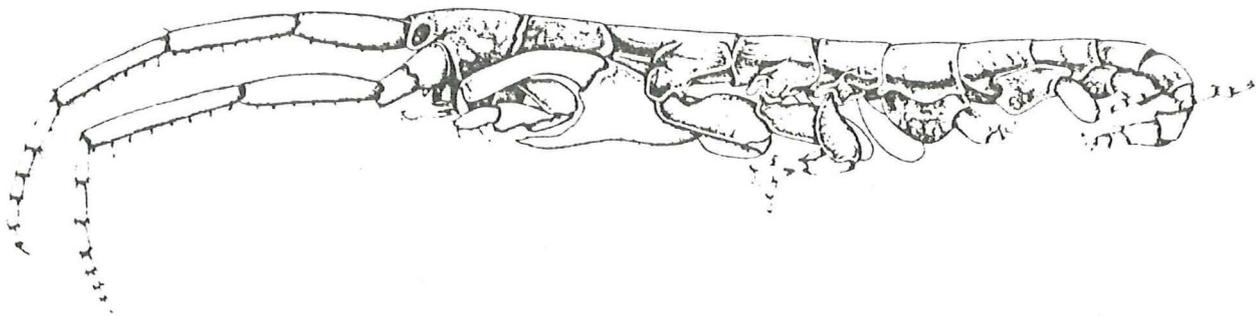
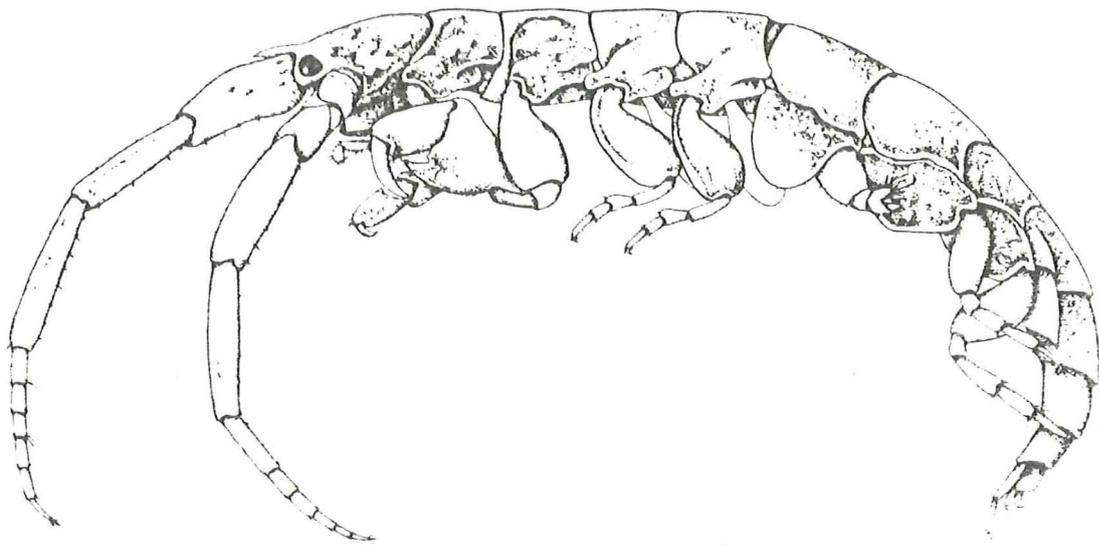


AMPHIPOD NEWSLETTER

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AMPHIPOD NEWSLETTER 16

February 1986

First, I must apologize for the long time delay between this newsletter and the last. It seems that life here has become more and more busy. I am now the Director of the Darling Center, which is the marine laboratory of the University of Maine. While this position entails much more time than expected, I am still trying to keep up with new developments in amphipod biology and systematics.

The bibliography was graciously put together, as usual, by Wim Vader. Without his devotion to this project, the A.N. would soon cease to exist.

With all the recent additions of funds, the newsletter is in a very good situation financially. I would like to thank all who have sent funds, and especially the regional collectors - editors for having taken the time to canvas the amphipodologists in their areas. Thanks also to those from countries unable to export currency for giving some funds to Jerry Barnard at the Ambleteuse meeting.

Apparently the Ambleteuse meeting went very well, with the major 'higher classification and phylogeny factions' coming to some kind of accord. Our field is much in need of more basic research and it is unfortunate to see factions developing on the basis of incomplete evidence. We will know more about how to arrange amphipods into higher categories after we describe more taxa from the large unknown regions of the world (e.g., South America and the tropics), and after we learn more about the functional significance of different morphological features (e.g., the papers dealing with prehensile pereopods and epimeral plate 3 by Vader and Moore, respectively; perhaps also the paper by Bowman & Wasmer cited in this A.N.).

This issue's cover is from Jim Lowry's recent paper on two new species of Cerapus from Samoa and Fiji. The drawings are of Cerapus oceanicus and C. pacificus drawn by Sharne Dunlop.

Best wishes for 1986.

Walpole, Maine


Les Watling

Notes and News

A letter from R. Tchardaklieva, the librarian of the Bulgaria Research Institute of Fisheries in Varna, contained the sad news of the death of a subscriber and colleague, M-e Kaneva-Abadjieva, last April. The newsletter will continue to be sent to the library of that institute.

Dr. Hiroshi Morino has also noted the passing of Dr. Ishitaro Arimoto, due to age and illness. Dr. Morino writes "his numerous research publications on the taxonomy of the Japanese Caprellidae, culminated in the monograph 'Taxonomic Studies of Caprellids Found in the Japanese and Adjacent Waters', 229 pp. (see AN 10) have provided us a very helpful standard to this group of animals".

New subscriber, Exequiel Gonzalez Balbontin, writes: "My work with intertidal gammaridean amphipods goes slowly. I have just sent for revision a paper on Paracorophium and I am writing a revision of some Chilean Hyale. I plan to work in the near future with some samples from the Chilean subantarctic islands."

In this newsletter, at the back, you will find a complete list of all subscribers. Addresses for all subscribers are as up-to-date as I have them. All new subscribers are also included. If anyone's address is different from that listed, please let me know. Changes will be very easy to make since we are now, finally, completely computerized. The mailing list can be sorted to print mailing labels, or an address list, or can be sorted by country or state. I have done this so that the post office can more easily handle our mailing, but I thought the readers would like to know where all their colleagues are so I've compiled the following list:

Argentina	1	Japan	25	U.S.-East	36
Australia	10	Kuwait	2	U.S.-South	23
Belgium	1	Lebanon	1	U.S.-West	44
Brazil	5	Monaco	1	U.S.-Interior	3
Bulgaria	1	Morocco	1	Vietnam	1
Canada	21	New Caledonia	1	Wales	3
Chile	2	New Zealand	6	West Germany	14
Cuba	1	Norway	6	Yugoslavia	4
Czechoslovakia	1	Poland	3		
Denmark	3	Portugal	3		
East Germany	1	Romania	1		
England	17	Scotland	5		
Finland	1	South Korea	1		
France	37	Spain	2		
Guadeloupe	1	Sweden	7		
Holland	7	Thailand	2		
India	6	Turkey	1		
Ireland	7	USSR	10		
Italy	9				

POSITION WANTED: Phil Oshel writes that he is nearing completion of his Ph.D. at Memorial University of Newfoundland and is looking for a position, either at post-doctoral level or entry level faculty. He states: "experienced in SEM operation & x-ray analysis of elements (energy- & wavelength-dispersive), with experience in light & transmission electron microscopy. Interested in comparative/functional morphology and phylogeny of amphipods & malacostracans, and of crustaceans (& invertebrates) in general, especially of feeding and sensory structures."

HELP WANTED: A nematologist, Dr. S. Lorenzen, would like anyone who has noted nematodes living epibiotically on the outside of amphipods to please let him know. He would like very much to obtain a variety of specimens. He can be reached at: Zoologisches Institut, Christian-Albrechts-Universitat zu Kiel, Olshausenstr. 40-60, D-2300 Kiel 1, W. Germany.

I will try to keep up with other news. We need more input from colleagues around the world about work that is happening in their regions. I would especially like to have some detailed news about work in Asia and South America. I will try to have the next A.N. ready to go about late Novemeber.

- ABEL, P.D. 1980. Toxicity of γ -hexachlorocyclohexane (Lindane) to Gammarus pulex: mortality in relation to concentration and duration of exposure. Freshw. Biol. 10: 251-259.
- ADAMS, J., P.J. GREENWOOD & J. MALLOY. 1983. Colour variation in Gammarus pulex in relation to sex and the moult cycle. Arch. Hydrobiol. 98: 265-271.
- ADRIKOVICS, S., L. FORRO & H. METS. 1982. The occurrence of Synurella ambulans (Muller, 1846) (Crustacea, Amphipoda) in Neusiedlersee. Sitzungsber. osterr. Akad. Wiss. (Abt. 1) 191: 139-141.
- AGNEW, D.J. & A.C. TAYLOR. 1985. The effect of oxygen tension on the physiology and distribution of Echinogammarus pirloti (Sexton & Spooner) and E. obtusatus (Dahl) (Crustacea: Amphipoda). J. exp. mar. Biol. Ecol. 87: 169-190.
- AHSANULLAH, M. & D.H. PALMER. 1980. Acute toxicity of selenium to three species of marine invertebrates, with notes on a continuous-flow test system. Austr. J. Mar. Freshw. Res. 31: 795-802. (i.a., Allorchestes compressa)
- AHSANULLAH, M. & T.M. FLORENCE. 1984. Toxicity of copper to the marine amphipod Allorchestes compressa in the presence of water- and lipid-soluble ligands. Mar. Biol. 84: 41-45.
- ALI, A. & J. LORD. 1980. Impact of experimental insect growth regulators on some non-target aquatic invertebrates. Mosquito News 40: 564-571. (i.a. Hyalella azteca)
- ALLDREDGE, A.L. & J.M. KING. 1985. The distance demersal zooplankton migrate above the benthos: Implications for predation. Mar. Biol. 84: 253-260.
- ALONSO, G. 1982. (Gammaropsis deseadensis sp. nov., a new amphipod from Puerto Deseado (Santa Cruz, Argentina).) Neotropica 27: 185-189. (In Spanish, not seen)
- AMBROSE, W.G. 1984. Increased emigration of the amphipod Rhepoxynius abronius (Barnard) and the polychaete Nephtys caeca (Fabricius) in the presence of invertebrate predators. J. exp. mar. Biol. Ecol. 80: 67-75.
- ANDRES, H.G. 1979. (Paracorophium hartmannorum, new species from the eulittoral of the Chilean Pacific coast (Crustacea, Amphipoda).) Mitt. Hamb. zool. Mus. Inst. 76: 381-386. (In German)
- ANDRES, H.G. 1984. Zwei neue Synopiiden (Crustacea: Amphipoda: Gammaridea) aus dem warmen zentralen Nordatlantik. Mitt. Hamb. zool. Mus. Inst. 81: 109-116. [Synopia triangula n. sp. (10°N, 27°W) & Synopia rotunda n. sp. (25°N, 27°W)]
- ANDRES, H.G. 1984. Neue Vertreter der antarktisch verbreiteten Gattung Paraceradocus Stebbing, 1899 (Crustacea: Amphipoda: Gammaridae). Mitt. hamb. zool. Mus. Inst. 81: 85-107. [includes P. trispinosus n.sp. (S. Orkney Islands, 244-344 m), P. stenepimerus n.sp. (60°51'S, 55°33.4'W 280-294 m), P. gibber n.sp. (63°38'S, 56°17'W, 0-310 m), and additions to the descriptions of P. miersi and P. ramulus along with a key to all known species in the genus]
- ANDRES, H.G. & H.-C. JOHN. 1984. Results of some neuston net catches in the warmer Central North Atlantic: Fish larvae and selected invertebrates. Meeres. 30: 144-154. (Not seen)
- ANKAR, S., A.-B. ANDERSIN, J. LASSIG, L. NORLING, & H. SANDLER. 1979. Methods for studying benthic macrofauna. An intercalibration between two laboratories in the Baltic Sea. Finn. Mar. Res. (246): 147-160.

- BACHELET, G., J.M. BOUCHET & J.P. LISSALDE. 1981. Les peuplements benthiques dans l'estuaire de la Gironde: biomasse, productivite et evolution structurale. *Oceanis* 6: 593-620. (with data on life history of i.a. Corophium volutator)
- BARNARD, J.L. & C.M. BARNARD. 1981. The amphipod genera Eobrolgus and Eyakia (Crustacea: Phoxocephalidae) in the Pacific Ocean. *Proc. biol. Soc. Wash.* 94: 295-313. (E. chumashi n.sp. (S. California), other species included in this genus are Paraphoxus spinosus (type) and Parharpinia pontarpioides; Eyakia consists of Paraphoxus robustus (type), Parharpinia calcarata, Parharpinia ochotica (a possible synonym of E. robusta), Paraphoxus subuncigerus and Parharpinia uncigera)
- BARNARD, J.L. & J.D. THOMAS. 1983. A new species of Amphilochus from the gorgonian Pterogorgia anceps in the Caribbean Sea. Pp. 179-187, in P. Rabinanath (ed). *Selected Papers on Crustacea*. Prof. N. Krishna Pillai Felicitation Volume. The Aquarium, Trivandrum 695 007, India. (Amphilochus pillaii n.sp. from Big Pine Key, Florida, USA, also occurs in Belize.)
- BARNARD, J.L. & M.M. DRUMMOND. 1984. Redescription of Notoediceros tasmaniensis Bousfield and a note on the synonymy of Warreyus Barnard & Drummond and Exoediceroides Bousfield (Crustacea: Amphipoda: Exoedicerotidae). *Proc. R. Soc. Vict.* 96: 25-32. (With a key to the 8 genera of Exoedicerotidae. Notoediceros tasmaniensis has a uniramous ur. 3. Exoediceroides maximus is a junior synonym of Oediceros latrans Haswell, 1879.)
- BARNARD, J.L. & M.M. DRUMMOND. 1984. A new paracalliopiid, Katocalliope kutyeri gen. et sp. nov. (Crustacea: Amphipoda) from Queensland. *Proc. R. Soc. Vict.* 96: 147-153. (includes a key to the genera of the Family Paracalliopidae)
- BARNARD, J.L. & J.D. THOMAS. 1984. Two new species of the Siphonoecetes complex from the Arabian Gulf and Borneo. *Proc. biol. Soc. Wash.* 97: 864-881. (Siphonoecetes arabicus n. sp. from Dhahran, the Arabian Gulf, and Borneoecetes wongi n. gen. n.sp. from Borneo.)
- BARNARD, J.L. & J. CLARK. 1985. A new sea-cave amphipod from Bermuda (Dulichiiidae). *Proc. biol. Soc. Wash.* 98: 1048-1053. (Describes Podobothrus bermudensis n. sp.)
- BARNES, R.S.K., A. WILLIAMS, C. LITTLE, & A.S. DOREY. 1979. An ecological study of the Swanpool, Falmouth. 4. Population fluctuations of some dominant macrofauna. Pp. 177-197, in R.L. Jefferies & A.J. Davy (eds.) *Ecological processes in coastal environments*. Blackwell Scientific Publishers, Oxford.
- BECHLER, D.L. 1985. Structure and foraging behavior in hypogean crustacean assemblages. *Hydrobiologia* 127: 203-211. (A Missouri study, involving Gammarus troglophilus and Bactrurus brachycaudus)
- BECKLEY, L.E. 1980. Distribution and tidal rhythmicity of a littoral amphipod. *S. Afr. J. Zool.* 15: 199-200. (Hyale grandicornis)
- BECKLEY, L.E. & A. McLACHLAN. 1980. Studies on the littoral seaweed epifauna of St. Croix Island. 2. Composition and summer standing stock. *S. Afr. J. Sci.* 15: 170-176.
- BEDFORD, A.P. & P.G. MOORE. 1984. Macrofaunal involvement in the sublittoral decay of kelp debris: The detritivore community and species interactions. *Est. coast. Shelf Sci.* 18: 98-112. (i.a. Gammarus locusta.)
- BELLAN-SANTINI, D. 1983. Donnees preliminaires sur la faune des crustaces amphipodes installee dans des reseaux cavitaires artificiels. Pp. 99-104 in *Journee d'Etudes sur les aspects scientifiques concernant les recifs*

- artificiels et la mariculture suspendue, Cannes, 7 Dec. 1982. CIESM, Monaco. (Not seen)
- BELLAN-SANTINI, D. 1983. Distribution des Ampelisca (Crustacea, Amphipoda) de Mediterranee. Pp. 155-161 in P. Rabindranath (ed.). Selected Papers on Crustacea. Prof. Dr. N. Krishna Pillai Felicitation Volume. The Aquarium, Trivandrum.
- BELLAN-SANTINI, D. 1985. Amphipodes des expeditions antarctiques chiliennes dans les iles Shetland du Sud (I. Les Ampeliscidae). Boll. Mus. Civ. Stor. Nat. Verona 10(1983): 241-262. (Describes and illustrates Ampelisca dallenei n.sp. (64°52'S, 62°57'W), A. lenoldei n.sp. (62°57'S, 60°36'W) and Byblis subantarctica.)
- BELLAN-SANTINI, D. 1985. Amphipodes profonds de Mediterranee (Campagnes Biomede I, Polymede I et II). Boll. Mus. Civ. Stor. Nat., Verona 10(1983): 263-313. (Deals with 50 spp. of which the following are described and illustrated: Scopelocheirus polymedus n.sp., Tmetonyx palpiserrata n. sp., Vallettietta punctata n.sp., Pardalisca brachydactyla n.sp., P. mediterranea n.sp., Phippsiella pseudophippsia n.sp. Syrrhoites capricornia n.sp., and S. cornuta n.sp. All new species are from deep water in the western Mediterranean.)
- BELLAN-SANTINI, D. & J.C. DAUVIN. 1981. Description d'une nouvelle espece d'Ampelisca des cotes francaises. Crustaceana 40: 242-252. (A. americana n.sp. from the Bay of Morlaix in N. Brittany)
- BELLAN-SANTINI, D. & J.C. MARQUES. 1984. Contribution a l'etude des amphipodes des cotes du Portugal. Cienc. Biol. (Portugal). 5: 131-149. (71 species of amphipods were dealt with).
- BELLAN-SANTINI, D. & J.C. DAUVIN. 1985. Morphologie et microstructure d'une formation cuticulaire enigmatique chez une nouvelle Ampelisca (Crustacea Amphipoda). C.r. Acad. Sci. Paris. (Ser. 3.9) 300, 389-393. (The enigmatic structure is found on the dorsal part of the two anterior pleon segments. Its function is not clear. The species, from NW Spain, is new and will be described elsewhere.)
- BENNETT, B., C.L. GRIFFITHS, M.-L. PENRITH. 1983. The diets of littoral fish from the Cape Peninsula. S. Afr. J. Zool. 18: 343-352.
- BERENTS, P.B. 1985. Warragaia rintouli n.gen., n.sp. (Amphipoda: Urohaustoriidae) from New South Wales, Australia. Rec. austr. Mus. 36: 253-258. (Type locality: Jervis Bay, NSW, where the 1980 Crustacea Conference had its excursion.)
- BERZIN, A.A. & L.P. VLASOVA. 1982. Fauna of the Cetacea Cyamidae (Amphipoda) of the world ocean. Invest. Cetacea 13: 149-164. (with Cyamus antarcticensis Vlasova n.sp. from Orcinus arca from North Prydz Bay, Antarctic, and a survey of all known Cyamid species arranged by hosts.)
- BIAS, R. 1981. Kinetik der Cadmium-Akkumulation in euryhalinen Amphipoden des Elbe-Aestuars. Experimente mit Corophium volutator (Pallas) (Amphipoda, Corophiidae). Arch. Hydrobiol., Suppl. 61: 84-152.
- BIERNBAUM, C.K. 1981. Seasonal changes in the amphipod fauna of Microciona prolifera (Ellis and Solander) (Porifera: Demospongia) and associated sponges in a shallow salt marsh creek. Estuaries 4: 85-96.
- BIRKHEAD, T.R. & K. CLARKSON. 1980. Mate selection and precopulatory guarding in Gammarus pulex. Z. Tierpsychol. 52: 365-380.
- BLOCK, W., 1984. A comparative study of invertebrate supercooling at Signy Island, maritime Antarctic. Br. antarct. Surv. Bull. (64): 67-76. (With data on Oradarea bidentata, O. ocellata, Bovallia gigantea, Pariphimedia integricauda, Paradexamine fissicauda, and Cheirimedon femoratus.)

- BLOKHIN, S.A. & V.A. PAVLYUCHKOV. 1983. Feeding of Gray Whales off Chukotka. Rep. int. Whaling Comm. 33: 549-552. (Mostly Amphipoda, of which 55 spp. are now known to be eaten by these whales.)
- BOGATOV, V.V. 1984. (Importance of bottom dwelling animals in biological production processes in rivers.) *Ekologiya (1984-3)*, 52-60. (In Russian, not seen. Data on i.a. Gammarus lacustris.)
- BOLT, S.R.L. 1985. Urine clearance rates and apparent permeability of Gammarus duebeni exposed to varying conditions. *J. exp. Biol.* 114: 673-678.
- BOLT, S.R.L., M.E. DAWSON, C.B.E. INMAN, & A.P.M. LOCKWOOD. 1980. Variation of apparent permeability to water and sodium transport in Gammarus duebeni exposed to fluctuating salinities. *Comp. Biochem. Physiol.* 67 B: 465-473.
- BOROWSKY, B. 1980. The physiological control of reproduction in Microdeutopus gryllotalpa (Crustacea: Amphipoda). 1. The effects of exogenous ecdysterone on the female molt and behavioral cycles. *J. exp. Zool.* 213: 399-404.
- BOROWSKY, B. 1983. The existence of a water-borne male attractant secreted by receptive females of the amphipod crustacean Microdeutopus gryllotalpa (Costa). *Am. Zool.* 23: ?. (Abstract only)
- BOROWSKY, B. 1984. The use of the males' gnathopods during precopulation in some gammaridean amphipods. *Crustaceana* 47: 245-250.
- BOROWSKY, B. 1984. Effect of receptive females' secretions on some male reproductive behaviors in the amphipod crustacean Microdeutopus gryllotalpa. *Mar. Biol.* 84: 183-187.
- BOROWSKY, R. 1984. Environmental control of amylase phenotype in amphipods of the genus Gammarus. *Biol. Bull.* 167: 647-657.
- BOROWSKY, R., B. BOROWSKY & H. MILANI. 1983. Amylase in the amphipod Gammarus palustris: a chemosensory hypothesis to account for heterozygote deficiency and differential food choice. *Am. Zool.* 23: ?. (Abstract only)
- BORTKEVICH, L.V. 1982. (Corophiidae in the benthos of the lower reaches of the Ingulets River.) *Gidrobiol. Zh.* 18(4): 97-99. (In Russian, not seen)
- BOUSFIELD, E.L. 1984. Recent advances in the systematics and biogeography of landhoppers (Amphipoda: Talitridae) of the Indo-Pacific region. pp. 171-210, in F.J. Radovsky, P.H. Raven and S.H. Sohmer (eds.) *Biogeography of the tropical Pacific*. Bishop Mus. Spec. Pub. No. 72 (also published by Association of Systematics Collections). (Includes capsule diagnoses of several new taxa: Eorchestia, n. gen. (type: Orchestia rectipalma K.H. Barnard 1940; and includes several undescribed species from New Zealand and southeastern Australia); Microrchestia, n. gen. (type: Parorchestia macrochela Bousfield 1971; and additional undescribed species from intertidal habitats in mangrove swamps from South America, Africa, Madagascar, India, and the Bismarck Archipelago); Chiltonorchestia, n. gen. (type: Parorchestia pusilla Chevreux 1915; also includes P. pusilla (Chevreux), P. sarasini (Chevreux), O. starmuhlneri (Ruffo and Paiotta) and 3 undescribed from New Caledonia freshwaters); Uhlorchestia, n. gen. (type: Orchestia uhleri Shoemaker 1930; and 1 additional species); Chelorchestia, n. gen. (type: Orchestia costaricana Stebbing, 1906; and additional species O. darwinii, O. vaggala (Bowman) and several undescribed species from mangrove swamps of Florida and the Caribbean to Argentina); Tethorchestia, n. gen. (type: T. antillensis, n. sp. from Yucatan, Mexico sand beach); Floresorchestia, n. gen. (type: Orchestia floresiana Weber 1892; with 11 additional species); Prot austrotroides, n. gen. (type: P.

- victoriae, n. sp. from Apollo Bay, Victoria, Australia); Hawaiiorchestia, n. gen. (type: Orchestia hawaiiensis Dana 1853; with at least 2 additional undescribed species from Hawaii); Caribotroides, n. gen. (type: C. jamaicensis, n. sp. from Jamaica at elevation of 1200 m.)
- BOWMAN, Th.E. 1984. Stalking the wild crustacean: the significance of sessile and stalked eyes in phylogeny. *J. Crust. Biol.* **4**: 7-11.
- BOWMAN, Th.E., 1985. The correct identity of the pelagic amphipod Primno macropa, with a diagnosis of Primno abyssalis (Hyperiid: Phrosinidae). *Proc. Biol. Soc. Wash.* **98**: 121-126. (The real P. macropa is redescribed from S. Pacific material. The N. Pacific form earlier thought to be P. macropa is now called Primno abyssalis Bowman, in Fulton 1968.)
- BOWMAN, Th.E. & F. PHILLIPS. 1984. Bioluminescence in the freshwater amphipod, Hyalella azteca, caused by pathogenic bacteria. *Proc. Biol. Soc. Wash.* **97**: 526-528.
- BOWMAN, Th.E. & R.A. WASMER. 1984. The deep-sea amphipod Paracyphocaris praedator (Gammaridea: Lysianassidae) associated with the pelagic shrimp Oplophorus novaezeelandica as an egg-mimic. *Proc. Biol. Soc. Wash.* **97**: 844-848.
- BOWMAN, Th.E., S.P. GARNER, R.R. HESSLER, T.M. ILIFFE, & H.L. SANDERS. 1985. Mictacea, a new order of Crustacea Peracarida. *J. Crust. Biol.* **5**: 74-78. (A new order erected for Hirsutia bathyalis Sanders, Hessler & Garner, 1985, from the deep tropical Atlantic, and Mictocaris halope Bowman & Iliffe, 1985, from a Bermuda sea cave.)
- BRATTON, J.H. 1982. Corophium curvispinum Sars (Crustacea: Amphipoda) recorded in the London area. *London Nat.* **61**: 62.
- BRAUER, R.W., R. JORDAN, R.O. ROER, E.E. WILLIAMS, M.Y. BEKMAN, G.I. GOLZII, & V.G. SIDELYOVA. 1984. Pressure effects on thermal preference behaviour in gammarid amphipods from 600-1000 m in Lake Baikal. *J. Therm. Biol.* **9**: 205-213.
- BROWN, A.F. & M. DIAMOND. 1984. The consumption of rainbow trout (Salmo gairdnerii) eggs by macroinvertebrates in the field. *Freshw. Biol.* **14**: 211-215. (i.a. Gammarus pulex)
- BRUSCA, G.J. 1981. A reexamination of some hyperiid amphipods from Hawaii. *Pacif. Sci.* **34**: 277. (Corrections to his 1973 paper)
- BRYANT, V., D.S. McLUSKY, K. RODDIE, & D.M. NEWBERY. 1984. Effect of temperature and salinity on the toxicity of chromium to three estuarine invertebrates (Corophium volutator, Macoma balthica, Nereis diversicolor). *Mar. Ecol. Progr. Ser.* **20**: 137-149.
- BRYANT, V., D.M. NEWBERY, D.S. McLUSKY, & R. CAMPBELL. 1985. Effect of temperature and salinity on the toxicity of arsenic to three estuarine invertebrates (Corophium volutator, Macoma balthica, Tubifex costatus). *Mar. Ecol. Progr. Ser.* **24**: 129-137.
- BRYANT, V., D.M. NEWBERY, D.S. McLUSKY, & R. CAMPBELL. 1985. Effect of temperature and salinity on the toxicity of nickel and zinc to two estuarine invertebrates (Corophium volutator, Macoma balthica). *Mar. Ecol. Progr. Ser.* **24**: 139-153.
- BRZEZINSKA-BLASZCZYK, E. & K. JAZDZEWSKI. 1980. Reproductive cycles of Gammarus fossarum Koch (Crustacea, Amphipoda) in different thermic conditions. *Acta Univ. Lodz (2)* **33**: 129-153.
- BUDNIKOVA, L.L. 1984. (Fauna, ecology and biogeographical structure of amphipods (Amphipoda, Gammaridea) in the coastal zone of the Sikhotealin Biosphere State Nature Reserve.) Pp 69-80 in A.I. Kafanov (ed.).

Hydrobiological research of bays and inlets of Primorye. Far East Science Center, Akad. Nauk SSSR, Vladivostok. (In Russian. With many quantitative data on zonation and biomass. The reserve covers the coast N. of Vladivostok.)

- BUDNIKOVA, L.L., 1985. (A new species from the family Photidae (Amphipoda, Gammaroidea) from the costal zone of the Sikhote-Alin biosphere state reserve (Sea of Japan.) Zool. Zh. 64, 455-459 (in Russian. Photis albus n.sp.)
- BUDNIKOVA, L.L. & V.A. PAVLYUCHKOV. 1984. (Fauna and ecology of amphipods (Amphipoda, Gammarida) in the open part of Possjet Bay.) Pp 46-51 in A.I. Kafanov (ed.). Hydrobiological research of bays and inlets of Primorye. Far East Science Center, Akad. Nauk USSR, Vladivostok. (In Russian. Possjet Bay is near the border to North Korea.)
- BUIKEMA, A.L. & E.F. BENFIELD. 1980. Effects of pollution on freshwater invertebrates. J. Water Poll. Control Fed. 52: 1670-1686.
- BULNHEIM, H-P., 1984. Physiological responses of various Gammarus species to environmental stress. Limnologica (Berlin) 15, 461-467.
- BULNHEIM, H-P., 1984. Biochemisch-genetische Untersuchungen zur Art- und Populations-differenzierung bei Amphipoden und Isopoden. Zool. Beitr. N.F. 28: 349-368. (Gammarus and Idotea species)
- BULNHEIM, H-P., 1985. Genetic differentiation between natural populations of Gammarus tigrinus (Crustacea, Amphipoda) with reference to its range extension in European continental waters. Arch. Hydrobiol. 102: 273-290.
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Amphipod Newsletter Mailing List

Agnew, David J., Dept. of Zoology The University Glasgow G12 8QQ SCOTLAND
 Albright, Rick, School of Fisheries WH-10 University of Washington
 Seattle WA 98195
 Alexeev, R. P., Inst. of Biology of South Seas Odessa Branch Academy of Sciences
 of USSR Odessa 270011 USSR
 Alinat, A.-M., Musee Oceanographique Bibliotheque Avenue Saint-Martin
 Monaco-Ville MC-98000 MONACO
 Alonso, Gloria M., Centro De Investigation De Biologia Marina Casilla De correo 157
 1650 San Martin Buenos Aires ARGENTINA
 Alouf, N.J., Faculte des Sciences Universite Libanaise Hadath Beyrouth 6160 LEBANON
 Andersson, A., Naturhistoriska Riksmuseet Sektionen for Evertebratzoologi
 S 10405 Stockholm 50 SWEDEN
 Andres, H.-G., Zoologisches Institut Und Zoologisches Museum Universitat Hamburg
 Von-Melle-Park 10 2000 Hamburg 13 WEST GERMANY
 Ariyama, H., Osaka Prefectural Fisheries Experimental Station 2926-1, Tanagawa-Tanigawa
 Misaki-cho Osaka 599-03 JAPAN
 Asari, K. Peethambaran, Teacher Fellow CAS in Marine Biology Portonovo
 Tamil Nadu 608502 INDIA
 Azuma, Mikio, Biological Laboratory Faculty of Education Nagasaki University
 1-14 Bumkyo-Machi 852 JAPAN
 Barnard, J. L., Division of Crustacea National Museum of Natural History
 Smithsonian Institution Washington, DC 20560
 Behbehani, Manaf, Dept. of Zoology University of Kuwait Kuwait KUWAIT
 Bellan-Santini, D., Station Marine D'Endoume Rue De La Batterie-Des-Lions
 13 Marseille 7E FRANCE
 Berzins, I. K., Dept. Zoology 4079 LSB U.C. Berkeley Berkeley CA 94720
 Benedict, Bruce, Marine Biological Consultants 947 Newhall Street Costa Mesa CA 92627
 Berents, Penny B., Zoology Dept. The Australian National University P.O. Box 4
 Canberra, A.C.T. 2000 AUSTRALIA
 Berreur-Bonnenfant, J., Laboratoire De Genetique Evolutive CNRS
 91190 Gif-Sur-Yvette FRANCE
 Biblioteket, Zoologisk Museum Oslo Sarsgt. 1 Oslo 5 NORWAY
 Biblioteca, Instituto Di Zoologia Dell'Universita Via Romana 17 I 50125 Firenze ITALY
 Biernbaum, Charles K., Grice Marine Biological Lab. The College of Charleston
 205 Ft. Johnson Charleston SC 29412
 Blanchet, M. F., Laboratoire De Sexualite Des Invertebres
 Batiment C Universite De Paris VI 75230 Paris Cedex 05 FRANCE
 Bone, D.G., British Antarctic Survey Monks Wood Experimental Station
 Abbots Ripton Huntingdon ENGLAND
 Boothe, Billy B., Mote Marine Laboratory 1600 City Island Park Sarasota FL 33577
 Borowsky, Betty, Dept. Biology City College City University of New York N.Y. NY 10031
 Bosworth, S. Weldon, Normandeau Associates 686 Mast Road Manchester NH 93102
 Bou, B., La Forestole 1, Cambon E1000 Albi FRANCE
 Bousfield, E. L., National Museum of Natural Science National Museum of Canada
 Ottawa K1A 0M8 CANADA
 Boutin, C., Dept. of Biology Faculte des Sciences B.P. S-15 Marrakech MOROCCO
 Bowen, M., Normandeau Associates 686 Mast Road Manchester NH 03102
 Bowman, T. E., Division of Crustacea National Museum of Natural History
 Smithsonian Institution Washington DC 20560
 Bracht, Gerd, Zoologisches Institut Abt. Physiologie Und Okologie
 Badenstr. 9 D-4400 Munster WEST GERMANY

Broad, Carter, Dept. of Biology West Washington State Bellingham WA 98225

Brouwers, E., U.S. Dept. Interior Geological Survey Box 25046 MS 919
Denver Federal Center Denver CO 80225

Brun, B., Laboratoire De Biologie Animale Universite De Provence
Centre De Saint-Jerome 13013 Marseille FRANCE

Brun, G., Laboratoire De Biologie Animale Universite De Provence
Centre De Saint-Charles 13003 Marseille FRANCE

Brunel, P., Department des Sciences Biologiques Universite de Montreal
Montreal H3C 3J7 CANADA

Brusca, G. J., Dept. of Biology California State University, Humboldt Arcata CA 95521

Brusca, R. C., Allan Hancock Foundation University of Southern California
Los Angeles CA 90007

Bryazgin, V., Lab. of Marine Hydrobiology Knipovich Polar Inst. Marine Fisheries
and Oceanography 6 Knipovich St. Murmansk 183063 USSR

Buikema, Arthur L., Dept. of Biology Virginia Polytechnic Inst. and State Univ.
Blacksburg VA 24

Bulnheim, H. P., Biologische Anstalt Helgoland Notkestr. 31 2000 Hamburg 52 WEST GERMANY

Bussarawich, S., Phuket Marine Biological Center P.O. Box 60 Phuket THAILAND

Bynum, K. H., Dept. of Zoology Wilson Hall 046-A University of North Carolina
Chapel Hill NC 27514

Cadien, Don, M.B.C. Applied Environmental Sci. 947 Newhall Street Costa Mesa CA 92627

Cairns, Kalani D., Harbor Branch Foundation, Inc. RR 1, Box 196-A Ft. Pierce FL 33450

Camp, David K., Marine Rearch Lab. 100 Eight Avenue S.E. St. Petersburg FL 33701

Carausu, Sergei, Facultatea Biologie-Geografie Laborator De Hidrobiologie
Universitatea Iasi Iasi ROMANIA

Carey, Andrew, Department of Oceanography University of Oregon Corvallis OR 97331

Carlton, James T., Williams College-Mystic Seaport Mystic Seaport Museum Mystic CT 06355

Carre-Lecuyer, M. C., Laboratoire De Genetique Evolutive CNRS 91 Gif-Sur-Yvette FRANCE

Carter, Andrew, Dept. of Oceanography Oregon State University Corvallis OR 97331

Champeau, A., Laboratoire De Biologie Animale Universite De Provence
Centre De Saint-Charles 13003 Marseille FRANCE

Chandrasekharan Nair, K. K., Indian Ocean Biological Center P.B. No. 13
Pullepady Cross Road Ernakulam Cochin-16 INDIA

Chapman, John, Environmental Protection Agency Marine Science Center Newport OR 97365

Charniaux-Cotton, Dr., Laboratoire D'Evolut on Des Etres Organises
105 Boulevard Raspail 75 Paris 6E FRANCE

Chess, James R., Southwest Fisheries Center Tiburon Laboratory National Marine Fisheries
Center Tiburon CA 94920

Christophersen, C., Kristiansand Laererskole N-4600 Kristiansand S NORWAY

Ciavatti, G., Centre Universitaire Antilles-Guyane Lab. Biologie & Physiologie Animales
F-97167 Pointe a Pitre Cedex Guadeloupe FRENCH WEST INDES

Clarke, Andrew, British Antarctic Survey High Cross Madingley Road
Cambridge CB3 0ET ENGLAND

Coffin, Wendy L., Piscataqua Marine Lab. Normandeau Associates 15 Pickering Avenue
Portsmouth NH 03801

Coineau, N., Laboratoire Arago 66650 Banyuls-Sur-Mer FRANCE

Cole, F. A., EPA Marine Science Center Newport OR 97365

Cole, G. A., Dept. of Biology Arizona State University Tempe AR 85281

Conlin, Kathy, National Museum of Natural Sciences National Museum of Canada
Ottawa K1A 0M8 CANADA

Cooke, William J., Dept. of Zoology 2538 The Mall University of Hawaii Honolulu HI 96822

Cooper, B., Ministry of Agriculture & Fishery P. O. Box 2298 Wellington NEW ZEALAND

Costello, Mark J., Dept. of Zoology University College Cork IRELAND

Coyle, Ken, Institute of Marine Science University of Alaska Fairbanks AK 99701

Craig, Peter, 53 Howard Avenue Nanaimo, B.C. CANADA

Crawford, G.I., Hall Close Cottage 81 Main Road Grendon Northampton NN7 1JW ENGLAND
 Croker, R., Dept. of Zoology University of New Hampshire Durham NH 03824
 Culver, D. C., Dept. of Biological Sciences Northwestern University Evanston IL 60201
 Dadswell, M.J., Identification Centre Biological Station St. Andrews EOG 2X0 CANADA
 Dahl, E., Zoologiska Institutionen Lund S 22362 SWEDEN
 Davis, David J., Dept. of Zoology University of North Carolina Chapel Hill NC 27514
 Dauvin, Jean-Claude, Station Biologique Place Georges Teissier 29211 Roscoff FRANCE
 De Broyer, C., Institut Royal des Sciences Naturelles Rue Vautier 31 Bruxelles BELGIUM
 DeWitt, Ted, Dept. Ecology & Evolution State University of New York Stony Brook
 NY 11794
 Demond, John D., Dept. of Biology University of Southern Mississippi
 Hattiesburg MS 39401
 Denay, D., Laboratoire De Sexualite Des Invertebres Batiment C
 Universite De Paris VI 75230 Paris Cedex 05 FRANCE
 Dennert, Henk, Rademakerstr. 18 Ouderkerk/Amstel HOLLAND
 Department of Zoology, University College Galway IRELAND
 Dickinson, John, National Museum of Natural Sciences National Museum of Canada
 Ottawa K1A 0M8 CANADA
 Dickson, Gary, Dept. of Zoology University of Georgia Athens GA 30602
 Dieleman, Jan, Institute of Animal Taxonomy Zoologisch Museum Pl. Middenlaan 53
 Amsterdam HOLLAND
 Dittrich, Birgit, Isenbergstr. 58 4300 Essen 1 WEST GERMANY
 Dorgelo, J., Laboratory of Animal Physiology University of Amsterdam
 Kruislaan 320 Amsterdam HOLLAND
 Drummond, M.M., Dept. of Crustacea National Museum of Victoria 71 Victoria Crescent
 Abbotsford, Victoria 3067 AUSTRALIA
 Duffy, J. E., The University of North Carolina at Chapel Hill 3407 Arendell Street
 Morehead City NC 28557
 Dugan, Patricia J., Dept. Environmental Regulation Twin Towers Office Bldg.
 2600 Blair Stone Road Tallahassee FL 32301
 Dunbar, M.J., Marine Science Center McGill University 3620 University Street
 Montreal H3A 2T8 CANADA
 Duncan, K.W., Dept. of Zoology University of Canterbury Christchurch NEW ZEALAND
 Dunn, Bonnie, EPA Information Assistant Environmental Protection Agency
 Marine Science Center Newport OR 97365
 Eleftheriou, A., Marine Laboratory P.O. Box 101 Victoria Road, Torry Aberdeen SCOTLAND
 Elofsson, R., Zoologiska Institutionen Lund S 22362 SWEDEN
 Escofet, A.-M., P.O. Box 4844 San Ysidro CA 92073
 Farrell, D., Dept. of Oceanography Florida State University Tallahassee FL 32306
 Fenwick, Graham, Dept. of Zoology University of Canterbury Christchurch NEW ZEALAND
 Fish, J. D., Dept. of Zoology University College of Wales Penglais Aberystwyth WALES
 Forsman, Bror, Styrmansgata 4 S 38100 Kalmar SWEDEN
 Fox, Richard S., Dept. of Biology Lander College Greenwood SC 29646
 Franke, Ulrich, Teggingerstr. 1 D-7760 Radolfzell WEST GERMANY
 Friend, J.A., Western Australian Wildlife Research Centre P.O. Box 51 Wanneroo,
 W.A. 6065 AUSTRALIA
 Fukuchi, Mitsuo, National Institute of Polar Research Q-10, Kaga 1-Chome
 Itabaschi-Ku Tokyo 173 JAPAN
 Gamo, Sigeo, Faculty of Education Yokohama National University Hodogaya-Ku
 Yokohama-240 JAPAN
 Gilbert, J., Universite Claude Bernard Lyon-I Departement De Biologie Animale
 43 Boulevard Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE
 Gillies, W. N., Connell Metcalf & Eddy 1320 South Dixie Highway P.O. Box 341939
 Coral Gables FL 33134

Ginet, R., Universite Claude Bernard Lyon-I Department De Biologie Animale
43 Boulevard Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE

Ginsburger-Vogel, Thomas, Laboratoire De Genetique Evolutive CNRS
91190 Gif-Sur-Yvette FRANCE

Gledhill, T., Freshwater Biological Association The River Laboratory East Stoke
Wareham, Dorset ENGLAND

Glennon, Thomas, Normandeu Associates 15 Pickering Avenue Portsmouth NH 03801

Goedmakers, A.M.C., Institute of Animal Taxonomy Pl. Middenlaan 53 Amsterdam HOLLAND

Gonzalez, Exequiel, P.O.Box 189 Coquimbo CHILE

Gowen, Harold H., 107 Bunch Lane Greenville NC 27834

Graf, F., Laboratoire De Biologie Generale Universite De Dijon 6 Boulevard Gabriel
21-Dijon FRANCE

Greze, I. I., Institute of Biology of the South Seas Academy of Sciences USSR
2 Nahimov Str. Sevastopol USSR

Griffiths, C. L., Dept. of Zoology University of Cape Town Rondebosch 7700 SOUTH AFRICA

Gruner, H. E., Zoological Museum Invalidenstrasse 43 104 Berlin EAST GERMANY

Hager, Richard, Division of Natural Sciences Stockton State College Pomona NJ 08240

Hancock Library of Biology, , Allan Hancock Foundation University of Soutnern California
Los Angeles CA 90089-0371

Harada, Eiji, Seto Marine Biological Laboratory Sirahama Wakayama-Ken JAPAN

Harbison, Richard, Woods Hole Oceanographic Institution Woods Hole MA 02543

Harbison, G. R., Australian Institute of Marine Sci. Townsville, Queensland AUSTRALIA

Harris, R. R., Department of Zoology, University of Leicester, Adrian Building, Leicester
LE1 7RH ENGLAND

Hartmann, Reiner, Zoologisches Institut und Museum der Universitat Abt. Okologie
Berliner Strasse 28 D-34 Gottingen BRD WEST GERMANY

Hatfield, Edward B., Jackson Estuarine Lab. University of New Hampshire Durham NH 03824

Heard, Richard W., Gulf Coast Research Lab. Ocean Springs MS 39564

Herhaus, K. F., Zoologisches Institut Abt. Physiologie Und Okologie Badenstr. 9
D-4400 Munster WEST GERMANY

Hessler, Robert R., Scripps Institution of Oceanography P.O. Box 1529 La Jolla CA 92037

Hirano, Yoshiako, Mukaishima Biological Station Mukaishima-Cho Onomishi P.O.
Hiroshima-Ken JAPAN

Hirayama, Akira, Amakusa Marine Biological Lab Kyushu University Tomioka, Reihoku-Cho
Amakusa, Kumaoto 863-25 JAPAN

Hiroki, Masanori, Dept. Science Education Kyoto University of Education Fujinomori,
Fushimi-Ku Kyoto 612 JAPAN

Hiwatari, Takehiko, Division of Biology and Fisheries Resources Ocean Research Inst.
1-15-1 Minamidai, Nakano Tokyo 164 JAPAN

Holmquist, Jeff, National Audubon Society Research Department 115 Indian Mound Trail
Tavernier FL 33070

Holsinger, John R., -Dept. of Biological Sciences Old Dominion University Norfolk VA 23508

Holthuis, L. B., Rijksmuseum Van Natuurlijke Historie Raamsteeg 2 Leiden HOLLAND

Honma, Yoshiharu, Faculty of Science Niigata University Niigata 95021 JAPAN

Howard, J. O., Skidaway Institute of Oceanography 55 West Bluff Road Savannah GA 31406

Hughes, Jeff, 262 Granite Street Quincy MA 02168

Hurley, D., N. Z. Oceanographic Institute P.O. Box 12-346 Wellington North NEW ZEALAND

Husmann, S., Limnologische Fluszstation 6407 Schlitz WEST GERMANY

Husson, R., Laboratoire De Biologie Generale Universite De Dijon 6 Boulevard Gabriel
21-Dijon FRANCE

Hynes, H.B.N., Dept. of Biology University of Waterloo Waterloo N2L 3G1 CANADA

Ingle, R. W., British Museum (Natural History) Dept. of Zoology Cromwell Road
London SW7 5BD ENGLAND

Ingram, Camilla L., 3227 Carleton Street San Diego CA 92108

Inoue, Hisao, Ibaraki-higashi Senior High School Ibaraki-machi Ibaraki JAPAN

Irie, H., 1221-9 Mikawa-cho Nagasaki 852 JAPAN
Ishimaru, Shin-ichi, Dept. of Zoology Faculty of Science Hokkaido University
Kita 10-Jo, Nishi 8-chome Kita-len Sapporo 060 JAPAN
Ito, M., Ryoze Senior High School Umezu 1750 Ryoze-shi Niigata Prefecture 952 JAPAN
Jankowski, A. V., Zoological Institute Academy of Sciences USSR V-164 Leningrad USSR
Jazdzewski, K., Uniwersytet Iodzki Zaklad Zoologii Ogolnej Instytutu Botaniki I Zoologii
Ul. Nowopoludniowa 12-16 Lodz POLAND
Johnson, W. S., Marine Science Program Goucher College Towson MD 21204
Jones, N. S., Marine Biological Station Port Erin Isle of Man ENGLAND
Jones, M. B., Dept. of Zoology University of Canterbury Christchurch NEW ZEALAND
Jones, I., Dept. of Biology California State University Long Beach CA 90840
Junera, H., Laboratoire Sexualite Des Invertebres Batiment C Universite De Paris VI
75230 Paris Cedex 05 FRANCE
Just, J., Universitetets Zoologiske Museet Universitetesparken 15 DK-2100 Kobenhavn 0
DANMARK
Kaim-Malka, R., Station Marine D'Endoume Rue De La Batterie-Des-Lions 13 Marseille 7E FRANC
Kanihira, Yuki-yoshi, Lab. of Planktology Faculty of Fisheries Hokkaido University
Hakodate Hokkaido 040 JAPAN
Kanne-worf, E., Marinbiologisk Laboratoriet Gronnehave Helsingor DANMARK
Karaman, G., P.O. Box 40 Titograd YUGOSLAVIA
Keith, Donald E., Dept. of Biological Sciences Tarleton State University
Stephenville TX 76402
Kimball, Kenneth A., 98 Elm Street Danvers MA 01923
Kinner, Peter, Normandeau Associates 15 Pickering Avenue Portsmouth NH 03801
Kitron, Uriel, Dept. of Biology University of California Santa Barbara CA 93106
Klink, Richard, Dept. of Biology Univ. of Southern California Los Angeles CA 90007
Knott, Brenton, Dept. of Zoology University of Western Australia Nedlands,
W. Australia 6009 AUSTRALIA
Knott, David M., South Carolina Wildlife and Marine Resources Dept. P.O. Box 12559
Charleston SC 29412
Kocatas, Ahmet, Dept. Biological Oceanography Ege Universitesi Bornova-Izmir TURKEY
Kowalevsky, Dr., Institute of Biology of the South Seas Academy of Sciences USSR
2 Nahimov Str. Sevastopol USSR
Krapp-Schickel, G., Hoffmanstr. 7 D-5307 Wachtberg-Adendorf WEST GERMANY
Kudrjashov, V. A., Far East University Biological Faculty Dept. of Hydrobiology
and Ichthyology Vladivostok 10 USSR
Kuris, Armand, Dept. of Aquatic and Population Biology University of California
Santa Barbara CA 93106
Kusano, H., Department of Biology Faculty of Science Tokyo Metropolitan University
Fukazawa 2-1-1, Setagaya-ku Tokyo 158 JAPAN
Labourg, J.-P., Station Biologique D'Arcachon 2, Rue Du Professeur Jolyet
Arcachon (Gironde) FRANCE
Lagardere, J.-P., Station Marine D'Endoume Antenne De La Rochelle-C.R.E.O.
Allee Des Tamaris 17-La Rochelle FRANCE
Lambert, P., Aquatic Zoology Division British Columbia Provincial Museum
Victoria V8V 1X4 CANADA
Larsen, Peter F., Bigelow Laboratory West Boothbay Harbor ME 04575
Laubitz, D. R., National Museum of Natural Sciences National Museum of Canada
Ottawa K1A 0M8 CANADA
Laughlin, J.D., SCCWRP 646 West Pacific Coast Hwy. Long Beach CA 90806
Laval, Ph., Station Zoologique 06 Villefranche-Sur-Mer FRANCE
LeCroy, Sara, Applied Biology Inc. P.O. Box 974 Jensen Beach FL 33457
Ledoyer, M., Station Marine D'Endoume Rue De La Batterie-Des-Lions 13 Marseille 7E FRANCE
Leite, F. P. Pereira, Universidade De Sao Paulo Instituto Oceanografico
Cidade Universitaria Butanta, Sao Paulo BRAZIL

Levings, C. D., Fisheries Research Board of Canada Pacific Environment Institute
 4160 Marine Drive West Vancouver V7V 1N6 CANADA

Lewbel, George, Biology Department Bates College Lewiston ME 04240

Lewis, Jerry, Dept. of Biological Sciences Old Dominion University Norfolk VA 23508

Lincoln, R., British Museum (Natural History) Division of Crustacea Cromwell Road
 London SW7 5BD ENGLAND

Lockwood, A. P. M., Dept. of Oceanography The University Southampton ENGLAND

Longley, Glenn, Edwards Aquifer Res. Data Ctr. Southwest Texas State University
 San Marcos TX 78666

Lowry, James K., Curator of Crustacea The Australian Museum 6-8 College Street
 Sydney 2000 AUSTRALIA

Macquart-Moulin, C., Faculte Des Sciences Naturelles Hydrobiologie Marine
 Route Leon, Lechamp-Luminy Marseille 9E FRANCE

Madin, L. P., Woods Hole Oceanographic Institution Woods Hole MA 02543

Margulis, R., Biological Faculty Moscow State University Moscow USSR

Marques, J. C., Departamento de Zoologia da Universidade de Coimbra 3049 Coimbra Codex
 PORTUGAL

Mateus, A., Instituto De Zoologia Dr. Augusto Nobre Universidade De Porto
 Porto PORTUGAL

Mateus, E. De Oliveira, Institute De Zoologia Dr. Augusto Nobre Universidade De Porto
 Porto PORTUGAL

Mathias, Jack, Dept. of the Environment Freshwater Institute 501 University Crescent
 Winnipeg R3T 2N6 CANADA

Mathieu, J., Universite Claude Bernard Lyon-I Department De Biologie Animale
 Boulevard Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE

Matsudo, H., St. Joseph Hospital West Alameda & S. Buena Vista Blvd. Burbank CA 91505

McBane, Clare, Dept. of Zoology University of New Hampshire Durham NH 03824

McCain, J. C., Environmental Dept. Hawaiian Electric Company P.O. Box 2750
 Honolulu HI 96803

McDonnell, Thomas R., Brown and Caldwell 965 W. 18th Street Costa Mesa CA 92627

McGrath, David, Dept. of Zoology University College Galway IRELAND

McKinny, Larry, Moody Marine Lab. Bldg. 311 Ft. Crockett Galveston TX 77550

McLusky, D., Dept. of Biology University of Stirling Stirling SCOTLAND

Meador, James P., Marine Biology Research Div. Scripps Institution of Oceanography
 La Jolla CA 92037

Meusy, Jean-Jacques, Laboratoire De Sexualite Des Invertebres Batiment A
 4 Place Jussieu 75243 Paris Cedex 05 FRANCE

Meyering, M.P.D., Limnologische Fluszstation 6407 Schlitz WEST GERMANY

Mills, D. A., Dept. of Zoology University College of Wales Penglais Aberystwyth WALES

Mills, Eric, Institute of Oceanography Dalhousie University Halifax B3H 4J1 CANADA

Miyamoto, Hisashi, Fujishima High School 2-8-30, Bunkyo Fukui Prefecture 910 JAPAN

Mohr, J. L., Dept. of Biological Sciences Univ. of Southern California University Park
 Los Angeles CA 90007

Monod, TH., Museum National D'Historie Naturelle Peches Outre-Mer 57 Rue Cuvier Paris
 5E FRANCE

Moore, P. G., University Marine Biological Station Millport Isle of Cumbræ KA 28 OEG
 SCOTLAND

Morand, Christiane, E.N.S.A.I.A. 30-Bis Rue Ste. Catharine F-54000 Nancy FRANCE

Mordukhai-Boltovski, P., Inst. of Biology and Inland Waters Academy of Sciences USSR
 Kuibyshev USSR

Morgan, M. A., Barry A. Vittor & Associates 8100 Cottage Hill Road Mobile AL 36609

Morino, Hiroshi, Dept. of Biology Ibaraki University Mito 310 JAPAN

Morinoka, Yasuhiro, Seikai Regional Fisheries Research Lab Kokubun-Cho Nagasaki 850 JAPAN

Mukai, Hiroshi, Ocean Research Institute University of Tokyo 15-1, 1 Chome, Minamidai
 Nakano, Tokyo 164 JAPAN

Munoz-Cobo, Alfonso, Museo Nacional De Ciencias Naturale Laboratoria de Zoologia Castellana
80, Madrid (60) SPAIN

Murphy, Matt, Sherkin Island Marine Sta. Sherkin Island Co. Cork IRELAND

Myers, Brad, Southern California Coastal Water Research Project 1500 East Imperial Highway
El Segundo CA 90245

Myers, A. A., Dept. of Zoology University College Cork IRELAND

Nagata, Kizo, c/o Radioactivity Division Tokai Regional Fisheries Res. Lab. 5-5-1,
Kachidoki, Chuo-ku 104 Tokyo JAPAN

Nemoto, T., Ocean Research Institute University of Tokoyo, 15-1-1 Chome Minamidai, Nakano
Tokyo JAPAN

Nishi, Kiyoshi, Institute of Marine Ecology Co Ltd., Shibata Bldg 5-34-2 Bakuro-Cho
Ohsaka 541 JAPAN

Nocentini, A. M., Instituto Italiano De Idrobiologia 28048 Pallanza ITALY

Noodt, W., Zoologisches Institut Der Universitat Hegewischstr. 3 23 Kiel WEST GERMANY

Oakden, J., Moss Landing Marine Labs. P.O. Box 450 Moss Landing CA 95039-0223

Olerod, R., Naturhistoriska Riksmuseet Sektion for Evertebratzoologi S-10405 Stockholm 50
SWEDEN

Ortiz, Manolo, Centre De Investigaciones Marina Ave. LA. No. 2808, Miramar La Habana CUBA

Oshel, P.E., Dept. of Biology Memorial University of Newfoundland St. John's Nfld A1B 3X9
CANADA

Page, Henry M., 85 Tecolote Avenue Goleta CA 93017

Pardi, L., Instituto Di Zoologia Dell'Universita Via Romana 17 I 50125 Firenze ITALY

Pederson, Judith, Dept. of Biology University of Massachusetts Boston MA 02125

Petrich, Stephen, 1837 Britton Drive Long Beach CA 90815

Phillips, C. H., Biology Laboratory Hyperion Treatment Plant 12000 Vista del Mar Playa
del Rey CA 90291

Physical Science Library, 3450 University Street Montreal H3C 3G0 CANADA

Pieper, H. G., Limnologische Fluszstation 6407 Schlitz WEST GERMANY

Pinkster, S., Institute of Animal Taxonomy Zoologisch Museum Amsterdam HOLLAND

Pljakic, M., Institut Za Zoologiju Prirodno-Matematicki Facultet Studentski TRG 31 II
11000 Beograd YUGOSLAVIA

Poore, Gary C. B., Curator of Crustacea National Museum of Victoria 71 Victoria Crescent
Abbotsford, Victoria 3067 AUSTRALIA

Preece, G.S., Lancing College Sussex ENGLAND

Pulid, Juana Rosa Cejas, Department de Ciencias Marinas Facultad de Biologia Universidad de
La Laguna La Laguna Tenerife SPAIN

Purushothanan, C. S., Dept. of Aquatic Biology and Fisheries University of Kerala
Trivandrum 695 007 INDIA

Rabindranath, P., Dept. of Zoology N.S.S. College Changanacherry-2 Kerala INDIA

Rakusa-Suszczewski, S., Dept. Bioenergetics and Bioproductivity Nencki Inst. Experimental
Biol. Pasteura 3 Warszawa POLAND

Rees, L. J., University College of North Wales Marine Science Laboratories Menai Bridge
Anglesey WALES

Repelin, R., Centre O.R.S.T.O.M. Noumea NEW CALEDONIA

Reygrobellet, J. L., Universite Claude Bernard Lyon-I Dept. Biologie Animale 43 Boulevard
Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE

Rhodes, W. B., 5891 New Peachtree Road Suite 115 Atlanta GA 30340

Ribeiro, M.A.B., Universidade De Sao Paulo Instituto Oceanografico Cidade Universitaria
Butanta, Sao Paulo BRAZIL

Richardson, Alistair, Dept. of Zoology University of Tasmania Box 252 C G.P.O. Hobart
7001 AUSTRALIA

Richards, Laura, Institute of Animal Resource Ecol. University of British Columbia 2075
Westbrook Mall Vancouver V6T 1W5 CANADA

Robertson, Philip, Dept. of Biology Lamar University P. O. Box 10037 Beaumont TX
77710

Roux, C., Universite Claude Bernard Lyon-I Departement De Biologie Animale 43 Boulevard Du
11 November 1918 F-69622 Villeurbanne Cedex FRANCE

Roux, A.-L., Universite Claude Bernard Lyon-I Department De Biologie Animale 43 Boulevard
Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE

Ruffo, Sandro, Museo Civico De Storia Naturale Lungadige Porto Vitoria 9 I 37100 Verona
ITALY

Rygg, B., N.I.V.A. Gaustadallen 25 Blindern Oslo 3 NORWAY

Sanders, H. O., Fish-Pesticide Research Lab. Bureau of Sport Fisheries and Wildlife
Columbia MO 65201

Saudray, Y., Laboratoire D'Ecologie Marine Et De La Biologie Marine 44 Nantes FRANCE

Scapini, Felicità, Istituto Di Zoologia Dell'Universita Via Romana 17 I 50125 Firenze
ITALY

Schaffner, Linda, Virginia Institute of Marine Science Gloucester Point VA 23062

Schiecke, Ulrich, Gesellschaft F. Strahlen-U Umweltforschung Ingolstadter Landstr. 1 D-8042
Neuherberg WEST GERMANY

Schminke, H. Kurt, Fachbereich IV Universitat Oldenburg Postfach 2503 D-2900 Oldenburg
WEST GERMANY

Scipione, Maria Beatrice, Stazione Zoologica di Napoli Laboratorio di Ecologia Benthos
Punta S. Pietro I- 80077 Ischia Porto ITALY

Scott, John K., U.S.E.P.A Environmental Research Lab. Narragansett RI 02882

Segerstrale, S. G., Institute of Marine Research Biological Laboratory Bulevardi 9 A SF
00120 Helsinki 12 FINLAND

Semura, Hitoshi, Kashima Branch Shimane Prefectural Fisheries Experimental Station Etomo,
Kashima-cho Matsuka-gun, Shimane Prefectura 690-03 JAPAN

Serban, N., Institut Za Zoologiju Prirodno-Matematicki Fakultet Studentski TRG 3 II
11000 Beograd YUGOSLAVIA

Shaw, Patrick, 4375 Elnido Crescent Victoria V8N 5G8 CANADA

Shcader, Martin, Dept. of Oceanography The University Southampton SO9 5NH ENGLAND

Shih, Chang-Tai, National Museums of Canada Ottawa K1A 0M8 CANADA

Shillaker, R., University Marine Biological Station Millport Isle of Cumbrae KA 28 OEG
SCOTLAND

Shin, Paul, Dept. of Zoology University College Galway IRELAND

Shishido, Isamu, Biological Laboratory Sendei University, 2-18 2-Chome, Funaoka Minami
Shibata-Cho Miyagi 989-16 JAPAN

Sieg, Jurgen, Division of Crustacea National Museum of Natural History Smithsonian
Institution Washington, D.C. 20560

Sivaprakasam, T. E., Zoological Survey of India Southern Regional Station Mylapore
Madras 4 INDIA

Skadsheim, Arnfinn, Avd. for Marin Zoologi Universitetet i Oslo Biologibygett Blindern
Oslo 3 NORWAY

Skalski, A., Museum W Czestochowie Czestochowa POLAND

Sket, B., Institut Za Biologia Univerze (Askerceva 12) PP. 141/III Ljubljana YUGOSLAVIA

Slattery, P. N., Moss Landing Marine Laboratories P.O. Box 223 Moss Landing CA 95039

Slocun, Sidney, 807 James Drive Richardson TX 75080

Snider, Leslie J., A-008 Scripps Institution of Oceanography La Jolla CA 92093

Sorbe, J.-CL., Inst. De Biologie Marine 2 Rue Du Professeur Jolyet F 33120 Arcachon
FRANCE

Staude, Craig P., Friday Harbor Laboratories University of Washington Friday Harbor WA
98250

Steele, D. H., Dept. of Biology Memorial University of Newfoundland St. John's Nfld. A1B
3X9 CANADA

Steele, V. J., Dept. of Biology Memorial University of Newfoundland St. John's Nfld. A1B
3X9 CANADA

Stock, J. H., Institute of Animal Taxonomy Zoologisch Museum Pl. Middenlaan 53
Amsterdam HOLLAND

Stoner, Allan W., Harbor Branch Institution RR 1, Box 196-A Ft. Pierce FL 33450
 Straskraba, M., Hidrobiologicka Laborator Vltavska 17 Praha 5 CZECHOSLOVAKIA
 Stretch, James, Dept. of Biology University of California Santa Barbara CA 93106
 Sudara, S., Dept. of Marine Sciences Chulalongkorn University Bangkok THAILAND
 Sutcliffe, D. W., Freshwater Biological Association The Ferry House Far Sawry
 Ambleside, Westmorland ENGLAND
 Svavarsson, Jorundur, Kristineberg Marinbiologiska Sta. S-45034 Fiskebackskil SWEDEN
 Takeda, M., Universidade De Sao Paulo Instituto Oceanografico Cidade Universitaria
 Butanta, Sao Paulo BRAZIL
 Takeuchi, I., Department of Fisheries Faculty of Agriculture The University of Tokyo
 Yayoi 1-1-1, Bunkyo-ku Tokyo 113 JAPAN
 Tamura, H., Dept. of Biology Ibaraki University Mito 310 JAPAN
 Taniguchi, Akira, Laboratory of Oceanography Faculty of Agriculture Tohoku University
 Sendai 980 JAPAN
 Taramalli, Ester, Instituto Di Zoologia Dell'Universita 00100 Roma ITALY
 Tararam, A. S., Universidade De Sao Paulo Instituto Oceanografico Cidade Universitaria
 Butanta, Sao Paulo
 Tariq, Qaiser, Dept. of Zoology University of Kuwait Kuwait KUWAIT
 Taylor, P. M., Dept. of Zoology University of Leicester University Road Leicester LE1
 7RH ENGLAND
 Tchardaklieva, R., La Bibliotheque Institute of Fisheries 9000 Varna Bulgaria
 Thanh, Dang Ngoc, Chaire de Zoologie Invertebree Faculte de Biologie Universite de Hanoi
 Hanoi VIETNAM
 The Library, Kristineberg Zoologiska Station S-45034 Fiskebackskil SWEDEN
 The Librarian, N. Z. Oceanographic Institute F. O. Box 12-346 Wellington North NEW ZEALAND
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 Miami FL 33149
 The Library, Moss Landing Marine Lab. P.O. Box 223 Moss Landing CA 95039
 Thoemke, Kris W., Roobery Bay Nat'l Estuarine Sanctuary 10 Shell Island Road Naples FL
 33942
 Thomas, James D., Newfound Harbor Marine Institute Rt. 1, Box 170 Big Pine Key FL 33043
 Thomson, Denis, L.G.L. 44 Eglinton Ave. W. Toronto M4R 1A1 CANADA
 Tibaldi, E., Laboratoria Di Zoologia Dell'Universita Via Celoria 10 I 20133 Milano
 ITALY
 Tiegsmark, Gunnar, Institut for Fiskeribiologi Norges Fiskerihoyskole Nordnesparken 2a
 N-5000 Bergen NORWAY
 Trautman, Jamie, School of Oceanography Oregon State University Corvallis OR 97330
 Turquin, Marie-Jose, Universite Claude Bernard Lyon-I Dept. Biologie Animale 43 Boulevard
 Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE
 Twomey, Eamonn, Dept. of Zoology Prospect Row University College Cork IRELAND
 Tzvetkova, N., Zoological Institute Academy of Sciences USSR V-164 Leningrad USSR
 Vader, Wim, Scripps Institute of Oceanography Marine Biology Res. Div. A-002 La Jolla CA
 92093
 Van Maren, Marion J., Universite Claude Bernard Lyon-I Dept. Biologie Animale 43 Boulevard
 Du 11 November 1918 F-69622 Villeurbanne Cedex FRANCE
 Varela, Carlos S., Instituto De Zoologia Universidad Austral De Chile Valdivia CHILE
 Vassilenko, S. V., Zoological Institute Academy of Sciences USSR V-164 Leningrad USSR
 Vigna-Taglianti, A., Instituto Di Zoologia Dell'Universita 00100 Roma ITALY
 Vincent, M., Laboratoire De Biologie Animale Faculte Des Sciences Limoges FRANCE
 Wakabara, Yoka, Universidade De Sao Paulo Inst. Oceanografico Cidade Universitaria Butanta,
 Sao Paulo BRAZIL
 Ward, James V., Dept. of Zoology and Entomology Colorado State University Fort Collins CO
 80523
 Watling, Les, Ira C. Darling Center University of Maine Walpole ME 04573

Wenner, A. M., Dept. of Biological Sciences Univ. of California, Santa Barbara Santa
 Barbara CA 93106
 Wildish, D. J., Biological Station St. Andrews EOG 2X0 CANADA
 Williams, Adele, Dept. of Zoology University of Bristol Woodland Road Bristol, Avon
 ENGLAND
 Williams, J.A., Department of Oceanography The University Southampton S09 5NH
 ENGLAND
 Williams, W.D., Dept. of Zoology The University Adelaide, S. Australia 5001 AUSTRALIA
 Wing, Bruce L., National Marine Fisheries Service NOAA P.O. Box 155 Auke Bay AK
 99021
 Wolff, Torben, Zoologisk Museum Universitetsparken 15 DK-2100 Kobenhavn 0 DANMARK
 Yamato, Shigeyuki, Mukaishima Marine Biological Lab Mukaishima-cho Hiroshima Prefecture
 722 JAPAN
 Zeidler, Wolfgang, The South Australian Museum North Terrace Adelaide, S. Australia 5000
 AUSTRALIA
 Zerbib, C., Laboratoire De Sexualite Des Invertebres Batiment C Universite De Paris VI
 75230 Paris Cedex 05 FRANCE
 Zoology Library, British Museum (Natural History) Cromwell Road London SW7 5BD ENGLAND