, W. ROBERT	ECHINOIDEA FUNCTIONAL-MORPHOLOGY ECOLOGY
BLAKE, DANIEL	ASTEROIDEA PHYLOGENY PALEOECOLOGY
BLUHM, BODIL	ECOLOGY POPULATION-DYNAMICS COMMUNITY
BLUHM, HARTMUT	ECHINODERMATA ECOLOGY BIODIVERSITY ZOOGEOGRAPHY
BOCKELIE, JOHAN	ONTOGENY TAXONOMY FUNCTIONAL-MORPHOLOGY
BOETTGER, ANNE	PHYSIOLOGY BEHAVIOR ECHINOIDEA
BONASORO, FRANCESCO	CRINOIDEA REGENERATION ECHINOIDEA MUTABLE-COLLAGENOUS-TISSUE
BORZONE, CARLOS	POPULATION-DYNAMICS ECOLOGY CULTURE
BOSCH, ISIDRO	LARVAL-ECOLOGY UV-PHOTOBIOLOGY
BOUDOURESQUE, CHARLES	POPULATION-DYNAMICS FEEDING-BEHAVIOUR ECHINOIDEA
BRAY, RICHARD	OPHIUROIDEA ECOLOGY MICROSTRUCTURE
BREGMAN, YURIY	AGE-STRUCTURE GROWTH ARTIFICIAL-FOODS
BRETON, GERARD	ASTEROIDEA FOSSILS EVOLUTION TAXONOMY
BREWIN, PAUL	ECHINOIDEA
BREY, THOMAS	GROWTH MORTALITY PRODUCTIVITY TROPHIC-LINKS
BROWER, JAMES	PALEOBIOLOGY PALEOZOIC CRINOIDEA BLASTOZOA
BUITRON-SANCHEZ, BLANCA	FOSSIL CENOZOIC ASTEROIDEA ECHINOIDEA
BURCH, BEATRICE	BIODIVERSITY
BURNS, CASEY	ECHINOIDEA EOCENE
BUSSARAWIT, SOMCHAI	TAXONOMY ECHINODERMS ANDAMAN-SEA
BUSTER, PETER	STRATIGRAPHY DISTRIBUTION
BYRNE, MARIA	DEVELOPMENT REPRODUCTION EVOLUTION FUNCTIONAL-MORPHOLOGY
CALTAGIRONE, ANGELA	ECOLOGY AQUACULTURE MEDITERRANEAN
CAMERON, R. ANDREW	EMBRYONIC-DEVELOPMENT LARVAL-DEVELOPMENT POPULATION-GENETICS
CAMPBELL, ALAN	ECOLOGY POPULATION FISHERY ECHINOIDEA HOLOTHUROIDEA

CAMPBELL, ANDREW  
 CAMPBELL, DAVID  
 CANDIA-CARNEVALI, M. D.  
 CANNON, LESTER  
 CARDER, NANCY  
 CHAO, SHYH-MIN  
 CINTRA BUENROSTRO, C.  
 CLARK, ROGER  
 CLOUSE, RONALD  
 COLON-JONES, D. ELIZABETH  
 CONAND, CHANTAL  
 CREASER, EDWIN  
 CRUMP, ROBIN  
 CUNHA DE JESUS, DORA M.  
 CUTRESS, BERTHA  
 DAFNI, JACOB  
 DALBY, JR., JAMES  
 DAVID, BRUNO  
 DAVID, JEROME  
 DAVOULT, DOMINIQUE  
 DAYTON, PAUL  
 DE RIDDER, CHANTAL  
 DE WIT, WALTER  
 DEAN, JULIETTE  
 DEARBORN, JOHN  
 DEBENHAM, PATTY  
 DEL VALLE, ROSA  
 DEVIN, MICHAEL  
 DIEHL, WALTER  
 DOBSON, WILLIAM  
 DOLMATOV, IGOR  
 DOMINGUEZ ALONSO, P.  
 DONOVAN, STEPHEN  
 DRUMMOND, ANNE  
 EBLE, GUNTHER  
 EEKELERS, DIRK  
 ELISEIKINA, MARINA  
 ELLERS, OLAF  
 EMMET, RICHARD  
 EMSON, ROLAND  
 ETNIER, SHELLEY  
 ETTENSOHN, FRANK  
 EVDOKIMOV, VLADIMIR  
 FARMANFARMAIAN, A. V.  
 FEDER, HOWARD  
 FELDMAN, ABBY  
 FELL, F. JULIAN  
 FERAL, JEAN-PIERRE  
 FERGUSON, JOHN  
 FERNANDEZ, CATHERINE  
 FLAMMANG, PATRICK  
 FOLLOSCO, MINDA  
 FORET, TIMOTHY  
 FOSTER, MERRILL  
 FOX, DAVID  
 FREEMAN, STEVEN  
 FUJITA, TOSHIHIKO  
 GAGE, JOHN  
 GAGNON, JEAN-MARC  
 GAHN, FOREST  
 GALLEMI, JAUME  
 GARRISON, ROB  
 GARRISON, ROB  
 GEBRUK, ANDREY  
 GENTIL, FRANCK  
 GEORGE, SOPHIE  
 GIBSON, MICHAEL  
 GIELAZYN, MICHEL LYNN  
 GIL CID, DOLORES  
 ULTRASTRUCTURE PHYSIOLOGY TAXONOMY ZOOGEOGRAPHY  
 ASTEROIDEA PREDATION SYSTEMATICS BEHAVIOR ECOLOGY  
 ECHINOIDEA OPHTHUROIDEA CRINOIDEA REPRODUCTION  
 ECHINODERM-HOSTS-PARASITES  
 TAXONOMY  
 ASEXUAL-REPRODUCTION POPULATION-ECOLOGY LIFE-HISTORY SYSTEMATICS  
 BIOGEOGRAPHY TAXONOMY ECOLOGY EVOLUTION  
 TAXONOMY BIODIVERSITY ASTEROIDEA PTERASTER ALASKA  
 HOLOTHUROIDEA BEHAVIOR TAXONOMY ECOLOGY MICRONESIAN  
 REARING POPULATION ECOLOGY  
 HOLOTHUROIDEA BIOEROSION FISSION INDIAN-OCEAN-BIODIVERSITY CORAL-REEF-ECHINODERMS  
 MANAGEMENT MONITORING-C/E REGULATION SUSTAINED-YIELD  
 ASTEROIDEA EMBRYOLOGY ECOLOGY BEHAVIOUR  
 BIOGEOGRAPHY TAXONOMY SYSTEMATICS ECOLOGY  
 HOLOTHUROIDEA SYSTEMATICS MORPHOLOGY BIOLOGY GEOGRAPHICAL-DISTRIBUTION  
 ECHINOIDEA ECOLOGY TERATOLOGY POLLUTION-EFFECTS  
 OPHTHUROIDEA  
 ECHINOIDEA PALEONTOLOGY PHYLOGENY  
 STALKED-CRINOIDS ONTOGENY BATHYMETRY  
 OPHTHUROIDEA PRODUCTION REPRODUCTION SUSPENSION-FEEDING C-AND-N-FLUXES  
 ECOLOGY ECHINOIDEA OPHTHUROIDEA ASTEROIDEA  
 ECHINOIDEA SYMBIOSES FEEDING-MECHANISMS TAXONOMY ZOOGEOGRAPHY  
 ECHINOIDEA FLINT-PLEISTOCENE-DEPOSITS  
 ECHINOIDEA PALEONTOLOGY PHYLOGENY  
 CRINOIDEA OPHTHUROIDEA ASTEROIDEA FUNCTIONAL-MORPHOLOGY ECOLOGY TAXONOMY  
 ECHINOIDEA  
 HOLOTHUROIDEA  
 ECHINOIDEA SEA-URCHIN-AQUACULTURE DEEP-SEA-SPECIES-DIVERSITY  
 INVERTEBRATES GROWTH  
 OPHTHUROIDEA ECOLOGY  
 REGENERATION-MECHANISMS MORPHOLOGY DEVELOPMENT ECOLOGY  
 PALAEOBIOLOGY MORPHOLOGY CARPOIDEA  
 CARIBBEAN-FOSSIL-ECHINODERMS TAXONOMY TAPHONOMY BIODIVERSITY  
 ECHINOIDEA ECOLOGY REPRODUCTION LIFE-HISTORY  
 BIODIVERSITY DEVELOPMENT EVOLUTION  
 TAXONOMY BIODIVERSITY ASTEROIDEA  
 REGENERATION-MECHANISMS MORPHOLOGY IMMUNOLOGY  
 ECHINOIDEA BIOMECHANICS EVOLUTION ECOLOGY  
 LARVAE SEA-URCHINS PLANKTONIC-FORMS DEVELOPMENT  
 ECOLOGY  
 CRINOIDEA  
 TAXONOMY FUNCTIONAL-MORPHOLOGY PALEOECOLOGY CRINOIDEA  
 ECHINOIDEA GAMETOGENESIS POLYCULTURE MONOCHROMATIC-LIGHT  
 GROWTH-HORMONE NITROGEN-RETENTION  
 DISTRIBUTION FEEDING-BIOLOGY PREDATOR-PREY-INTERACTIONS  
 LARVAE ASTEROIDEA ECHINOCULTURE  
 GROWTH TAXONOMY BIOGEOGRAPHY ANTARCTICA  
 SPECIATION EVOLUTION DEVELOPMENT BIODIVERSITY-GENETICS MOLECULAR-PHYLOGENY  
 PHYSIOLOGY FUNCTIONAL-ANATOMY  
 ECHINOIDEA NUTRITION GROWTH AQUACULTURE LAGOONAL-ENVIRONMENT-ECOLOGY  
 MORPHOLOGY BIOCHEMISTRY ADHESION PODIA  
 CULTURE BIODIVERSITY  
 SYMBIOSIS DISEASE BIOASSAYS REGENERATION ASTEROIDEA  
 TAXONOMY BIODIVERSITY ECOLOGY EVOLUTION  
 OPHTHUROIDEA OSSICLES BEHAVIOR  
 ASTEROIDEA PREDATION SUBLITTORAL POPULATION  
 OPHTHUROIDEA ASTEROIDEA ECOLOGY TAXONOMY  
 DEMOGRAPHY GROWTH BIODIVERSITY  
 ECOLOGY BEHAVIOUR BIOTURBATION TAXONOMY  
 CRINOIDEA PALAEOBIOLOGY  
 ECHINOIDEA CRETACEOUS SYSTEMATICS BIOSTRATIGRAPHY PALAEOECOLOGY  
 ECHINOIDEA AQUACULTURE  
 ECHINOIDEA AQUACULTURE  
 HOLOTHUROIDEA TAXONOMY  
 OPHTHUROIDEA POPULATION  
 ECOLOGY BIOCHEMISTRY BEHAVIOUR MORPHOLOGY  
 PALEOECOLOGY BIOTIC-INTERACTIONS DEVONIAN  
 TOXICOLOGY FEEDING-BEHAVIOR ECOLOGY OPHTHUROIDEA  
 PALAEOBIOLOGY PALAEOECOLOGY MORPHOLOGY CRINOIDEA CYSTOIDS CARPOIDEA LOWER-PALEOZOIC  
 ORIGIN-OF-ECHINODERMS

GINANOVA, TALIA  
 GIUDICE, GIOVANNI  
 GLUCHOWSKI, EDWARD  
 GOGGIN, LOUISE  
 GONGADZE, GURAM  
 GOODING, RICHARD  
 GOUVEIA-MONTEIRO, A. M.  
 GRABOWSKY-KAAIALI, GAIL  
 GREENSTEIN, BENJAMIN  
 GROSJEAN, PHILIPPE  
 GROVES, CATHY  
 GRYGIER, MARK  
 GUDMUNDSSON, JON E.  
 GUERRAZZI, MARIA  
 GUILLOU, MONIQUE  
 GURREA, ISIDRE  
 GUTT, JULIAN  
 HADEL, VALERIA FLORA  
 HAGEN, NILS  
 HAMEL, JEAN-FRANCOIS  
 HAMZA HASSAN, M.  
 HAUDE, REIMUND  
 HAVARDSSON, BJORGOLFUR  
 HEINZELLER, THOMAS  
 HENDLER, GORDON  
 HERDENDORF, CHARLES  
 HESS, HANS  
 HICKMAN, JR., CLEVELAND  
 HIGHSMITH, RAYMOND  
 HILL, ROBERT  
 HOBERG, MAX  
 HOFFMAN, JENNIFER  
 HOLTERHOFF, PETER  
 HOOD, SARAH  
 HOOPER, ROBERT  
 HOROWITZ, ALAN STANLEY  
 HOSHI, MOTONORI  
 HOTCHKISS, FREDERICK  
 HOTTENROTT, SUSAN  
 IRIMURA, SEIICHI  
 ISHIDA, YOSHIAKI  
 IVY, W. GRISILDA  
 JABLONSKI, DAVID  
 JACOBSEN, NANCY  
 JAECKLE, WILLIAM  
 JAGT, JOHN  
 JAMES, DANIEL  
 JAMIESON, GLEN  
 JANIES, DANIEL  
 JEFFERIES, RICHARD P.  
 JEFFERY, CHARLOTTE  
 JELL, PETER  
 JELLET, JOAN E.  
 JOHNSEN, SONKE  
 JUNIO-MENEZ, ANNETTE  
 JUNQUEIRA, ANDREA  
 KAMMER, THOMAS  
 KASYANOV, VLADIMIR  
 KAWAUCHI, GISELE YUKIMI  
 KELLY, MAEVE  
 KERR, ALEXANDER  
 KEUSKAMP, DOM  
 KLIKUSHIN, VLADIMIR  
 KLINGER, THOMAS  
 KNOTT, K. EMILY  
 KOBAYASHI, NAOMASA  
 KOGO, ICHIZO  
 MUSCLE-REGENERATION-MECHANISMS  
 MOLECULAR-BIOLOGY CELLULAR-BIOLOGY DEVELOPMENTAL-BIOLOGY  
 CRINOIDEA TAXONOMY BIOSTRATIGRAPHY PALEOECOLOGY  
 ASTEROIDEA PATHOLOGY PARASITES BIOLOGICAL-CONTROL  
 ECHINOIDEA LATE-CRETACEOUS PALEOGENE EVOLUTION SYSTEMATICS PALEOBIOGEOGRAPHY  
 STRATIGRAPHY  
 ECHINOIDEA DIADEMATID-ASSOCIATIONS  
 OPHIUROIDEA  
 EVOLUTION BIOMECHANICS DEVELOPMENT DISPERSAL ECOLOGY  
 ASTEROIDEA ECHINOIDEA TAPHONOMY FOSSIL RECENT CROWN-OF-THORNS STARFISH  
 GROWTH MODEL AQUACULTURE SKELETOGENESIS  
 ASTEROIDEA BIOGEOGRAPHY SYSTEMATICS  
 PARASITOLOGY EPIZOIC-FAUNA GALLS-AND-CYSTS  
 ECHINOIDEA ECOLOGY POPULATION  
 ASTEROIDEA  
 ECOLOGY ECOTOXICOLOGY PLASTICITY BIODIVERSITY  
 FOSSIL ECHINOIDEA CRETACEOUS CENOZOIC MEDITERRANEAN-REGION  
 BIODIVERSITY ECOLOGY  
 HOLOTHUROIDEA  
 ECHINOIDEA ECOLOGY DISEASE CULTIVATION  
 ASTEROIDEA HOLOTHUROIDEA OPHIUROIDEA ECHINOIDEA BEHAVIOR REPRODUCTION MORPHOLOGY  
 ECOLOGY  
 TAXONOMY PALECOLOGY EVOLUTION  
 ECHINOIDEA  
 CRINOIDEA ULTRASTRUCTURE NEUROANATOMY  
 OPHIUROIDEA TAXONOMY BEHAVIOR FUNCTIONAL-MORPHOLOGY  
 ABYSSAL ASTEROIDEA BRISINGIDAE ECHINOIDEA  
 TAXONOMY PALEOECOLOGY CRINOIDEA ASTEROIDEA OPHIUROIDEA  
 SYSTEMATICS ECOLOGY  
 ECOLOGY REPRODUCTION COMMUNITY-ECOLOGY  
 PHYSIOLOGY MECHANICAL-PROPERTIES  
 TAXONOMY DIET REPRODUCTION ECOLOGY  
 ECHINOIDEA DENDRASTER UV  
 CRINOIDEA FOSSIL PALEOECOLOGY SYSTEMATICS  
 TAXONOMY BIOGEOGRAPHY DEEP-WATER  
 ECHINOIDEA ECOLOGY AQUACULTURE CONSERVATION  
 FOSSIL BLASTOIDEA  
 ECHINOIDEA ASTEROIDEA FERTILIZATION ACROSOME-REACTION GLYCOCONJUGATES  
 SIGNAL-TRANSDUCTION  
 OPHIUROIDEA STELLEROIDEA PALEOZOIC PENTAMERISM  
 OPHIUROIDEA SYSTEMATICS CLADISTICS  
 OPHIUROIDEA TAXONOMY MORPHOLOGY ECOLOGY  
 PALEOECOLOGY PHYSIOLOGY OPHIUROIDEA  
 HOLOTHUROIDEA  
 ECHINOIDEA CRINOIDEA FOSSIL  
 ASTEROIDEA TAXONOMY DISTRIBUTION REPRODUCTION  
 LARVAE PHYSIOLOGY ECOLOGY MORPHOLOGY  
 TAXONOMY PALAEOBIOLOGY BIOZONATION FUNCTIONAL-MORPHOLOGY  
 SEED-PRODUCTION CULTURE SEA-RANCHING HOLOTHUROIDEA  
 BIODIVERSITY HABITAT-MODIFICATION SURVEY  
 ASTEROIDEA EVOLUTION DEVELOPMENT  
 PALEONTOLOGY PHYLOGENY  
 ECHINOIDEA-PHYLOGENIES MORPHOLOGICAL & MOLECULAR ECHINOIDS-OVER-THE-K-T-BOUNDARY  
 ECHINOID-LARVAL-STRATEGY  
 TAXONOMY BIOSTRATIGRAPHY AUSTRALIA EVOLUTION  
 IMMUNITY DISEASE  
 PHOTORECEPTION ORIENTATION OPHIUROIDEA  
 CULTURE MANAGEMENT POPULATION-GENETICS LARVAL-ECOLOGY  
 REPRODUCTION RECRUITMENT SETTLEMENT POPULATION-DYNAMICS  
 CRINOIDEA PALEOZOIC TAXONOMY EVOLUTION PALEOECOLOGY  
 ASTEROIDEA REPRODUCTION CELLULAR-MECHANISMS  
 HOLOTHUROIDEA APODIDA REPRODUCTION DISPERSION  
 ECHINOCULTURE PSAMMECHINUS-MILIARIS NUTRITION GROWTH  
 HOLOTHUROIDEA ECOLOGY EVOLUTION SYSTEMATICS  
 ECHINOIDEA  
 TAXONOMY PALEOBIOLOGY  
 ECHINOIDEA HOLOTHUROIDEA NUTRITION ECOLOGY  
 ASTEROIDEA SYSTEMATICS EVOLUTION  
 ECHINOIDEA MARINE-POLLUTION BIOASSAY SPAWNING-PERIODICITY  
 TAXONOMY DISTRIBUTION PHYLOGENY EXISTING-CRINOIDEA

KRISHNARAJAH, PADMINI  
 KURIHARA, TAKEO  
 KYTE, MICHAEL  
 LAMBERT, PHILIP  
 LANDEIRA FERNANDEZ, A.M.  
 LANE, N. GARY  
 LAWRENCE, JOHN  
 LE MENN, JEAN  
 LEMBO, LUIZ  
 LESSER, MICHAEL  
 LESSIOS, HARILAOS  
 LEVERONE, JAY  
 LEVIN, VALERY  
 LIAO, YULIN  
 LITVINOVA, NINA  
 LORDSON, JINBERT  
 LUCAS, JOHN  
 MACURDA, JR., D. B.  
 MACZYNSKA, STEFANIA  
 MAGSINO, RICHARD  
 MAH, CHRISTOPHER  
 MAHARAVO, JEAN  
 MAIER, MARTA  
 MAKRA, ATHENA  
 MALLEFET, JEROME  
 MANNI, RICCARDO  
 MANNFIELD, KAY  
 MARAN, ALEKSANDRA  
 MARSH, LOISETTE  
 MARTINEZ, PRISCILLA  
 MASCARENHAS, B.J.  
 MASSIN, CLAUDE  
 MATERIA-ROWLAND, C.  
 MATTOS-SEGOVIA, ELIO  
 McBRIDE, SUSAN  
 McCLINTOCK, JAMES  
 McEDWARD, LARRY  
 McKENZIE, J. DOUGLAS  
 McLELLAND, JERRY  
 McMAHON, MICHAEL  
 McNAMARA, KENNETH  
 MEDEIROS-BERGEN, DOT  
 MELIKOV, OKTAI HAMZA  
 MERCIER, ANNIE  
 MESSING, CHARLES  
 MEYER, CHRISTIAN  
 MILLER, ROBERT  
 MINTZ, LEIGH  
 MIRONOV, ALEXANDER  
 MITROVIC-PETROVIC, J.  
 MLADENOV, PHILIP  
 MONTAGUE, CHRISTOPHER  
 MOOL, RICHARD  
 MOONEY, ROBERT  
 MOORE, ABIGAIL  
 MORGAN, KATHERINE  
 MORRILL, JOHN  
 MOTOKAWA, TATSUO  
 MOUCHATY, SUZETTE  
 MUNK, ERIC  
 NAIDENKO, TAMARA  
 NAKAI, SAORI  
 NAKAMURA, RAYMOND  
 NAKANO, EIZO  
 NEBELSICK, JAMES  
 NEILL, BRUCE  
 NEPOTE, ANA CLAUDIA  
 NESTLER, HELMUT  
 NEUMANN, CHRISTIAN  
 HOLOTHUROIDEA TAXONOMY FOOD-HABITS REPRODUCTIVE-BIOLOGY  
 ASTEROIDEA DISTRIBUTIONAL-PATTERN ACTIVITY-RHYTHM LIFE-HISTORY  
 OPHUROIDEA ASTEROIDEA SYSTEMATICS TAXONOMY BEHAVIOR NORTHEAST-PACIFIC  
 SYSTEMATICS HOLOTHUROIDEA TAXONOMY NATURAL-HISTORY  
 BIOCHEMISTRY MUSCLE ATPASE SARCOPLASMIC-RETICULUM MUSCLE-PHYSIOLOGY CALCTUM-REGULATION  
 REGENERATION-INTERNAL-ORGANS  
 CRINOIDEA PALEOZOIC  
 NUTRITION REPRODUCTION PHYSIOLOGY STRATEGIES  
 SYSTEMATICS PALEOBIOLOGY PALEOECOLOGY PALEOBIOGEOGRAPHY BIOSTRATIGRAPHY  
 CRINOIDEA  
 ECHINOIDEA  
 ECHINOIDEA PHYLOGENY POPULATION-GENETICS  
 ASTEROIDEA REPRODUCTION  
 SHALLOW-WATER-HOLOTHUROIDEA SYSTEMATICS BIOLOGY FEEDING FISHERIES  
 OPHUROIDEA HOLOTHUROIDEA TAXONOMY CULTIVATION  
 OPHUROIDEA TAXONOMY MORPHOLOGY BEHAVIOUR ECOLOGY  
 HOLOTHUROIDEA  
 ECOPHYSIOLOGY AQUACULTURE ACANTHASTER  
 BLASTOIDEA COMATULIDS ISOCRINIDS  
 ECHINOIDEA MIOCENE PARATETHYS-BASIN MEDITERRANEAN  
 POPULATION-GENETICS ASTEROIDEA  
 ASTEROIDEA SYSTEMATICS BRISINGIDA DEEP-SEA  
 TAXONOMY BIOLOGY BIODIVERSITY  
 POLAR-METABOLITES BIOLOGICAL-ACTIVITY ISOLATION STRUCTURAL-ELUCIDATION  
 POPULATION-DYNAMICS BEHAVIOUR REPRODUCTION REGENERATION  
 BIOLUMINESCENCE PHYSIOLOGY NEUROBIOLOGY FUNCTIONAL-ECOLOGY  
 TAXONOMY EVOLUTION FUNCTIONALITY ONTOGENESIS JURASSIC-CRINOIDEA SACCOCOMA  
 PALAEOECOLOGY TAXONOMY TAPHONOMY BIODIVERSITY-(+ EXTINCTIONS)  
 ECHINOIDEA CRETACEOUS SYSTEMATICS BIOSTRATIGRAPHY PALAEOECOLOGY TAPHONOMY  
 ASTEROIDEA TAXONOMY ECHINODERM-ZOOGEOGRAPHY  
 HOLOTHUROIDEA REPRODUCTION LARVAL-BIOLOGY  
 ASTEROIDEA ECOLOGY TAXONOMY POPULATION-DYNAMICS  
 HOLOTHUROIDEA TAXONOMY ZOOGEOGRAPHY  
 TAXONOMY BIODIVERSITY ECOLOGY  
 ECHINOIDEA LARVAE REPRODUCTION EMBRYOLOGY DEVELOPMENT  
 ECHINOIDEA FISHERIES AQUACULTURE  
 CHEMICAL-ECOLOGY REPRODUCTION NUTRITION ECOLOGY  
 LARVAL-ECOLOGY LIFE-CYCLE-EVOLUTION  
 FUNCTIONAL-BIOLOGY  
 TAXONOMY BIODIVERSITY GULFOFMEXICO WESTINDIES  
 NEUROLOGY BEHAVIOUR EVOLUTION  
 ECHINOIDEA PALEONTOLOGY PHYLOGENY  
 LIFE-HISTORY-TACTICS RECRUITMENT LARVAL-MOLECULAR-IDENTIFICATION  
 ECHINOIDEA EVOLUTION MORPHOLOGY HOLASTEROID SPATANGOID JURASSIC CRETACEOUS EOCENE  
 ASTEROIDEA HOLOTHUROIDEA OPHUROIDEA ECHINOIDEA BEHAVIOR REPRODUCTION MORPHOLOGY  
 RECENT-CRINOIDEA ECOLOGY BIOGEOGRAPHY SYSTEMATICS  
 MESOZOIC-ECHINODERMS PALEOBIOLOGY TAPHONOMY  
 BIOGEOGRAPHY EVOLUTION FISHERY ECOLOGY  
 EARLY-PALEOZOIC-FORMS ORIGIN-&-EARLY-EVOLUTION  
 ECHINOIDEA  
 TAXONOMY PALEOECOLOGY MORPHOLOGY EVOLUTION ECHINOIDEA  
 REPRODUCTION GENETICS ECOLOGY AQUACULTURE FISHERIES  
 ASTEROIDEA REGENERATION FISHERIES  
 ECHINOIDEA  
 COMMUNITY-ECOLOGY INTRASPECIFIC-COMPETITION  
 BIODIVERSITY SUSTAINABLE-EXPLOITATION  
 LIFE-CYCLE-EVOLUTION  
 ECHINOIDEA EARLY-DEVELOPMENTAL-PATTERNS  
 CATCH-CONNECTIVE-TISSUE STALKED-CRINOIDS  
 ECHINOIDEA CLYPEASTEROIDA SYSTEMATICS  
 GROWTH REPRODUCTION  
 ECHINOIDEA METAMORPHOSIS POLLUTION BIOASSAY CRYOPRESERVATION  
 ECHINOIDEA TAXONOMY  
 ECHINOIDEA ECOLOGY EVOLUTION BIOMECHANICS EDUCATION  
 DEVELOPMENT SKELETOGENESIS EXTRACELLULAR-MATRIX ECHINOIDEA  
 ECHINOIDEA ECOLOGY PALAEOONTOLOGY TAPHONOMY BIODIVERSITY  
 BIOGEOGRAPHY ECHINOMETRIDS GENETICS SYSTEMATICS  
 BIODIVERSITY ECOLOGY EVOLUTION  
 ECHINOIDEA CRETACEOUS TAXONOMY PALEOECOLOGY  
 CRETACEOUS ECHINOIDEA SPATANGOIDA PALEOECOLOGY STRATIGRAPHY

NICHOLS, DAVID  
NICOSIA, UMBERTO  
NISHIHARA, MORITAKA  
NOJIMA, SATOSHI  
O'CONNOR, BRENDAN  
O'HARA, TIMOTHY  
O'LOUGHLIN, P. MARK  
OHTA, SUGURU  
OJEDA, F. PATRICIO  
OJI, TATSUO  
OLSZEWSKA-NEJBERT, D.  
OLVER, JANE  
PABLAN, ROGER  
PAGETT, RICHARD  
PALUMBI, STEVE  
PARMA, SARA GRACIELA  
PARSLEY, RONALD  
PAULS, SHEILA MARQUES  
PEARCE, CHRISTOPHER  
PENCHASZADEH, PABLO  
PETR, VACLAV  
PHILIPPE, MICHEL  
PIEPENBURG, DIETER  
PODOLSKY, ROBERT  
PORTELL, ROGER  
PRESTEDGE, GEOFFREY  
PROKOP, RUDOLF JAN  
PUTCHAKARN, SUMAITT  
RAJAKUMAR, C.  
RAM MOHAN, M.  
REGIS, MARIE-BERTHE  
REICH, MIKE  
RINGVOLD, HALDIS  
ROBINSON, SHAWN  
ROCCATAGLIATA, A.  
RODRIGUEZ, SEBASTIAN  
ROGERS-BENNETT, LAURA  
ROSE, EDWARD  
ROTMAN CLARK, HELEN  
ROUX, MICHEL  
ROWE, FRANK  
ROY, MICHAEL  
SABA, MASAKI  
SAMYN, YVES  
SANO, MINORU  
SASTRY, DWADASI  
SCALLY, KEVIN  
SCHELTMA, RUDOLF  
SCHOPPE, SABINE  
SCHUETZ, ALLEN  
SEETO, JOHNSON  
SERAFY, D. KEITH  
SEVASTOPULO, GEORGE  
SEWELL, MARY  
SHEPHERD, SCORESBY  
SHICK, J. MALCOLM  
SHIRLEY, THOMAS  
SIBUET, MYRIAM  
SINGLETARY, ROBERT  
SKOLD, MATTIAS  
SLOAN, NORMAN  
SMILEY, SCOTT  
SMIRNOV, ALEXEI  
SMIRNOV, IGOR  
SMITH, ALBERT  
SMITH, ANDREW  
SOLOVJEV, ANDREY  
SONNENHOLZNER, JORGE  
SPENCER, LARRY  
SPONER, RENATE

FUNCTIONAL-MORPHOLOGY REPRODUCTIVE-STRATEGIES  
SYSTEMATICS PALAEOLOGY EVOLUTION STRATIGRAPHY JURASSIC CRINOIDEA  
ECOLOGY BIODIVERSITY POPULATION BEHAVIOR  
LIFE-HISTORY-TACTICS PREDATION-PRESSURE ECOLOGICAL-ENERGETICS  
OPHIUROIDEA TAXONOMY BIOTURBATION DENSITY-REGULATORY-FACTORS  
TAXONOMY NATURAL-HISTORY BIOGEOGRAPHY CONSERVATION  
HOLOTHUROIDEA  
TAXONOMY DISTRIBUTION ZONATION  
ECOLOGY BIOLOGY FEEDING-BIOLOGY DISTRIBUTION  
CRINOIDEA TAXONOMY EVOLUTION BIOGEOGRAPHY REGENERATION  
CRETACEOUS-IRREGULAR-ECHINOIDS PALEOBIOGEOGRAPHY STRATIGRAPHY  
ECOLOGY ECHINOIDEA  
CRINOIDEA-EPIBIONTS PARASITES PREDATORS COMMENSALS  
BRACKISH-WATER-ECOLOGY CASPIAN SEA  
ECHINOIDEA SPECIATION POPULATIONS-STRUCTURE MOLECULAR-EVOLUTION  
PALEOBIOGEOGRAPHY ECHINOIDEA MESOZOIC-CENOZOIC  
PALEONTOLOGY PHYLOGENY  
TAXONOMY ECOLOGY MORPHOLOGY  
METAMORPHOSIS RECRUITMENT SETTLEMENT  
ECHINOIDEA ASTEROIDEA ECOLOGY  
SYSTEMATICS TAXONOMY PALEOBIOLOGY PALEOECOLOGY BIOSTRATIGRAPHY  
ECHINOIDEA PALEOECOLOGY STRATIGRAPHY TAXONOMY  
ECOLOGY OPHIUROIDEA  
REPRODUCTION FERTILIZATION LARVAL-BIOLOGY PHYSIOLOGY BIOCHEMISTRY  
TAXONOMY BIOSTRATIGRAPHY  
PATRIELLA-vivipara  
EARLY-PALAEOZOIC-ECHINODERMATA BIOSTRATIGRAPHY PALEOBIOLOGY  
TAXONOMY ECOLOGY BIODIVERSITY  
BIOLOGY ECOLOGY  
BIOLOGY TAXONOMY HOLOTHUROIDEA  
BIOLOGY ECOLOGY POLLUTION ENVIRONMENT  
TAXONOMY MORPHOLOGY FOSSIL-HOLOTHUROIDEA CAMBRIAN-RECENT  
ASTEROIDEA TAXONOMY DISTRIBUTION  
CULTURE FISHERY ECOLOGY POPULATION-DYNAMICS  
ASTEROIDEA OPHIUROIDEA PHYSIOLOGICALLY-ACTIVE-STEROIDS  
ECHINOIDEA ECOLOGY SPATIAL-DISTRIBUTION USE-OF-DRIFT-ALGAE  
ECHINOIDEA GROWTH  
FOSSIL ECHINOIDEA  
ASTEROIDEA OPHIUROIDEA TAXONOMY ANATOMY  
CRINOIDEA TAXONOMY ECOLOGY BIOGEOGRAPHY  
ECHINODERMATA SYSTEMATICS ZOOGEOGRAPHY EVOLUTION  
EVOLUTION GENETICS BIODIVERSITY BIOGEOGRAPHY  
ASTEROIDEA TAXONOMY  
TAXONOMY FEEDING-BIOLOGY REPRODUCTIVE-BIOLOGY HOLOTHUROIDEA ECHINOIDEA-REGULAR  
ECHINOIDEA POPULATION-ECOLOGY  
TAXONOMY BIODIVERSITY ECOLOGY  
MASTECATORY-FUNCTION ECOLOGY DENTAL-MORPHOLOGY EVOLUTION  
LARVAL-DISPERSAL MODE-OF-REPRODUCTION  
ASTEROIDEA ECHINOIDEA OPHIUROIDEA TAXONOMY REPRODUCTION BIODIVERSITY  
JUVENILES  
TAXONOMY REPRODUCTION  
ECHINOIDEA TAXONOMY ECOLOGY  
PALEONTOLOGY PHYLOGENY CRINOIDEA  
HOLOTHUROIDEA BIOGEOGRAPHY LARVAL-ECOLOGY LARVAL-DEVELOPMENT REPRODUCTION  
ECHINOIDEA ECOLOGY  
PHYSIOLOGY PHOTOBIOLOGY BIOCHEMISTRY DEVELOPMENT  
CRAB-ASTEROID-INTERACTIONS  
TAXONOMY BIODIVERSITY  
ECOLOGY TAXONOMY  
OPHIUROIDEA REGENERATION DEVELOPMENT  
HOLOTHUROIDEA FISHERIES  
HOLOTHUROIDEA PHYSIOLOGY DEVELOPMENT EVOLUTION  
TAXONOMY ZOOGEOGRAPHY EVOLUTION PHYLOGENY PALEONTOLOGY HOLOTHUROIDEA  
POLAR-OCEANS OPHIUROIDEA DATABASES  
PATHOLOGY/PATHOBIOLOGY HEMATOLOGY IMMUNE-SYSTEM LINKS-TO-PROTOCHORDATES/VERTEBRATES  
PALAEOBIOLOGY SYSTEMATICS  
ECHINOIDEA EVOLUTION PALEOECOLOGY  
ECHINOIDEA POPULATION-ECOLOGY BIOLOGY-RECRUITMENT DISEASE-PREDATION-CLYPEASTEROIDA  
POPULATION-ECOLOGY SYMBIOTIC-RELATIONSHIPS LIFE-HISTORY-STUDIES  
EVOLUTION GENETICS BIODIVERSITY BIOGEOGRAPHY



STANCYK, STEPHEN OPHIUROIDEA REGENERATION PREDATION POPULATION GROWTH  
 STEWART, BRIAN OPHIUROIDEA REPRODUCTION ANATOMY PHYSIOLOGY  
 STICKLE JR., WILLIAM ASTEROIDEA  
 STORC, RICHARD OPHIUROIDEA ASTEROIDEA TAXONOMY CRETACEOUS  
 STRATHMANN, RICHARD LARVAE EVOLUTION BODY-PLANS  
 STUMP, RICHARD ASTEROIDEA POPULATION-DYNAMICS ECOLOGICAL-MODELLING ENVIRONMENTAL-MONITORING  
 SUTER, SHERMAN ECHINOIDEA PALEOBIOLOGY  
 TABLADO, ALEJANDRO ASTEROIDEA TAXONOMY SOUTH-ATLANTIC  
 TAHERA, QASEEM FAUNA BIODIVERSITY BIOLOGY LARVAL-DISTRIBUTION POPULATION-DYNAMICS  
 TAKAHASHI, KEIICHI MUSCLE-PHYSIOLOGY SPERM-MOTILITY CONNECTIVE-TISSUE  
 TALBOT, TIFFANY OPHIUROIDEA REPRODUCTION DEVELOPMENT BEHAVIOR FUNCTIONAL-MORPHOLOGY  
 TAVARES, YARA A. ECHINOIDEA ECOLOGY REPRODUCTION POPULATION-DYNAMICS MORPHOMETRY  
 THANDAR, AHMED HOLOTHUROIDEA TAXONOMY SYSTEMATICS ZOOGEOGRAPHY REPRODUCTIVE-BIOLOGY  
 THIERRY, JACQUES BIODIVERSITY EVOLUTION MORPHOLOGY  
 THORNDYKE, MICHAEL DEVELOPMENT NERVOUS-SYSTEM PHYSIOLOGY  
 THORSEN, MARIANNE ECHINOIDEA GUT-MICROBIOTA  
 TOMINAGA, HIDEYUKI ECHINOIDEA IRREGULAR-SEA-URCHIN AGE-DETERMINATION POPULATION-ECOLOGY DEVELOPMENT  
 TOMMASI, LUIZ ROBERTO OPHIUROIDEA SYSTEMATICS ANTARCTICA  
 TRONCOSO, JUAN TAXONOMY ANTARCTIC  
 TURNER, RICHARD ECHINOIDEA OPHIUROIDEA SYSTEMATICS  
 TUTERA, PETER TAXONOMY BIODIVERSITY CONSERVATION  
 UBAGHS, GEORGES PALEOBIOLOGY  
 v.JUTERZENKA, KAREN OPHIUROIDEA ARCTIC-ECHINODERMS-ECOLOGY FEEDING-STRATEGIES POPULATION-DYNAMICS  
 VADAS, ROBERT GRAZING BEHAVIOR REPRODUCTIVE-ECOLOGY  
 VADET, ALAIN ECHINOIDEA TAXONOMY EVOLUTION  
 VALENTINE, JOHN OPHIUROIDEA ECHINOIDEA ECOLOGY  
 VAN DER HAM, RAYMOND ECHINOIDEA CAMPANIAN-MAASTRICHTIAN-DANIAN NW-EUROPE TAXONOMY  
 VAN HOUT, TESSA ECOLOGY DISTRIBUTION BEHAVIOUR BIO-EROSION  
 VANDENSPIEGEL, DIDIER DEFENSIVE-MECHANISMS MORPHOLOGY SYMBIOSIS  
 VEGA, JUAN TORRES OPHIUROIDEA ECHINOIDEA SYSTEMATICS  
 VELARDE, RONALD TAXONOMY DISTRIBUTIONAL-ECOLOGY SYMBIOTIC-RELATIONSHIPS  
 VENTURA, CARLOS R. REPRODUCTION ASTEROIDEA  
 VIKTOROVSKAYA, GALINA REPRODUCTION INVERTEBRATES BIOTIC-ABIOTIC-CONDITIONS  
 VILLIER, LOIC ASTEROIDEA TAXONOMY EVOLUTION PALEOECOLOGY  
 VISTISEN, BODIL OPHIUROIDEA  
 VOLBEHR, UTE ECOLOGY  
 von BRAND, ELISABETH HOLOTHUROIDEA CYTOGENETICS POPULATION-GENETICS  
 WASSON, KRISTINA ECHINOIDEA REPRODUCTION  
 WATTS, STEPHEN GROWTH REPRODUCTION NUTRITION PHYSIOLOGY HORMONES  
 WEBSTER, GARY CRINOIDEA PALEOZOIC TAXONOMY PALEOBIOGEOGRAPHY  
 WELSCH, ULRICH CRINOIDEA MORPHOLOGY NERVOUS-SYSTEM CONNECTIVE-TISSUE  
 WHITE, CHRIS CRINOIDEA LARVAL-BIOLOGY TAXONOMY SENSORY-BIOLOGY  
 WIDDISON, ROSANNE CRINOIDEA TAXONOMY PALAEOBIOGEOGRAPHY PHYLOGENY PALAEOZOIC  
 WILKIE, IAIN OPHIUROIDEA ECHINOIDEA FUNCTIONAL-MORPHOLOGY  
 WILLCOX, MARK POPULATION-GENETICS MOLECULAR-PHYLOGENY EXPRESSED-GENES  
 WILLIAMSON, JANE CHEMICAL-ECOLOGY LARVAL-BIOLOGY HERBIVORY LIFE-HISTORY  
 WORHEIDE, GERT ECHINOIDEA TAPHONOMY ECOLOGY ACTUOPALEONTOLOGY  
 WRAY, GREGORY EVOLUTION DEVELOPMENT MORPHOGENESIS  
 YAMAGUCHI, MASASHI LARVAL-DEVELOPMENT BIOGEOGRAPHY  
 YANAGISAWA, TOMIO METAMORPHOSIS ECHINOIDEA DEVELOPMENT  
 YOKOTA, YUKIO PHYLOGENY MORPHOGENESIS EMBRYOGENESIS  
 YOSHIZATO, KATSUTOSHI COLLAGEN EXTRACELLULAR-MATRIX ELM  
 ZAVODNIK, DUSAN TAXONOMY BIODIVERSITY ECOLOGY DISTRIBUTION  
 ZEIDLER, WOLFGANG TAXONOMY ASTEROIDEA  
 ZITT, JIRI TAXONOMY TAPHONOMY PALEOECOLOGY

## Obituary Sven Otto Hörstadius (1898-1996)

Sven Hörstadius passed away in Sweden on 16 June 1996 at 98 years of age. Long a Professor at the University of Uppsala, he had been awarded an honorary doctorate at the Sorbonne in 1954.

His experimental work on what was called developmental mechanics, since the time of W. Roux, was famous. Echinoderm eggs and sea urchin embryos have long served as experimental models essential for our understanding of the mechanisms of fecundation and early development of metazoans. Following notably Boveri and Driesch, Sven Hörstadius carried out a remarkable series of experimental procedures showing the evolutionary possibilities of cell lines from isolated blastomeres, or from combinations of blastomeres of different regions of very young morulae. He showed, among other things, the inductive role of micromeres on the blastomeres destined to form the vegetative plaque and the archenteron.

Sven Hörstadius carried out his experimental work using the marvelously precise techniques of microdissection with needles and of *in vivo* staining; this enabled him to correct certain erroneous interpretations by Driesch. He interpreted the results of his own experiments, in agreement with J. Runnström, in considering that two important gradients of opposing substances extended from one extremity to the other of the egg's primordial axis. These substances, respectively "animalizing" or "vegetalizing", would affect the differentiation of a "harmonious" larva by their relative quantities.

In his studies of development of the sea urchin egg, a "regulated" egg, Sven Hörstadius called attention to what would later be called negative inductive interactions. This work is still topical, as in the recent research of the Americans E. H. Davidson, R. A. Cameron, R. J. Hardin and others, all based on the quantity and quality of Hörstadius's experimental results. The "double-gradient" hypothesis is challenged by Davidson, who has studied the expression of molecular markers specific for embryonic tissue, the activity of transcription system of the genome during egg segmentation, and the determination or specificity of the parent or founder cells of cell lines. Davidson proposes a

new explanation of the development of the sea urchin: he suggests that the specification of the founder cells for the cell lines giving rise to the five polyclonal territories of the blastula must depend, among other elements, on the utilization of maternal factors localized according to the primordial axis of the embryo.

Writing these lines, I am reminded of the researchers who occupied what was known in Roscoff as the "Swedish table", everyone in the group from the Wenner Gren Institute of Experimental Biology in Stockholm, animated by J. Runnström and the teaching staff of the University of Uppsala, who came regularly to Roscoff between 1946 and 1956, and among these, Per Eric Lindhal accompanied by the young Bertil Swedmark.

It was during this period that Sven Hörstadius published his more physiological findings, those on animalizing and vegetalizing substances, with Trygve Gustafson, and those conducted with J. F. Danielli and I. J. Lorch on the effects of the enucleation of eggs.

At that time, Sven Hörstadius was a very well-known man, physically squared-off, almost stiff. Thanks to the counsel of Bertil Swedmark, I discovered, behind that classic façade of a "University Professor," a very subtle man, attentive and smiling, who even knew how to set off student applause by his transformation into a remarkable mime at a party given at the "Hotel de la Marine". What the embryologists and the regulars at marine research stations didn't usually know, was Hörstadius's real passion for photography and birds: he was one of the founders of the World and Wildlife Fund.

Fifty years have passed, and biology has undergone a complete mutation. Many biologists famous in their time are already almost forgotten. The name of Sven Hörstadius remains brilliant, so strongly has his work marked the biology of development.

Claude Levi  
Muséum National d'Histoire Naturelle, Paris  
Laboratoire de Biologie des Invertébrés Marin  
et Malacologie.

*Cahiers de Biologie Marine*  
38(1) (1997)

# CBM - CAHIERS DE BIOLOGIE MARINE

Fondateur / Founder: Georges Teissier

Directeur de la publication / Editor: André Toulmond  
Rédactrice / Executive Editor: Claude Jouin-Toulmond

Comité de Rédaction / Editorial Board: B. L. Bayne, Plymouth, UK; F. Boero, Lecce, Italy; C.R. Bridges, Düsseldorf, Germany; L. Cabioch, Roscoff, France; A. Cardinal, Québec, Canada; J. J. Childress, Santa Barbara, USA; J. C. Dauvin, Paris, France; J. Deutsch, Paris, France; P. E. Gibbs, Plymouth, UK; M. K. Grieshaber, Düsseldorf, Germany; M. Jangoux, Bruxelles, Belgium; P. Lasserre, Paris, France; S. Poulet, Roscoff, France; I. Raikov, Saint-Petersbourg, Russia; A. Sournia, Paris, France; N. Terwilliger, Charleston, USA; Y. Turquier, Paris, France; J. van den Biggelaar, Utrecht, The Netherlands; W. Westheide, Osnabrück, Germany.

Comité de Rédaction Honoraire / Honorary Editorial Board: J. Bergerard, Paris, France ; J. Bouillon, Bruxelles, Belgium; P. Drach, Paris, France; S. Gerlach, Kiel, Germany ; C. Jeuniaux, Liège, Belgium ; C. Lévi, Paris, France ; F. Magne, Paris, France ; R. Margaleff, Barcelona, Spain ; J.M. Pérès, Marseille-Endoume, France; C. F. Sacchi, Pavie, Italy.

CBM - Cahiers de Biologie Marine publie des articles portant sur tous les aspects de la biologie des organismes marins et de l'océanographie biologique. Des articles de synthèse sur des problèmes d'actualité sont également bienvenus. Les articles ou les résumés issus de tables rondes ou de colloques internationaux peuvent également être publiés après arbitrage. Les manuscrits doivent être originaux et ne doivent pas avoir été publiés ou être en cours d'analyse dans une autre revue. Ils seront soumis à au moins deux experts anonymes avant d'être acceptés pour publication. Les instructions aux auteurs peuvent être consultées dans le premier fascicule de l'année ou sur le serveur de la Station Biologique : <http://www.sb-roscoff.fr/services.html>

CBM - Cahiers de Biologie Marine publishes papers on all aspects of the biology of marine organisms and of biological oceanography. Reviews on current topics are welcome. Selected papers or abstracts from international symposia or workshops can also be considered. All papers must be original and must not have been published or be under consideration for publication elsewhere. They will be reviewed by at least two anonymous experts before acceptance for publication.

Instructions to authors are available on the first annual issue or on the web server of the Station Biologique: <http://www.sb-roscoff.fr/services.html>

Adresser les manuscrits, la correspondance scientifique et les réclamations à :  
Address manuscripts, scientific correspondence and claims to:

Dr. Claude Jouin-Toulmond (CBM)  
Station Biologique, BP 74, 29682 Roscoff cedex, France.  
Phone: (33) 2 98 29 23 02; Fax: (33) 2 98 29 23 24.  
E-mail: [jouin@sb-roscoff.fr](mailto:jouin@sb-roscoff.fr)

CBM-Cahiers de Biologie Marine est indexé dans :  
Papers published in CBM - Cahiers de Biologie Marine are indexed in:

ASFA, BIOSIS, CABS, Current Contents, Fisheries Reviews, GEOBASE, Marine Contents Tables, PASCAL.

CBM - Cahiers de Biologie Marine est une revue trimestrielle. Le prix de l'abonnement est de 950FF HT, frais d'envoi non compris. Les commandes peuvent être adressées aux libraires spécialisés ou directement à : Cahiers de Biologie Marine, Station Biologique, BP 74, F29682 Roscoff Cedex France

The CBM - Cahiers de Biologie Marine are published quarterly. The subscription price is FF950, excluding VAT and postage. Orders may be sent to any bookseller or directly to: Cahiers de Biologie Marine, Station Biologique, BP 74, 29682 Roscoff Cedex France

Paiements à l'ordre de / Payable to:

CNRS - DR 17, Agent Comptable Secondaire  
Trésor Public Rennes  
Compte / Account : 10071 - 35000 - 00003004708 - 11

Imprimé par / Printed by:  
Cloître Imprimeurs, Saint-Thonan, 29800 Landerneau, France



MARINE RESOURCES DIVISION  
INFORMATION SECTION

# BECHE-DE-MER

Number 9 – March 1997

INFORMATION BULLETIN



Editor and group coordinator: Chantal Conand, Université de La Réunion, Laboratoire d'écologie marine, 97715 Saint-Denis Cedex, La Réunion, France. [Fax: (262) 938166; E-mail: conand@univ-reunion.fr] Production: Information Section, Marine Resources Division, SPC, B.P. D5, 98848 Noumea Cedex, New Caledonia. [Fax: (687) 263818; E-mail: cfpinfo@spc.org.nc] Printed with financial assistance from the Government of France.

## NOTE FROM THE EDITOR

Welcome to the ninth *Beche-de-mer Information Bulletin*. This issue contains contributions from the various fields of sea cucumber biology and fishery, arranged as in the previous issues. The number of members is still increasing, and we hope that the new members will contribute to future issues.

Since the last issue, the highlight has been the symposium devoted to echinoderm fisheries and aquaculture during the International Echinoderm Conference, which was held in San Francisco in August 1996. The abstracts are presented here (see p. 26) and the papers will be published in 1997 by the editor A.A. Balkema (Rotterdam). The increase in overexploitation, now spreading to many coastal zones of the tropical East Pacific is one of the issues discussed.

An original approach is also being carried out in a traditional exploitation country—Madagascar—in the context of a regional programme (Commission de l'Océan Indien (COI), GICZ). To achieve sustainable exploitation of this fragile resource, the exporters have decided to organise the profession (see p. 4).

Several contributions update the state of the fisheries, as in Tuvalu (see p. 2), California and Washington State (see p. 11 and 12), Torres Strait reefs (see p. 17),

In the rubrique 'Asexual reproduction by fission' new observations are reported for the first time on the species *Holothuria leucospilota* (see p. 5) which had been previously cited as reproducing only sexually.

A new rubrique on aquaculture could also be prepared (see ICLARM results in the Solomon Islands, p. 3). We are looking forward to your suggestions and contributions.

Chantal Conand

## Inside this issue

**Beche-de-mer production in Tuvalu**

by K. Belhadiati p. 2

**A new study of asexual reproduction in holothurians: Fission in *Holothuria leucospilota* populations on Reunion Island in the Indian Ocean**

by C. Conand et al. p. 5

**A brief survey of the commercial sea cucumber *Isostichopus fuscus* Ludwig, 1875 of the Galapagos Islands, Ecuador**

by J. Sonnenholzner p. 12

**Distribution and abundance of beche-de-mer on Torres Strait reefs**

by B. Long & T. Skewes p. 17

**Correspondence** p. 20

**Abstracts, publications, workshops & meetings**

p. 24





Secretariat of the Pacific Community

# BECHE-DE-MER

Number 10 — May 1998

INFORMATION BULLETIN



**Editor and group coordinator:** Chantal Conand, Université de La Réunion, Laboratoire de biologie marine, 97715 Saint-Denis Cedex, La Réunion, France. [Fax: +262 938166; E-mail: conand@univ-reunion.fr]. **Production:** Information Section, Marine Resources Division, SPC, B.P. D5, 98848 Noumea Cedex, New Caledonia. [Fax: +687 263818; E-mail: cfpinfo@spc.org.nc]. **Printed with financial assistance from the Government of France.**

## Editorial

This 10<sup>th</sup> edition of the Bulletin gives us an opportunity to review the progress made in the 'sea-cucumber sector' information system in broad terms. After beginning in the tropical Pacific, the Bulletin has gradually acquired a wide international audience, while sea cucumber fisheries, often a source of conflict, have grown.

Readers, I would like to thank all those who have already contributed to the Bulletin, and ask that you take an active role in its improvement, as many of you have already indicated that the Bulletin is useful for you. I would be very interested in having your opinion on the following questions:

- Is the current presentation by section, i.e. 1) New Information, 2) Correspondence, 3) Publications, satisfactory?
- Which section should be given more space?
- In the 'New Information' section, parts on 'In situ spawning observations' and 'Asexual reproduction through fission observations' have been introduced. This issue will for the first time include a part on 'Aquacultural information', with help from S. Battaglene at ICLARM. Are there any other new parts that you would like to see included?

Your suggestions and comments are both useful and necessary.

This Bulletin includes original articles on the resources of several different countries, including Malaysia (p. 2); Madagascar (p. 7-13); Sulawesi, Indonesia (p. 31); and Mozambique (p. 34). Many different aspects of the biology of asexual reproduction through fission (p. 15) and identifying specimens are discussed. And a contribution on the aquaculture of the species *Stichopus japonicus* (p. 24) will certainly meet the expectations of those interested in this activity.

Chantal Conand

## Inside this issue

- The taxonomy and exploitation of sea cucumbers in Malaysia  
by M. Baine & B. Forbes p. 2
- Sustainable management of the sea cucumber fishery sector in Madagascar  
by C. Conand et al. p. 7
- Sea cucumber exploitation in the Toliara region of south-west Madagascar  
by R. Rasolofanirina et al. p. 10
- Laamu atoll mariculture project Low profile cage for retaining sea cucumbers  
by N. Reichenbach et al. p. 14
- Fission in a population of *Stichopus chloronotus* on Reunion Island, Indian Ocean  
by C. Conand et al. p. 15
- Technical development in seed production of the Japanese sea cucumber, *Stichopus japonicus*  
by S. Ito & H. Kitamura p. 24

and much more ...

# Echinoderms: San Francisco

Edited by

RICH MOOI

*California Academy of Sciences, San Francisco, California, USA*

MALCOLM TELFORD

*University of Toronto, Ontario, Canada*

*The texts of the various papers in this volume were set individually by typists under the supervision of each of the authors concerned.*

Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted by A.A. Balkema, Rotterdam, provided that the base fee of US\$ 1.50 per copy, plus US\$ 0.10 per page is paid directly to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. For those organizations that have been granted a photocopy license by CCC, a separate system of payment has been arranged. The fee code for users of the Transactional Reporting Service is: 90 5410 929 7/98 US\$ 1.50 + US\$ 0.10.

Published by

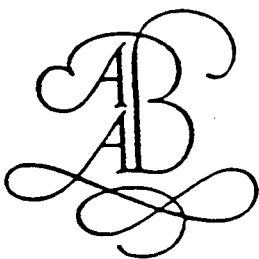
A.A. Balkema, P.O. Box 1675, 3000 BR Rotterdam, Netherlands (Fax: +31.10.413.5947)

A.A. Balkema Publishers, Old Post Road, Brookfield, VT 05036-9704, USA (Fax: 802.276.3837)

ISBN 90 5410 929-7

© 1998 A.A. Balkema, Rotterdam

Printed in the Netherlands



ROYAL BRITISH COLUMBIA MUSEUM  
H A N D B O O K

# Sea Cucumbers

OF BRITISH COLUMBIA, SOUTHEAST ALASKA  
AND PUGET SOUND

PHILIP LAMBERT



UBC PRESS / VANCOUVER

Copyright © 1997 by the Royal British Columbia Museum.

Published by UBC Press in collaboration with the Royal British Columbia Museum.

All rights reserved. No part of this book may be reproduced or transmitted in any form by any means without permission in writing from the publisher, except by a reviewer, who may quote brief passages in a review.

See Page 166 for credit and copyright information on the photographs and illustrations in this book.

---

**Canadian Cataloguing in Publication Data**

Lambert, Philip, 1945-

Sea Cucumbers of British Columbia, Southeast Alaska and Puget Sound

(Royal British Columbia Museum Handbook, ISSN 1188-5114)

Includes bibliographical references and index.

Copublished by: Royal British Columbia Museum.

ISBN 0-7748-0607-9

I. Holothurians--British Columbia. 2. Holothurians--Alaska. 3. Holothurians--Washington (State)--Puget Sound. I. Royal British Columbia Museum. II. Title. III. Series.

QL384.H7L35 1997

593.9'6'091643

C97-910406-8

---

UBC Press  
University of British Columbia  
6344 Memorial Road  
Vancouver, BC  
V6T 1Z2

Tel: 604-822-3259  
Fax: 1-800-668-0821  
E-mail: [orders@ubcpres.ubc.ca](mailto:orders@ubcpres.ubc.ca)

Printed in Canada.

Editorial Committee of Fauna Sinica, Academia Sinica

# FAUNA SINICA

Phylum Echinodermata

Class Holothuroidea

by

Liao Yulin

A Major Project of the National Natural  
Science Foundation of China in the Period of the Eighth Five-Year Plan  
(Supported by the State Science and Technology Commission  
of China, the National Natural Science Foundation of China  
and the Chinese Academy of Sciences)

Science Press

Beijing, China

1997



## 英文摘要

(Abstract)

This book is a volume of *Fauna Sinica* which deals with a class *Holothurioidea* of the Phylum *Echinodermata* occurring in Chinese waters. The number of species including is 134, belonging to 57 genera in 15 families of 6 orders.

The vast majority of the material on which the present study has been based is found in the collections made by the Institute of Oceanology, Academia Sinica during the past forty years along the whole coast of China, including the offshore Xisha Islands in the South China Sea. Some of the specimens came from shore collecting but most were taken by extensive benthic sampling, north from the Pohai Sea south to the Gulf of Tonkin and Hainan Island during Programme of Oceanographical Cruises of China carried out in 1958—1960.

The bathymetrical range covered is from the intertidal zone to about 200 meters, exceptionally more the approximate extent of the continental shelf.

The text contains two parts: a comprehensive survey and a systematic descriptions. The former part provides the historical review, morphology, system of classification, geographical distribution, biology and economic significance of holothurians. The latter part covers the systematic account for *Holothurioidea* of China, diagnoses are given for the higher taxa above species, keys to aid identification and details of the ranges of the species, among other observations. All species are figured.

Science Press  
Dong-Huang-Cheng-Geng-  
Beijie 16

Beijing 100717

P. R. CHINA

The Ohio Department of Natural Resources, Division of Geological Survey

# ANNOUNCES



## FOSSILS OF OHIO

Rodney M. Feldmann, Editor-in-Chief  
Merrienne Hackathorn, Managing Editor

BULLETIN 70

- Nearly 600 pages
- 232 plates, drawings, and maps, some in color
- 25 chapters covering invertebrates, vertebrates, plants, and trace fossils
- 23 authors who are specialists in their fields
- Clearly written for both the beginner and the professional
- The finest and most comprehensive book ever produced on the fossils of a state

*Fossils of Ohio*, in preparation for more than 5 years, has chapters written by leading experts in Ohio and other states. The book clearly explains how to collect fossils, where to find them, how to prepare and care for them, and how to identify them. Identification keys accompany many chapters, allowing the collector to key out specimens. Numerous photographic plates depict well-preserved examples of fossils commonly found in Ohio rocks and sediments. A chapter on the geology of Ohio and the principal fossil-bearing rock units is a useful guide to searching for fossils. An extensive list of references to technical papers on various fossils will be a valuable aid to advanced amateurs and professionals. A glossary of technical terms and indexes of generic and specific names are included. *Fossils of Ohio* should be in the library of anyone who is interested in the magnificent record of past life preserved in rocks and sediments in all 88 Ohio counties.



**ONLY \$18.00 !**  
(tax and handling additional)

119  
**MORE!** ➔

# RELATED ITEMS:



## Ohio fossils pin

This 1 x 3/4 inch cloisonné lapel pin depicts *Isotelus*, an Ordovician trilobite that is Ohio's official state fossil. The brown trilobite is outlined in gold on a bluish-gray background. The trilobite is bordered by the words "Ohio Fossils" in gold lettering. \$2.00.

## Fossils of Ohio poster

This 18 x 24 inch poster features photographs of fossils from Bulletin 70. A photograph of *Isotelus* is in the center. Seven additional photographs are positioned around the perimeter of the poster and include a brachiopod, a cephalopod, a crinoid, an arthrodire fish, another trilobite, a seed fern, and a coral. \$1.00. Please include \$1.00 for mailing in a tube.

- Isotelus* lapel pin. Brass or pewter finish (please specify), approximately 3/4 inch long. \$1.00
- Isotelus* tie tack. Brass or pewter finish (please specify), approximately 3/4 inch long. \$1.00
- Isotelus* paperweight. Brass finish, approximately 3 inches long. \$5.00
- Isotelus* belt buckle. Brass finish, approximately 3 inches long. \$5.00
- Isotelus* postcard. Full-color photograph, 4 1/4 x 6 inches. \$0.25

DIVISION OF GEOLOGICAL SURVEY  
OHIO DEPARTMENT OF NATURAL RESOURCES  
4383 FOUNTAIN SQUARE DRIVE  
COLUMBUS, OHIO 43224-1362

Telephone: 614-265-6576

Fax: 614-447-1918

e-mail: geo.survey@dnr.state.oh.us

### INSTRUCTIONS FOR ORDERING

Orders to be delivered in Ohio (except to exempt institutions) are subject to 5.75% state and local taxes. Handling charges are assessed on all orders. A handling-charge schedule is provided below. Prices are subject to change without notice. Please make checks payable to "Division of Geological Survey." Checks from foreign countries must be drawn on a U.S. bank.

CREDIT CARD ORDERS BY TELEPHONE: 614-265-6576, 8:00 a.m. - 4:30 p.m., Monday - Friday

### ORDER FORM

Name \_\_\_\_\_

My check is enclosed

Address \_\_\_\_\_

Please charge my  Visa  MasterCard

(please use street address, not P.O. Box number)

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Card # \_\_\_\_\_

Telephone (daytime) \_\_\_\_\_

Expiration date \_\_\_\_\_

(In case we have a question about your order)

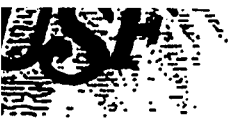
Authorized signature \_\_\_\_\_

Item	Quantity	Total cost
Fossils of Ohio book (B 70)	_____	_____
Fossils of Ohio poster	_____	_____
Mailing tube for poster(s)	_____	_____
Ohio Fossils pin	_____	_____
<i>Isotelus</i> pin, brass	_____	_____
<i>Isotelus</i> pin, pewter	_____	_____
<i>Isotelus</i> tie tack, brass	_____	_____
<i>Isotelus</i> tie tack, pewter	_____	_____
<i>Isotelus</i> paperweight	_____	_____
<i>Isotelus</i> belt buckle	_____	_____
<i>Isotelus</i> postcard	_____	_____

### HANDLING CHARGES

Total cost of order	Handling charge
\$10.00 and under	\$2.00
\$10.01 - \$20.00	\$3.00
\$20.01 - \$50.00	\$5.00
\$50.01 - \$100.00	\$8.50
\$100.01 and over	\$10.00

Total cost of order	\$ _____
5.75% sales tax (in-state sales)	\$ _____
Handling	\$ _____
<b>TOTAL</b>	<b>\$ _____</b>



ATTENTION CYNTHIA AHEA

2 July 1998

Cynthia - for the Newsletter  
John

**L.R.G. Cannon, H. Silver, K. Estep**

**North Australian Sea Cucumbers**

This interactive CD-ROM describes and illustrates in full colour (drawings and micrographs) more than 90 species of sea cucumbers which occur throughout the Pacific and can be seen at the Great Barrier Reef. Besides synonyms and literature references, information is provided on the external characteristics, habitat, ecology, distribution, and taxonomy. Identification is supported by a pictorial interactive key, and the glossary comprises over 200 scientific terms.



**Windows Version**

1996. CD-ROM with booklet.

DM 110; £ 45.27; FF 420.40; Lit. 124.990; US \$ 96.95; OS 803; sFr 100.50\*

Subscription price: DM 93.50; £ 38.48; FF 357.38; Lit. 106.240; US \$ 58.45; OS 683; sFr 85.50\*

ISBN 3-540-14193-6

**Mac Version**

1995. CD-ROM with booklet.

DM 110; £ 45.27; FF 420.40; Lit. 124.990; US \$ 96.95; OS 803; sFr 100.50\*

Subscription price: DM 93.50; £ 38.48; FF 357.38; Lit. 106.240; US \$ 58.45; OS 683; sFr 85.50\*

ISBN 3 540-14194-6

SPRINGER FOR SCIENCE

P O BOX 503

1970 AM Idmuiden, The Netherlands

Department of Biology

University of South Florida • 4202 East Fowler Avenue, SCA 110 • Tampa, Florida 33620-5150

為使國人對繽紛神奇的海洋世界有所認識，喚起愛護海洋資源的情懷，進而達到保育海洋生物的目的，特選用具有本土生態特性、形態特殊且色彩雋麗之四種海洋生物，印製海洋生物郵票一組四枚。是項郵票係委請國立海洋生物博物館籌備處主任方力行教授及研究海洋生物之著名學者多人共同規劃並將本套郵票圖案簡介如下：

- (一) 珊瑚類：圓管星珊瑚廣泛分布於臺灣沿岸的珊瑚礁海域，在水深五公尺以下的礁石壁上到處可見，為珊瑚礁生物的典型代表。
- (二) 裸鰓類：伊莉莎白多形海牛在臺灣南部恆春半島的亞洲帶珊瑚礁海域終年可見，常成對出現在珊瑚礁上，主要分布在水深十到二十公尺之間。
- (三) 管蟲類：大旋螺蟲廣泛分布於臺灣四週珊瑚礁海域，為雌雄異體，常棲息於活的微孔珊瑚群體上，蟲體前端有左右兩枚羽狀鰓冠，呈螺旋漏斗狀，具呼吸和攝食功能。
- (四) 棘皮類：巨型美羽枝俗名海草蟲，在墾丁水深十五公尺左右的珊瑚礁海域極為常見，喜行棲息於水流較強的石珊瑚及岩石表面，或桶形海綿的中央出水口邊緣。

To arouse citizens' love for oceanic resources and thus to achieve the aim of protecting oceanic creatures, this Directorate issued a set of four postage stamps on Sept. 7, 1995, depicting *Tubastraea aurea* Quoy & Gaimard, *Chromodoris elizabethina* Bergh, *Spirobranchus giganteus corniculatus* Grube, and *Himerometra magnipinna* Clark. These four stamps were designed by Professor Lee-shing Fang, Director of the National Museum of Marine Biology / Aquarium.

Taiwan is surrounded by seas. These seas abound with oceanic resources and nourish many colorful corals and marine animals. One NT\$3.50 stamp features *Tubastraea aurea* Quoy & Gaimard. These small marine animals are widely distributed along the coast of Taiwan, growing in rocks below waters 5 meters deep, and the other NT\$3.50 stamp depicts *Chromodoris elizabethina* Bergh. These elizabethina species are active in Hengchung Peninsula, growing in waters 10 to 20 meters deep. They often appear in pairs on coral reefs and mate between February and June. The NT\$5.00 stamp features *Spirobranchus giganteus corniculatus* Grube. These marine animals are found along the coast of Taiwan, and they have two gills, one for breathing and the other one for feeding. The NT\$17.00 stamp depicts *Himerometra magnipinna* Clark. These marine animals are found in Kenting areas, and like to live on the surface of rocks or the coral reefs in the waters 15 meters deep.

專350.1

4.800.000



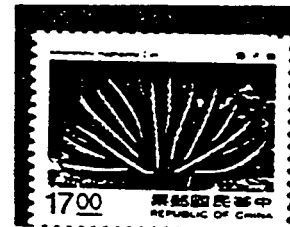
專350.2

4.800.000



專350.3

5.400.000



專350.4

4.400.000

海 洋 生 物 郵 票

專三五〇

Top:35



海洋生物郵票 OCEANIC CREATURES POSTAGE STAMPS  
 第三五〇 Top 350

發行日期：民國84年9月7日

First day of issue.....September 7, 1995

全張枚數：20 (5 × 4)

Sheet composition.....20 (5 X 4) stamps per sheet

紙：國產雪面上膠郵字水紋紙

Paper used.....Locally-made mat finished.  
 watermarked stamp paper with gum

攝影者：方力行、蔡永春、花長生

Photographer.....Lee-shing Fang, Yeeng-chuen Tsay,

承印者：中華彩色印刷公司

Terry Hua

圖幅：30 × 22 (公釐)

Printer.....China Color Printing Co., Inc.,  
 R. O. C.

刷色：彩色

Size of design.....30 X 22 (mm)

印法：平凹版

Color.....Colorful

齒度：12½

Process.....Deep etch offset

Perforation.....12½

中華民國八十四年  
 交通部郵政總局發行



DIRECTORATE GENERAL OF POSTS  
 REPUBLIC OF CHINA 1995

84-13

NTS 4.00

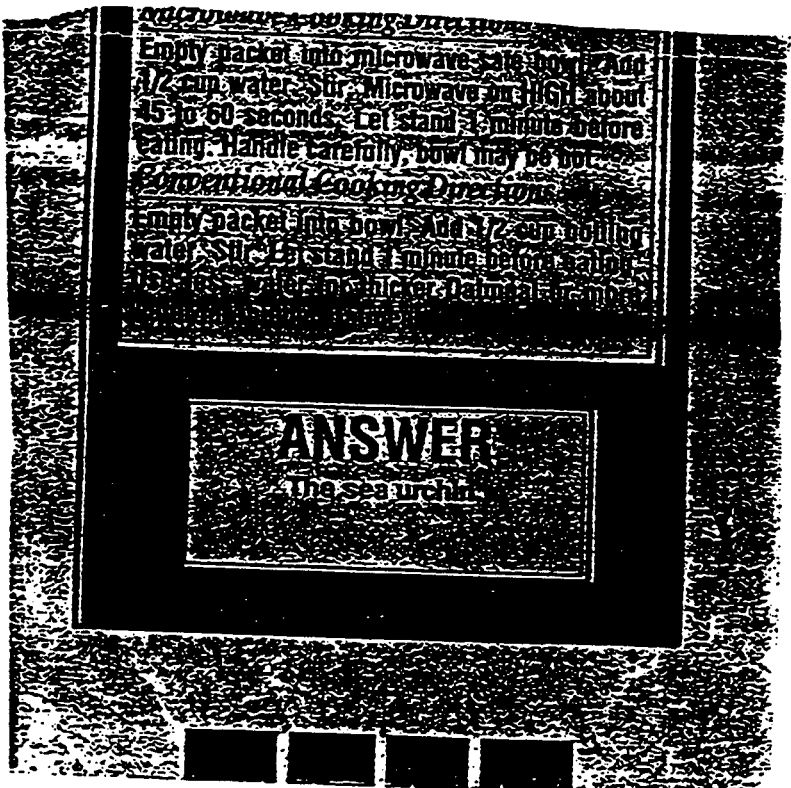
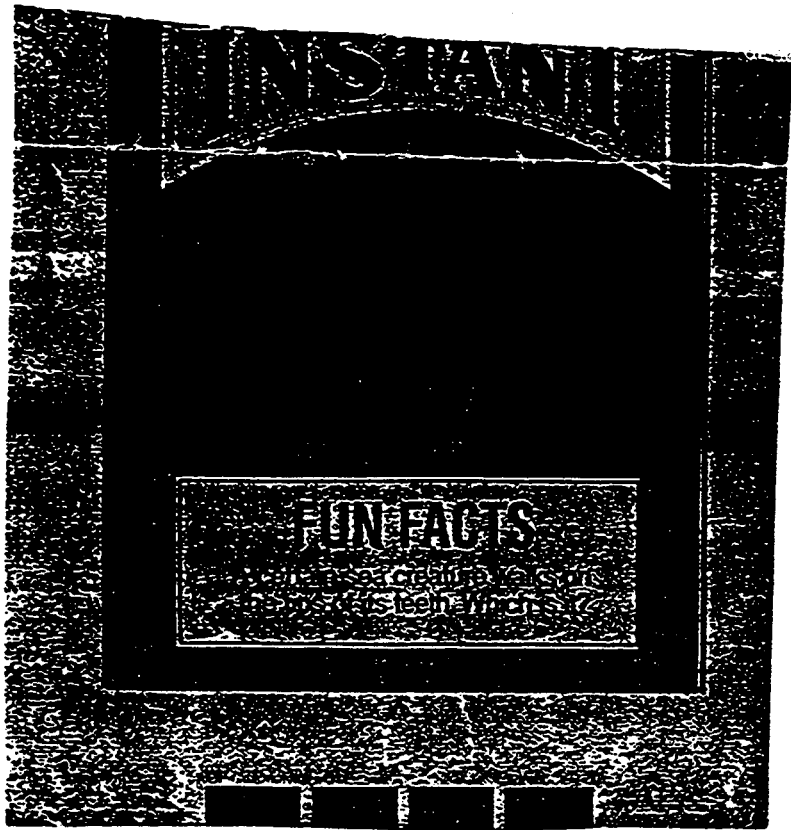
# Urchins chomping Keys grass

An Associated Press report  
**MARATHON** — An army of sea urchins is destroying the sea grass off this island in the Florida Keys, having chomped three square-mile area of sea bottom about eight miles off shore.  
Marching like the foreign legion in a column a yard wide and two miles long, the urchins have left little in their trail.

"It kind of looks like a two-day-old growth of a man's beard — that stubble," said John Hunt, a research administrator with the Florida Department of Environmental Protection.

"There are little tiny stems sticking out of the mud," Hunt said he doesn't yet have an explanation for what they think is a local population explosion. Urchins don't usually congregate like this, he said.

A similar eating frenzy occurred off the Florida Panhandle in 1971, but the urchins died before scientists could determine why they had gathered together for a meal. Urchins look like red or purple pin-cushions. They get around on tube feet propelled by the water pressure they generate inside their bodies.



# Maria Elena Caso

Y SUS ESTRELLITAS QUE RESPIRAN, VIVEN Y JUEGAN



GUÓN: MOWIE.

DIBUJO: FRIK.

MARIA ELENA CASO NACIÓ EN LA CIUDAD DE MÉXICO EN 1915. FUE HIJA DE DON ANTONIO CASO, IMPORTANTE ESCRITOR QUE FUNDÓ EL ATENEO DE LA JUVENTUD, GRUPO QUE REUNÍA A MEXICANOS QUE TENIAN UN GRAN INTERÉS POR LA LITERATURA, LA FILOSOFÍA Y LA POLÍTICA.

¡AHORA SÍ, YA NOS PESCARON!

¡NOS VAN A COMER!



¿EN DÓNDE TENDRÁN SUS BRANQUIAS, EL CORAZÓN Y LOS OJOS?

¡SÍ... NOS VAN A HACER EN SALSA DE OSTIÓN!

¡NO LORES!

¡BUUU!



LA FAMILIA CASO VIVÍA EN FORMA SENCILLA, Y AUNQUE NO ERA RICA, DON ANTONIO LE DIO MUCHO APOYO A SU HIJA PARA QUE ESTUDIARA LO QUE QUISIERA.

SABES HIJA, TENGO UN LIBRO DE LAMARCK, NATURALISTA QUE HA ESTUDIADO EL MISMO TIPO DE ANIMALES QUE ENCONTRASTE.

¿PAPA, TÚ SABES CÓMO LE HARÁN PARA COMER?



ME SIENTO MAL.

CREO QUE ME VOY A AHOGAR.

¡PERO SI VIVES EN EL AGUA!

¡SÍ, PERO NO EN AGUA DE ÉSTA... TIENE MUCHO CLORO Y SAL!  
¡GUACALA!



TUVO LA SUERTE DE CONOCER A GENTE MUY IMPORTANTE, AMIGOS DE SU PAPA. TAMBIÉN CONVERSABA CON BUENOS LIBROS DESDE QUE ERA NIÑA.

¡¡ JI JI ... LEEUWENHÖEK\* CORRETEABA PERROS PARA QUITARLES LAS PULGAS Y VERLAS EN EL MICROSCOPIO.



\* INVENTOR DEL MICROSCOPIO. SU NOMBRE SE PRONUNCIA ASÍ: "LIBENTUK"



VIVERIDAD NACIONAL  
AVIRMA DE  
MEXICO

¡CIENCIACIONAL!  
¡de la UNAM a CHISPA!  
¡Niños que estudiaron en la UNAM  
y que reconoce el mundo!



SI LIMPIO BIEN  
A LO MEJOR DESCUBRO  
POR DÓNDE RESPIRAN

¡JI JI... ME  
HACES COSQUILLAS!

¡AAAAY!  
¡YA NOS EMPEZARON  
A COCINAR!

TE VOY A PONER  
Asterina agustincasoi

¡OYEME NO!  
YO ME LLAMO  
LUPE.

**M**A ELENA DESTACÓ EN CIENCIAS. SE DEDICÓ A ESTUDIAR  
ASTEROIDEOS, O SEA ESTRELLAS DE MAR Y OTRAS  
ESPECIES DE EQUINODERMOS DE MÉXICO. COMO MUCHOS  
NO TENIAN NOMBRE, ELLA LOS BAUTIZÓ CON NOMBRES  
DE GENTE QUE ELLA QUERÍA MUCHO.

A MA ELENA SI ALGO LA  
APASIONABA, ERA EN SERIO!  
ASI QUE, AÑOS MAS TARDE,  
SE TITULO Y DOCTORO CON  
HONORES.



**J**UNTO CON EL DR. RIVERA, A QUIEN CONOCIÓ EN LA UNIVERSIDAD Y EN DONDE SE  
HICIERON BUENOS CUATES, REALIZÓ MUCHAS OBRAS: FUNDO EL LABORATORIO DE  
HIDROBIOLOGÍA, DEL QUE DESPUÉS SURTIÓ EL INSTITUTO DE CIENCIAS DEL MAR Y  
LIMNOLOGÍA.

GRACIAS A ELLA TENEMOS UNA  
IMPORTANTÍSIMA COLECCION  
CIENTÍFICA DE EQUINODERMOS  
PROPIEDAD DE LA UNAM. EN  
1994 ERAN CASI 9500  
ESPECÍMENES NACIONALES Y  
EXTRANJEROS.



A TI TE TOCA AQUÍ,  
CON TU FAMILIA

¡NO, YO VIVO  
CON MI  
MAMA!

ENTRE SUS TRABAJOS CIENTÍFICOS SE ENCUENTRA UNA DE LAS  
MÁS BRILLANTES BIBLIOGRAFÍAS SOBRE ESTRELLAS Y OTROS  
ANIMALES QUE VIVEN EN NUESTROS MARES. ¡Y AÚN FALTAN  
ALGUNOS POR PUBLICAR!



¡CON CUIDADO ANTES QUE NOS  
CACHEN!



¡NO VUELVO A ANDAR  
DE ACOMEDIDA CON ESTO  
DE LOS DISFRACES!

¡MUJERES ASÍ EN MÉXICO!  
¡GUUUUAAUUU!  
¿NO ES CIERTO?

INFORMACION:  
DR. ALFREDO LAGUARDA  
Y MITRO. Fco. SOLÍS M.

