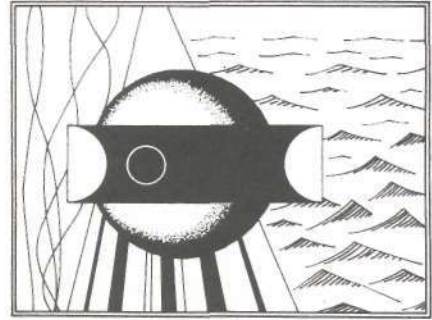


British Phycological Society Newsletter



Editorial

The conservation of terrestrial habitats has become a world-wide activity based upon a great deal of practical scientific knowledge. Popular concern for aquatic ecosystems is generally less active, in spite of the fact that these have sometimes suffered despoliation on a scale that would rightly be considered intolerable on land. This issue of the Newsletter is largely devoted to aspects of marine conservation, and to the ways in which some of our members have become involved. It is evident from these contributions that successful conservation often requires a skilful balancing act between conflicting biological, commercial and

recreational interests. However, other problems are less amenable to compromise solutions: alien species introductions in unconfined coastal waters are quite simply wrong.

We begin with reports on two new(ish) phycological societies. At a time of financial cut-backs throughout the western world, it is a pleasure to be able to announce some expansion in our particular area of aquatic botany.

Finally, dear readers, please note that the deadline for copy for the next issue is 1st October 1985.

Now we are five

The Australasian Society for Phycology and Aquatic Botany (ASPAB) held its inaugural meeting and conference at Monash University in Melbourne during May 1980. Fifty one people attended the first meeting. We have now close to two hundred members.

During the 1970's we had worked away in our various home institutions, occasionally visiting colleagues in cities which were hundreds of kilometres apart. Not infrequently meetings with our compatriots took place at overseas symposia and Congresses! Some of us began to wonder whether a society of phycologists might be viable. In 1978 Michael Borowitzka brought out issue number one of an "Australian Aquatic Botany Newsletter". Botanists working on seagrasses and freshwater ecosystems wanted to become involved; and so did some New Zealanders. In March 1979 Professor Bryan Womersley convened a meeting at the University of Adelaide which confirmed the general enthusiasm for a Society and which set up a group to draft a constitution. This was formally adopted the following year. Since the inaugural meeting we have had four very successful meetings: in Sydney during the International Botanical Congress, in Griffith (New South Wales), at Melbourne University and more recently in Western Australia. In 1983 some ASPAB members travelled to New Zealand and, together with the New Zealand phycologists, took part in a combined conference/field trip on Stewart Island, a phycological paradise way down at the most southerly tip of the South Island. Whenever possible we have tried to organise field excursions with our conferences. In this way members can get the maximum advantage from what are for many of them long and costly journeys.

It is something of a cliché to describe Australia as a Big Country but I had personal and very vivid experience of its vastness last December when, following our annual Conference, I was stranded in Perth, Western Australia by an industrial dispute involving the airlines. In order to get home, with three other phycologists I drove a hired car over 3,300 km across the Nullarbor Plain. We started at lunchtime on Saturday and, stopping only to eat and sleep and do some very rapid botanising on the way, we got to Adelaide three days later. From there it was a mere 50 minutes flight back to Melbourne.

From a scientific point of view ASPAB conferences have been very successful. Up to now they have consisted entirely of contributed papers, a significant proportion of which have been presented by postgraduate

students. In general the standard has been high, and comparable with similar conferences elsewhere in the world. A prize for the best student paper helps to ensure that these contributions are carefully put together and thoughtfully presented. The papers have covered an extremely diverse range of topics from algae in the water courses of the Northern Territory to Antarctic marine floras, ultrastructure, physiology, ecology and taxonomy. The abstracts of conferences are printed and distributed to all members of the society.

At present we do not aspire to publish our own specialist journal as we are well served by existing ones. After ASPAB was formally established it "took over" Mike Borowitzka's Newsletter and he continued to edit it until I was elected to the task in 1982. There are two issues a year in which we endeavour to keep members in touch with ASPAB business, local news and research.

One of the most valuable and important functions of ASPAB is to facilitate communication and an exchange of ideas amongst scientists from academic, government-funded research institutions such as CSIRO and those working in private industry. The society plays a useful role in the education and training of young researchers who have the opportunity to expose and defend their ideas before a critical audience. ASPAB is a young, healthy and active society, it has a growing membership and we are still full of enthusiasm.

We welcome members from overseas.

M. Clayton

Or six

A group of Brazilian Phycologists decided to establish a Brazilian Phycological Society on August 29, 1981, during a meeting on Marine Macrophytes held in Arraial do Cabo, Rio de Janeiro. Eurico C. de Oliveira F^o was elected President for the first term (1981-1983) and the Society started with 47 members, including students. Scientific meetings were scheduled for the last week of March, every 2 years. The 1st National Meeting of the SBFic took place in Campinas (SP) in 1982. The 2nd National Meeting will be held in S. Sebastiao (SP), on March 03-06, 1985. Fifty four abstracts will be presented during the meeting that will also include "round tables" on the Development of Phycology in Brazil and plenary lectures. The recently elected new President of the Society, Yocie Yoneshigue, will assume office at the closing ceremony and hold it until March 1987.

The Society now has 260 regular members and publishes a Newsletter three times a year. Intense phycological activities are being undertaken with the prospect of hosting the XIIIth International Seaweed Symposium, in S. Paulo, July 27th - August 1st 1986.

E.C. de Oliveira F^o

Marine conservation — the Nature Conservancy Council

The wildlife and countryside Act (1981), sections 36 & 37, empowers the Secretary of State to designate areas of the coastline covered by tidal waters as statutory Marine Nature Reserves (MNRs). The Nature Conservancy Council (NCC) has a duty to advise the Secretary of State about sites which may be suitable for such designation. The subsequent management of the Reserve will also fall to NCC.

Reserves can be established for the purposes of conserving the marine flora and fauna of an area or to provide special opportunities for the study of and research into the marine environment, particularly long-term experimentation.

NCC originally chose to look at seven sites of high conservation interest in G.B.; Lundy, Isles of Scilly, Skomer, Bardsey, Menai Straits, St. Abbs and Loch Sween. Progress to establish these sites as MNRs has been slow. This is in part due to the lengthy consultation procedures required by the Act.

Identification of further sites is hampered by a lack of detailed knowledge, particularly of comparative site information, of the marine environment. It is also fair to say that very little is known concerning the effects of man's activities on marine life, or its capacity for recovery. What is therefore needed is a Marine Nature Conservation Review, similar in context to that produced for the terrestrial environment by Ratcliffe (1977). Such a document may take many years to produce but it will enable a strategy for marine conservation to be produced for G.B.. Such a study is already underway.

Two types of MNR are envisaged; Representative and Special. The former may cover large areas, particularly on rocky shores, to take account of the natural variation found on such sites, while the latter may be quite small in extent where localised physical conditions produce communities of small geographical area. Designation of larger Representative sites is particularly difficult without information on similar habitat types. Special MNRs could be established on local information alone due to their very nature.

It would be useful to have the views of members of BPS on both marine conservation in general and on Reserve selection procedures.

Ratcliffe, D.A. (1977). *A Nature Conservation Review*. Cambridge University Press, Cambridge.

Andrew Young, Marine Advisory Officer, Nature Conservancy Council, The Castle, Loch Lomond Park, Balloch, Dunbartonshire G83 8LX.

Conservation of chalk cliff habitat

Twelve years ago I reported (*Br. phycol. Newsl.* 5: 10-11) the loss of chalk cliff habitat on the Isle of Thanet (east Kent) where rapid erosion necessitated coastal protection work in the form of sea-walls, promenades and barriers across caves and tunnels. In 1973 less than 3km out of 25km of coastline remained unprotected; since then further lengths have been "protected". Studies undertaken in the late 1970's demonstrated clearly that the unique chalk algal communities described by Anand in the 1930's do not occur on concrete, metal and other materials used in sea-wall construction. In Anand's time most of Thanet remained unprotected with magnificent pillar, stack, arch and cave formations.

During 1983 the local authority made public their intention to plug the remaining gaps in the sea-wall around Thanet. A start will soon be made near Foreness Point, adjacent to the Botany Bay, a site designated of Special Scientific Interest (S.S.S.I.) because of the cliff algal vegetation. A major extension to Ramsgate Harbour may well incorporate a new undercliff road into Pegwell Bay where short lengths of cliff remain. The B.P.S. Conservation Committee recently appealed to the Nature Conservancy Council to oppose further loss of coastline and won their support. All remaining lengths of natural coastline are away from habitation and erosion neither threatens roads nor property.

Differing physical nature of chalk and consequent pattern of erosion in the Dover (south Kent), Beachy

Head and Newhaven-Brighton (Sussex) areas, has resulted in sheer cliff rather than the indented formations of Thanet. Even in these areas coastal development progresses albeit at a slower pace. The chalk coast of northern France is short and devoid of cliff algal communities; in contrast, both are well developed along the Normandy coast. At present we have little information for the Isle of Wight.

Loss of natural habitat is widespread in eastern England and the southern North Sea generally. Saline wetland is particularly vulnerable. Such losses are sometimes compensated for by the artificial replacement habitat acquiring interesting and unusual communities, and increasing the diversity of plants and animals. Ramsgate harbour, for example, linked with the destruction of chalk coast, supports communities unknown elsewhere in south eastern England.

Clearly a balanced approach to coastal conservation is needed. Where natural habitat is threatened with total obliteration, as on Thanet, we must object forcefully. Other areas less severely threatened need to be monitored. Members of the Society are asked, therefore, to keep an eye on a stretch of coast with which they are familiar, and to report any major coastal development to the B.P.S. Conservation Committee.

I. Tittley

Skomer marine reserve

Skomer is a windswept island 1km off the coast of southwest Wales (51°44'N, 5°17'W). The island is about 3km long and 2km wide, and separated from Midland Isle and the mainland by narrow sounds through which fast tidal streams flow at up to 7 knots on spring tides. The island is owned by the Nature Conservancy Council (NCC), leased to the West Wales Trust for Nature Conservation, and is a National Nature Reserve. Apart from its scenic beauty, the island is a breeding home for thousands of seabirds, particularly the auks (puffins, razorbills and guillemots) and shearwaters. Many gulls and other birds also nest on the island, and the unique Skomer vole lives amongst the bracken. Grey seals breed on the islands remote beaches and sea caves.

Underwater, the marine life is varied and often spectacular. The wide variety of habitats and varying

exposure to environmental conditions, particularly wave action and tidal streams, together with the warm water influence of the Gulf Stream, contribute to the wide variety of plant and animal species to be found in the Skomer sublittoral. The seas around the island and adjacent mainland make popular dive sites for both sports divers and marine biologists.

In recent years the numbers of divers and other visitors to the area has increased, with consequent strain on the environment. In 1971 it was proposed by local naturalists and biologists to establish a marine reserve around the island and adjacent mainland. In 1974 a Steering Committee was set up to produce a Management Plan (produced in 1976) which provides for the management of the seabed in the area as a Marine

Reserve for the primary purpose of conservation of the sublittoral, and for recreation, education and research where compatible (*my italics*). The objectives of the Plan as stated in the leaflet produced by the Committee are as follows:

1. **Conservation** - to protect the wildlife habitats within the Reserve from human influences and to protect the adjacent NNR from seaborne disturbance.
2. **Education** - to educate visitors to the Reserve in the ecology of seashore and marine life.
3. **Research** - to facilitate a coordinated programme of research and to advise on proposed scientific studies.
4. **Recreation** - to encourage responsible conduct in diving and boating activities, and the observation of marine life in its natural state.

At present the Reserve is purely voluntary, and relies on the cooperation of all users in observing and implementing the conduct guidelines set out in the Plan. After extensive consultation with interested bodies at local and national level, the NCC propose to approach the Secretary of State for Wales with a request

to designate the area as a statutory Marine Nature Reserve, under the provision of the Wildlife and Countryside Act (1981).

In a small area with such rich wildlife, there will inevitably be conflicts on occasions between conservation and the other aims of the Reserve (recreation, education and research), as the number of visitors to the area increases. However, conservation must remain paramount, in order to preserve the features which merit MNR status in the first place, for visitors to enjoy and learn. A large part of resolution of these conflicts lies in an understanding of the biology and behaviour of the species present in the Reserve, both on land and underwater, and in involving the users in contributing to the knowledge of the area. To this end, an information centre for the Reserve is being built at Martin's Haven, and interpretative booklets and leaflets produced using information collected on biological surveys of the area. The diving courses and some of the marine biology courses run by the Field Studies Council in southwest Wales include study of the Skomer Marine Reserve. It is hoped to appoint a marine Warden at some time in the not-too-distant future.

S. Hiscock

The dispersal of seaweed species, phytogeography, conservation and transplants

A species of seaweed will spread outwards from its site of origin until limited by some environmental variable such as temperature, ocean currents or the lack of other suitable biological or physical conditions. Once man began to move around the oceans of the world he inevitably took marine organisms with him on the bottoms of his ships and hastened the spread, and in a number of cases modified the distribution, of some species. Later when there was large scale movement of food organisms, such as oysters, from one area to another in distributions of seaweeds such as *Colpomenia* and *Codium* were greatly altered. In recent years there have been projects to transplant seaweed species of potential economic value from one area to another. Probably the most striking example of this is the artificial cultivation of *Laminaria japonica* in N.W. China.

Transplanting living organisms from an ecosystem where they have developed naturally in competition with other organisms to another system where they may not have any competition and where they may behave quite differently from their natural habitat is fraught with problems. Even on land where observation is easy and control can be exercised, transplants can cause problems but when such transplants occur in the sea where spread by tides and currents cannot be prevented, and the actual behaviour of the organisms under water cannot readily be observed, the problems are enormous.

In the late 1940's there was a plan to introduce the Pacific Giant Kelp (*Macrocystis*) on the north-west coast of France but after considerable protest from most of the other European maritime nations the experiments were discontinued. Now *Undaria pinnatifida* is being cultivated on a semi-commercial scale on the north-west coast of France. This brown seaweed is widely used in food dishes and homeopathic medicine in the Far East and the idea is to farm it on the French coast to supply Chinese restaurants and homeopathic medicine in Europe.

Apart from causing an unnatural spread, introductions from another ecosystem can have very marked effects where they are introduced. *Sargassum muticum* was accidentally introduced into the English Channel just prior to 1973, probably with Japanese oysters that were imported into France. This seaweed has now spread along both sides of the Channel and up into the North Sea to the Danish coast. In Europe this alga grows larger and faster than it does in its native habitat. Already some subtidal areas that were free of large seaweeds are now occupied by dense growths of *Sargassum*. The earliest reports of the French experiments with *Undaria* indicate that it also grows larger and faster than it does in the Far East. Once this seaweed is established on the French coast we have every reason to expect that it will spread south as far as Portugal, north around the South of Ireland, South West

England and Wales and east up the Channel at least as far as the Dutch coast. It is not possible to predict the changes it will make in the ecosystem.

The question we should be asking is whether the risk of such changes can be justified by the benefits from the introduction. Most European marine ecologists think not and consider that if we wish to promote the greater use of marine algae as a food, in homeopathic medicine, as a source of chemicals or as a source of energy we should try using our native species before introducing species from other ecosystems.

Let us carry out research to determine the possible uses of our own seaweeds and how best to cultivate the useful ones before we bring in alien species.

G.T. Boalch

Marine biology and North Sea oil

Aberdeen University Marine Studies Ltd (AUMS), is based in the Zoology Department of Aberdeen University, and is wholly owned by the University; it is part of the Aberdeen University Research and Industrial Services group of companies. It was formed as a Company in 1981 although its experience in marine biological consultancy for the North Sea oil industry dates from 1976. It is dependent upon commercial consultancy and research contracts for all staff salaries, overheads and operational costs. AUMS has a staff of five, four marine biologists and one secretary and can draw upon other expertise within the University if appropriate.

AUMS has developed a strong link with the oil industry in Aberdeen and offers operators a marine fouling analysis service for offshore structures and also predictive reports on future fouling patterns for new installations. The engineering implications of marine biology feature prominently in much of the work. AUMS is able to advise on strategies for cleaning fouled structures and on corrosion and biodeterioration problems. A large ongoing project is the company's involvement with Britoil's Environmental Monitoring Programme for the Beatrice field situated in the Moray Firth. AUMS regularly surveys 34 rocky shores between Duncansby Head and Fraserburgh.

AUMS staff were much involved in the recent two-day symposium 'The Marine Environment of the Moray Firth' held in the Zoology Department and organised jointly by the University, Britoil plc and the Royal

Society of Edinburgh. The papers presented covered geographical and hydrographic aspects of the area, biological aspects of the offshore benthos, offshore fouling communities, mud flats and rocky shores, ornithological and sea mammal studies, considerations of

pollution, and nature conservation. All the papers will be published shortly in a special volume of the Proceedings of the Royal Society of Edinburgh.

L. Terry

5th Workshop of the International Association for Phytoplankton Taxonomy and Ecology (IAP) — University, Stirling — 1-12 September 1984

The 5th Workshop was organized by Dr A.E. Bailey-Watts, Institute of Terrestrial Ecology, Edinburgh, Scotland and held at the University of Stirling. The Workshop dealt primarily with diatoms in lake plankton. Among the 35 scientists representing 13 countries were, invited diatom specialists: Mr J. Carter, Hawick, Scotland; Dr Eileen Cox, Plön, West Germany; Dr Hannalore Håkansson, Lund, Sweden; Dr Elizabeth Haworth, Windermere England; Dr David Mann, Edinburgh, Scotland and Professor Frank Round, Bristol, England. The programme consisted of 5 field trips to 12 lochs with associated laboratory work on samples collected. This included demonstrations of techniques relating to the identification of phytoplankton and the estimation of population density and bio-volume.

As diatom species chosen for special attention were not numerous in freshly collected samples, attention was directed to the microscopic examination and discussion of assemblages as a whole. However, fixed material plus

many other samples supplied by various delegates were used by the specialists to demonstrate procedures for mounting and examining frustules by light microscopy (J. Carter) and electron microscopy (H. Håkansson). E. Cox led a discussion on the identification of diatoms from living material and D. Mann demonstrated some of his work on sexual fusion in diatoms.

Papers were presented and numerous discussions held on a wide range of aspects of phytoplankton taxonomy and ecology. A number of collaborative programmes have been planned as a result of this Workshop. These mainly concern comparative analyses of phytoplankton data from different lakes as well as a series of inter-laboratory tests on cell measurement with a view to assessing errors in bio-volume estimations. Abstracts of the presentations will appear in the first volume number in 1985 Schweizerische Zeitschrift Hydrologie.

A.E. Bailey-Watts
H. Kling

Request for exchange of research materials

The Freshwater Algae Section of the British Museum (Natural History) is conducting research on certain green algal taxa (mainly 'chaetophoralean' algae) and for this purpose grows a number of isolates in its culture laboratory. We would welcome receiving cultures of freshwater algae especially examples of such genera as Microthamnion, Gongrosira, Protoderma, and Spirogyra. In return we are willing to exchange material from our own culture collection that includes strains of the following:

| | |
|----------------------|------------------------------------------------|
| <u>Microthamnion</u> | (18 isolates : 3 Denmark, 1 Finland, 14 U.K.), |
| <u>Gongrosira</u> | (12 isolates : 11 U.K., 1 Denmark), |
| <u>Sphaerocystis</u> | (8 isolates, all U.K.), |
| <u>Spirogyra</u> | (33 isolates : 32 U.K., 1 Denmark), |
| <u>Stigeoclonium</u> | (16 isolates : 15 U.K., 1 Denmark), |
| <u>Hormidium</u> | (10 isolates : 9 U.K., 1 Denmark), |
| | and |
| <u>Desmococcus</u> | (4 isolates, all U.K.). |

Please send cultures or requests for a detailed list of our holdings to Drs D.M. John and L.R. Johnson, British Museum (Natural History), Department of Botany, Cromwell Road, London, SW7 5BD, U.K.

D.M. John

News and announcements

A SEAWEED COURSE is to be run by Sue Hiscock at Orierton Field Centre from July 31st to August 7th 1985. For all bookings and enquiries contact: Orierton Field Centre, Pembroke, Dyfed SA71 5E2, Wales.

DR BILL BARCLAY at the Solar Energy Research Institute, 1617 Cole Blvd., Golden, Colorado 80401, U.S.A., is publishing editor of another phycological newsletter: Applied Phycology Forum. Annual subscriptions cost \$8.00 for those outside the U.S.A. and Canada.

VISITORS TO BRITAIN are perhaps unaware that many University halls of residence provide holiday accommodation during summer vacations. Brochures, giving details of facilities are obtainable from: British Universities Accommodation Consortium Ltd., University Park, Nottingham NG7 2RD.

DR BETTY MOSS retired recently from her post as Reader in the Department of Plant Biology at the University of Newcastle-upon-Tyne. The Society has benefitted greatly from her advice and hard work over the years, and all members will join me in wishing her a happy and active retirement.

THE BIRTHDAY CELEBRATIONS for Professor Irene Manton, in which many members of the Society joined last year, culminated in a reception at the Linnean Society. This highly successful and enjoyable occasion has now been reported in The Linnean Vol 1 (4), 1985.

Editorial address

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