

# Porcupine Newsletter

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# PORCUPINE

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## EDITORIAL

It was good to see a few PORCUPINES at the Dublin meeting (a part of the Trinity College quadricentenary celebrations), and indeed to see a fleeting glimpse of Dublin on my day trip. The workshop discussion on communities was refreshingly active and we hope for a resulting article for the next Newsletter from Bob Foster-Smith, to whom all commendations must go for his efforts in running the workshop. The bar to which we adjourned was also much appreciated.

Unlike the weather at the Dunstaffnage meeting, but then I don't think that I would recognize Oban if it weren't raining. Turnout was very good (including both of our Life Members) and feedback from participants has been very complementary. Reports from the meeting will appear in the next issue of PN.

That the Hon. Editor's report at the AGM was brief may be attributed to the fact that I get three goes per year at waffling in these editorial bits. But I will take this opportunity to remind Members and other readers that the Newsletter runs only on your contributions, and as ever I would be delighted to receive your articles, letters, notes and notices, requests and reviews. Furthermore, as the AGM decided that the Newsletter fulfilled the role within PORCUPINE for coordination of records, do please send records. Contributors who manage to send material on disc in Wordperfect get especial gratitude.

It is with deep regret that we heard of the death of Member Major K.W. England on 29 July last, and know that I can speak on behalf of the Membership in conveying our sympathy to his wife, Mrs M. England.

I have received on behalf of the Society, and courtesy of Guido Rappé, the latest issue of *De Strandvlo* (12 No.1), should any Members wish to consult it.

\*\*\*\*\*

## FUTURE MEETINGS

As detailed in the last issue, the next meeting of PORCUPINE will be 24th-26th October at the Cornish Biological Records Unit, Redruth. A detailed circular for feedback accompanies this Newsletter.

The spring 1993 meeting and 16th Annual General Meeting is planned for early March, in Peterborough, hosted by the Marine Nature Conservation Review. More details, as they become available, in the next issue.

Members wishing to hold ordinary or field meetings, or even with good ideas in that direction, should contact the Hon. Sec. - make use of your society!

Porcupine Newsletter, 5 (4), 1992.

Report from the Swansea Meeting, 1991

## **A PRELIMINARY EXAMINATION OF THE SEASONAL SUCCESSION OF GELATINOUS PREDATORS WITHIN THE ZOOPLANKTON COMMUNITY OF SOUTHAMPTON WATER**

by Cathy Lucas & John Williams

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### Introduction

Surprisingly little is known about the population dynamics and community structure of the zooplankton of Southampton Water, and published material deals almost exclusively with non-gelatinous groups (Conover, 1951; Raymont & Carrie, 1964; Zinger, 1989). The described zooplankton community is typical of a British estuary, being relatively productive but with a low species diversity and with the herbivorous/omnivorous species dominant.

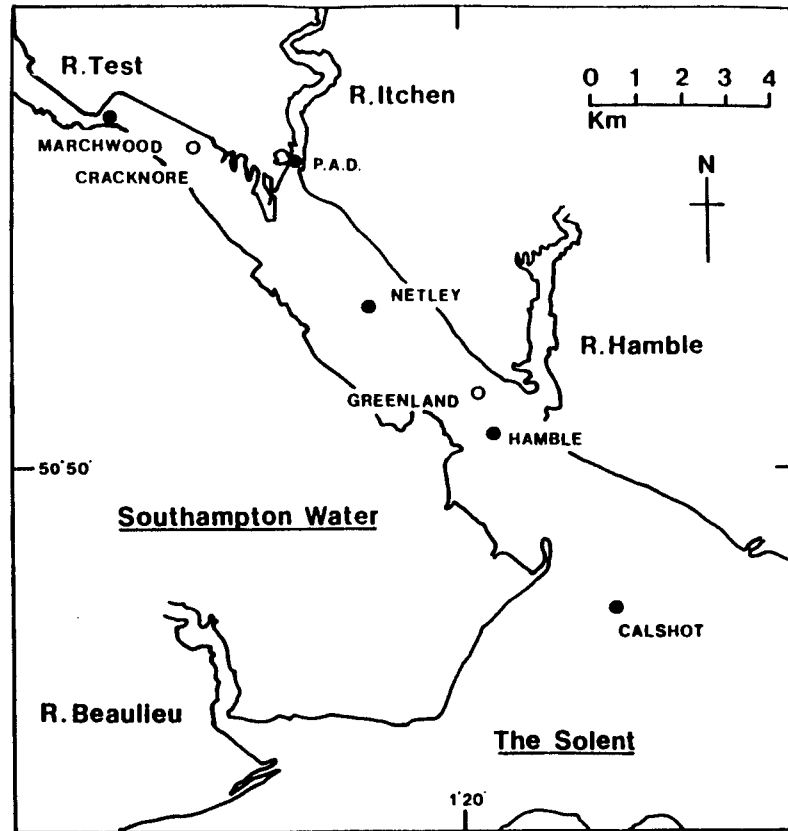
Previous studies on the seasonal and geographic distribution of zooplankton 'groups', although using different sampling techniques (Raymont & Carrie, 1964; Zinger, 1989), have reported a fundamental pattern of numerical dominance which highlights the importance of cirripede nauplii throughout the estuary during spring and early summer (March to June/July). Other meroplankton components, such as polychaete and bivalve larvae, also occasionally occur in high numbers in a patchy distribution throughout the estuary. There is a clear seasonal 'switch' in the nature of copepod abundance: although calanoid copepods, dominated by the genus *Acartia*, occur in relatively low numbers during the early part of the year, from August/September this is the numerically dominant group throughout the estuary. Both spring and autumn maxima of total zooplankton population density have been identified, particularly in the upper estuary, with a significant reduction in abundance between the peaks in June/July (Zinger, 1989).

The comparatively low summer density of zooplankton, particularly herbivorous/omnivorous species, must to some extent be influenced by phytoplankton dynamics, even though the typical pattern of phytoplankton density in Southampton Water presents an effectively continuous phytoplankton bloom commencing in March/April and continuing through to September, with a distinct increase in numbers during summer in the middle of the Estuary (around Netley, Figure 1). Within this pattern, diatoms are numerically dominant during spring, while the summer/autumn population is composed essentially of dinoflagellates and microflagellates (Kifle, 1989).

Other potential regulators of zooplankton production may also be in effect, as Zinger (1989) and Williams & Reubold (1990) noted that the timing of the relatively low summer density of zooplankton, particularly copepods, approximated with the successional appearance of the gelatinous predators *Aurelia aurita* (L.) and *Pleurobrachia pileus* (Müller). Both species are generalist and opportunistic carnivores which are, depending on their size, capable of feeding over a wide size spectrum of prey and both species are recognized as having a significant predatory impact within coastal zooplankton ecosystems, particularly on copepods, when they occur in elevated swarm densities (Moller, 1980a; Greve, 1981; Van de Veer & Oorthuysen, 1985; Franks, 1986). Zinger (1989) also noted that the 'total medusae' group in his zooplankton community analysis was significantly greater in density (approximately 90 m<sup>-3</sup>) than the combined *A. aurita* and *P. pileus* populations recorded.

The present study was undertaken to highlight any coincidence between the relatively low summer abundance of calanoid copepods with their subsequent switch to numerical dominance and the appearance of gelatinous predators within the zooplankton community. It was also intended to identify some of the other significant species making up the 'medusae group' reported by Zinger (1989).

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**Sampling stations**

- Present study
- Raymont & Carrie (1964)  
Zinger (1989)

Figure 1. Southampton Water, showing location of sampling stations used in previous and current studies.

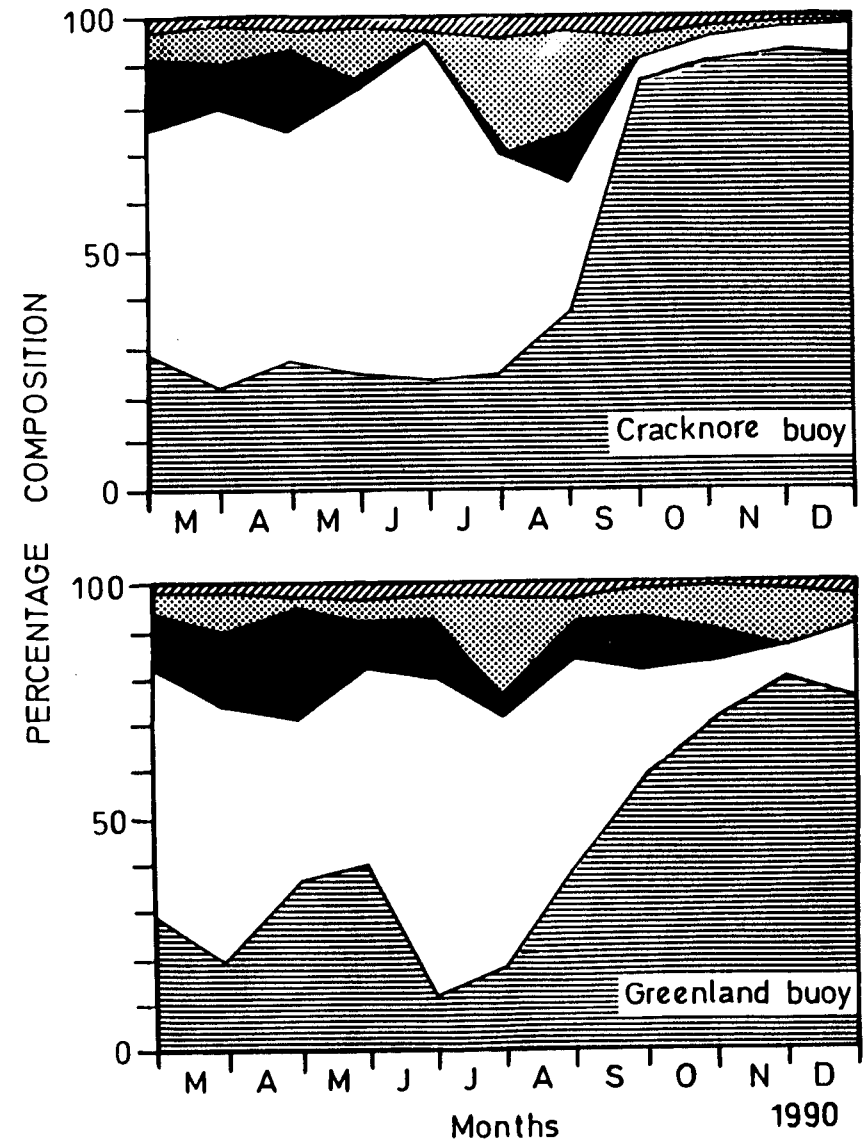


Figure 2. Integrated monthly percentage composition of the zooplankton community at Cracknore and Greenland during 1990. Diagonal shade - gelatinous species; full shading - mollusc larvae; white - cirripede larvae; horizontal shading - calanoid copepods; stippling - other zooplankton.

## Methods

A twice-monthly quantitative zooplankton sampling programme was carried out at two fixed-buoy sites, Greenland and Cracknore, within Southampton Water (Fig.1). Both sites are essentially marine in nature but with some small seasonal salinity stratification infrequently recorded at Cracknore in the upper estuary (Dyer, 1982). Using a 210  $\mu\text{m}$  mesh net, plankton was collected from 5 to 10 m depth approximately 1 to 2 hours prior to the first high water of spring tides. The duration of tow was adjusted so that the average volume filtered was usually 30 to 50  $\text{m}^3$ , and tows never extended beyond 5 minutes; tows were replicated.

The zooplankton community was separated into 15 groups for identification and enumeration following the pattern of Raymont & Carrie (1964) and Zinger (1989) to enable comparisons. The 'gelatinous' species identified as dominant elements of the community were counted separately. Total zooplankton biomass was calculated as 70°C dry weight.

## Results

No important differences were noted in the make-up of the zooplankton in the replicate tows, and so material was combined. The typical pattern of numerical dominance identified in the present study agrees with previous data, and indicates cirripede larvae and calanoid copepods to be the major components of the system (Fig.2). The remaining groups accounted for a relatively small percentage of the total population.

The spring-summer months exhibited the more heterogeneous population structure with pulses of meroplankton groups, particularly polychaete and bivalve larvae although cirripedes made up as much as 70-80% of the total population. By comparison, the autumn months showed a community structure dominated by calanoid copepods, typically accounting for 70% (but up to 90%) of the population, with a reduced cirripede component. The gelatinous component remained low throughout the year, at less than 5% of the total population.

Total zooplankton abundance at both sample sites (Fig.3a) exhibited relatively low winter densities followed by a spring peak in late March/April, with average densities of 3000 to 3500 individuals  $\text{m}^{-3}$ . There was a reduction in total density during June to September, with levels as low as 200 to 800  $\text{m}^{-3}$  recorded at both sites. A second, autumn peak followed with densities increasing to 1500 to 4000 individuals  $\text{m}^{-3}$ , with greatest abundance in the upper estuary. Figure 3b shows the summer decline and low density of both cirripede larvae and calanoids in late summer/early autumn. The seasonal 'double-peak' pattern was also evident in total zooplankton biomass throughout the estuary, with the spring peak typically greater than the autumn peak (Fig.3c).

Four species of potentially significant gelatinous predators were identified, showing distinct seasonality in their abundance (Fig.4). The scyphozoan *Aurelia aurita* and the ctenophore *Pleurobrachia pileus* have previously been identified in this community; the leptomedusa *Phialidium hemisphaericum* (L.) and the chaetognath *Sagitta setosa* Müller also occurred in such densities as to suggest an impact on the herbivorous zooplankton community. There appears to be a clear temporal succession of these species, with *A. aurita*, *P. hemisphaericum* and *P. pileus* producing successive peaks of abundance from April until early August. During this period typical densities for *A. aurita* and *P. pileus* varied between 3.5 to 5.0  $\text{m}^{-3}$  and 0.5 to 1.0  $\text{m}^{-3}$  respectively, but both species exhibited significantly exaggerated patchy swarm densities of 30 to 35  $\text{m}^{-3}$  and 10 to 12  $\text{m}^{-3}$  respectively. The density of *P. hemisphaericum* recorded throughout the estuary was typically 8 to 10 individuals  $\text{m}^{-3}$ , although this species also demonstrated exaggerated densities of up to 16  $\text{m}^{-3}$ . During spring and summer, *S. setosa* density was considerably less than 1.0 individual  $\text{m}^{-3}$ , peaking during October to December when densities of up to 5.5  $\text{m}^{-3}$  were recorded.

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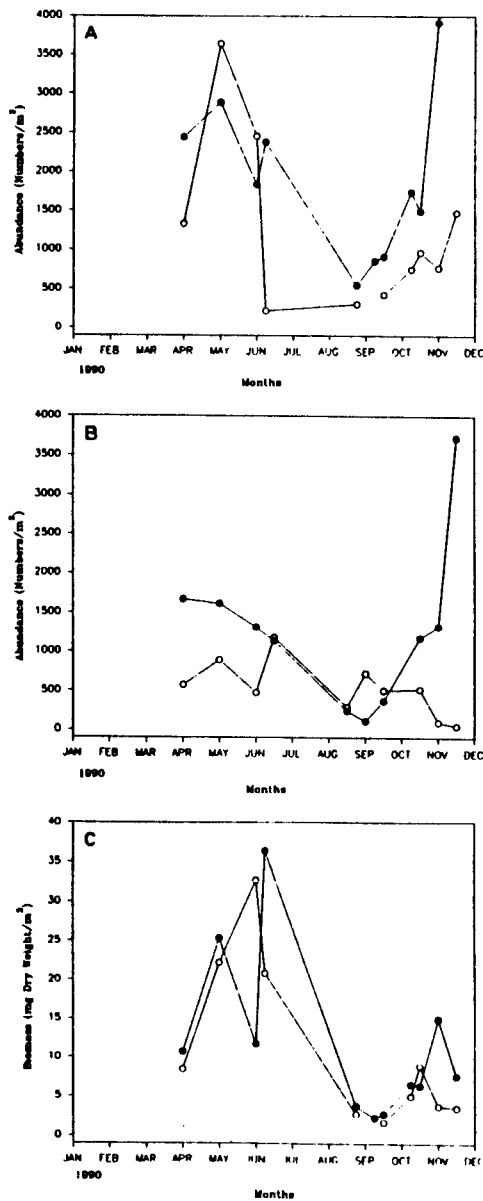


Figure 3. A: Total zooplankton abundance at Cracknore (●) and Greenland (○); B: abundance of cirripede larvae (○) and calanoid copepods (●) at Cracknore; C: total zooplankton biomass, mg dry weight.m<sup>3</sup> at Cracknore (●) and Greenland (○).

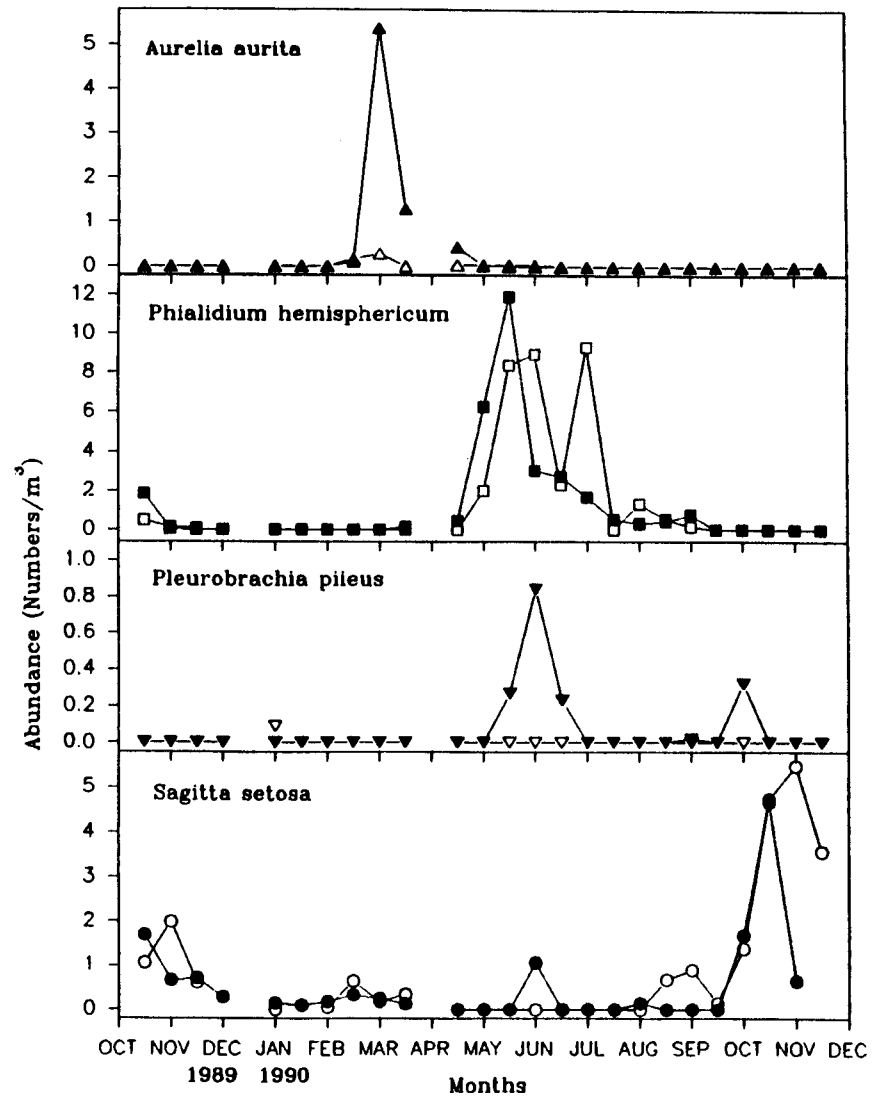


Figure 4. Species succession of gelatinous predators during 1990 at Greenland Buoy (open symbols) and Cracknore Buoy (closed symbols).

The timing of the peak densities of *A. aurita*, *P. hemisphaericum* and *P. pileus* is coincident with both the decline in total zooplankton density from elevated spring levels (Fig.3a) and also the period of low calanoid copepod density (Fig.3b). The total zooplankton and particularly the number of copepods begin to increase in September (Fig.3b) following the decline in *P. hemisphaericum* and *P. pileus* numbers in late July (Fig.4).

### Discussion

The present study provides a continuation of the zooplankton record of Southampton Water and shows many similarities with the most recent seasonal study (Zinger, 1989). During spring months cirripede nauplii are numerically dominant throughout the estuary with calanoid copepods increasing in significance at the upper estuary sample site. Calanoids dominate throughout the estuary in the autumn. The pattern of zooplankton abundance was also similar, showing a decline in total zooplankton in the summer. The absolute abundance and biomass of total zooplankton recorded in 1990 were lower than those reported by Zinger (1989), which is attributed to both natural variation and sampling procedure. Zinger, using a 100  $\mu\text{m}$  mesh net, recorded a total of 6500 individuals  $\text{m}^3$  in May; the present study, using a 210  $\mu\text{m}$  mesh, recorded a May value of approximately 1830 individuals  $\text{m}^3$ .

Pronounced year to year variations in the density of medusae and ctenophores in European coastal waters are well documented (Fraser, 1970; Moller, 1980b; Hernroth & Groendahl, 1983, 1985; Van der Veer & Sadee, 1984; Williams & Collins, 1985; Schneider, 1987, 1988; Williams & Reubold, 1990; Hay *et al.*, 1990). *A. aurita* and *P. pileus* are consistently recorded during the summer in patchy, high densities in Southampton Water, although in general their abundance recorded in the present study is also lower than in previous years: the maximum densities of 5.4 individuals  $\text{m}^3$  for *A. aurita* and 1.47 individuals  $\text{m}^3$  for *P. pileus* recorded contrast with previous findings of 12 to 15 (Williams & Reubold, 1990) and 9.9 (Zinger, 1989) respectively.

In the present study, the ephyrae of *A. aurita* "appeared" approximately 3 to 4 weeks earlier than those reported by Zinger (*ibid.*) and Williams & Reubold (*loc. cit.*), which event was probably related to the warmer 1990 March water temperatures, of 9.2°C compared to an average of 6.2°C recorded by Zinger (1989). This earlier appearance also led to the subsequent earlier sexual maturation of medusae, and their eventual disappearance from the water column following spawning in late June (compared to late July in previous years - Williams & Reubold, 1990). The medusae were present in the water column for approximately the same length of time in both studies.

Under conditions of elevated density, both *A. aurita* and *P. pileus* are acknowledged to exert a significant predator pressure on zooplankton communities, particularly where prey species are also in high densities (Moller, 1980a; Yip, 1984; Van der Veer, 1985; Van der Veer & Oorthuysen, 1985; Bamstedt, 1990). Given its extended presence in Southampton Water between mid-April and mid-August, together with the peak densities achieved (under patchy distribution) of 15.7 individuals  $\text{m}^3$  in early May, *P. hemisphaericum* must also exert considerable predator pressure within the zooplankton community, although no literature is available on the potential influence of this species.

By contrast, *S. setosa* is well documented as a significant predator of zooplankton communities (Pearre, 1980; Feigenbaum & Maris, 1984; Oresland, 1983, 1986, 1987); this species typically exhibits low abundances during spring and early summer. It is arguable that the low numbers recorded in Southampton Water throughout the spring to autumn period only have a limited influence in regulating zooplankton density when compared with, for example, the typical summer densities of 1 to 10 *S. elegans* individuals  $\text{m}^3$  in the Bristol Channel (Williams & Collins, 1985).

Although the primary production signal must influence the seasonal zooplankton community pattern (Barlow & Monteiro, 1979), a relatively high phytoplankton density is maintained in the estuary

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during the summer (Soulsby *et al.*, 1984; Kifle, 1989) at a time of low total zooplankton and particularly low calanoid density. The successional appearance of *A. aurita*, *P. hemisphaericum* and *P. pileus* clearly acts to structure the herbivorous plankton community, although assessing the nature and extent of the predator limitation is extremely difficult.

The complexity within zooplankton communities of the interrelationship between prey and predator is exemplified by the reported disappearance of *A. aurita* from Southampton Water after late May 1988 which was associated with prolonged atypical N.E. winds (Williams & Reubold, 1990). Equally, in summer 1987 the density of *P. pileus* in Southampton Water was reduced by the rare appearance of large numbers of the ctenophore *Beroe beroe* (Williams, unpubl.), an acknowledged predator of *P. pileus* (Reeve & Walter, 1978; Greve, 1981; Alldredge, 1984). In both of these instances, neither the temporal sequence of the zooplankton groups within the community nor the timing of the switch to calanoid copepod numerical dominance were significantly altered by the presumed reduction in gelatinous predator impact.

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*Porcupine Newsletter*, **5** (4), 1992.

## AN ATLAS AND CHECKLIST OF THE MARINE MOLLUSCA OF IRELAND

by Julia D. Nunn

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The most recently published checklist of the marine Mollusca of Ireland was by A.R. Nichols in 1900 (Proc. Roy. Ir. Acad., Vol.5 No.4). A project is outlined herein to update and extend this checklist and to compile an atlas of the species distribution.

The project is to be carried out by the author in collaboration with Shelagh Smith (Carlisle) and Dave McGrath (University College Galway). Preliminary fieldwork has been carried out since 1986, especially by JDN, mainly as a spare-time activity. A provisional working checklist has been compiled of 369 species confirmed by the authors as living around Ireland.

An atlas of the distribution of molluscan species has been started, with an example of a map shown in Figure 1. The chosen area is bounded by 05°00'W to 11°00'W and 55°30'N to 51°00'N. It encloses the entire coastline of Ireland, small areas of southwest Scotland, the western part of the Irish Sea and part of the Dyfed peninsula with Skomer in southwest Wales. The maps use a 6' by 12' grid (approximately 11 km x 11 km), which is the same as that used for the atlas for 'The Marine Mollusca of West Scotland and North Coast of Ireland' (by Smith, McKay & Nunn, hopefully to be published in the near future). The area north of 55°N overlaps with this atlas. For simplicity, records of species found live since 1950 are indicated by a dot (●). All older records, the status of which may be obtained from the literature, and recent findings of dead shells, are shown by circles (○).

Publication of these data on the marine mollusca of Ireland will be in the form of a book which will include:

- a checklist of species found, giving information on ecology and distribution, together with sources of records of uncommon species. Records from the Porcupine Bank will be included here, although not on the distribution maps.
- notes on the whereabouts of voucher specimens, chiefly in the collections of the Ulster Museum and the National Museum of Dublin, and our personal collections.
- distribution maps for each species (except for a few for which records are either old or dubious).
- a bibliography.

There are considerable problems in the interpretation of records, both those from older literature and more recent survey reports where the standard of identification can be variable. For example, known errors have occurred by confusing *Gibbula umbilicalis* with juvenile *G. cineraria*, or juveniles of *Littorina saxatilis* or *L. littorea* with *L. neritoides*. Small species are also often generally ignored because of difficulties of collection and identification (e.g. Ulster Museum sublittoral survey of Northern Ireland).

Figure 1 also shows the recording effort of the authors to date. The principal locations are the northern coastline (1986, SMS/JDN), Strangford Lough (1986-90, JDN), Lough Hyne (1990, JDN), Galway Bay (DM), Kenmare River (1984, SMS) and Carnsore Point (DM). Where the authors have been, good coverage of the shores has generally been achieved. Inshore sublittoral records have also been obtained through dredging (DM, SMS) and diving (JDN, DM).

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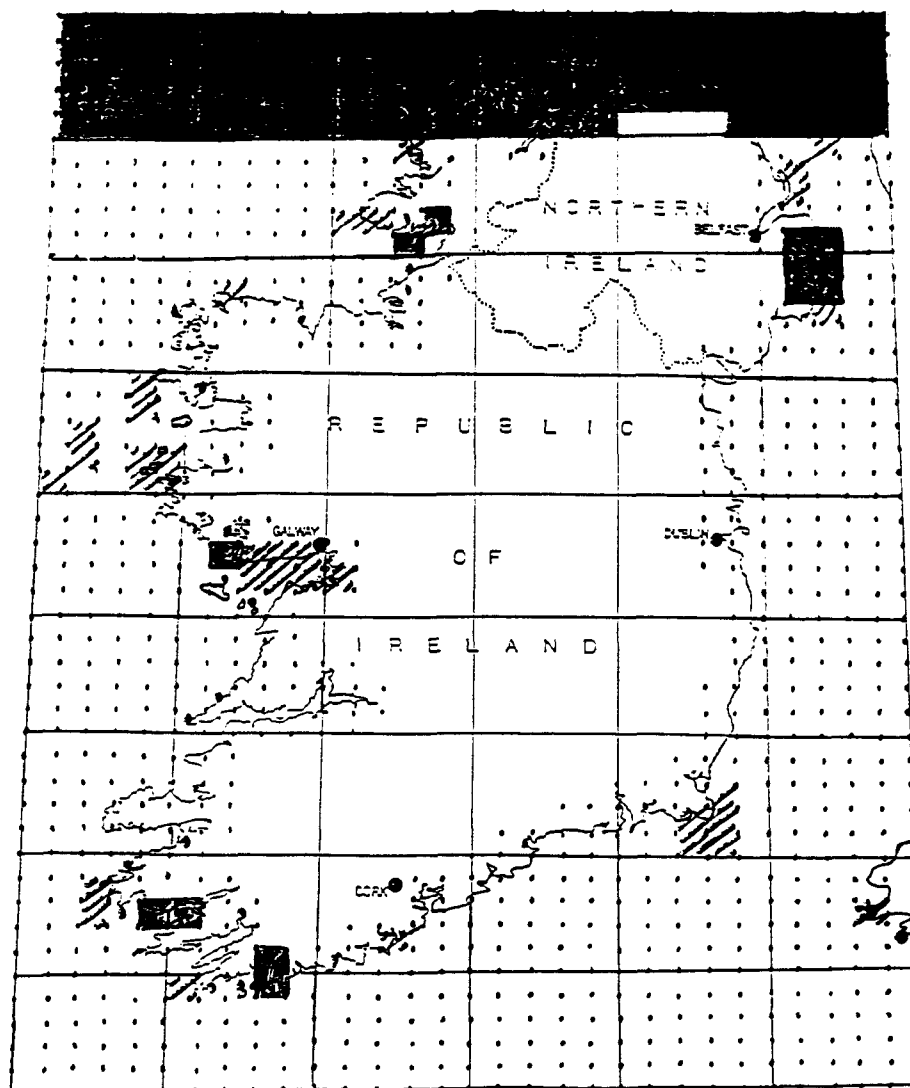


FIGURE 1. ATLAS MAP WITH RECORDING EFFORT BY AUTHORS

- Recording completed
- ▨ Part completed sublittoral recording
- Single site / part completed littoral recording

Over the next few years further expeditions are planned to visit underrecorded areas. These are Dingle Peninsula (Easter, 1992), Mayo (including Clare Island), Shannon, East Cork, Waterford/Wexford and Wicklow. Other areas in Donegal and Northern Ireland will be visited on an occasional basis by JDN. It is hoped that the Atlas and Checklist will be published in the year 2000, to mark the centenary of the publication of the checklist by Nichols.

The authors would welcome any and all records of Mollusca (no matter how common the species!!) from the area shown on the atlas map.

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AGM Reports

**MINUTES OF THE FIFTEENTH ANNUAL GENERAL MEETING OF  
PORCUPINE, held at Dunstaffnage Marine Laboratory on  
26<sup>th</sup> April 1992 at 09.40 am.**

Willie Fowler was in the chair; twenty-one members were present. Apologies for absence were received from Dennis Seaward, Martin Sheader and Ted Phorson. The Minutes of the Fourteenth Annual General Meeting (Published in PORCUPINE NEWSLETTER, Vol.5 No.1) were approved. Arising from these, Frank Evans thanked Porcupine for his election to Life Membership; he has produced the new publicity poster as requested.

The Hon. Secretary's Report was presented by Ian Killeen and approved.

The Hon. Treasurer's Report was presented by Jon Moore and approved. The Hon. Auditor, Nick Light, commented that the accounts were "healthy". Regarding subscriptions, it was decided that as a rule defaulting Members would receive a final reminder after 1 year, and thereafter be deleted. Currently 45 Members were unpaid for both 1991 and 1992. Our bank has entered some confusion as a result of their decision to change our account; this problem is resolving itself.

The Hon. Editor's Report was presented briefly by Roger Bamber and approved.

The Hon. Records Coordinator's Report was presented on behalf of Dennis Seaward by Ian Killeen and approved. Dennis pointed out that he had had no response at all to his article published in the last edition of PORCUPINE NEWSLETTER, in which he stated his intention to resign from what he considered an unnecessary or impossible office. The Council Meeting had discussed this matter on 25 April, and agreed with Dennis' opinion. It was proposed, seconded and carried by the Meeting that the post of Hon. Records Coordinator be suspended. There were no dissenters.

The following Office Bearers were re-elected:

Hon. Secretary	Ian Killeen
Hon. Treasurer	Jon Moore
Hon. Editor	Roger Bamber

David Lampard and Brenda Thompson retired from Council; Mark Davis was nominated for election to Council and Dennis Seaward was elected to Council on his resignation from Office Bearer. The following Council Members were elected:

Mark Davis	Robin Harvey	Ralph Robson
Iain Dixon	Christine Howson	Dennis Seaward
Frank Evans	Antony Jensen	Martin Sheader
Bill Farnham	Jan Light	Sharon Light
Willie Fowler	Ivor Rees	Fred Woodward

The auditor was thanked for his work last year, and Nick Light was re-elected as auditor for the coming year.

Future meetings were announced for the Autumn of 1992 at the Cornish Biological Records Unit, as detailed in PN 5 (3), and for the next Annual General Meeting in Peterborough, hosted by the MNCR (early March 1993).

The Meeting closed at 09.56 with the chair proposing thanks to those involved in the organization of the Dunstaffnage Meeting, particularly Robin and Fay Harvey.

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PORCUPINE  
RECEIPTS AND PAYMENTS ACCOUNT  
for the year ended 31 December 1991

<u>21.02.90 to 31.12.90</u>		<u>Year to 31.12.91</u>	
£	£	£	£
		<b>RECEIPTS</b>	
60		Subscriptions - 1989	-
260		1990	33
77		1991	1145
-		1992	35
-----	397		-----
	25	Donation	1213
	-	Sale of P.N. back numbers	-
	133	Bank Interest	17
	377	T Shirt sales	184
	-----		-----
	932	<b>Total Receipts</b>	<b>1469</b>
		<b>PAYMENTS</b>	
742		Newsletter - Printing	626
173		- Postage	259
29		- Envelopes	34
-----			-----
944		<b>Total Newsletter Costs</b>	<b>919</b>
471	1415	T. Shirts	232
-----	-----		-----
	(483)	<b><u>SURPLUS (SHORTFALL) BEFORE MEETINGS</u></b>	<b>318</b>
		<b>MEETINGS</b>	
(37)		Fawley	-
(90)		Dundee	-
-		Dublin	(100)
-	(127)	Newcastle	(150)
-----	-----		-----
	(610)	<b><u>SURPLUS (SHORTFALL) FOR THE PERIOD</u></b>	<b>68</b>
	2126	<b><u>BALANCE BROUGHT FORWARD</u></b>	<b>1516</b>
	-----		-----
		<b><u>BALANCE CARRIED FORWARD</u></b>	
291		Current Account	233
1225	1516	Deposit Account	1351
-----	-----		-----
			1584

*J. J. Moore*  
.....  
Hon. Treasurer

*N. High*  
.....  
Hon. Auditor  
21 April 1992

Porcupine Newsletter, 5 (4), 1992.

### Hon. Secretary's Report 1991-1992

Two indoor meetings and one field meeting have been held during the past year. The 14th Annual General Meeting was held at the University of Swansea on the 6th and 7th April 1992. This meeting was held jointly in conjunction with the Coelenterate Group and was hosted and organized by Professor J.S. Ryland to whom PORCUPINE extends its thanks.

The second meeting was held in association with the Irish Biogeographical Society at Trinity College, Dublin, on the 16th and 17th December 1991. Papers given at this meeting covered a wide range of terrestrial, freshwater and marine topics. On the Tuesday afternoon PORCUPINE hosted a workshop on *Biological communities as descriptive units in field ecology, and the problems in using communities in applied studies*. PORCUPINE is grateful to Mark Costello for organising the main meeting and to Bob Foster-Smith for his efforts in setting up the Communities workshop.

A field meeting was led by Roger Herbert to Osborne Bay on the Isle of Wight on 8th September 1991. A small party examined and recorded a rich Solent shore including an extensive *Zostera* bed.

Society membership currently stands at 224, comprising 217 Ordinary and Institutional Members, 2 Life Members and 5 Student Members. Council has agreed the production of a publicity leaflet, which it is hoped will bring the activities of PORCUPINE to the attention of many more potential members.

Finally may I thank members of the Council, and in particular Roger Bamber, for the support I have received during my first year as Secretary.

Ian Killeen, Hon. Secretary.

26 April 1992

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\* \*

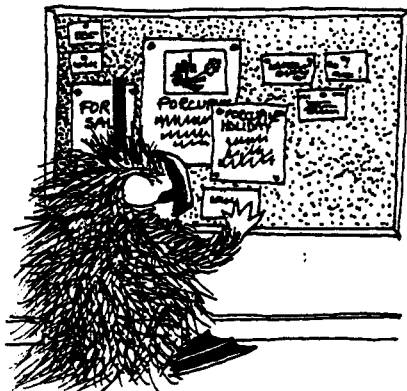
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### **TAKE GREAT ERIOCHEIR - MORE CHINESE IMMIGRANTS**

Readers will recall the report in PN [4 (9); 228] of the first discovery of the Chinese Mitten Crab, *Eriocheir sinensis* A. Milne-Edwards, in the River Medway in the spring of 1990. This year another six specimens were reported in the lower Thames, collected from the cooling water screens of West Thurrock Power Station, where Martin Atrill is part of the NRA team who have been monitoring the screen catch here for many years as an indication of the River Thames fishery status. The specimens collected are adults, as were the Medway ones, presumably in reproductive migration to the sea. As yet we have no record of where in the freshwaters of the Thames and/or Medway the crabs may be living.

*E. sinensis* was first recorded in Britain from the River Thames at Chelsea in 1935. The third record, in 1976, was - at West Thurrock Power Station (Ingle & Andrews, 1976: *Nature*, 263; p.638). These records were mooted to be escapees from ships arriving from European ports, and similarly the recent records may not represent a resident population (YET!).

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## NOTICES

**THE RAY SOCIETY** is in the process of publishing its volume number 160. This is a translation, updated by Dr Howard Platt, of Dr Sievert Lorenzen's work on free-living nematodes, originally published in German. It is an important and up-to-date account of the systematics of free-living nematodes and provides a valuable source of reference for this ubiquitous and abundant group of animals. The full retail price will be £45.00 (£20.00 to members of the Ray Society), but the Society is making it available as a prepublication offer to other biologists for £30.00 plus £6.00 post and packing. The offer is limited to one copy per individual and publication is scheduled for late summer-early autumn of this year. Order forms are available from: **The Honorary Secretary, The Ray Society, c/o The Department of Zoology, The Natural History Museum, South Kensington, London SW7 5BD.**

**FURTHER TO OUR SUBMISSION** to the House of Lords Select Committee on Science and Technology, Subcommittee on Systematic Biology Research (PN 5 [1]; 19-22) and our receipt of House of Lords Paper 41 being the evidence received (PN 5 [2]; 24), the Hon.Ed. has now also received, on behalf of Porcupine, HL Paper 22-I, being the Select Committee's Report (Volume 1). It will be the subject of a debate on the floor of the House later in the year. In addition to replying to the debate, the Government will in due course provide a written response. Members wishing to consult the document should contact the Hon.Ed.

**FOR SALE - PORCUPINE NEWSLETTERS:** "Since my last plea for Members to complete their sets of PN, I have managed to reduce the stock to 2 drawers of a filing cabinet. Whilst this has benefited the Society's coffers, it has still left me with a large volume of paper. I know that there are many Porcupines out there who still do not have full sets of PN, so why not complete yours by getting the back issues at the bargain price of £1.00 each including FREE postage and packing, from: **Ian Killeen, 163 High Road West, Felixstowe, Suffolk IP11 9BD.**"

**"A STING IN THE TAIL"** is the title of a lecture being prepared by Gordon Croft, which will examine the role of venoms in the marine ecosystem. To further this aim, he would very much appreciate any relevant information, particularly pertaining to Pufferfish, Lionfish, Blue-ringed Octopus, Stingrays, Stonefish and Box-Jellies or Sea-Wasps. I am not sure whether he can handle live specimens, but if you can help, contact **Gordon S. Croft, Education Officer, St. Andrews Sea Life Centre, The Scores, St. Andrews, Fife.**

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**REQUEST FOR ASSISTANCE FROM TROPICAL MARINE INVERTEBRATE ZOOLOGIST:** In October 1989, Simon M. Bates carried out some research into wintering populations of palaeartic shorebirds within the Rufiji Delta, Tanzania (8°S 39°E). In an attempt to discover what the birds were feeding on, he also collected mud-dwelling invertebrates (mainly amphipods and polychaetes). These specimens were preserved in alcohol and returned to England for identification. What Simon now requires is the assistance of an experienced identifier(s) to put names to these invertebrates: the generous helper would of course keep the specimens. Contact Simon Bates at 15, Akenside Terrace, Jesmond, Newcastle-upon-Tyne NE2 1TN, UK, Tel: 091 2816316 (work) or 2812194 (home).

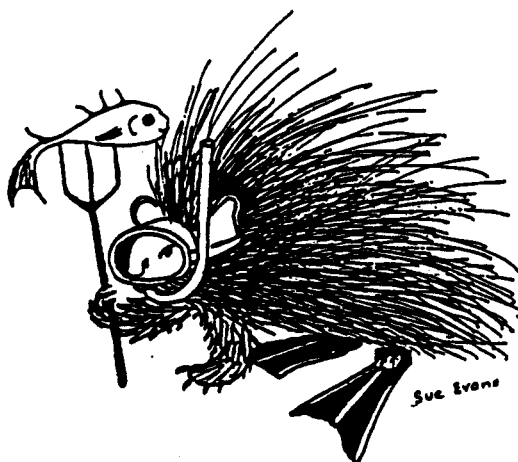
**THE FISHERIES SOCIETY OF THE BRITISH ISLES ANNUAL SYMPOSIUM:  
FACTORS AFFECTING THE DISTRIBUTION OF FISH  
FIRST ANNOUNCEMENT AND CALL FOR PAPERS**

The Annual Symposium will be held on 5-9 July 1993, at Conwy, North Wales. It will provide a forum for the exchange of scientific information on the factors which influence the distribution of fish populations. Distinct subject areas will be highlighted. Topics covered will include: micro- and macro-distribution in relation to biotic and abiotic factors, changes in distribution during development with a consideration of the behavioral mechanisms involved, and anthropogenic influences on distribution such as habitat modification and species introductions.

**PROGRAMME:** The symposium will include invited keynote speakers, contributed papers and posters. The symposium will be held at a venue in the medieval walled town of Conwy, North Wales, which is recognised as a world heritage site. Accommodation will be available within the town and nearby. A social programme for spouses and a mid-week excursion for participants are planned.

Abstracts of contributions (papers and posters) should be submitted no later than 1 November 1992. Abstracts must consist of **no more than 200 words**. In the case of papers for oral presentation they should clearly indicate the author who will be presenting the paper. All abstracts will be reviewed by the Organising Committee and accepted on their merit and their relevance to the topics outlined above. The proceedings will be published as a supplement to the Journal of Fish Biology, normally within six months of the symposium.

Any further queries concerning the symposium should be directed to: **FSBI Symposium Organising Committee, c/o Directorate of Fisheries Research, Fisheries Laboratory, Benarth Road, Conwy, Gwynedd LL32 8UB, UK. Tel: 0492 593883; Fax: 0492 592123.**



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## CONGRATULATIONS! IT'S AN ANTHOZOAN

Dan Laffoley & Sarah Fowler

English Nature, Northminster House, Peterborough & Nature Conservation Bureau Ltd., Newbury

A strange title perhaps, but one which conveys the feeling of joy generated by the discovery of cup coral recruitment at an Nature Conservancy Council (now English Nature) monitoring site on the Isles of Scilly.

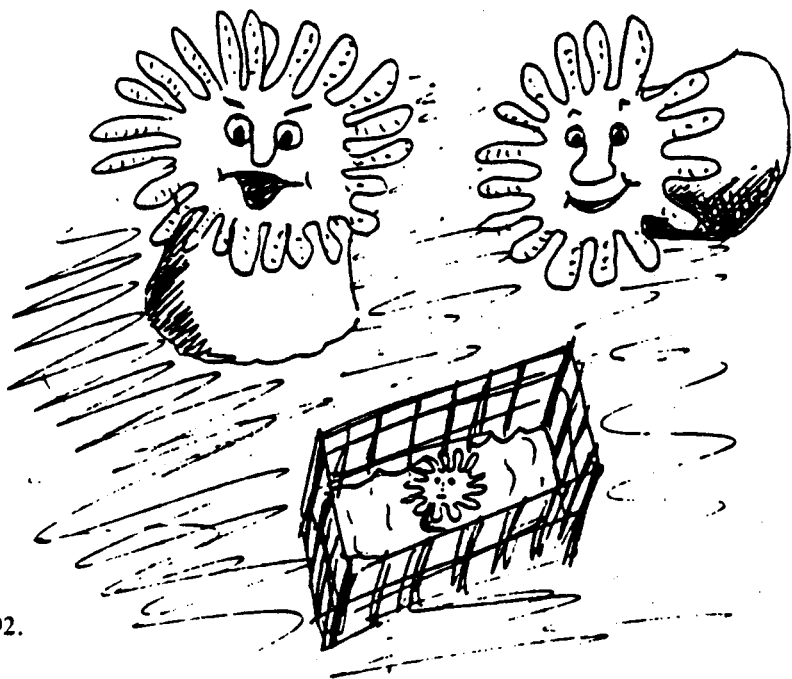
The story starts back in 1984, when the former NCC initiated a long-term photographic monitoring project along fixed transects, concentrating on deep-water circalittoral populations at Gap Point, on the east side of St Marys. Included in the populations studied are erect sponges and three species of cup corals, the widespread Devonshire cup coral *Caryophyllia smithii*, *Hoplangia durotrix* and the impressive yellow south-western species *Leptopsammia pruvoti*.

Up to this year studies had revealed apparent great stability in these species, with occasional changes in the *Caryophyllia* species but no observed changes to *Hoplangia* or *Leptopsammia*. After a gap of two years, English Nature returned this summer to the monitoring site to repeat the work.

It was on the third day of work, Thursday 26 September 1991 at 11.32 hrs, that the startling discovery was made. Sarah Fowler returned to the survey boat to announce that English Nature was indeed a parent, delivery estimated to have taken place sometime between 1988 and 1991! It is, however, still unclear exactly why recruitment has occurred. Theories that night at a local public house varied from wild ones such as global warming to the more respected idea that *Leptopsammia* suffers from a guilt complex. Faced with the reality that they may soon be labelled as the Steve Davis of the marine world, they sprang (or anthozoan equivalent) into action and produced a single offspring to impress the visiting photographers. Immediate attempts to get this discovery reported in that scientifically credible publication, the "births" section of The Times, failed owing to disruptions caused by the force 10 gales which struck the islands.

Analysis of these and other results obtained from marine monitoring work at Lundy and the Isles of Scilly are on-going and will be described in a far more serious English Nature report, to be released early in 1992.

*"It's no good, we'll have to stay in tonight - finding a baby-sitter these days is just impossible!"*

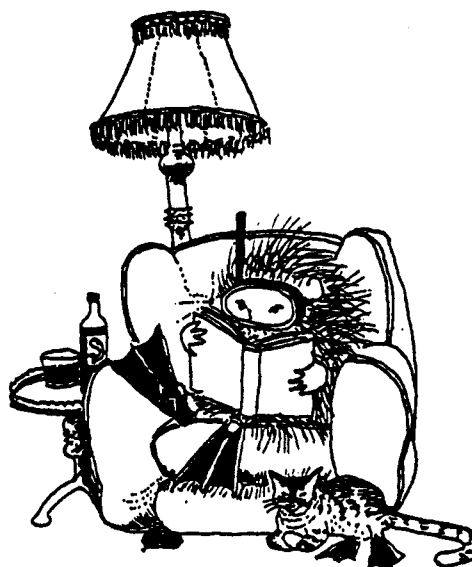


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## Porcupine Reviews

**POLYCHAETES FROM SCOTTISH WATERS**  
**A Guide to Identification, Part 3, Family**  
**Nereidae** by Susan J Chambers And Peter R.  
 Garwood. National Museums of Scotland, (1992),  
 65 pp. £12.50. ISBN 0 948636 29 7

This is the third publication in a series, from the National Museums of Scotland, of identification guides to polychaetes found in Scottish Waters. Part 1 covered the Polynoidae and Part 2 the aphroditids, sigalionids and polyodontids.



In many was this parochial attitude towards faunistic guides, though understandably enforced by the funding supporting this valuable work, is a potentially counterproductive anachronism: a guide to animals recorded in a place, should it become definitive, may perforce ensure that no others are recorded from that area since non-specialists will resort to fitting their findings to the guide's limitations. This criticism is less applicable to the present guide, insofar as the authors have included mention of other nereid species from British waters which, although not yet recorded from Scottish "territory", may yet occur there (polychaetes not being unduly swayed by human political decisions). Having said that, although *Platynereis coccinea* is mentioned in the text, and its morphological distinction from *P. dumerilii* is at best subtle, it would have been useful to include the species in the key. To be fair, the authors do explain in their well-structured introductory text that "Once you .... have reached a name in the key it is essential that you check your findings with the descriptions and tables."

Which is therefore to quibble over minutiae: yes, it is sad that the proof-reading missed the transposition of the second half of couplet 4 in the key (p.15) into "triplet" 5; and having learnt what 'homogomph' and 'heterogomph' shafts are, one might be confused by the appearance of 'hemigomph' spinigers on page 61 (an admitted retrofit to the original text).

But one had to work hard to find criticism in what is a guide which fulfils so many requirements. To find an analysis of the various confusing "genera" into which *Nereis* has in the past been split wherein they are progressively de-justified and rejected is a delight to those of us who are so familiar with Muller's *diversicolor*, but have been dismayed to watch it wander aimlessly from *Nereis* through *Neanthes* to *Hediste* - welcome back (pity about the legend to Fig.2)! That the authors have been unafraid to repeat figures (all explicit and original) so that text is extensively illustrated in a conveniently adjacent manner must be applauded. The key references are there, as is brief text on biology and distributional ecology. Finally, unlike so many of its predecessors, this guide appreciates that not all dead worms are obliging enough to pose for the scientist: here we have a key for identifying nereids which do not have their proboscis extruded, as well as a key for those which do.

Those of us who attended the ECSA workshop on polychaete taxonomy in 1990 have been able to use a draft version of these keys, and have awaited this finalized version with optimistic anticipation; others will have the advantage of novel discovery - neither group will be disappointed.

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