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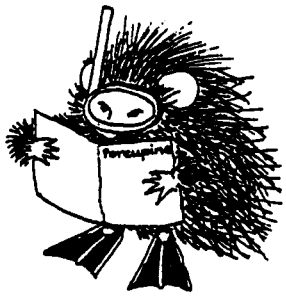


Roger Bamber, Hon. Editor
Marine Biology Unit, C.E.G.B, Fawley
Southampton SO4 1TW, U.K.

STOP PRESS: Don't forget - this is YOUR Newsletter: please use it. All notes, letters, requests, reviews, new records, and especially Articles gratefully received.

EDITORIAL

Some Members have commented to me on the poor print quality of the last issue, and quite right too. This resulted from an unforeseen incompatibility between the proof printer and the duplicator (by which I refer to machines, not people!). I should include at this point a postdated apology to cover the possibility that the same situation may arise with this issue - I will not know in advance - but an interim optimization is being attempted (insert your own euphamisms if you prefer), while money is brought to bear to find a more permanent cure if necessary.

While it had been hoped to include reports from the Spring Meeting in this issue, my comment at the AGM on the satisfactory supply of such articles was obviously open to misinterpretation; I hope to have received outstanding copy for the next issue (a subtle reminder to contributors).

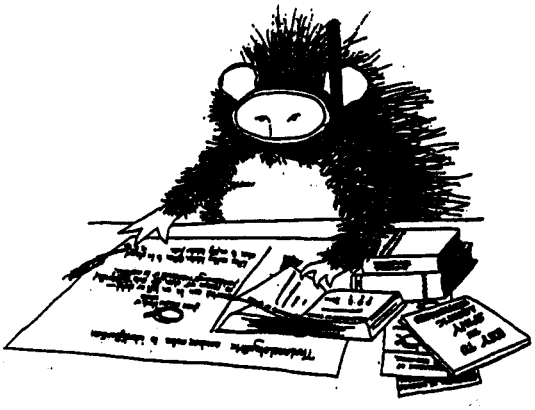
On the other hand, I am delighted to draw the attention of readers to the 'Species Directory' (see page 38 *et seq.*). Being one of those privileged to have seen, and indeed used, a copy, I can say that it is a production that many of us have been wanting for some time, though not ourselves prepared to knuckle down to the hard work inevitably involved! And there is an opportunity to contribute your feedback to ensure that it is as comprehensive and accurate as possible; so do respond to the requests on page 40. And thanks, Christine.

Members will recall from the last issue that a rewarding liaison had been established with Elizabeth Roberts to ensure full coverage of PN articles (etc.) in the M.B.A. 'Estuaries and Coastal Waters....' bibliography. After such success, we learn that Elizabeth is retiring during the PML restructuring, so we wish her well in the future, and reiterate our gratitude for her sterling work on such a useful publication. Her role will now be taken on by Linda Noble.

I am sure all Members will want to join in congratulating the Linnean Society of London on its bicentenary this year. It was good to see some fellow PORCUPINES at the Royal Reception and the celebratory dinner in March (not many invertebrates on the menu!). Perhaps we may wish to invite delegates from this most eminent biological society in the world to PORCUPINE's bicentenary celebrations when we get there. Before then, we look forward to their tricentenary (chance of a joint meeting then??).

It is with great sadness that we learnt of the death last November of Member Howard Biley, and I am sure I can speak on behalf of the Membership in conveying our sympathy to his wife, Mrs A.J. Biley.

Roger Bamber
Hon Ed.



RARE AMPHIPOD SPECIES IN IRISH WATERS

by Mark J. Costello
DAFS Marine Research Unit, Firemore Bay, Inverasdale, by Achnasheen,
Ross-shire, Scotland

The occurrence of rare species is a feature of every habitat, but the reasons for their low numbers complex; human factors involved include sampling effort and scale, time of year and quality of taxonomic attention. However, natural causes of rarity are also apparent. These factors are discussed here, drawing examples from amphipod Crustacea in Irish waters; the distribution of Amphipoda in Ireland has recently been reviewed by Costello *et al.* (in press).

Some 12 gammaridean amphipod species have only one or two Irish records because they occur in rarely examined habitats (Table 1). Sublittoral maerl and gravel have been particularly rich in new species in recent years (Spooner, 1960; Myers & McGrath, 1980, 1982a, 1982b, 1983). Offshore habitats where access is difficult, such as uninhabited islands and gas platforms, have been found to have some "rare" species in abundance, notably caprellid amphipods. These offshore habitats are the prime habitats of these species, previously recorded in low numbers inshore. Some amphipods are known to be commensal or parasitic; if their hosts are not sampled, or are unknown, then they will not be recorded. Notably, *Lafystius sturionis* Kroyer, 1842, a parasite of marine fish, is unrecorded in Irish waters. The planktonic Hyperiidae which occur in deep offshore waters are rarely recorded; indeed 18 of the 40 species recorded off the Irish coast are only recorded in Tattersall (1906).

TABLE 1: Poorly studied marine habitats, and associated rare amphipod species.

HABITAT	SPECIES
Sublittoral maerl/gravel	*Gammarus lobata* (Chevreux, 1920)
	Stenothoe elachistoides Myers & McGrath, 1980
	Listriella mollis Myers & McGrath, 1983
	Austrosyrrhoe fimbriatus (Stebbing & Robertson, 1891)
Wood	*Chelura terebrans* Philippi, 1839
Decapod mouthparts	*Isaea elmhirsti* Patience, 1909 (on *Homarus gammarus*)
	I. montagui Milne-Edwards, 1830 (on *Maia squinado*)
Wave-exposed coast offshore	*Jassa marmorata* Holmes, 1903
	Stenothoe valida Dana, 1852
	Caprella aequilibra Say, 1818
	C. septentrionalis Kroyer, 1838
	C. erethizon Mayer, 1901
Offshore plankton	Many Hyperiidae

While time of year of sampling is not crucial for amphipods, their activity and species richness, including the number of rare species, can vary seasonally (Costello, 1987). As it would be best to sample when amphipods are most abundant, summer would seem optimal. However, some species may not be at their most abundant at this time, either because they breed early in the year and the adults die by midsummer (e.g. some lysianassids), or their numbers are depleted by increasing predation (Nelson, 1979).

A species may also appear rare because it has only recently been described, or had its identity re-established. It may have been "lumped" with other species, and previous records for related species may thus include records of the apparent rarity. Two of the species found in sublittoral maerl have only recently been described (Table 1). The genus *Iphimedia* has recently been doubled in Irish waters with the discovery of three species new to science (Myers *et al.*, 1987); *Iphimedia eblanae* Bate 1857 and *I. spatula* Myers & McGrath 1987 are only known from two localities. The genus *Ericthonius* in the North Atlantic has been recently reviewed

(Myers & McGrath, 1984), so the apparent rarity of some species (*E. difformis*, *E. fasciatus*, *E. rubricornis*) is not surprising. The recently described *Lembos denticarpus* Myers & McGrath 1978 is only known from its type locality. The validity of *Photis pollex* Walker 1895 (=*P. reinhardi* Lincoln 1979) and *Leucothoe procera* Bate 1857 was recently re-established by Myers & McGrath (1981 and 1982b respectively), perhaps explaining their single Irish localities. Other taxa are in need of review; a review of the genus *Ampelisca* might shed some light on the apparent rarity of *A. aequicornis* Bruzelius 1859 and *A. spinifer* Reid 1951.

"Transient" species may occur within a habitat; their repeated immigration, but failure to maintain a population owing to emigration or extinction, can result in their appearing rare or showing a patchy distribution in a habitat. Recent studies on the colonization and succession of amphipods on artificial substrates found that 18 of the 36 species involved each comprised less than 0·01% of the total number of amphipods (Costello, 1987).

If the distribution of a species only fringes on the area being studied it may appear rare, as Lusitanian species can in the British Isles. Five amphipod species at the latitudinal limit of their distribution in Ireland are Lusitanian; *Aora spinicornis* Afonso 1976, *Microdeutopus stationis* Della-Valle 1893 and *Gammarus insensibilis* Stock 1966 are only recorded in Lough Hyne, south-west Cork (Myers & Costello, 1984; Holmes, 1985; Kitching & Thain, 1983; Kitching, 1987), *G. crinicornis* Stock 1966 only in Courtmacsherry Bay, south Cork (pers. obs.), and *Hyale grimaldii* Chevreux 1900 amongst *Lepas* on driftwood in Galway Bay (McGrath 1984).

TABLE 2: Amphipods with only one or two localities in Ireland, whose rarity is enigmatic. Details of records in Costello *et al.* (in press).

AORIDAE
- *Unciola crenatipalma* (Bate 1862)

ISAEDIDAE
- *Photis pollex* Walker 1895 (=*P. reinhardi* Lincoln 1979)

LYSIANASSIDAE
- *Ambasia atlantica* (Milne-Edwards 1830)
- *Aristas neglectus* Hansen 1887
- *Euonyx chelatus* Norman 1867
- *Normanion quadrimanus* (Bate & Westwood 1868)
- *Socarnes crenulatus* (Chevreux 1911)
- *Tmetonyx similis* (Sars 1891)
- *Tryphosella horingi* (Boek 1871)
- *T. nanoides* (Lilljeborg 1865)

MELITIDAE
- *Cheirocratus assimilis* (Lilljeborg 1852)
- *Maerella tenuimana* (Bate 1862)

OEDICEROTIDAE
- *Halicreion aequicornis* (Norman 1869)
- *Monoculoides subnudus* Norman 1889

PHOXOCEPHALIDAE
- *Paraphoxus oculatus* Sars 1879

PLEUSTIDAE
- *Parapleustes assimilis* (Sars 1882)
- *Stenopleustes nodifer* (Sars 1882)

PODOCERIDAE
- *Dyopedos monacanthus* (Metzger 1875)
- *D. porrectus* (Bate 1857)

STENOTHOIDAE
- *Metopa borealis* Sars 1882
- *M. bruzelii* (Goes 1866)
- *M. pusilla* Sars 1892

SYNOPIIDAE
- *Syrrhoe affinis* Chevreux

The apparent rarity of some amphipods in Irish waters is surprising when considering their frequent records elsewhere. *Microdeutopus gryllotalpa* Costa 1853 has been recorded in North America and British waters, and *Leptocheirus pilosus*

Zaddach 1844 has been frequently recorded in British waters (Lincoln, 19790, but each has only a single Irish record (Costello *et al*,, in press). The species whose rarity is enigmatic are listed in Table 2. However, many of these may be species of deeper coastal or offshore waters, their inshore records representing "transient" material.

Thirteen of the already mentioned species are unrecorded in British waters, *Gammaropsis lobata, Stenothoe elachistoides, Listriella mollis, Iphimedia spatula, Ericthonius fasciatus, Lembos denticarpus, Ampelisca aequicornis, A. spinifer, Aora spinicornis, Microdeutopus stationis, Hyale grimaldii, Ambasia atlantica* and *Syrrhoe affinis*; the only two other Irish species in this category are *Iphimedia nexa* Myers & McGrath 1987 and *Ichnopus spinicornis* Boeck 1861.

For conservation purposes, it may be best to limit a list of rare amphipods to those species which are (a) known from only a few populations in the world, and those which are (b) very rarely recorded and for which populations are unknown. A distinction should be made between records of isolated specimens and those of populations. Species at the limit of their latitudinal range could be placed in a third category. It is likely that the latter species are more limited by climatic rather than solely habitat features; to list them as rare in Ireland when they may be common elsewhere may unnecessarily lengthen the list of rarities. As recording progresses, species would be added and deleted from categories (a) and (b). Furthermore, in habitat assessments it would be very useful to determine whether some areas or habitats have a greater number of rare or transient species (i.e. with no or only temporary populations), and the importance of type localities must not be overlooked.

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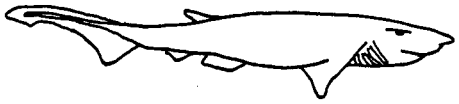
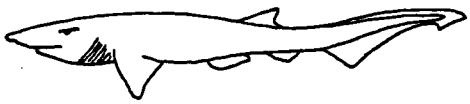


LEATHERY TURTLE (*Dermochelys coriacea* (L))

The West Highland Free Press for 11 September 1987, under the heading "Turtle draws sightseers" (apparently no allusion to any artistic abilities), reported that a 500 lbs leathery turtle had been brought ashore in Ness, though it was already drowned by the time it was taken ashore. The 7 ft long (Scotland appears to be lagging behind in the metrication stakes) turtle had become entangled in creel ropes. "Since it was landed at the port last Saturday morning [5th] bus loads of tourists and much of Ness, Shader [no relation] and Borve have come to see it. The turtle will be put out to sea again in the next few days." The locals learned of previous sightings from the Natural History Museum.

Of course, had they been PORCUPINE Members and read their Newsletters, they would recall previous contributions herein (by Richard Sutcliffe, Vol 2, p.253, and by I.M. Simpson, *ibid*, p.298) whereby we have been kept up to date with British (Scottish) records of the 'Luth'. Such records commonly refer to less than perfect health in the beasts, and often to their occurrence entangled in fishing nets. Alas we have no more scientific detail on the Port of Ness specimen, but all sightings are (theoretically) recorded at the British Museum (Natural History). These number about 90 around the British Isles.



SMALL BRACHIOPODS

by J.E. Phorson

5, Fellside Gardens, Belmont, Durham DH1 1AB

I reported in a previous contribution (PN Vol.3 (8); 212-213) some finds of small articulate brachiopods on the Pembrokeshire coast. These specimens corresponded well with illustrations of *Megathyris cistellula* by Forbes & Hanley and of *Argiope cistellula* (from the Coralline Crag) by Searles V. Wood. I have subsequently taken another single example on Herm Island, Guernsey. This species is now known as *Argyrotheca cistellula* (Searles Wood) (Fig.1) and is described by Brunton & Curry in British Brachiopods (pp 44-45). In their distribution map, Brunton & Curry indicate no record of this species nearer than Dublin Bay to the north and Exmouth to the south, so perhaps the Pembrokeshire finds are unusual.

More recently, I have found a single example of another brachiopod species in shell sand taken in April 1987 from Sandham Bay, Lindisfarne (Holy Island) on the Northumberland Coast (Map ref. NU136436). This species has proved to be *Gwynia capsula* (Jeffreys) (Fig.2). Brunton & Curry do not indicate this species at all in the North Sea, so perhaps this record is also unusual for the location.

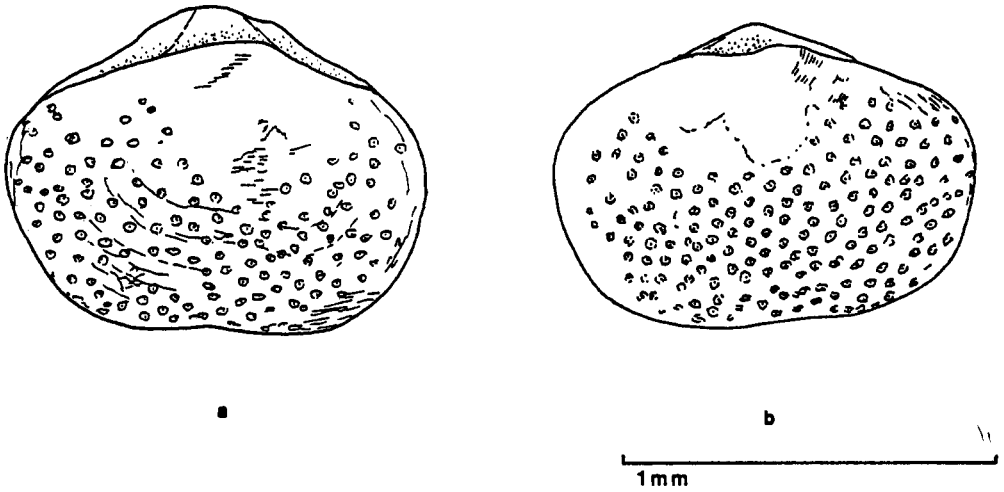


Fig.1 Argyrotheca cistellula

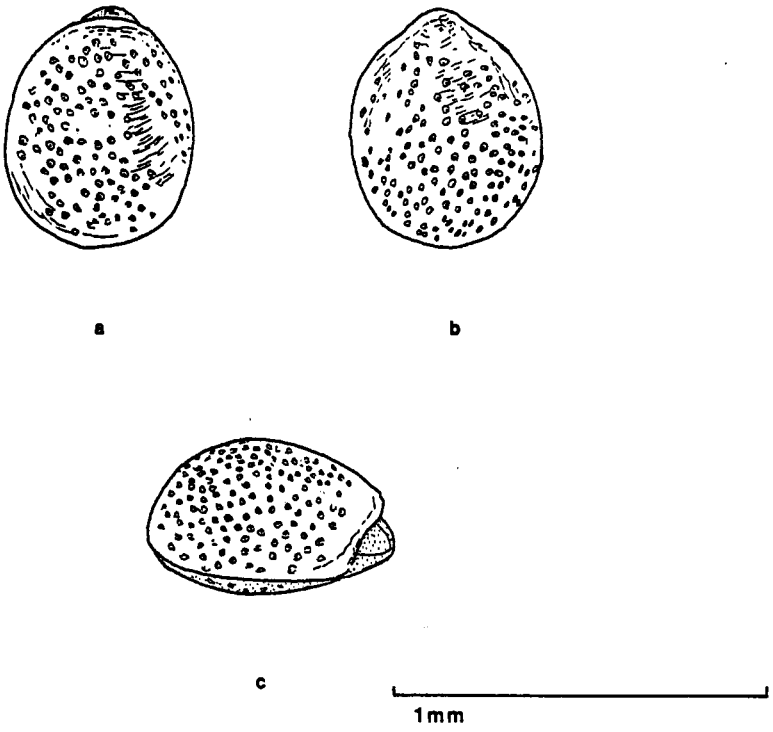


Fig. 2 Gwynia capsula

The illustrations herein, which were done from a binocular microscope using a camera lucida, show some obvious differences from the illustrations given by Brunton & Curry. The difference in outline may be accounted for by variability in response to conditions during growth. The shells of both *A. cistellula* and *G. capsula* are hyaline and are covered with very obvious opaque white 'spots' in the centre of which may be seen, under high magnification, a small punctum. These spots are 'endopuncta' (*vide* Brunton & Curry, *op. cit.* p.8), in this case visible through the hyaline shell, and are not part of the external ornamentation; they are therefore not shown in the figures of Brunton & Curry, though they are shown by Forbes & Hanley and by Searles Wood in their figures of *A. cistellula*.

I am greatly indebted to Dr C.H.C. Brunton of the Department of Palaeontology, British Museum (Natural History) who very kindly confirmed my provisional determinations of these specimens and gave further very helpful observations.

In case I have offended any readers from Pembrokeshire, I should like to mention that the sentence in my previous piece to the effect that "not many" of the larger shells were to be found on certain beaches in Pembrokeshire inadvertently appeared in PN as "not any".

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NOTICES

1. BOOKS WANTED BY EARNEST PORCUPINE, specifically Mark Costello , who has been trying fruitlessly for years to obtain copies of;

Lewis J. 1964. *The Ecology of Rocky Shores*. English Universities Press, London.

and

Lythgoe J. & Lythgoe G. 1971. *Fishes of the Sea*. Blandford, London.

If any PN readers have copies which they are prepared to sell, please get in touch with Mark (DAFS Marine Laboratory, Firemore Bay, Inverasdale, by Achnasheen, Wester Ross IV22 2LW, Scotland; Tel. 044 586253).

2. THE FISHERIES SOCIETY OF THE BRITISH ISLES in collaboration with the ESTUARINE AND BRACKISH-WATER SCIENCES ASSOCIATION is holding an international conference on FISH IN ESTUARIES from 18 to 22 July 1988, at The University, Southampton, U.K.. Session topics include the estuarine habitat, ecology of estuarine fish, fish and estuarine health, diadromous fish in estuaries, anthropogenic impacts on fish in estuaries, and estuaries as spawning and nursery areas, involving speakers from U.K., Eire, Canada, U.S.A., Europe, Sri-Lanka, Iraq, Africa and South America. A poster display will run all week, and there is still some room for additional poster papers. Details, provisional programme and booking forms can be obtained from Fish in Estuaries Symposium, Marine Biology Unit, C.E.G.B., Fawley, Southampton SO4 1TW, U.K. - but hurry; full payment of fees, accomodation, etc. is required in June.

3. WANTED: If anyone is able to supply small quantities of fresh hemichordate material (particularly enteropneusts), would they please contact Dick Manuel at the Zoology Department, South Parks Road, Oxford. We are keen to obtain specimens for molecular analysis. Thank you.

4. NORTH SEA - ESTUARIES INTERACTIONS: The EBSA 18th Annual Symposium will be held on 29th August to 2nd September 1988 at the University of Newcastle-upon-Tyne. The meeting will be held jointly with the Oceanografenclub & Hydrobiologische Vereniging of the Netherlands, and will cover North Sea estuaries and coastal zones and their interactions with the North Sea. Topics include the transfer of biological and non-biological elements between the North Sea and its fringes, the characteristics of estuaries and wetlands surrounding the North Sea, the importance of estuaries in the functioning of the North Sea, case studies of the physical, chemical and biological aspects of one or more of the estuaries, the effects of estuaries on adjacent coastal areas, threats to the estuaries, and the effects of loss of estuarine areas on the North Sea.
Booking forms in the EBSA Bulletin, or contact John Pomfret, Biology Laboratory, Northumbrian Water, Howdon, Wallsend, Tyne and Wear NE28 0QD.

5. THE 5TH INTERNATIONAL CONFERENCE ON COELENTERATE BIOLOGY is to be held on 10th-14th July 1989 in Southampton. The scope of the conference is research frontiers in the biology of cnidarians and ctenophores. Workshops are planned on conservation and pollution. There will be a published volume; contributions should be in English; short presentations, posters and films will be welcome. Further information from Dr R.G. Hughes, School of Biological Sciences, Queen Mary College, University of London, Mile End Road, London E1 4NS.

6. REQUEST FOR RECORDS OF COPEPOD PARASITES OF AMPHIPODS.

Ectoparasitic copepods of the genus *Sphaeronella* infect the marsupia of amphipod Crustacea. The mature female copepod resembles a very large amphipod egg, but her "head" and appendages are visible under close microscopic examination. Copepod egg sacs are free in the host marsupium and are a little larger than an amphipod egg. The male and larvae are minute. Present records are sparse, and the biology of this parasitism poorly known. As an addition to the study of the parasitism of *Aora gracilis* by *Sphaeronella leuckartii* I have prepared a review of amphipod-*Sphaeronella* associations. At present I have records of 53 parasitised amphipod species by 41 described *Sphaeronella* species for the entire world, from 23 publications. All additions gratefully received; Mark Costello (see Notice 1 for address).

7. ISLE OF WIGHT MARINE MOLLUSC SURVEY

Through the columns of this exalted publication [o.k. - you're in; Ed.], please may I alert readers to the fact that I have embarked on a survey of the marine molluscs of the Isle of Wight to include littoral and offshore records. Perhaps members (and friends) could keep an eye out for molluscs during the course of their own fieldwork and send records to me. Better still, please can you pass on worked samples when you have removed your pycnogonids, forams, ostracods - tardigrades even - and I will do the necessary. You'll get my determinations for your own records, of course. In addition to weed-washings, rock-scrapings and sediment-sievings, shelldrift can be a useful guide to likely areas for offshore investigation. All postage expenses refundable.
Jan Light, 88 Peperharow Road, Godalming, Surrey GU7 2PN

Contribution from the Pembroke Meeting;

REPRODUCTION AND RECRUITMENT OF THE BARNACLE *CHTHAMALUS MONTAGUI* AND THE TROCHID GASTROPODS *MONODONTA LINEATA* AND *GIBBULA UMBILICALIS* CLOSE TO THE NORTHERN LIMIT OF THEIR DISTRIBUTIONS

by M.A. Kendall

NERC Rocky Shore Surveillance Group, Dove Marine Laboratory, University of Newcastle-upon-Tyne.

The reproduction and recruitment of three species which reach the northern limit of their range in the British Isles has been studied over a wide area between 1978 and 1987. In all three species there is no evidence to suggest that either over-winter adult mortality or the failure of gonads to develop act to set the limits. In the case of *Chthamalus*, however, the length of both the breeding and the larval settlement season are shorter in the north than in the centre of the species' range. Additionally, there were strong annual differences in the intensity of larval settlement; hence it is suggested that at the northern extent of its range, *Chthamalus* is unable to produce sufficient larvae to overcome planktonic mortality.

The two trochid species show differing patterns of juvenile recruitment; in *Gibbula* there is strong spatial and temporal variability suggesting a climatic influence. This is supported by studies showing that over-winter survival of spat is highly variable, with almost total failure in the coldest years. In the case of *Monodonta*, variation is less strong. Comparisons of gonad data across the ranges of both trochids show north-south differences, although in the absence of data on the timing of larval settlement these must remain equivocal. Additionally, both species suffer from a shortage of suitable nursery areas close to their northern limits, and hence adult numbers tend to be low. It is suggested that in these circumstances populations may produce insufficient larvae to overcome adjacent physical or hydrographic barriers.

Letters to the Editor

From Member Roger Brehaut,

Mark Costello has given the known distribution of the terrestrial amphipod, *Arcitalitrus dorrieni* in the PORCUPINE NEWSLETTER, Volume 4, page 5. It might be worth adding that this species has also reached Guernsey. I was surprised to find amphipods in my garden when raking leaves last spring, and on identifying them with the aid of R.J. Lincoln's book to learn that there was such a thing as a terrestrial amphipod. Since then they have become more numerous. Moving stones in some parts of the garden uncovers a writhing mass reminiscent of moving rotting seaweed on a beach. They have even turned up inside a food mixer inside a cupboard in the kitchen.

Yours sincerely,
Roger N. Brehaut.

new records

On the principle of not letting too many PNs pass without mention of The Fleet, Dorset, I find I have two records of species not currently listed for that lagoon, viz;

Leptochelia savignyi (Kroyer) (Crustacea; Tanaidacea), amongst *Obelia* spp, on algae at Chickerell Hive Point, 13 May 1986,

Achelia echinata Hodge (Arthropoda; Pycnogonida), on fronds of *Sargassum* at The Narrows, 13 May 1986,

Both of these species are cosmopolitan, and have been recorded in Dorset,

To these should be added the pycnogonids collected by Dennis Seaward from the "springs" in Chesil Bank, both species from March 1986;

A, echinata Hodge

Callipallene brevirostris brevirostris (Johnston) (2 No,)

I might add that these run-offs through gravel are a most unusual habitat for these species,

CONFIRMATION OF A NEW RECORD, In 1978 two immature specimens of *Ammothea hilgendorfi* (Böhm 1879) (Arthropoda; Pycnogonida) were collected from Southampton Water in sublittoral algae off Fawley Marsh; these constituted the first Atlantic record for the species, attributed to its transport as a ship's bottom migrant from Japanese waters (vide Bamber, 1985; Proc, Hampsh, Field Club Archaeol, Soc,, 41; 269-270), Its establishment in the area was confirmed a decade later after the now infamous hurricane in southern Britain last October, when an adult specimen was collected by Nigel Bridgwater from a shelly pool at the seaward edge of Fawley Marsh - presumably it had been washed up by the storm from its normal sublittoral habitat,

PEMBROKE MEETING SUPPLEMENTARY, It is most satisfying to report that a hoped-for spin-off from the 1987 'Aliens' meeting, viz, telling the world of your aliens gives them a chance to find them elsewhere, has occurred, Subsequent to my advertising the presence of the North American Myodocopid ostracod *Eusarsiella zostericola* (see PN 4 [1], pp,7-9), Iain Dixon reexamined his recent samples from the Solent, and has confirmed that his previous 'ostracod indet' is indeed *E, zostericola* - its first British record outside the Thames Estuary system,

I have subsequently examined my local muds, and can confirm its presence in the low littoral mud flats of Fawley salt marsh, Southampton Water, What about other estuaries influenced by American oyster imports?

Roger Bamber,

DIRECTORY OF THE BRITISH MARINE FAUNA AND FLORA. A CODED CHECKLIST OF THE MARINE FAUNA AND FLORA OF THE BRITISH ISLES AND ITS SURROUNDING SEAS

"The Species Directory" is a recent publication of the Marine Conservation Society, supported by British Petroleum and the World Wildlife Fund. The Directory is a computer-based checklist of the marine fauna and flora of the British Isles and its surrounding seas, and currently comprises 24 phyla or major taxa (Table 1 and Map 1). It has been compiled and edited by Christine Howson whilst working for the Society, and has drawn together a wide body of expertise with substantial contributions from over twenty taxonomists.

The Directory is, quite simply, an up-to-date taxonomic checklist, listing scientific names and authorities with taxonomic or distribution comments where relevant. A restricted synonymy has been given in some cases, in particular where the nomenclature in standard identification works is out of date. Each section consists of a short introduction setting the phylum in taxonomic context, a classification table to serve as a brief taxonomic index to the group, the annotated list, and a bibliography. An overall introduction gives the background and rationale to the project, and the entire checklist - over 12,100 entries, is included in one alphabetic index.

TABLE 1: TAXA INCLUDED

PORIFERA	CRUSTACEA
CNIDARIA	MOLLUSCA
CTENOPHORA	BRACHIOPODA
PLATYHELMINTHES	BRYOZOA
NEMERTEA	PHORONIDA
PRIAPULIDA	ECHINODERMATA
ENTOPROCTA	HEMICHORDATA
POGONOPHORA	TUNICATA
SIPUNCULA	PISCES
ECHIURA	AVES
ANNELIDA	MAMMALIA
CHELICERATA	ALGAE

The need for such a reference list has been seen for some time, particularly with the current proliferation of computer databases. A number of marine stations have produced lists covering their own geographic areas, but most of these are either out-of-date or of only limited use outside the region. Lists for individual groups exist within publications such as the Linnean Society / E.B.S.A. Synopses. The Ulster Museum developed the first version of the present checklist as a prerequisite for the database of the Northern Ireland Sublittoral Survey (Erwin *et al.*, 1986). This proved invaluable as a tool for handling data from the survey, and they subsequently donated the list to the Marine Conservation Society for further development. It was by then apparent that the original list needed considerable modification, and so the present project evolved.

The Species Directory, therefore, brings together into one volume the various disparate lists of British marine species, incorporating recent literature, taxonomic revisions, and records from individuals. It aims to standardize the nomenclature as far as possible. The cooperation of taxonomists working with each group has been essential to ensure accuracy and to enable the most recently accepted names to be included. Applications of the list range from checking spellings to its use as a thesaurus for a computer-based data handling system.

A taxonomic list will never be entirely up-to-date, by the very nature of the subject. This, combined with the timescale of the project (9 months), means that this version of the list is considered provisional. An initial 120 copies have been produced, half of which have been distributed to those who have contributed. The remaining copies are available from the Marine Conservation Society at £25.00 each. We hope that marine scientists will respond to this initiative by scrutinizing the list and sending us their comments, with a note of any omissions or errors. A revision is planned for 1988 when it is hoped to incorporate additional phyla and rectify the errors. This, however, relies on a response from

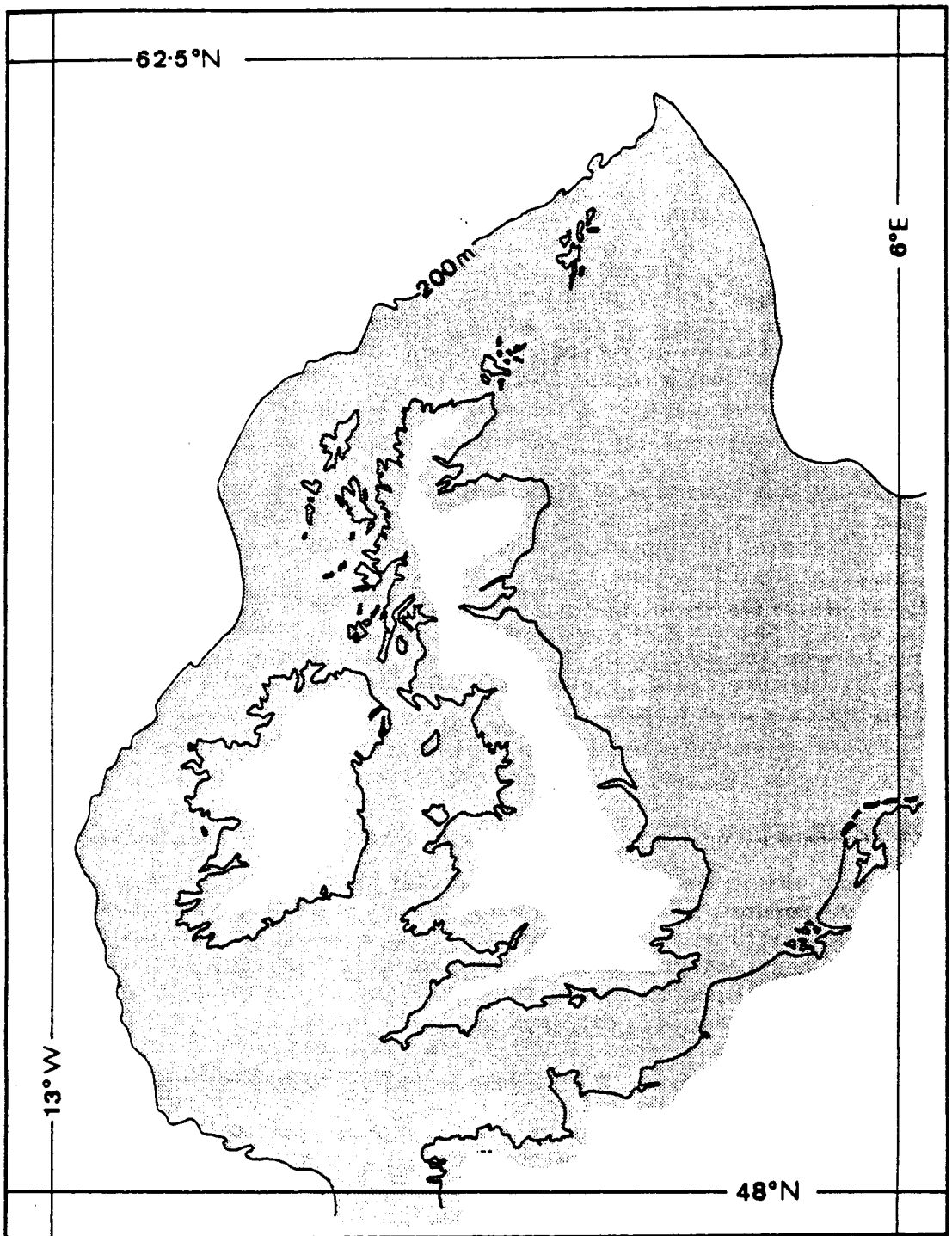


Fig. 1 Area covered by checklist

all users of the list. The list will subsequently be widely available in two versions; (1) the annotated printed list, and (2) the computer-coded version on 5·25 inch floppy disc. Discs are not available at present.

The Species Directory can be obtained from;
Marine Conservation Society
4 Gloucester Road
Ross-on-Wye
Herefordshire HR9 5BU

Further information is available from;
Miss Christine Howson
University Marine Biological Station
Millport
Isle of Cumbrae
Scotland KA28 0EG

Reference;
Erwin D.G. *et al.*, 1986. The Northen Ireland Sublittoral Survey.
Ulster Museum.

The Species Directory: a request for assistance.

1. With the proviso that any checklist will be out-of-date before you can say "checklist", I would like to keep the Species Directory up-to-date, to enable revisions without too much pain. However, it is simply not possible for me on my own to keep track of all the taxonomic literature across so many fields. I would therefore be very grateful for help, such as letting me know of taxonomic revisions, new records, new species in your field, by sending either actual reprints or references enabling me to trace the publication. All help will be fully acknowledged.

2 Is there anyone out there who would like to contribute to the project by compiling, checking or commenting on particular lists, especially ones not yet included? If so, please get in touch.

Christine Howson
(Address above)

Porcupine Ads.

MARINE RECORDING

'Marine Recording' is the journal of the Marine Conservation Society. It contains articles on many aspects of marine wildlife and the marine environment, but concentrates on topics with a marine conservation related theme. Subjects include the results of projects and expeditions run by the society and its members, articles by specialists on particular impacts to the marine environment, discussion papers amd "state of the art" descriptions of marine recording methodology for divers and shore workers, and articles based on observations of marine life by shore walkers and divers.

The first two issues (No.'s 1 and 2) are available from the Marine Conservation Society office, and the next issue will be ready for the annual conference in November.

Anybody interested in writing articles for this journal is encouraged to write to me, or to the MCS office, with their ideas. Articles on subjects not known intimately by the editors may be sent to referees before printing. Unfortunately, no money is available for articles or expenses.

Jon Moore, Editor
c/o Oil Pollution Research Unit, Orielton Field Centre, Pembroke, Dyfed SA71 5EZ

AGM Reports

Minutes of the Eleventh Annual General Meeting of PORCUPINE, held at the Marine Biology Station, Millport, on Sunday 6th March 1988

Iain Dixon was in the Chair; 23 members were present. The minutes of the Tenth Annual General Meeting (Published in PORCUPINE NEWSLETTER, Vol.3 No.9) were approved.

Reports of the Hon. Secretary, Hon. Treasurer, Hon. Editor and Hon. Records Coordinator were given and approved.

Office bearers were elected as follows;

Hon. Secretary	Martin Sheader
Hon. Treasurer	Antony Jensen
Hon. Editor	Roger Bamber
Hon. Records Coordinator	Jonathan Moore

Norman Holme retired from the Council, and was thanked for his services. The following were elected to Council;

Iain Dixon	Ivor Rees
Frank Evans	Ralph Robson
Bill Farnham	Dennis Seaward
Robin Harvey	Shelagh Smith
David Heppell	Brenda Thompson
David Lampard	John Wilson
Jan Light	Fred Woodward

Bill Pettit and Paul Scarnell were thanked for acting as Hon. Auditors for 1987/8. Ralph Robson and Nick Light were elected as Hon. Auditors for 1988/9.

It was agreed that Norman Holme, who has recently retired from Council and has supported PORCUPINE since its beginnings, be given Honorary Membership.

A new membership list is about to be produced. A request was made for any changes in interests or address to be sent to the Hon. Secretary. It was agreed that, subject to the permission of the individuals concerned, telephone numbers of Council Members and Office Bearers would be included in the list.

It was agreed that the Autumn Meeting be held at Ipswich Museum on the theme of Meiofauna (to be organised by David Lampard), and that the next AGM in Spring (31 March - 2 April) 1989 will be held at Lancaster University on the theme of The Irish Sea (organiser Shelagh Smith).

The Meeting closed with the Chair proposing thanks to those involved with the organisation of the Millport meeting.

PORCUPINE

Receipts and Payments Account for the period 22 June 1987 to 31 March 1988

Receipts				
Subscriptions	1985	18.00		
	1986	168.00		
	1987	315.00		
	1988	639.50		
	1989	10.00	1150.50	
Donation - anonymous			250.00	
CEGB display - Pembroke			50.00	
Tea receipts - Pembroke			10.34	
Total receipts				1460.84
Payments				
Newsletter Printing		341.45		
Postage		144.13		
Envelopes		34.50	520.08	
Speaker's travel			28.00	
Delegate travel			27.00	
Total payments				575.08
Net surplus for the period				885.74
Balance brought forward				
Deposit account			781.37	
Current account			145.01	926.38
Balance carried forward				
Deposit account			481.35	
Current accounnt			1330.77	1812.12

Hon. Secretary's Report 1987-1988

During the year 1987-1988 there were two meetings. The Annual General Meeting held at the M.A.F.F. Fisheries Laboratory, Lowestoft, on 19 - 20th April 1987 had for its theme "The criteria for the selection of marine sites to be given special status". The meeting was well attended and stimulated lively discussion. The second meeting took place at the Oil Pollution Research Unit, Pembroke, on 26 - 27th September 1987, with the theme "Alien Species". A somewhat smaller group attended, but this did not deter from enthusiastic discussion and enjoyment of the meeting.

I would like to take this opportunity to thank all those who were involved in the organisation of these meetings. I would also like to make a plea to those who have ideas for future venues, or who would be willing to host a meeting, to contact me.

The 1988 Autumn Meeting and the 1989 AGM will be held at Ipswich Museum and Lancaster University respectively (further details elsewhere in this Newsletter).

Membership at the time of the last AGM stood at just over 200. Rationalisation of the membership list, excluding those who failed to pay subscriptions (some outstanding for several years), has resulted in a current membership figure of around 170. Could I encourage Members to bring PORCUPINE to the attention of colleagues who may have interests within the broad remit of the society.

Norman Holme, who has served PORCUPINE for many years, has decided to retire from the Council this year. On behalf of the membership, I would like to thank Norman for his efforts and support over the years.

Martin Sheader
Hon. Secretary

ON AN SCIENTIFIC EXPEDITION TO THE NORTHERN PARTS OF THE KINGDOM BY SOME EMINENT MEMBERS OF THE SOCIETY, With Notes On The Divers Wonders Of Nature Beheld, And On The Strange And Interesting Peoples Which There Do Roam.

by C.T. Canon

On the 4th day of March in the year of Our Lord 1988 did a party of eminent PORCUPINES, also including the majority of those known as Offyce Bearers (indeed in total nearly sufficient to constitute a Quorum, which does justify all decisions then made), set forth from the southern port of Southampton to explore the furthest reaches of Scotland's 'Largs', and attempt to find traces of the fabled "Millport".

Because of the remoteness of the destination, great preparations had been put in hand, and a local tribesman, one 'Woodward' (a carpenter, perchance?) had confirmed by the telegraph that a primitive ferry would be available to transport our party to the Mystic Isle (despite some problem with the "Seamen's Onion", presumably a local agronomic ritual), and great liaisons had been established with the local militia on our behalf.

Despite many and divers travails, the party did arrive without loss at the 'Largs' creekside at 7 o'clock in the evening, only to discover that the village called "Jetty" was uninhabited and a tribal dispute was preventing any access by canoe or similar to the Great Cumbrae! The Woodward was nowhere to be found, indeed the local militia, though sociable enough to inform us that any leaving of expeditionary vehicles within the local territory would result in terrible visitations of wrath by marauding Vandals and Thuggi of the "Glaswegians" tribe, claimed never to have heard of any such Woodward! They seemed amused.

We managed by offers of such beads, technological marvels, and money (including promissary plastics) as we had available to investigate fine local ales at a nearby inn, and avail ourselves of the innkeepers telephonic device, but 'twas as if the 'Millport' was emulating the S.V. *Marie Celeste*, so communicative was the lack of response. The party was forced to make camp at a nearby hostel, and after satisfactorily sampling such species as *Nephrops norvegicus*, *Salmo trutta*, etc., we p'lanned the great dunking and drowning of the Woodward, with bloody.....(continued)

FUTURE MEETINGS

THE AUTUMN MEETING OF **PORCUPINE** will be held on the weekend of 29th and 30th October 1988 at Ipswich Museum. The theme that had been planned, viz. Meiofauna, has run into logistic difficulties owing to unavailability of speakers. With the date and venue established, moves are currently in hand to expand/change the theme, and the possibility of including some field work has not been ruled out. Further information will be 'rushed' to Members when the meeting has been finalised.

In the meantime, further information may be obtained from the Hon. Sec., or from Member David Lampard at Ipswich Museum, High Street, Ipswich, Suffolk, to whom offers of contributions should also be sent (I know he'll be grateful!).

PORCUPINE ANNUAL GENERAL MEETING 1989, and 1989 Spring Meeting will be held on the weekend 31st March to 2nd April at Lancaster University, on the theme of The Irish Sea. This meeting will take place on the weekend after Easter. Why not combine the PORCUPINE Meeting with a holiday? Lancaster is adjacent to the English Lake District, Pennines, Yorkshire Dales, Morecambe and Blackpool.

For further details see next Newsletter, or contact Member Shelagh Smith, to whom offers of contributions for the meeting should be addressed.

Porcupine Ads.

THE MARINE FAUNA OF THE CULLERCOATS DISTRICT
Reports of the Dove Marine Laboratory, 3rd Series

A listing of parts available to that date was published in the December 1985 Newsletter (PN 3 (5), 122-123), comprising parts 1 to 5 (printed and bound) and 6 to 17 (dry-copied and spirally bound), and these are briefly listed here with details of the subsequent parts. All are available from the Dove Marine Laboratory.

Part 1 (Porifera), 2 (Chilopoda, Apterygota, Euphausiacea, Cetacea), 3 (Entoprocta, Priapulida, Echiurida, Sipunculida, Chaetognatha, Echinodermata), 4 (Pterygota, Branchiopoda, Ostracoda), 5 (Copepoda) and 3A (Ectoprocta) all at £1; Part 6 (Coelenterata & Ctenophora) £7; 7 (Cirripedia) £2; 8 (Bivalvia) £5; 9 (Polychaeta; Errantia) £10; 10 (Polychaeta; Sedentaria) £15; 11 (Fishes) £13,50; 12 (Pycnogonida) £2; 13 (Amphipoda) £10; 14 (Literature of the Marine Fauna) £4; 15 (Acari) £2,50; 16 (Zooplankton) £5; 17 (Seaweeds) £4.

Part 18	Mollusca; Gastropoda,	J. Foster-Smith (1986)	£20	
Part 19	Mysidacea	R.N. Bamber (1986)	£1	
Part 20	Tanaidacea	R.N. Bamber (1986)	£1,50	
Part 21	Decapoda	J. Moore (1987)	£3,50	
Part 22	Seaweeds (supplement) (1987)			£1,50
Part 23	Oligochaeta	M. Kendall (in press)		

A COMPARISON OF EPIFAUNAL ARTHROPODS FROM SIXTEEN POTENTIAL COMMUNITY ASSOCIATIONS AT CULLERCOATS

by Roger Bamber

As a logical sequel to my previous notes on the epifauna associated with *Corallina officinalis*, which have claimed a high diversity of associated arthropods, I have been encouraged to resurrect some comparative data on epifaunal arthropods from the shore at Cullercoats, Northumberland. Samples were collected from 16 potential community associations (hereafter referred to as 'habitats'), ten of them algal, in September 1977, and I am indebted to a number of anonymous undergraduates who were unaware at the time that their field course would contribute to this analysis. These samples give the opportunity not only to demonstrate the comparative diversity for *Corallina*, but also to indicate aspects of each 'habitat' which may be relevant to their epifaunal associates.

The habitats fall into three broad groups. Upper and lower shore crevices, and beneath upper and lower shore stones (habitats 1 to 4 respectively) are generally analogous, none of the stones examined being large enough to support a stable spone-bryozoan type community. Group 2, the only potential 'infaunal' habitats examined, included small beds of seed mussels on the littoral bedrock (habitat 6), and the *Rhodocorton*-bedded muddy sand substrate which develops on boulders and ledges, often to a depth of several centimetres, and is commonly densely populated by *Fabricia sabella* (habitat 5). Group 3 was the 'vegetal' communities. For habitats 7 to 12, six species of algae, *Ulva lactuca, Enteromorpha, Cladophora, Rhodymenia palmata, Chondrus crispus* and *Fucus serratus*, were sampled wherever they occurred (*Cladophora* and *Chondrus* normally in rock pools, the other normally not); *Corallina* was sampled separately from rock pools and from ELWST (habitats 13 and 14), as were *Laminaria* holdfasts (15 and 16).

The epifaunal species recorded were all the isopods, amphipods and tanaids collected, together with the pycnogonids, though (alas!) the last group was minimally represented in the samples. Quantitative sampling is prohibitive in most of the habitats investigated, particularly with regard to possible comparisons between such diverse habitats. Ultimately, the density of each species per habitat was recorded in four categories, viz 1 specimen only, 2 to 10, frequent and common. Statistical analyses of diversity and similarity were based upon representing these categories as 1, 5, 15 and 30 individuals respectively - arbitrary but convenient, though possibly underestimating the dominance of some of the commoner amphipods.

The gross results are shown in Table 1. 23 species of arthropod were identified, 14 of them amphipods, 4 isopods, 4 pycnogonids and a single tanaid. Though many more species are known to occur in association with these habitats on the well-studied Cullercoats foreshore (*vide* Bamber, 1983; Sheader, 1983; Bamber, 1986), only the data in Table 1 are used in the following analyses.

Habitat 1, the upper shore crevices, was clearly interpreted in the extreme, and only *Ligia oceanica* was present in the cliffs, this species not being recorded in any other habitat; thus habitat 1 and species 16 are irrelevant in the community analyses. The results of the similarity analysis (Bamber, 1982) are shown as the dendrogram of Figure 1A (the habitat similarity cluster analysis). The habitats split into distinct clusters at the 30% similarity level. As expected, the "crevice" group of habitats 2, 3 and 4 show a discrete cluster together with the seed mussel beds habitat 6; this cluster is linked by *Jaera albifrons* agg., with the two Gammarids (species 13 and 14) commonest in these habitats; *Hyale nilssoni* and *Idotea pelagica* are characteristic of seed mussels, and the former species appears to treat them as a 'lower shore' crevice habitat. The lower shore stones habitat 4 showed the greatest diversity of species, as may be expected in a presumably less stressful environment. Habitat 5, the *Rhodocorton*-bedded muddy sand, is distinct in the cluster analysis, the fauna being dominated by tubicolous species, the amphipods *Corophium insidiosum* and *Erichthonius hunteri* and the tanaid *Tanais dulongi*, all three species being commonest in this habitat.

Of the algae, *Fucus serratus* and *Cladophora* supported a minimal arthropod fauna, i.e. the nearly ubiquitous herbivore *Idotea granulosa*, and *Calliopius* on *Fucus*, and these two habitats (9 and 12) show a distinct cluster, though with more affinity to the other algae than any other habitats. The remaining algae cluster together, with a similar fauna, *Laminaria* holdfasts show no particular distinction between pools and low-water mark, but separate from the other weeds largely on low representation of *Idotea granulosa, Calliopius laeviusculus* and *Jassa pulchella*; kelps are presumably less appropriate for delicate herbivory, or as shelter for

TABLE 1. Epifaunal arthropods from 16 'habitats' at Cullercoats.

KEY: - 1 only + 2 to 10 * frequent ** common SPECIES	Habitats: 1 UPPER S. CREVICES	2 LOWER S. CREVICES	3 UPPER S. STONES	4 LOWER S. STONES	5 Rhodocorton - bed	6 SEED MUSSELS	7 Ulva lactuca	8 Enteromorpha int.	9 Cladophora sp.	10 Rhodymenia palmata	11 Chondrus crispus	12 Fucus serratus	13 Corallina IN POOLS	14 Corallina AT ELWM	15 Laminaria IN POOLS	16 Laminaria AT ELWM
1 Amphithoe rubricata			+	+	+			+		-	+		+	**	**	*
2 Parajassa pelagica					-			+					+	+	+	+
3 Jassa pulchella				-			+	+		+	*		+	*		
4 Nototropis swammerdami							+			-						
5 Apherusa cirrus							+				+		-	+		-
6 Hyale nilssoni		*				*		-			-			+		
7 Stenothoe monoculoides										-	+		**	**		
8 Corophium insidiosum		-	+		**			-					+	-	+	-
9 Ericthonius hunteri					*					-	+					
10 Gammarellus homari				-										+		+
11 Dexamine thea				+			-				-			+		
12 Calliopius laeviusculus				+	+	+	**	+		*	*	+	**	**	+	*
13 Marinogammarus spp.		+	**	*			-				+					
14 Gammarus locusta		-	**	*			+						+			
15 Tanais dulongi					+	-										
16 Ligia oceanica	**															
17 Idotea granulosa		+					+	*	+	+	*	*	**	**		+
18 Idotea pelagica						*	+	+			-			+		
19 Jaera albifrons agg.		+	**	*		*	+				+			+		
20 Achelia longipes													-			
21 Phoxichilidium femoratum																+
22 Anoplodactylus virescens													-			
23 Nymphon brevirostre													-			
No. of species -	1	6	5	8	6	5	10	8	1	7	12	2	12	13	4	8
Shannon-Weiner diversity	0	2.1	2.0	2.6	2.0	2.0	2.7	2.6	0	2.0	3.1	0.8	2.7	3.2	1.5	2.6

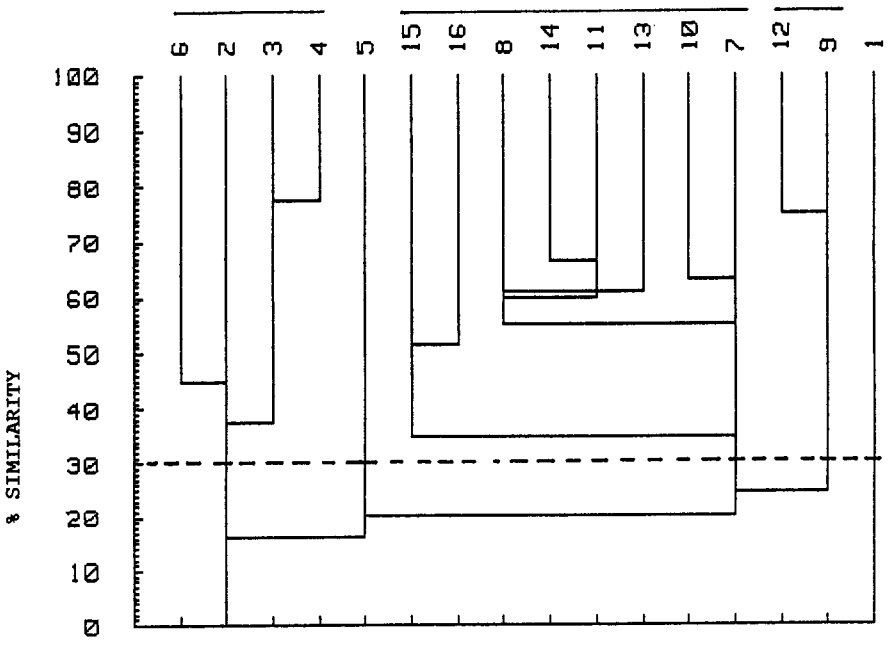


Figure 1A. Dendrogram of % similarity of the 16 habitats (for key to habitat numbers see Table 1); the clusters are distinguished at the 30% level.

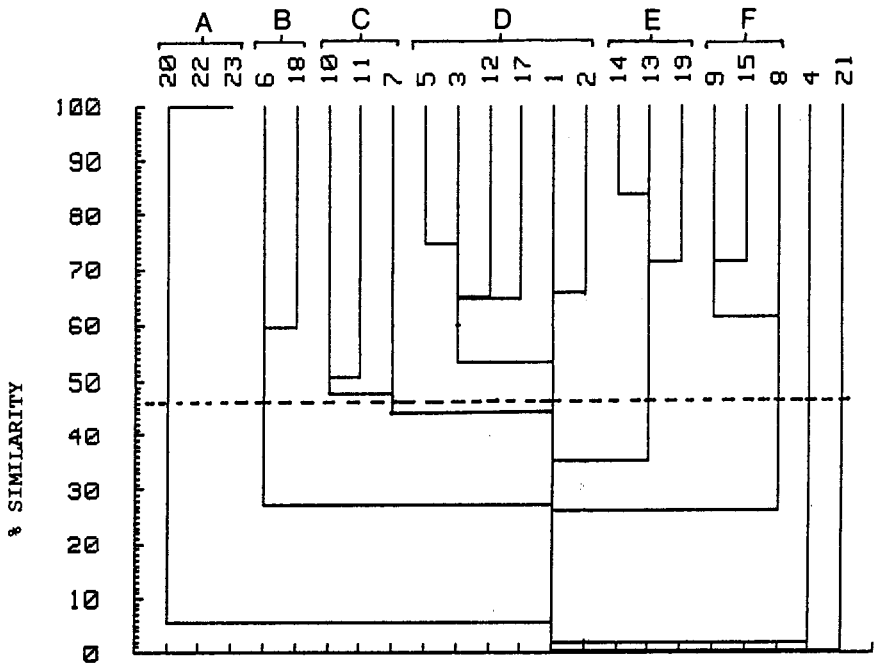


Figure 1B. Dendrogram of species similarity (not including Ligia, species 16), with clusters distinguished at the 46% level denoted by letters (see text); for key to species numbers see Table 1.

small cryptic species. Greatest diversity is indeed shown by *Corallina* together with *Chondrus*, and if both the *Corallina* habitats are amalgamated, their Shannon-Weiner diversity rises to 3.41.

The species cluster analysis by habitat association (Fig. 1B), potentially reflecting niches, is somewhat more complex, but splits conveniently at the 46% level. Three pycnogonid species were only found on *Corallina*, and the fourth only in *Laminaria* holdfasts (cluster A and species 21). Cluster B is of the seed-mussel-associated *Hyale* and *Idotea pelagica*. Cluster C is of three species of lower-shore-distributed amphipods which particularly associate with *Corallina*. Cluster D is the generally algal-associated group of species, with some separation of species 1 and 2, the tubicolous *Amphithoe* and *Parajassa* which are commonest in *Corallina* and *Laminaria*, apparently treating these algae as "crevices". Cluster E is of the more obvious crevice species, and cluster F represents the stygobiont species dominant in the *Rhodocorton*-bedded sand. The infrequent *Nototropis swammerdammi* (species 4) was uniquely limited to the thin flat algae *Rhodymenia* and *Ulva*.

It is thus apparent that the epifaunal arthropod community on *Corallina* comprises generalist algal-associated species, which can exploit the habitat for herbivory or detritivory, tubicolous species (including *Corophium*) which presumably find its rigidity useful for anchoring the tube, the lower shore distributed species, and even occasional crevice-associated forms (cluster B). The dominance of *Stenothoe monoculoides* in *Corallina* may reflect the appropriateness of the morphology of this alga to the amphipod's small size, the only other finely ramifying habitat sampled being the generally unpopular *Cladophora*. No other habitat studied, including *Chondrus*, shows such abundance of species from diverse niche-associations.

To plead the case for pycnogonids, though underrepresented in the above data, analysis of the seven species recorded from algae in the Cullercoats Sea Area (Bamber, 1983) shows one from *Gigartina*, 2 each from *Chondrus* and *Cladophora*, and all 7 from *Corallina*; the abundance of individuals is also greater for *Corallina*.

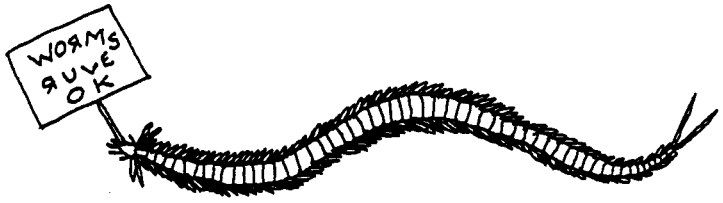
REFERENCES;

Bamber R.N. 1982. A 'BASIC' similarity analysis program for the HP9845 computer, CE6B Internal Note TPRD/L/2315 P82, 29pp.

Bamber R.N. 1983. The Marine Fauna of the Cullercoats District Number 12, Pycnogonida. Rep. Dove Mar. Lab., Ser 3, No. 25.

Bamber R.N. 1986. The Marine Fauna of the Cullercoats District Number 20, Tanaidacea. Ibid, No. 33.

Sheader M. 1983. The Marine Fauna of the Cullercoats District Number 13, Amphipoda. *Ibid,* No. 26.



KEY TO NORTH SEA POLYCHAETES

The Institute of Offshore Engineering has published a translation of Hartmann-Schroder's Key to the Polychaete Annelids from the North Sea and Baltic Approaches. Despite the increasing need, an authoritative work in English on the identification of polychaetes from British waters is still lacking. This translation of the keys contained in *Die Tierwelt Deutschlands und angrenzender Meeresteile, Annelida, Borstenwurmer, Polychaeta* by Dr Gesa Hartmann-Schroder was undertaken by Maggie Ingold and Martin Riddle and edited by Paul Kingston and Alexandra Duff, all of Heriot-Watt University, Edinburgh.

The format of the key follows that of the original almost exactly. It is intended that the translation is used in close conjunction with the original publication referring directly to figures and descriptions where appropriate.

Key the the Polychaete Annelids from the North Sea and Baltic Approaches, 63pp, is available Price £10.00 (including postage) from ;

Arnold Myers, Institute of Offshore Engineering, Heriot-Watt University, Research Park, Riccarton, Edinburgh EH14 4AS (Tel. 031 449 5111).