Porcupine Newsletter

Volume 6 Number 8

OCTOBER 1997 ISSN 0309-3085

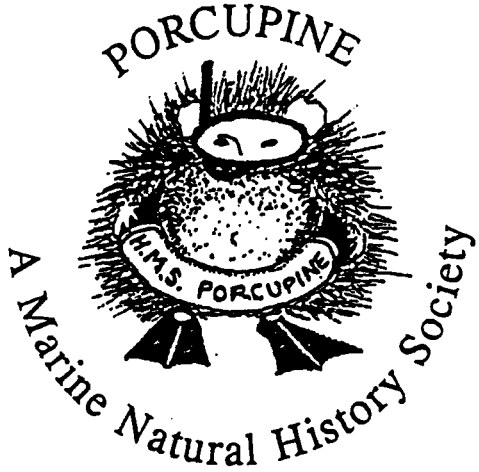
●----------●

- 201 -

CONTENTS

Shelagh Smith, Hon. Editor
Woodleigh, Townhead, Hayton, Carlisle, CA4 9JH, UK

Tel: 01228 70676 Fax: 01228 70403



PORCUPINE

HON. SECRETARY

Ian Killeen
163 High Road West
FELIXSTOWE IP11 9BD
UK
01394 274618

HON. TREASURER

Jonathan Moore
FSCRC, 3 Dolphin Court
Brunel Quay, Neyland
DYFED SA73 1PY
UK
01646 691000

EDITORIAL

Please note and act upon the notice of the **Discussion Workshop** to be held in Southampton on November 15. Very short notice for this, but it does concentrate the mind. If you can't come please contact Ian Killeen or Antony Jensen. One of PORCUPINE's problems, perhaps the chief one, is a lack time and other commitments of members.

You will note that this NEWSLETTER is rather slim, and contributions are from the faithful few. Despite all efforts I have not been able to get more copy. One reason for this is the fact that for the last two meetings, organisers of the meetings, encouraged speakers to produce in advance abstracts of their papers. This made for showy meetings but understandably too many speakers did not wish to produce longer articles for the NEWSLETTER. Although abstracts have been published, it is not fair on those not attending the meetings that they did not have better details of proceedings. PORCUPINE cannot survive without good copy for the NEWSLETTER. We are planning to upgrade the NEWSLETTER, so far as finances will permit, on order to make it a more enticing vehicle for publication. What the content should be is open to discussion - the mixture as before, relying heavily on proceedings of meetings: an emphasis on biogeography with publication of considerable species lists not acceptable any more elsewhere: short notes, queries, etc.

There is also talk of a change in the nature of meetings, perhaps just one, longer one, ± a field meeting: a properly set up field meeting with definite scientific aims in view, whether atlas recording, research into certain species or groups to get detailed information on habitat/feeding requirements, populations, etc., within the environments provided by the venue.

Two very important books are out (or more or less). The new edition of the Species Directory is now available (see Book Review) and "The Marine Fauna and Flora of the Cullercoats District" will appear early next year (see flyer). This, in part funded by PORCUPINE, is an updated, much extended and revamped version of older lists.

LOUGH HYNE MARINE NATURE RESERVE

By JULIA NUNN
Centre for Environmental Data & Recording, Ulster Museum, Belfast

& DECLAN O'DONNELL
National Parks & Wildlife Service, Ballydehob, Cork

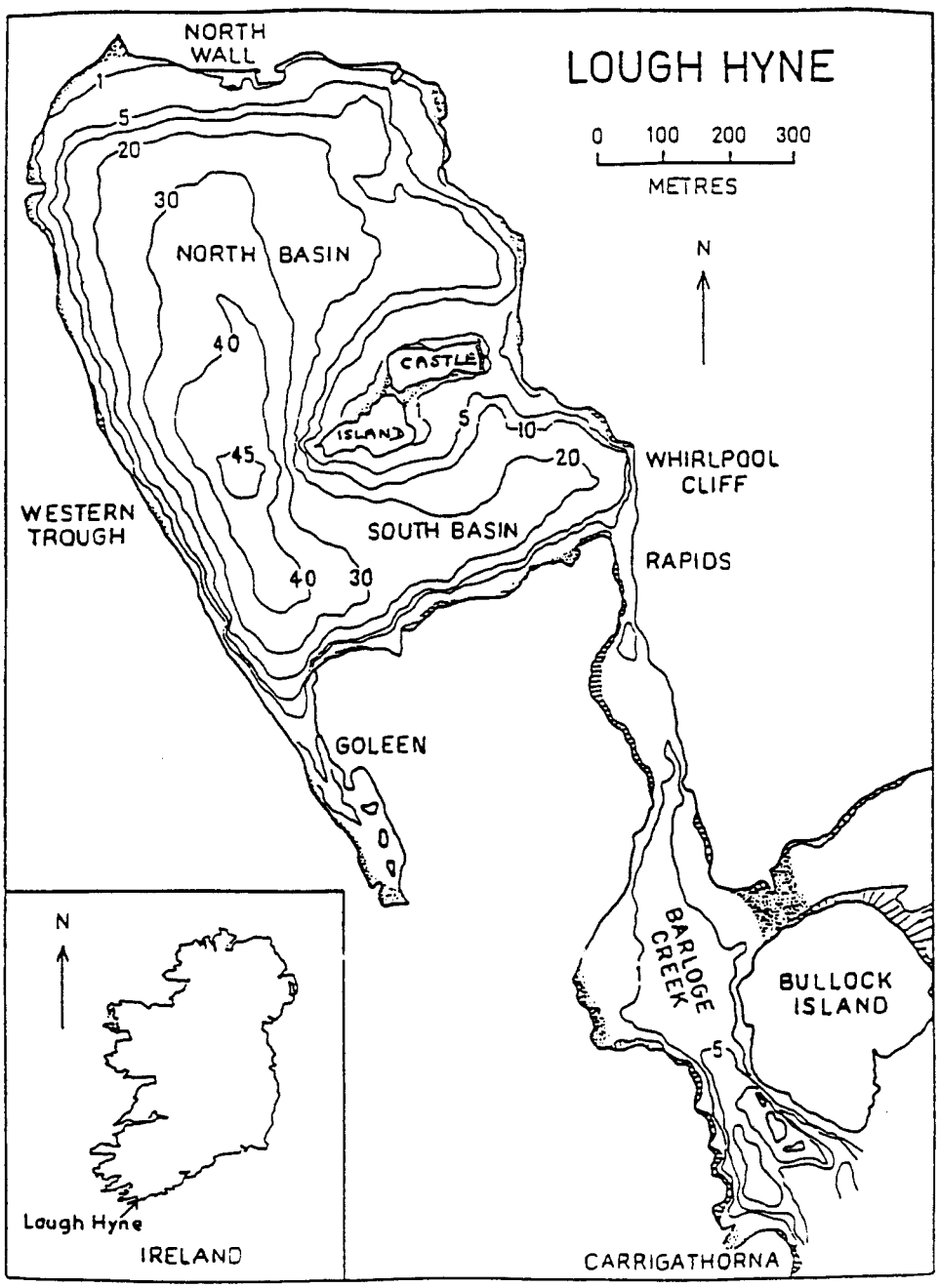


Figure 1: LOUGH HYNE MARINE NATURE RESERVE

Lough Hyne is a 64 hectare site on the south-west coast of Ireland (see Figure 1). It is about 1 km by 3/4 km, lying in north-west/south-east direction, and divided into north and south basins by Castle Island. On the western side, there is a trough, with a maximum depth of about 49m. The Lough has a narrow entrance to the open sea, which is only a few metres wide and less 2m deep at low water at the Rapids.There are complex hydrodynamics in the south basin, with a tidal cycle of 4 hours flood, 8 ½ hours ebb. Selective tidal exchange over the Rapids and in the south basin acts as a planktonic trap for some species. Lough Hyne was a freshwater lake, innundated 4,000 years ago, but is now almost totally marine throughout year, due to a small catchment area for rain. Water temperature ranges from 7.0°C to 20.5°C. During most summers (not 1994), there is stratification within the Lough, which then deoxygenates water below 20-30m until storms in November. There is also a thermocline at 4-5m during calm weather, which is disrupted by wind. Water quality is generally good.

Science in Lough Hyne started 10am to noon on the 7th July 1886, when a rowing boat from the "*Lord Bandon*", on a research cruise around SW Ireland, entered the Lough. Since then, historical studies provide an impressive background of information, but because of the previously poorer collecting methods, it has only been within the last few decades that a valid and entire list for the Lough area has been possible, to form the basis of a baseline for the measurement of changes in future years.

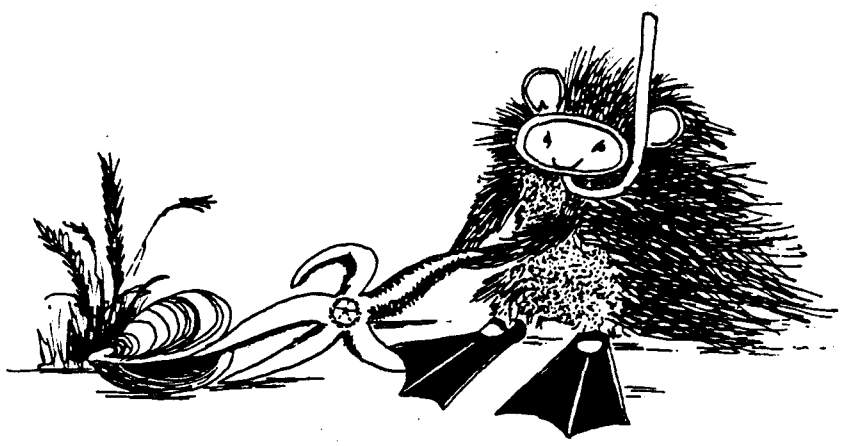
The wide range of habitats within such a small area (see Figures 2 & 3) support the large number of recorded species. For example, more than 220 mollusc species are now known from Lough Hyne (193 confirmed living post 1950). Species here are representative of the neighbouring coastal area, and may also include relict fauna that have remained established within the Lough system for up to 4,000 years when it was inundated. Changes in climate that influence nearby areas are therefore likely to be expressed in Lough Hyne as well.

The British Isles has a mixture of Boreal and Lusitanian species, with many species at their northern or southern limits, especially in SW and W Britain (northern limits). SW Ireland lies at boundary of Eastern Atlantic Boreal region and Mediterranean-Atlantic Lusitanian Region. Lough Hyne is therefore an ideal place for monitoring species at their limits of ranges, especially with the lack of disturbance. The large number of past and present investigations at this location make it a valuable area for comparison in time and space.

Lough Hyne was declared under the Wildlife Act, 1976, and established by order as a marine nature reserve under the Nature Reserve (Lough Hyne) Regulations 1981 (S.I. No. 207 of 1981). The Lough is now the responsibility of the Ministry of Arts, Culture & Gaeltacht. The ministry is grant aiding an official interpretive centre at Skibbereen for the Urban District Council who will run it. It will include a section on Lough Hyne. Lough Hyne is a Proposed National Heritage Area, and on the candidate list for Special Area of Conservation (SAC) under European Habitats Directive.

There is no full time warden for Lough Hyne. Declan O'Donnell, working for National Parks & Wildlife Service, covers the west coast of Cork which includes Lough Hyne. Mr John Bohane, who lives above the Rapids, has been caretaker since 1981.

A management plan for Lough Hyne is currently being written, which will go to public meeting. The primary aim of management is to conserve the marine ecosystem contained in the Reserve area. All other activities are subordinate. A number of activities are acceptable if they do not conflict with this aim.



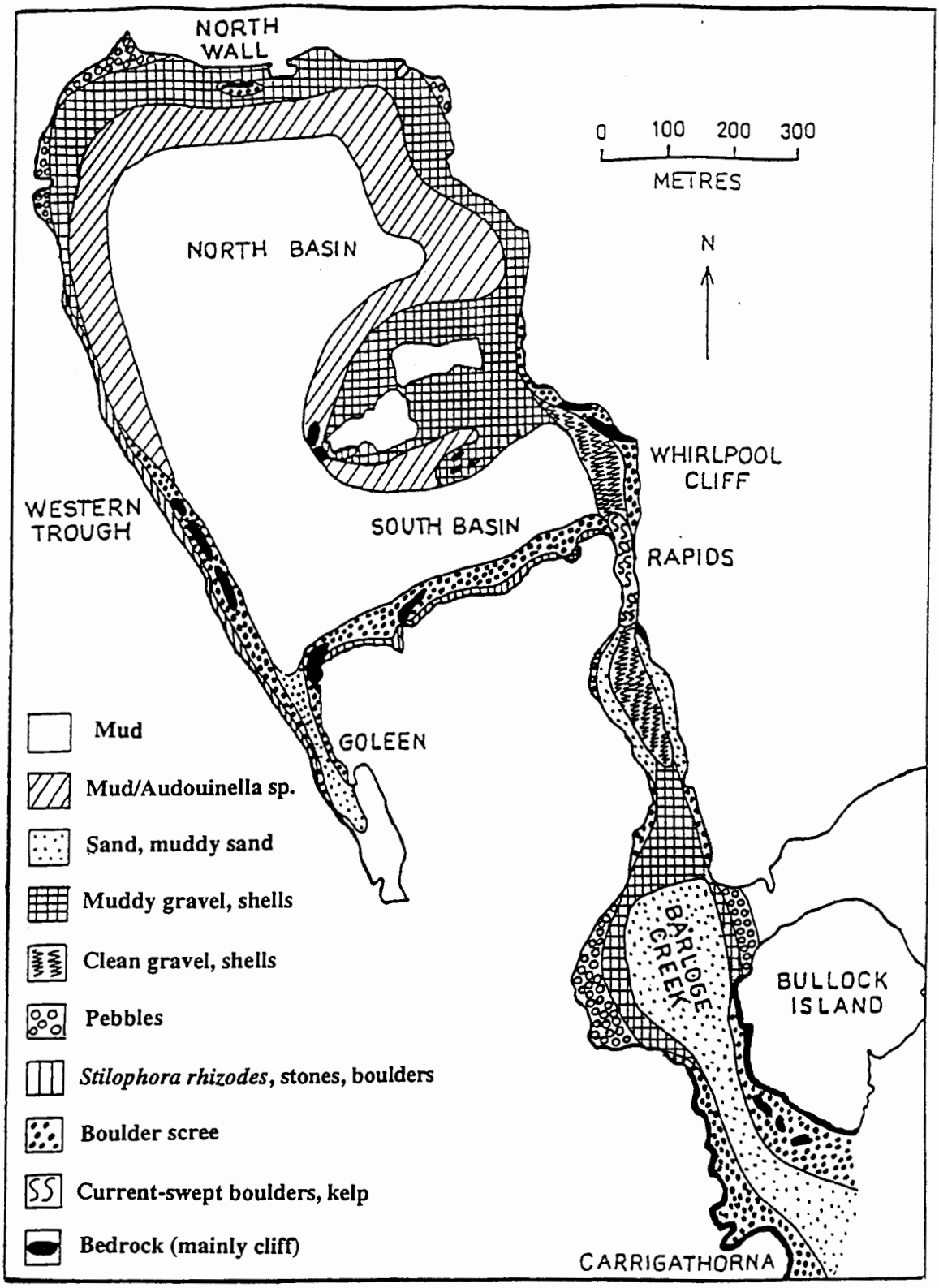


Figure 2: HABITATS IN LOUGH HYNE

Modified from Wilkins & Myers (1991)

Wikins, H.K.A. & Myers, A.A. (1991) The distribution of gobies (Teleostei: Gobiidae) In *The Ecology of Lough Hyne*. Proceedings of a conference 4-5 September, 1990 Eds. A.A. Myers, C. Little, M.J.Costello & J.C. Partridge

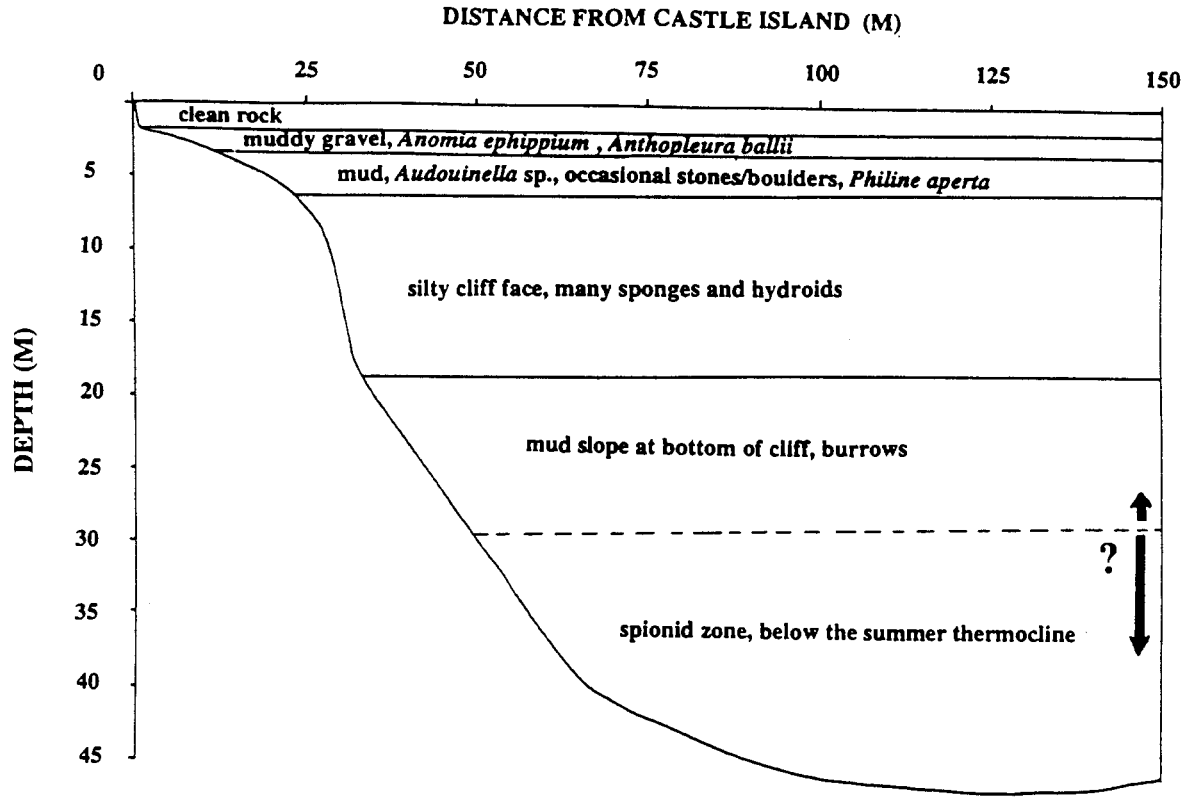


Figure 3: HABITATS ON LABHRA CLIFF AND WESTERN TROUGH

Some of the regulations and restrictions

* No more than 10hp on crafts; 5 nautical mph max. speed (except with permission)
* No dumping etc.
* Permission required for scuba diving, water skiing etc.
* No killing or removal of flora or fauna, interfering with habitats: except fishing by line or rod & line, or with permission
* Traditional rights to commercial fishing are permitted: 2-3 permits are issued annually
* Reserve status has precluded use of the Lough as a site for maricultural activity

A review of the use of Lough Hyne has recently been carried out. The Lough needs more management than 10 years ago. Socio-economic factors have changed, for example there are more holiday homes and facilities for tourists.

There has been increased use by divers in the last five years. This is due mainly to increased use (particularly Whirlpool Cliff & Goleen) for training. It could be argued that trainees cause more damage than experienced divers. Previously, clubs held a permit for one year, and then only had to telephone beforehand to check that the club could dive. However, sports diving has in the past been banned when research is taking place as it is sensitive to diver disturbance. Now there is a quota for

divers, with the priority going to research diving (which is about 2/3 of the total). The quota for sports divers will also be cut if there is too much pressure. Each individual sports diver has to apply for a permit for a particular dive with a specified time and date on a new form (see details below). There are no more blanket permits for clubs.

Sport Diving permit: information required

* Name, address, telephone number
* Nature of facility
* Purpose of facility
* Area of reserve in which facilities will be exercised
* Craft, vehicle or vessel to be used
* Organisation, qualifications, trainees
* Insurance, medical certificate
* Dates and times

In order to carry out research diving in the Lough, a research permit must be issued. This includes similar information required to the sports diving permit, although only dates for the dives are required. Additional information concerning the research itself must also be provided (see below).

Research Diving permit

* Nature of facility
  - to remove specimens of fauna or flora for identification purposes
  - to move or restrict fauna in the Reserve, in cages or otherwise
  - to temporariliy introduce new structures into the Reserve
  - to use research equipment in or over the Reserve
* Purpose of study
* Particulars of fauna and flora
* Particulars of structures or equipment

Before each dive, sports divers must book with the caretaker. He must see the permit, and the diver signs a log book. Researchers must just 'make themselves known' to the caretaker at some point during the research period.

The long term intentions of the Wildlife Service are:

* To maintain the Lough as a statutory marine reserve and extend its boundaries where appropriate
* To regulate activities to ensure the conservation of the Lough Hyne ecosystem
* To monitor the physical and biotic factors of the reserve
* to set up other complementary marine reserves

WORLD OCEANS DAY IN SCOTLAND 1997

By SUSAN CHAMBERS
National Museums of Scotland, Chambers Street, Edinburgh, EH1 1JF, UK

Have you heard of 'World Oceans Day'? No, I thought not, and we are marine biologists so what chance is there for the rest of the world? Would you like further information?

WHY WORLD OCEANS DAY?

The event arose out of the Rio de Janeiro Inter-government Conference on the Environment in 1992. It was recognised that in comparison to the terrestrial world the marine world had been very low on the list of most government action plans. It was agreed at the meeting to organise an International Event of the Oceans every year to raise awareness. This event is held annually on 8th June all around the world to celebrate the seas.

THE PURPOSE OF WORLD OCEANS DAY

The purpose of the event would be to focus on the wonder and importance of the oceans for climate, resources, transport,and the unknown importance of wildlife. There are four main objectives for World Oceans Day.

1. To change perspectives by encouraging everyone to think about what the sea means to them.

2. An opportunity to learn about the wonder and diversity of the plants, animals and the physical properties of the sea.

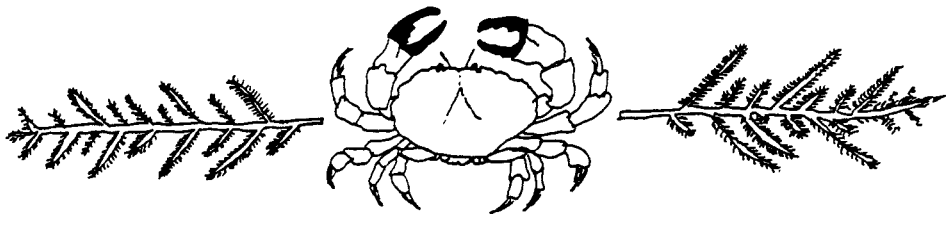
3. To encourage everyone to take a more active role in caring for this environment by reducing pollution.

4. A chance to celebrate with others, exchange information and to be inspired.

Any information needs to be presented in an accessible form and fun way if non-committed marine biologists or non biologists are to be receptive to change. Consequently the approach has been to be as imaginative as possible.

WHAT HAS HAPPENED SO FAR?

After the Rio summit, the first countries to develop the idea were the United States and Canada and they both ran various events in 1993 and 1994. The UK became involved in 1995 and 1996 when various organisations funded a full time organiser based at the offices of Wildlife and Countryside Link in London. The project officer's role was to co-ordinate all the events around the country such as: rock pool rambles, sand sculptures, painting and photographic competitions, open days, talks and beach clean-ups. In spite of all the publicity in the national press and relevant magazines many marine biologists including Porcupines have still not heard of World Oceans Day.



WORLD OCEANS DAY 1997 IN SCOTLAND

In 1997 the event was much bigger and involved many UK organisations. In Scotland we thought it would be a good idea to have an attempt at really raising the profile of the seas since we are surrounded by the marine world. It was agreed to apply for Lottery funding for a Scottish organiser to co-ordinate events from Edinburgh. In collaboration with Scottish Natural Heritage, the National Museums of Scotland and Deep Sea World provided facilities and staff time to present an application. We received £9,000 Lottery funding from the new Directions Budget administered by the Scottish Arts Council. This was matched in kind from Scottish Natural Heritage and the organisations which provided the venues.

WORLD OCEANS DAY IN THE NATIONAL MUSEUMS OF SCOTLAND

Part of the funding allowed us to employ several professional artists to encourage the public to take part in a very active way. One of the artists produced a giant puppet of a pipe fish made of thin sticks and painted muslin cloth. The giant model, over 20m long, was suspended from the upper gallery in the main hall of the National Museums of Scotland in Chambers Street. It shimmered in the slightest air to give the effect of swimming. It was very dramatic and effective in setting the scene for the day. This group of puppeteers also ran a workshop for children to make jellyfish from thin wire, bubble-wrap and coloured cellophane. These were then suspended on transparent fishing line to surround the pipe fish. Dangling from a great height, the numerous jellyfish looked almost real! Other workshops involved painting and assembling a totem pole of sea creatures, paper hand puppets of fish and a multi-media event which included a variety of creative artwork, music and drama as well as story telling.

In order that there was publicity for World Oceans Day in the week prior to the event, the National Museums of Scotland arranged for a wide variety of marine events to take advantage of the facilities and collections.

The Museum separately funded the marine artist Richard Ellis from New York, to paint in public our model of a giant squid *Architeuthis dux*, commonly known as "Archie" to the public and his friends. This was not an easy task as this squid has never been seen close-up alive swimming in the sea. Its colour patterns are only known from recently-stranded examples or obscured sightings at sea. After comprehensive research Richard was able to produce a convincing finished exhibit which is now hung on display in the Museum. While he was in Edinburgh, Richard gave several lectures about his exciting life as a marine artist, including when saving a young sperm whale stranded off the coast of Manhatten. Members of Museum staff also gave short talks about a subject of their own interest using specimens from the collections. These included "The Sea Mouse and its Relatives", "Pteropods: the Butterflies of the High Seas", "Sponges are not just for Bathtime". Following the talks there were question and answer sessions which were very popular. We also produced a family quiz in the form of a marine trail to encourage the public to parts of the building not obviously associated with the sea. The trail led to such objects as swords with sharkskin-covered handles in the Ivy Wu gallery of Far Eastern art and waterproof coats made of seal intestines (the original parka) in the costume gallery.

Nearer to our hearts there was a display case about the work of the Marine Conservation Review team at Peterborough. The exhibit explained why museums have collections which are not on display to the public, and the role of collections on the conservation of our marine environment.

WORLD OCEANS DAY IN OTHER PARTS OF SCOTLAND

Although the main event for World Oceans Day was in Edinburgh, there were other exciting activities in Scotland. At Loch Fyne there was a sea food festival with a marquee which was set up to represent a sea loch. At Broughty Ferry near Dundee there was a range of beach activities such as sand sculptures, boat trips to observe seals and art workshops. A double-decker bus, converted into a nature bus, toured schools and community groups in the Western Isles. On board there was a library, hands-on activities and study areas, all with a marine theme. There was a week of creative activities culminating in a community hall being transformed into a kelp forest. Another marine art and crafts event took place at the Moray Firth Wildlife Centre where a shingle sculpture of a dolphin was constructed. There was also a ceramics and candles workshop and a musical performance. At Perth, the Scottish Natural Heritage facilities at Battleby were used to display a collection of Richard Ellis' beautiful original drawings of deep sea life.

We were successful in obtaining some publicity and raising the profile of World Oceans Day. Although it was June and the sun was shining, approximately 4,000 people attended the Museum events around the country. The new Scottish Office Minister for the Environment launched the project and lent his support. There was also a reasonable coverage on the radio and in the national press and on Gaelic TV in the Western Isles.

WORLD OCEANS DAY 1998

Hopefully the importance of the marine environment to all our lives is gradually improving to the same level as that for the terrestrial environment, but there is still a long way to go. We are already planning for next year's World Oceans Day so if you have any ideas let us know.

PORCUPINE IN CONNEMARA, 7-11 April 1997

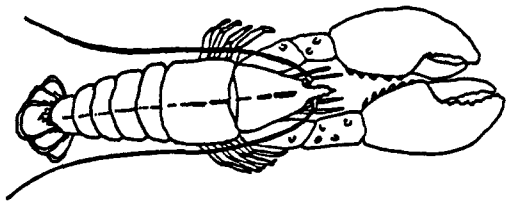
By SHELAGH SMITH (Ed.)
Woodleigh, Townhead, Hayton, Carlisle, CA4 9JH, UK

Immediately following the indoor meeting at Portaferry, 8 Porcupines and families made a dash for the wild delights of Connemara and the surrounding area. Here, ensconced in ideal field quarters chosen (not entirely) at random by our efficient organiser, Julia Nunn, who also arranged the superb weather and addictive viewing of HaleBop comet. Five days were spent on the shore and diving, covering in total 32 shore and 5 dive sites, from the south coast of Galway Bay to the south part of Co Mayo (See Map). There were two aims, one to give Porcupines the opportunity of seeing first hand the riches of western Ireland shores and immediate inshore waters, the other to continue with the mollusc mapping for the Atlas of Irish Marine Mollusca being prepared by Julia Nunn and Shelagh Smith. The result was that, along with some very nice shores, Shelagh as usual got the grotty bits to look at and had more travelling to do than anybody else.

Of the shore sites investigated, the first one, at Lettermore Island: Carrickalegaun Bridge was thought wonderful by many folk, "sponge fauna was fantastic and could never have developed to that extent in more disturbed areas, whilst the sipunculids were larger than any I have encountered in my many years of identifying sample material (although not large by western Ireland standards). . . . . large numbers of small amphipods" but Julia and Shelagh noted changes from previous visits to this (Nunn & Picton, 1987) or the adjacent similar site at Bealadangan Bridge, it appeared to be less rich, roughly the same number of living species of mollusc (85+), but the composition of the population changed with quite a few of the rarities including *Leptochiton scabridus* (Jeffreys, 1880) apparently absent (Strack, 1991), and the large bed of *Mytilus edulis* L., 1758 under the bridge had disappeared completely. The sipunculids were not large by western Ireland standards.

We met Brenda Healy to investigate a special lagoon on Lettermullen Island. This brackish lagoon which gets inflow from the sea at the top of the tide has a large population of *Littorina tenebrosa* (Montagu, 1803) together with other 14 mollusc species such as *Rissoa membranacea* (J Adams, 1800) and *Cerastoderma glaucum* (Poiret, 1789). The latter were almost all juveniles crawling on the filamentous green algae. The taxonomic status and nomenclature of *Littorina tenebrosa* has recently been reviewed (Reid, 1996), it may be a variety of *Littorina saxatilis* (Olivi, 1792) and this lagoon form may require a different name. The only sites in Ireland where it is known to be common are here and Back Lough, Mulroy Bay in Co Donegal. Despite careful search it was not found in any of the lagoons in Co Wexford in 1995. Brenda has made a long list of the non-Mollusca, comparing all the fauna with other lagoon sites in south and west Ireland.

The day spent at Inisbofin was much enjoyed, after a panic because the exceptionally low tide which we had come for was too low for the ferry to reach the pier, and we had to take our turn with all the other passengers to be conveyed by small boat to the shore. The result was mixed fortunes with Julia bagging a place in the first boat and bagging the best beach at Inislyon Causeway, with numerous mollusc species including many large bivalves (*Ensis* on toast for supper) in the sand and *Aeolidiella alderi* (Cocks, 1852), orange form, found under a flat boulder in a small gully on the exposed seaward side of the Causeway. This confirms the colour form for Connemara, as it was first described by Lemche from Mweenish Island about 60km away and has since been found in Mulroy Bay (Nunn, 1993). On the west side of Inishbofin, David Heppell investigated the lagoon, which tasted completely fresh water, reporting but one miserable *Littorina saxatilis*. The seaward side of North Beach Bay, with an exceptionally low tide, was peppered with large stranded *Echinus esculentus* L., 1758, and although Shelagh was not particularly impressed, the molluscan fauna included some of the less common species. However, *Osilinus lineatus* (da Costa, 1778) was conspicuous by its absence, although it is found elsewhere on Inisbofin.



Other shores of note included Doonloughan Quay where in a narrow channel with some current there were large numbers of *Holothuria forskali* delle Chiaje, 1841, lying in a long line under boulders and algae along the edge of the lowest part of the shore, as they were at Rossbeg in Loughros More Bay in Co Donegal in 1993.

Carrowmore, on the south side of Galway Bay, is one of the major farm sites for the well-publicised Clarinbridge Oysters. The sheltered but completely saline estuary has a very shallowly shelving floor of sand, gravel and pebbles which are ideal habitat for many species. Boulders have a heavy growth of algae, particularly reds, and are covered in *Modiolus barbatus* L., 1758 and *Chlamys varia* (L., 1758), which seems very happy here despite absence of current and frequent collection. The snag of the place was arriving too late to do it justice. Not investigated through lack of time were the fresh water springs which emerge from mid tide to below low water. The adjacent lagoon was found to be rather polluted with both human rubbish and washed in fucoid algae, with only very dead *Cerastoderma glaucum* but with *Ovatella myosotis* (Draparnaud, 1802) under filamentous green algae on the saltmarsh, complementing *Leucophytia bidentata* (Montagu, 1808) under small boulders on the nearby fully saline upper shore.

Inistreh, where a low island sticks out into the mouth of Boylagh Bay, shelters a sandy beach, with the inevitable oyster farm, where the dense population of *Ensis arcuatus* (Jeffreys, 1865), and lesser numbers of *Ensis siliqua* (L., 1758) was remarkable. There were also numerous other large bivalves, the collection of which (including the razors) occupied David Hurd while Shelagh got on with the serious scientific stuff. Result: one of the fine seafood dinners prepared by the two Davids.

However the best seafood dinner was that of superb mussels, enjoyed by all, which were gathered from Killary Harbour.

Dive sites were not particularly inspiring, although the reefs of *Serpula vermicularis* L., 1767 in Salt Lake, near Clifden, wer spectacular and exceptionally photogenic. Off Killary Harbour Quay there were large numbers of *Thyone* spp and a "very cuddly" *Aphrodita aculeata* L., 1758. Tra na Coirealach, which has been dived by Julia since 1986, seems to be getting noticeably poorer, with *Zostera marina* almost entirely absent from its usual area and the maerl was almost entirely dead. At Prahan Beg Lewis Press found *Trapania pallida* Kress, 1968, one of the rarer nudibranchs.

Complete mollusc lists are available from Julia Nunn, and lists of polychaetes from Sue Chambers, lagoon species from Brenda Healy, and other shore and dive species from Dale Rostron.

REFERENCES

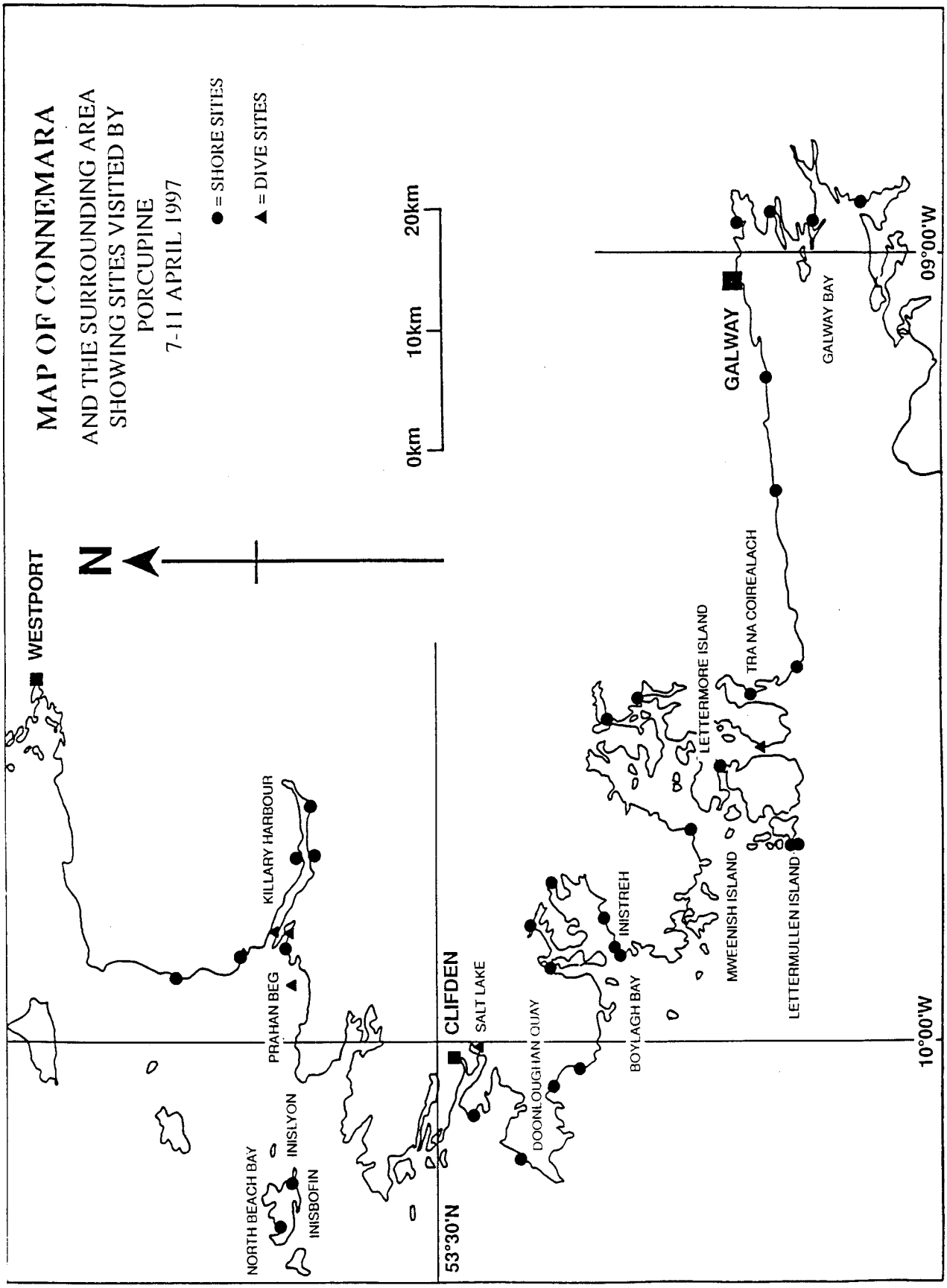
Just, H & Edmunds, M, 1985 North Atlantic nudibranchs (Mollusca) seen by Henning Lemche. *Ophelia* suppl. **2**: 138-140

Nunn, J D, 1993. *Aeolidiella alderi* (Cocks, 1852) (Mollusca: Opisthobranchia) in Ireland *Ir. Nat. J.* **25**: 258-260.

Nunn, J D & Picton, B E, 1987. Collecting Mollusca in Ireland: Lettermore, Co Galway. *Conchologists' Newsletter* (101); 13-15

Reid, D., 1996 Systematics and evolution of *Littorina*. Ray Society, London

Strack, H L, 1991. A second record of *Leptochiton scabridus* (Jeffreys, 1880) from Ireland. *Conchologists' Newsletter* (118): 394-395



ON THE OLD OCEANOGRAPHERS (2)

By FRANK EVANS
15 Thirlmere Avenue, North Shields, Tyne & Wear, NE30 3UQ, UK

H O Bull began his research life as a student probationer at Plymouth, one of a distinguished series of student probationers of that Laboratory. He moved to the Dove Marine Laboratory in 1933. His long series of monthly temperature and salinity values off the Tyne and also his phosphate estimates are still referred to and he was an expert naturalist, perhaps the best shore collector I have known. He was also a physiologist and ethologist and was very proud of having gone to Russia in the thirties to meet Pavlov. Using conditioned reflexes in fish he discovered the minimum temperature change they could perceive. He did this by altering the water temperature in a flowing channel containing the fish and then feeding them. The fish, having been conditioned to associate temperature change with the arrival of food, responded with increasedly excited swimming in the expectation of being fed.

In the was Bull was a Lieutenant Colonel and Head of Science 2, whatever that was. When, after the war, Professor A D Hobson, the then Director of the Dove, became so incapacitated by alcoholic addiction that he was relieved of the post, Bull was made Deputy Director. It was planned that he should run the laboratory and that he should nominally be overseen by a strategy committee composed of the great and good.

The committee consisted of Eric Smith from the Plymouth Laboratory and Professors Gray of Cambridge, Harris of Bristol, Alistair Graham of Reading and Michael Swann of Edinburgh, all marine biologists of one sort or another. Bull had been led to believe that for his fish behaviour work he was to elected to the Royal~Society, but on the day of the committee's first and only meeting, which took place at the Dove, Gray closetted himself with Bull in Bull's room and attacked him vigorously for his supposedly defective running of the laboratory during the interregnum. There was to be no FRS and Bull could thenceforth have justifiably described himself as "FRS (Failed)". As for the strategy committee, the distinguished members decided individually that there was nothing in it for them and promptly forgot it.

Professor Michael Swann, FRS, formerly of Cambridge, also has a distinguished wartime career, rising to the rank of Brigadier, something that could take even a very successful soldier as much as twenty years in peacetime. From his post-war chair of Natural history in Edinburgh he then became that university's Vice-Chancellor and later, As Lord Swann, the chairman of the BBC. But he started scientific life as an embryologist, working of fertilisation in echinoderms and he made a particular study of what he called the block to polyspermy, that is, the prevention of further sperm entry once one sperm had penetrated the egg. In successive experiments he increased the concentration of sperm around the egg, noting the results. These experimentally increased doses, far above those found in nature, were given military titles such as "Operation Slosh" and "Operation Superslosh". The distinguished malacologist and Porcupine member the late Tommy Thompson of Bristol, unaware of Swann's work, repeated these experiments many years later, only to have the words "Operations Slosh and Superslosh" whispered in his ear.

Porcupine nowadays has a strong resemblance to the old "Challenger Society", except that the Challenger held most of its meetings in Burlington House in London, sallying forth but once a year to selected provincial laboratories. In those days the Challenger had few physical oceanographers who attended. I recall only two, J B Tait, who was a mathematical oceanographer and J N Carruthers of the National Institute of Oceanography, as it then was. We multitudinous marine biologists, being even less numerate than we are now, used to sleep through Tait's sea current papers with their emphasis on density gradients, geostrophic flow and the accompanying differential calculus.

Carruthers on the other hand was a practical man who produced all sorts of simple devices that we could understand for measuring water movement and so on. Electronic oceanographical equipment was almost non-existent and he mocked up all sorts of throw-away devices for investigating such difficult subjects as bottom currents in inshore waters. For instance he part filled a baby's bottle with

melted wax on which he floated a small compass. This was lowered to the sea bed tethered by a short strop to a sinker; the degree of slope of the now congealed wax indicated the current speed and the direction was given by the compass. Carruthers had a reputation among oceanographers overseas which exceeded his standing among his British colleagues and on one occasion when the "Discovery II"arrived in a German port a car was sent down especially for him, the other senior scientists on board being left high and dry.

When I first met Carruthers the National Institute of Oceanography was in an embryo state. The biologists, under N A Macintosh, were still in the old Discovery Hut (so-called, but actually a pretty extensive building) on the premises of the BM(NH), now the Natural History Museum, in South Kensington, and most of the physical oceanographers, including the director, G E R Deacon, were at the National Physical Laboratory in Teddington. Carruthers himself had a small office in the Admiralty Hydrographci Department premises at Cricklewood in North London. The occupation of the new site at Wormley (how they tried to get that unbeautiful postal address changed, but the Post Office would not budge), a former wartime naval establishment, took place about 1953. At that time the National Institute of Oceanography was an establishment to be proud of.

In the 1950s a position of considerable importance in British fisheries science was that of Director of Colonial Fisheries. After all, Britain still had a great many colonies. The incumbent of the time was C F ("Freddie") Hickling, a distinguished fisheries scientist who had earlier written the Buckland Lecture volume on the hake and its fishery. When my transatlantic oceanographic voyage aboard the "Petula" ended in Barbados Hickling happened to be visiting the island to inspect the fishery.

A principal part of the Barbados fishery was for the flying-fish *Hirundichthys affinis*. What had once been a primitive hunt for the fish with wicker baskets, had recently been transformed by the island's energetic fishery officer. Boats, although still under sail, were standardised to make repairs and replacements easier, tractors instead of human hands hauled them up the beach at the end of the day, and the flying-fish were caught in modern drift nets. Contrary to understood practice in other drift net fisheries, for instance for herring, these nets were used in daylight. This was before the days of monofilament nylon. *Hirundichthys* lays its eggs on floating weed, located visually, and in the Barbados fishery it used the fishermen's nets for this purpose, becoming caught in the process. The result was a vast increase in catches over the old, primitive method.

I asked Hickling whether there was any risk, with so many breeding fish being taken, of the fishery becoming overfished. His answer was significant. He said there was no record anywhere in the world of any pelagic fishery being overfished. This then, was the informed view of a distinguished fisheries scientist of the time. It was 1954, only a few year before the total collapse of the North Sea herring fishery from overfishing.

the reference in my last piece to Professor Freddie Marshall should have been to Professor N B ("Freddie") Marshall. Why were the old oceanographers so often called Freddie?

LETTER TO THE EDITOR

From David Hurd, Woodleigh, Townhead, Hayton Carlisle, CA4 9JH. UK

Vehicles used for field work soon acquire a pong of their own - distinctive, shall we say. Some people seem to adapt and not notice or even enjoy it, but others find it unpleasant. For these, I suggest the perfect deodorant - a ripe melon. We, by happy accident, first discovered the wonderful properties of the humble melon when returning from a field trip in France. This melon resided in the car for two days and odoriferously overwhelmed not only the specimens but also the smelly cheese! And it was still delicious when we got home. Following this success we repeated this experiment this year when returning from Ireland, with exactly the same result. Note that not all melons work, you need an Ogen, Chanterais or Galia melon which start off with a good smell, the common yellow or green ones are no good.

BOOK REVIEW

THE SPECIES DIRECTORY OF THE MARINE FAUNA AND FLORA OF THE BRITISH ISLES AND SURROUNDING SEAS

Christine M Howson & Bernard Picton (Eds), 1997. pp 508 ISBN 0 094150 06 8

Available from The Marine Conservation Society, 9 Gloucester Road, Ross-on -Wye, Herefordshire HR9 5BU, UK. Price £53 (p & p extra).

This is the second edition of the Species Directory, the first, pilot version being pubished in 1987. The usefulness of the first edition was immediate. This new Directory follows the same lines as the previous. Each chapter covers a different phylum or major taxonomic group. The format for each chapter is the same. A short introduction is followed by an outline classification, the list itself and finally references mentioned in the list. The list appears as two columns. the left hand column contains an index number, and order, class, family, genus or species name. The left hand column is indented and highlighted in such a way as to indicate distinctions between the levels of classification. It should be noted that where index numbers appear to be missing, these have been allocated to database entries outside the geographical area of coverage. The right hand column contains notes which are relevant to the entry in the left hand column. These vary somewhat in content and detail from one phylum to another, but are primarily taxomonic. They include some synonyms in common use. Common names are sometimes included, particularly for vertebrate groups. In some groups comments on status, distribution or habitat have been added. At the end of the book there is an index to all the names used in the book.

The geographical coverage is defined by the 20m isobath surrounding the British Isles within the latitudes 48°N to 62.5°N and longitudes 13°W to 06°E. This does not include the Norwegian coast or trench or the Faroe Islands or erench. It does include part of the French coast. The precise boundaries vary from group to group. The Directory is inclusive rather than exclusive and many, but not all, deep water species are listed, as are species not yet found within the area but which may be expected to occur.

This publication may be used for a variety of purposes: checking spelling, authorities and literature references, providing the valid name of a species, compiling survey checklists, considering the species known from the area when identifying an organism, and simply finding the phylum to whch a particular species belongs. Not least, the list will help ensure that ecologists are using the same name for the same entity.

This is a much bigger and better version of the Species Directory. Not only has the nomenclature been updated (names changed yet again!) and in some cases the Order of Clasisification within phyla changed in accordance with modern research, but more groups (36 against 24) are included, especially the smaller more obscure taxa. The contents page lists these groups together with their numerous compilers, experts in the individual groups. It is better printed on good-quality paper, spiral bound for flat opening, and at over 500 pages a stout A4 volume.

At the back there is a one-page questionaire regarding the proposed intention to distribute the Species Directory in electronic format, probably CD-ROM. The questionaire asks what format users would prefer.

This book is hot off the press and I haven't had time to go through it in detail, so no bouquets or brickbats. However, having used the previous version, and already requiring this for checking on non-Mollusca, I recommend it as a "MUST".

Shelagh Smith, Woodleigh, Townhead, Hayton, Carlisle, CA4 9JH, UK