

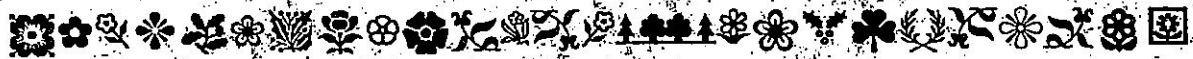


**PHYSIOLOGICAL SOCIETY
OF SOUTHERN AFRICA**

**FIKOLOGIESE VERENIGING
VAN SUIDELIKE AFRIKA**

**NEWSLETTER
NUUSBRIEF**

**NO. 44
AUGUST 1997**



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FROM THE EDITOR

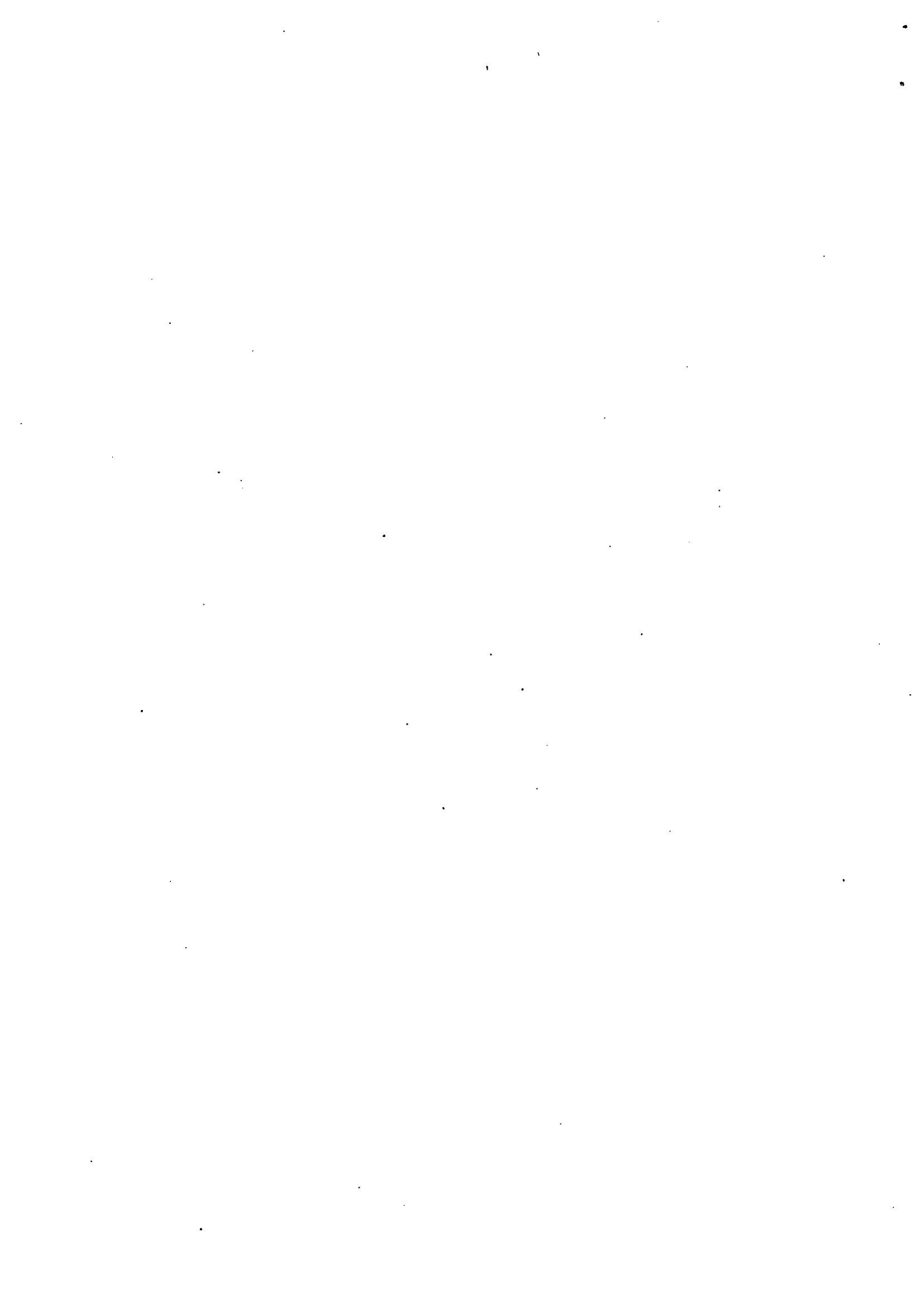
Dear PSSA members

Hope this newsletter finds you all in good health. Dr Eileen Campbell from our Department has just returned from the International Phycology Congress in The Netherlands and says that there were 10 South African representatives. Well done to all of you, I hope your papers/posters were well received. To those of you still considering a bit of globe trotting read the article on page 11 "How to survive at conferences!". UWC seem to have an exciting programme lined up for the PSSA 1998 congress. The final conference announcement can be found on page 12.

Thanks to Alan Critchley and his team for contributing to this issue of the newsletter. The next newsletter will be sent out early in December so please send your contributions to my address on the previous page.

Regards


Janine





***Caulerpa taxifolia* a green seaweed with the potential for exponential invasion on the east coast of South Africa: A warning to keepers of marine aquaria.**

Russel Gillespie and Alan Critchley

Department of Botany, University of the Witwatersrand, Johannesburg, Private Bag 3, Wits, 2050, South Africa.

Since 1990, *Caulerpa taxifolia* has been the subject of more than 650 media articles. In 1996 alone, there were scientific publications concerning the seaweed. The attention which this single seaweed has received comes as a result of its phenomenon and alarming rate of spread through the northern Mediterranean Sea and an associated depletion of indigenous flora and fauna in colonised areas.

What is *Caulerpa taxifolia*?

Caulerpa taxifolia is a coenocytic green algae (an entire individual is essentially one large cell). Although unicellular, distinct morphological structures exist (Figure 1). This alga is probably recognisable to many marine aquarists in South Africa due to its availability through the local aquarist trade. It is an attractive component of marine tanks and easy to propagate.

The situation in the Mediterranean

The first report of *C. taxifolia* in the Mediterranean was in 1984. It is presumed that the alga "escaped" from the tropical display aquaria of the Oceanographic Museum at Monaco. *Caulerpa taxifolia* is now found to occur in abundances that have been described in tropical endemic regions (Figure 2). The progression of expansion of *C. taxifolia* in the Mediterranean is staggering.

In 1984, a patch of 1 m² was recorded, this had increased to 1 ha in 1989, 427 ha in 1992, 1327 ha in 1993, 1500 ha in 1994 and the most recent assessment is 3096 ha in 1996! Five countries have now been affected by this alga, dates in parentheses indicate year of first record: Monaco (1984); France (1990); Italy (1993); Spain (1993) and Croatia (1995).

As an invasive pest, *Caulerpa taxifolia* dominates the majority of benthic species in the areas where it occurs (Figure 3). The seaweed is viewed as a serious invasive threat to indigenous flora and fauna due to its high growth rate and production of secondary metabolites, many of which are toxic.

Caulerpa taxifolia can cover up to 100% of the substratum over a range of depths between 0 to 35 m (it has been recorded as deep as 100 m l) and grows on many different types of substrata, e.g. rock, sand and mud, sheltered (upper reaches of an embayment) and exposed (e.g. headlands) habitats, as well as polluted and pristine waters have been colonized. *Caulerpa taxifolia* has been recorded in harbours.

The problem caused by invasive species can be considerable with large-scale economic and ecological implications. Competition with commercially exploited species and competitive exclusion of indigenous species, damage to fishing, aquaculture, tourism industries and to shipping are all potential problems associated with invasive species.

Aquarist material - *Caulerpa taxifolia* in South Africa

Since 1980 *Caulerpa taxifolia* has been used in the aquarium trade in Europe as a decorative addition to tropical marine aquaria. In South Africa the seaweed is readily available through the aquarist trade and this has been the case for several years. In 1994 it was seen in the display aquaria of Seaworld in Durban.

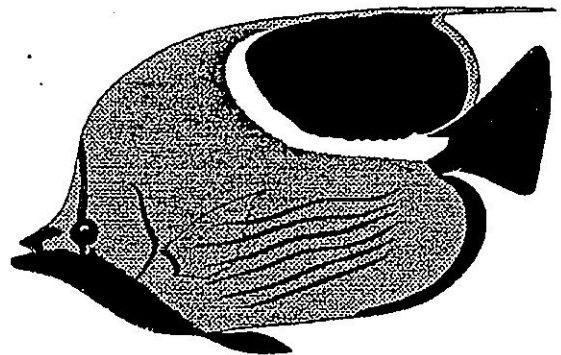
Studies have shown that the *C. taxifolia* from the northern Mediterranean has a very wide range of environmental tolerance and is able to survive over a temperature range of 10 to 31.5 °C. an amazing degree of thermo-tolerance. It is also able to tolerate a wide range of irradiance conditions. These temperature ranges are well outside anything the alga would experience in natural tropical regions and it is possible that the stock that has invaded the Mediterranean has different temperature tolerance characteristics to *C. taxifolia* from tropical endemic regions.

In the western Indian Ocean, the most southerly record for *C. taxifolia* is from Tuléar, Madagascar; in terms of latitude, further north than the east coast of South Africa. The most southerly observation of *C. taxifolia* on the African coast is from the Isle of Ibo, Archipelago de Quirimba near Cabo Dégado, northern Mozambique (recorded by R. Lemee). Minimum water temperatures in areas where natural populations of *C. taxifolia* have been found are greater than 20 °C.

Recent studies by R. Gillespie, A. Critchley and A. Meinesz have demonstrated that strains of *Caulerpa taxifolia* obtained from the South African aquarist trade were able to survive at temperatures as low as 15 °C and as high as 30 °C. Based on these studies *C. taxifolia* was demonstrated to be able to tolerate a wide range of temperature and irradiance conditions outside of those expected for a tropical alga and within the temperature range experienced by the sub-tropical east coast of South Africa. In addition the alga did not display any marked differences in performance to the Mediterranean material. This suggests that the *C. taxifolia* strain spreading in the Mediterranean is not the only aquarium strain that poses an invasive threat and it is concern that South African aquarist material poses a potential threat to the east coast of South Africa. The possibility exists that *C. taxifolia* could be accidentally released into the sub-tropical east-coast waters of South

Africa, either from public coastal aquaria which use the seaweed as a component of their display tanks or by the relatively innocuous cleaning out of marine tanks and release of aquarium contents by members of the public.

Aquarium strains of *C. taxifolia* must be avoided in the aquarist trade (as in France and Spain) so as to prevent any introduction into new environments. There needs to be a greater awareness of the dangers of the seaweed. The seaweed should not be maintained in any system with any form of contact with the open sea, and no material must be released into the sea if it is to be discarded.



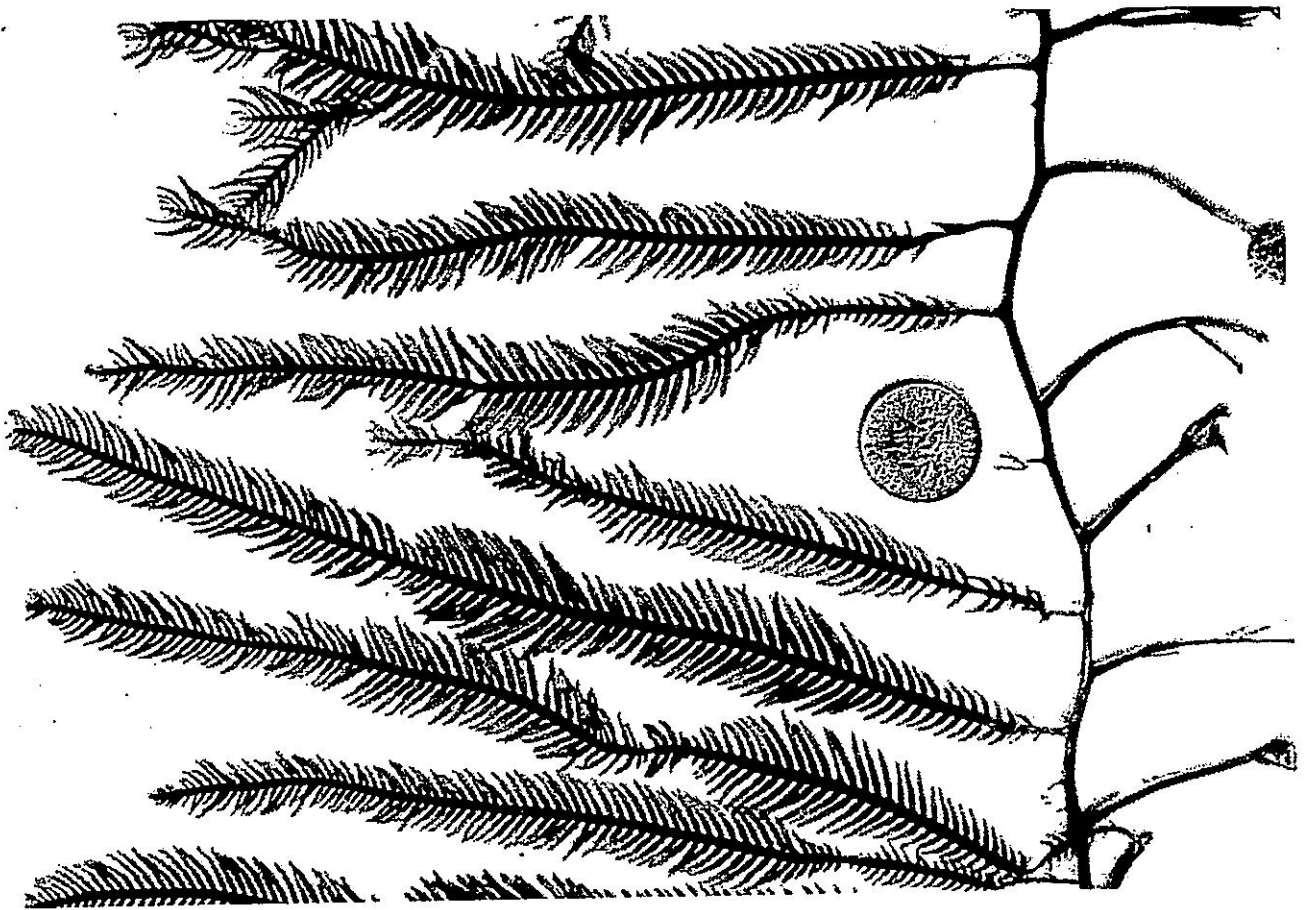


Figure 1: Vertical "leaf-like" assimilators arise from horizontally running stolons. Each assimilator is divided into branchlets (sometimes termed ramuli or pinnae). Growing from the underside of the stolon are rhizoid clusters which are used for attachment. (photo courtesy A. Meinesz)

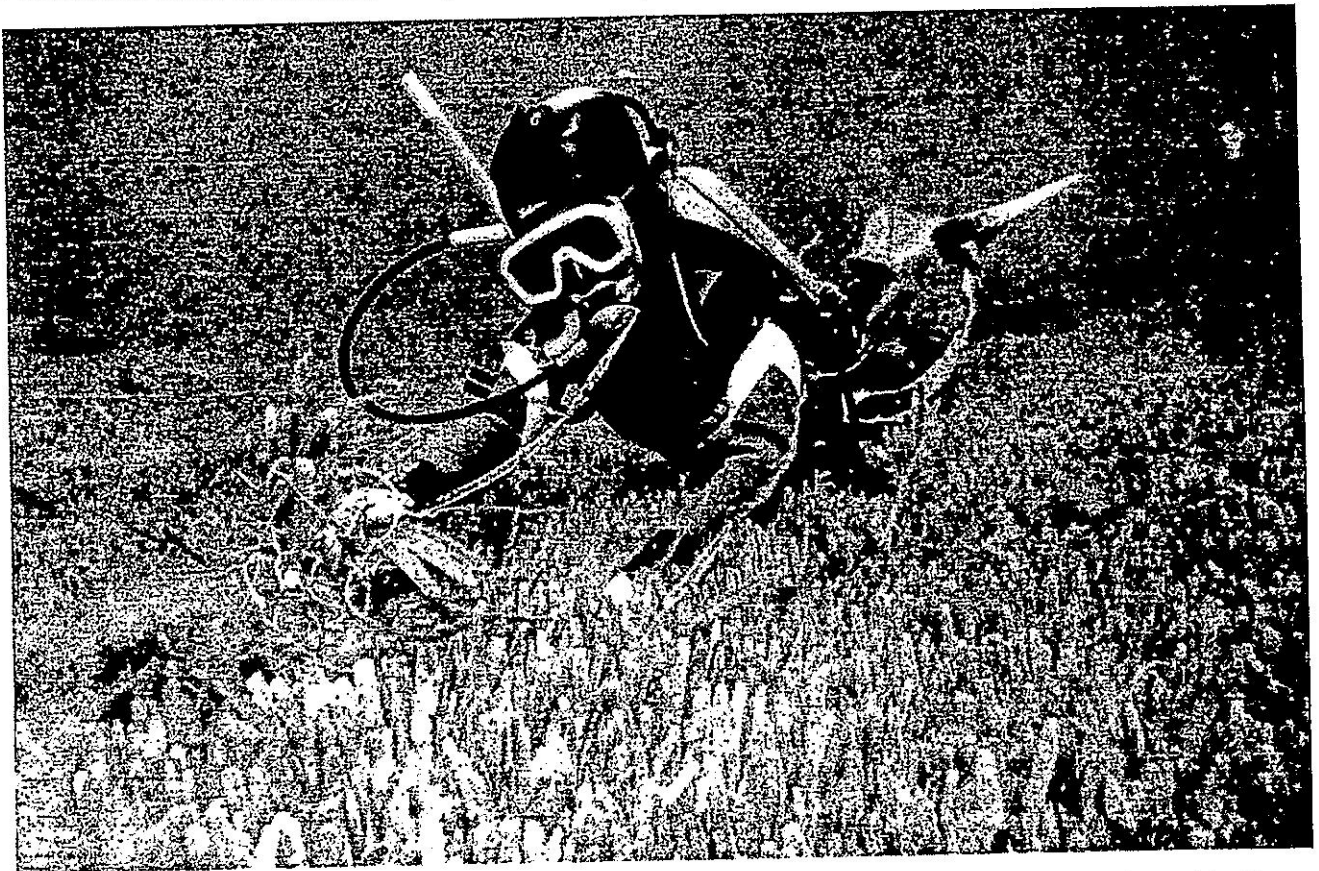


Figure 2: Extensive "beds" of *Caulerpa taxifolia* have been developed in areas of the northern Mediterranean Sea. (photo courtesy A. Meinesz)

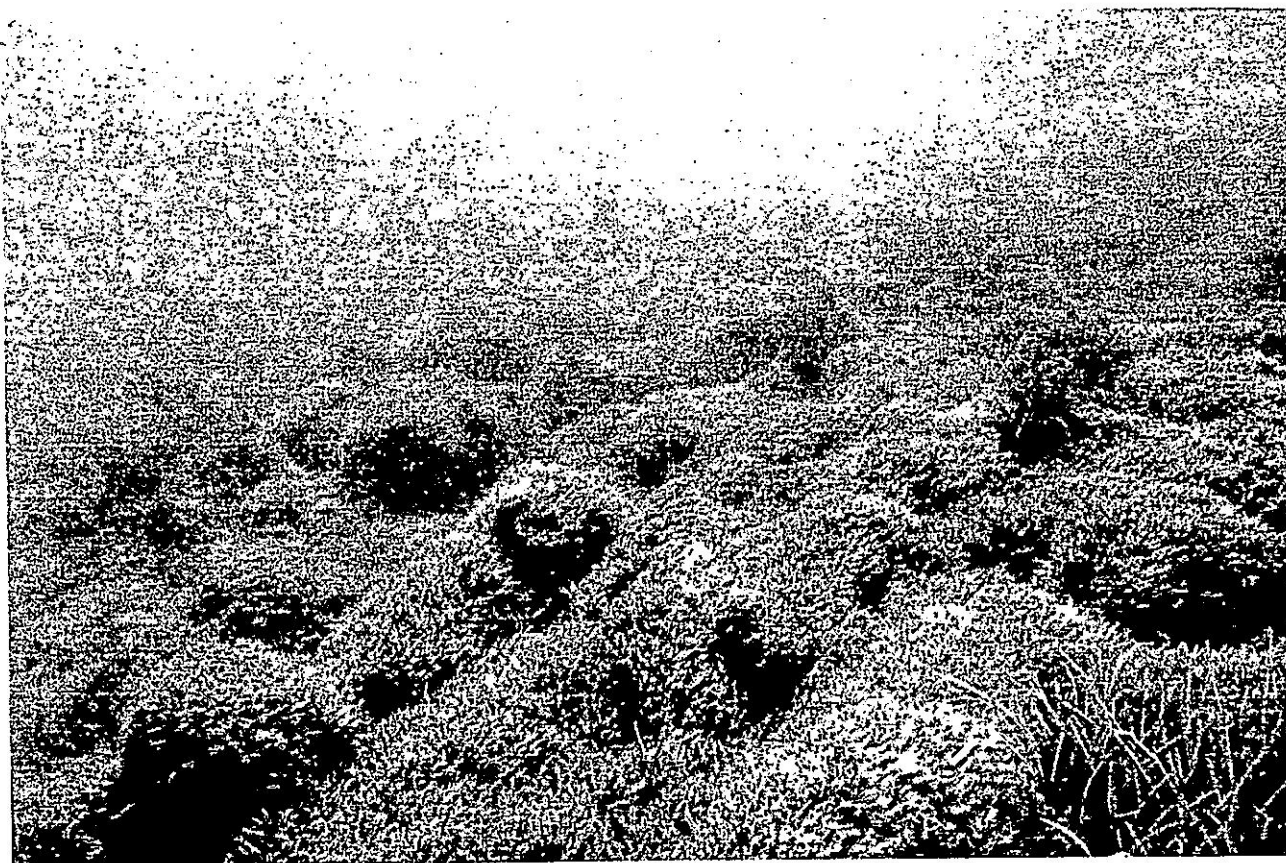
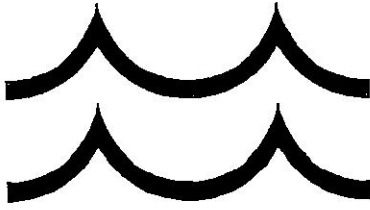


Figure 3: *Caulerpa taxifolia*, once established tends to dominate the available space at the expense of the indigenous flora. (photo courtesy A. Meinesz)



Figure 4: *Caulerpa taxifolia* invades and outcompetes populations of the indigenous seagrass *Posidonia oceanica*, the leaves of which can be seen in the background. (photo courtesy A. Meinesz)



ABSTRACTS FROM THE
SASAQS CONFERENCE
34 TH SYMPOSIUM,
22-27 JUNE 1997, MTUNZINI,
KWAZULU-NATAL

**THE EMERGENCE OF CYANOBACTERIAL
TOXICOSIS IN THE SOUTHERN AND
SOUTH-WESTERN CAPE - A NEED FOR
HEIGHTENED VIGILANCE**

W. R. Harding

DH Environmental Consulting cc., P.O. Box 5429,
Heldeberg, 7135.

Between 1993 and 1996, a spate of animal deaths, conclusively attributed to the supertoxins produced by the Cyanobacteria (= blue-green algae), occurred for the first time in the southern- and south-western Cape. These included the single largest stock death yet recorded in South Africa (R1 million), attributed to this cause. Also threatened were two of the largest, raw potable water impoundments supplying the Cape metropole. Clearly highlighted in all cases was the fact that the detection of Cyanobacterial blooms, and their possible involvement in cases of animal morbidity, is poor. The causes dealt with here, including the appearance of hitherto regionally-uncommon Cyanobacterial genera, were reported due to their presence of an alert veterinarian. Other cases remained incorrectly diagnosed until historical investigations revealed the cause and effect pathways. This illustrates that many such outbreaks may well go undetected. This is a problem common to disease surveillance systems world-wide, but which is exacerbated by the lack of coherence of the Cyanobacterial toxin-induced symptoms to classical methods of diagnosis by exclusion. This is obvious and serious consequences for potable drinking water supply. These stock deaths were indicative of apathy with respect to the need for national education,

establish the geographic extent of Cyanobacterial blooms in South Africa and (b) the incidence of these which are toxic. If the growing demand being placed on surface waters, especially within the agricultural sector, are to be met, a simple, workable education and monitoring solution needs to be established. This paper dispels some of the myths pertaining to the Cyanobacteria, and suggests possible options for the way forward.

**RESEARCH TOWARDS THE OPEN-WATER
CULTIVATION OF AGAR- AND
CARRAGEENAN- PRODUCING SEAWEEDS
IN THE WESTERN CAPE.**

R. J. Anderson and J. J. Bolton***

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Two large bays, Saldanha and St. Helena, make the Western Cape the best area in South Africa for the open-water cultivation of cool temperature seaweeds. Detailed research on, and pilot-scale commercial mariculture of agarophyte *Gracilaria gracilis*, as well as tests on other species, illustrate that seaweed mariculture in Saldanha Bay is limited by warm, nutrient-poor surface water in late summer. St. Helena Bay is likely to be more suitable for many species.

Results of some of the current research on the cultivation biology of cold-water carrageenophytes are presented. The potential problems, including water-space issues, are discussed.

**DEVELOPMENT OF BENTHIC DIATOMS
ON ARTIFICIAL SUBSTRATES: A TOOL
IN WATER QUALITY ASSESSMENT**

*J. S. van der Molen, C. Lahana, J.B. Adams &
G. C. Bate*

Department of Botany, University of Port
Elizabeth, P.O. Box 1600, Port Elizabeth, 6000.

Benthic diatoms, growing on a range of natural substrata, can be used as indicators of water quality. In cases where riverine habitats cannot be used as sites for diatom collection, the possibility exists for them to be collected on introduced substrata. Experiments have been run with glass

from 1 32 days. Initial colonisation is rapid and succession of species during the time of submersion was obvious. Although the species composition on artificial substrata is biased to those species that can grow on smooth surfaces, the autecology of those species can still be used in the assessment of water quality. Leaving the substrates submerged for longer periods of time makes artificial substrates a time integrated pulse related tool in the assessment of water quality.

THE EFFECT OF THE ORANGE RIVER TRANSFER SCHEME ON THE GREAT FISH AND SUNDAYS RIVER ESTUARIES

J. B. Adams & G. C. Bate

Department of Botany, University of Port Elizabeth, P.O. Box 1600, Port Elizabeth, 6000.

The study formed part of an environmental re-assessment of the Orange River Development Project. The objective was to determine the effect of Orange River transfer water on the Great Fish and Sundays estuaries. The study compared the salinity distribution and biota present under virgin and present day run-off conditions and used data to predict the impact of future flow rates. This was a co-ordinated project between the University of Port Elizabeth Botany and Zoology Departments, the JLB Smith Institute of Ichthyology and Environmentek, CSIR.

Both the Great Fish and Sunday estuaries have strong flows of nutrient-rich water and, because of this, the productivity of these estuaries is mostly water column based i.e. driven by plankton. Estuaries that show plankton dominance are rare in South Africa and their conservation is important in order to maintain diversity of estuarine types. The study recommendation was that the present high base flow conditions maintained these estuaries, i.e. annual average base flow of 3 cumecs in the Great Fish estuary and 0.4 to 1 cumec in the Sundays estuary. Although there is a trade-off between natural water flow variability and greater species diversity experienced before water transfer from the Orange river current conditions are an acceptable compensation for a shift towards marine and benthic dominance which is experienced by other local estuaries (e.g. Kowie, Bushmans & Kariega).

This paper describes the response of the phytoplankton and macrophytes to a number of simulation scenarios. Although the nutrient rich base flows in the Great Fish and Sundays estuary have contributed to the high level of phytoplankton primary production and water column based food chain, there are a number of negative effects. These include encroachment of reeds into the lower reaches and loss of benthic microalgae and submerged macrophytes as a result of increased turbidity. Dinoflagellate species have been recorded in the Sundays River estuary and, although these do not present a problem under present conditions, the possibility of their becoming toxic implies that future monitoring will be important.



FORTHCOMING CONFERENCES

GELIDIUM

II International Workshop
Las Palmas Gran Canaria
Canary Islands, Spain
9 - 12 December 1997

All contributors must submit an abstract in English. Abstracts must be admitted no later than 3 October 1997. They are to be e-mailed to

GELIDIUM@CIEMAR4.ULPGC.ES

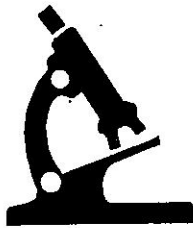
directly as text in the body of the message not as attachments. A hard copy may be sent by regular mail to: Rafael Robina, Department of Biology, University of Las Palmas, Campus Universitario de Tafira, 35017 Las Palmas, Canary Islands, Spain.

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XVIth INTERNATIONAL SEAWEED SYMPOSIUM

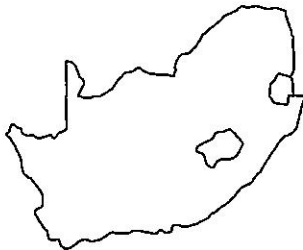
Cebu Convention Centre
Cebu City
Philippines
12 - 17 April 1998

Further information from:
THE SECRETARIAT, XVIth International Seaweed Symposium, Marine Science Institute, CS, University of the Philippines, Diliman 1101, Q.C., Philippines.
Phone: ++ 63 2 922 3959
Fax: ++ 63 2 921 5967
e-mail: trono@msi.upd.edu.ph;
rhod@msi.upd.edu.ph.



14TH INTERNATIONAL CONGRESS ON ELECTRON MICROSCOPY

Cancun, Mexico.
31 August - 4 September 1998
Full meeting information on the ICEM-14 web site: <http://icem.inin.mx>
Further information from: SECRETARIAT, "14th International Congress on Electron Microscopy", Amsterdam 46-202, Col. Hipodromo Condesa, C.P. 06100, Mexico, D.F., Mexico.
Phone: (525) 533-4507
Fax: (525) 553-4500.
E-mail: icem@icem.inin.mx



MSc Abstract Joanne Aingworth Department of Botany University of the Witwatersrand

The effect of harvesting on the biomass and agar content and quality of *Gelidium abbottiorum* was investigated at Reunion Rocks, KwaZulu-Natal for the period July 1995 to July 1996. Before this research was carried out, no biomass assessment studies had been done on the seaweeds on the KwaZulu-Natal coast, many of which are of potential economic importance. Seaweed samples were collected from Reunion Rocks, KwaZulu-Natal every three months. This included harvesting the seaweed using two harvesting methods, i.e. "plucking" and "shearing". Biomass was assessed and values of 255 - 384 gm⁻² were recorded for the period July 1995 to July 1996. No seasonal difference in biomass was found for the period July 1995 to July 1996. Standing stocks in commercial beds vary from 1.5 kgm⁻² to 0.5 kgm⁻² fresh mass. The fresh mass of *Gelidium abbottiorum* at Reunion Rocks, KwaZulu-Natal was between 1.4 kgm⁻² and 0.9 kgm⁻². Therefore, it was concluded that biomass at Reunion Rocks, KwaZulu-Natal was comparable to that from commercial beds in other areas of the world. Both harvesting methods had the effect of decreasing the biomass obtained. It is recommended that "plucking" be used as a harvesting method if harvesting is to occur at this site. It is suggested that harvesting take place once a year either in spring (September - December) or summer (January - March).

Samples were dried and agar was extracted and the quality tested, i.e. gel strength, gelling temperature, melting temperature and the metal content of the seaweed. These characteristics were compared to agar extracted from seaweeds collected on the former Transkei coast for commercial exploitation. The seaweeds considered were *Gelidium abbottiorum*, *G. pristoides* and *G. cartilagineum*, obtained from Taurus Chemicals (Pty) Ltd. In addition, agar quality was compared to a commercial agar source, i.e. agar-agar, Batch 38230 obtained from Saarchem- Holpro Analytic (Pty) Ltd.

Mean agar yields of between 17.5% and 32.5% were obtained from *Gelidium abbottiorum* from Reunion Rocks. These values were comparable to values obtained from seaweeds used for

commercial purposes around the world. Gel strength of agar from *Gelidium abbottiorum* from Reunion Rocks was recorded to be between 64.85 gcm⁻² and 291.20 gcm⁻² and was significantly lower than that of the commercial agar and that of agar from *Gelidium pristoides* from the former Transkei. Gelling temperatures of between 26.0 °C and 34.7 °C were recorded for agar from *G. abbottiorum* from Reunion Rocks, KwaZulu-Natal. These values were significantly lower than that for the commercial agar sample. Melting temperatures of agar from *G. abbottiorum* from Reunion Rocks, KwaZulu-Natal were between 66.0 °C and 77.1 °C. This was not significantly different from the commercial agar sample. The metal content of *Gelidium abbottiorum* was not significantly higher than that of *G. abbottiorum* from the former Transkei. There was no seasonal difference in any of the agar characteristics. However, the level of some metals, e.g. Chromium, did differ with season. It was concluded that the agar from *Gelidium abbottiorum* from Reunion Rocks, KwaZulu-Natal could be used as a in a blend of agar from other sources.

Linear frond growth was assessed. Positive and negative values were considered separately, with positive values reflecting an increase in frond length (i.e. linear frond growth) and negative values indicating losses due to factors such as predation and wave action. Values of between 0.37 mmd⁻¹ and 0.62 mmd⁻¹ were recorded for the period July 1995 to July 1996. No seasonal difference was recorded in linear frond growth of *G. abbottiorum* at Reunion Rocks, KwaZulu-Natal for the period July 1995 to July 1996.

Suggestions for the management of *Gelidium abbottiorum* at Reunion Rocks, KwaZulu-Natal are made. These include the method of harvesting to be used, the frequency of harvesting and the amount of material to be harvested.

Suggestions for future research are presented, including the study of other sites along the KwaZulu-Natal coast, studying the different life stages of *Gelidium abbottiorum* to determine any seasonal difference in aspects considered in this study and a focused study of frequency of harvesting at Reunion Rocks and other sites along the KwaZulu-Natal coast.

**ABSTRACTS FROM THE NORTH
AMERICAN BENTHOLOGICAL
SOCIETY ANNUAL MEETING
SAN MARCOS
29 MAY 1997**

**TAXONOMY AND DISTRIBUTION OF
FRAGILARIACEAE (BACILLARIOPHYTA)
SPECIES FROM THE NATIONAL
WATER-QUALITY ASSESSMENT PROGRAM.**

John C. Kingston.

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The U.S. Geological Survey's National Water-Quality Assessment (NAWQA) program is beginning to accumulate a continental-scale data base leading to improved understanding of the taxonomy and biogeography of diatoms in the family Fragilariaceae. These organisms can be abundant in aquatic collections, with the highest reported abundance for a single species in a NAWQA periphyton collection of 27,000,000 cells per square centimetre in a depositional zone and 4,000,000 cells per square centimetre on a hard substrate. Seventy-two taxa from this family have been identified among 13 NAWQA study basins, about 6% of the 1,400 algal taxa and 10% of the 700 diatom taxa identified thus far, and approximately 25% of the Fragilariaceae taxa estimated to occur in the United States (J.P. Kociolek, written commun.). The hierarchy and especially the generic-level taxonomy of diatoms from the "classical" genera *Asterionella*, *Fragilaria*, *Synedra*, and *Opephora* have been revised and disputed by systematists for the past decade. During this time of unsettled taxonomy, most ecologists have waited for consensus and have used either classical names or the more-inclusive "lumped" system of Die Susswasserflora von Mittel-Europa. Major revision involving the "splitting" of classical genera has not gained wide use because of the incompleteness of recently published revisions. Whichever system is used, ecological monitoring data often have been compromised when species and varieties are lumped because of contract cost or timeliness. Representatives of each genus from NAWQA collections are presented, and the state-of-knowledge is summarised.

BIOGEOGRAPHY AND SYSTEMATICS OF STREAM-INHABITING RED ALGAE IN NORTH AMERICA.

Robert G. Sheath¹, Morgan L. Vis², Alison R. Clyburne¹, Kirsten M. Muller¹, Tara L. Rintoul¹ and Kathleen M. Cole³.

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Our recent morphometric analysis of the macroscopic lotic Rhodophyta of North America has produced a flora of 55 well differentiated species from five orders. Among these species, 85% appear to be primary inhabitants of stream environments, while the remainder are thought to be secondary invaders from estuaries. We will test the validity of these taxonomic entities and examine patterns of geographic distribution by combining morphometry with DNA sequence analysis, particularly for widespread species, such as *Audouinella hermannii*, *Batrachospermum boryanum*, *B. gelatinosum*, *B. spermatoinvolutum*, *Compsopogon coeruleus*, *Hildenbrandia angolensis*, *Lemanea fluviatilis* and *Tuomeya americana*.

EPILITHIC DIATOMS OF TWO SPRING-FED TEXAS STREAMS.

Alison R. Clyburne and Robert G. Sheath.

Department of Botany and Dean's Office, University of Guelph, Guelph, Ontario, Canada, N1G 2W1. EMAIL: aclyburn@uoguelph.ca

The diatom floras of spring-fed streams in the southwest region of North America are poorly studied, particularly those in Texas. Springs are unique environments that provide opportunity for the study of endemic species due to their geographical isolation from other similar water bodies. The epilithic diatom floras of two spring-fed rivers in central Texas, the San Marcos River and the Comal River, are being monitored bimonthly for 14 months. Sampling thus far has included a drought in the summer of 1996, which resulted in severely reduced water discharge from the aquifer supplying the two streams. A large decrease in the diversity of the diatom communities was observed following the most severe months of the drought. To date, the dominant taxa in the San Marcos River are *Achnanthydium minutissimum*, *Synedra acus*, and *Rhoicosphenia abbreviata*, while the dominant taxa in the Comal River are *Achnanthydium minutissimum*, *Nitzschia amphibia*, and *Cocconeis placentula* var.

differing abundances. The dynamics of the two communities over a period of time from July 1996 to March 1997 will be presented.

A DIATOM HERBARIUM FOR THE OHIO RIVER BASIN.

G. L. Jarrett¹ and P. A. Grace-Jarrett²

¹ Department of Biology, Murray State University, Murray KY 42071; ² Louisville and Jefferson County Metropolitan Sewer District, Louisville, KY 40217. EMAIL: ljarrett@usgs.gov

A small diatom herbarium has been active in Kentucky since 1984. The herbarium archives raw material, permanently mounted slide specimens, light microscope and scanning electron micrographs of the class Bacillariophyceae. Most material is from the central and lower Ohio River Basin, though material from five continents is included in the herbarium. The herbarium also includes isotype material of several taxa representative of the local flora. The herbarium contains more than 5,200 sample vials of unmounted but cleaned material. There are approximately 3,200 prepared slides in the herbarium. Specimens which have been identified (n=632) have been circled using an objective mounted Leitz diamond scribe. Many of the identified taxa have been compared to type material housed at herbaria in North America and Europe. More than 3,000 light micrographs and over 1,500 scanning electron micrographs of the material are also available in the herbarium.

PHENOTYPIC PLASTICITY AND SOME INTERESTING DIATOM TAXA FROM MICHIGAN WETLANDS.

K.M. Manoylova, R.J. Stevenson and P.R. Sweets.

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As part of the Environmental Protection Agency's Ecological Monitoring and Assessment Program, diatoms from surface sediments of 67 Michigan wetlands were studied by light microscopy. More than 400 species were identified. Morphological differences between similar species that frequently overlap in morphology and distribution were distinguished. Phenotypic plasticity of *Cymbella minuta* and *Cymbella silesiaca* was compared and related to species autecology and morphological distinctions. Lange-Bertalot's nomenclature change of *Cymbella minuta* var. *silesiaca* to *Cymbella silesiaca* was supported by differences in species optima along environmental gradients in the wetlands. Brief

Cymbella and *Navicula* that are undescribed in the literature.

LOTIC DIATOMS OF NEW ZEALAND.

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Stream research in New Zealand is receiving increased attention due, in part, to the remarkable diversity of streams relatively free from human impact. The lack of taxonomic literature on the lotic diatom flora of New Zealand's south island has constrained stream ecologists to taxonomic literature from other areas, particularly Europe and North America. In this report we make some general and specific observations on the lotic diatom flora of the south island of New Zealand. Diatoms were collected from over 30 streams. Streams sampled on the east coast drained primarily grassland and agro-ecosystems. Streams on the west coast drained temperate rain forest. The diatom flora seems relatively depauperate, especially relative to stream diversity. Communities are often strongly dominated by one to three taxa. Eastern stream dominants include taxa reported only from the southern hemisphere, (*Cymbella kappii*, *Gomphoneis minuta* v. *cassieae*, *Rhopalodia novae-zealandiae*) and cosmopolitan taxa (*Cocconeis placentula*, *Synedra ulna*, *Melosira varians*). West coast streams are dominated by acidophils (*Eunotia* spp., *Tabellaria flocculosa*) and appear to support several undescribed taxa.

HISTORICAL BIOGEOGRAPHY AND ENDEMISM: FORGOTTEN OR OVERLOOKED EXPLANATIONS FOR THE DISTRIBUTIONS OF FRESHWATER DIATOMS.

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An ecological perspective dominates current approaches to understanding freshwater diatom distributions. A corollary of this ecological view is that many (most!) freshwater diatom species are cosmopolitan in their distributions. The ecological approach has formed the foundation of current dogma that water bodies with similar ecological conditions are inhabited by the same species. No consideration of the history of the water bodies or their diatom inhabitants is provided for in this approach. Disparate phylogenetic groups of freshwater

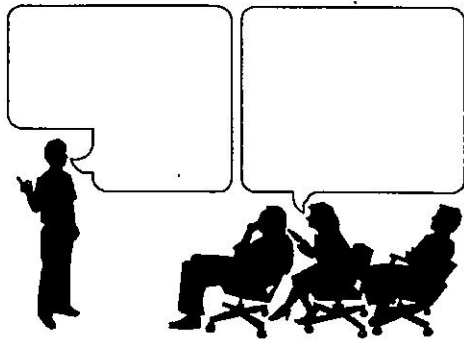
endemism can relatively high for specific water bodies and regions, 2) historical biogeography may be useful to explain the distribution of some freshwater diatoms and 3) deficiencies in our knowledge of diatom biodiversity have led to inaccurate views of diatom distributions. All three of these forgotten or overlooked explanations for diatom distributions may have implications for ecological and biomonitoring studies.

TAXONOMY AND DISTRIBUTION OF *LYNGBYA WOLLEI*.

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The filamentous cyanobacterium, *Lyngbya wollei* (Farlow in Gomont) Speziale & Dyck, forms massive surface and benthic mats, often covering many hectares. The size of the organism is exceptional; individual cells average 40 μm in width, filaments may exceed 1 meter in length. Despite this dramatic presence, the distribution of *Lyngbya wollei* has been poorly documented until recently. This lack of data was attributed to misidentification of this organism and the predominately subsurface distribution of growing mats, which served to mask the presence of an infestation until it attained nuisance proportions. Conflicting taxonomic identifications have confused reports of *Lyngbya wollei* distribution and ecology since it was first described, more than 100 years ago. This organism is reported in the literature under at least six species names, spanning three genera. Heightened awareness of the ecology of *Lyngbya wollei* and a recent (1992) standardisation of its taxonomy have increased available information on its distribution. Lakes in the north-eastern United States and Florida provide many of the recent reports of nuisance level infestations. Limestone in the watershed or calcium-enriched water are predictors for *Lyngbya wollei* infestations.



**HOW TO SURVIVE AT
CONFERENCES**
Condensed and adapted after
Phil Klein, *Physics World*,
January 1997

Careful study over the last few years has lead Phil Klein to recommend the following behaviour patterns.....

Timing your arrival at a conference would appear to be very important. Always arrive late. Ideally, attempt to convey the impression that you have just rushed in from another, infinitely more interesting conference at some exotic location over-seas, armed with some red hot developments on algae. Above all else make sure that you are not the first to register and stand around the bar like a moron with your book of abstracts, shiny label badge and half a pint of beer. This would be a serious credibility setback from which you may never recover.

Be seen to scan the message board - a clever ruse is to get a friend to fax through some spurious message of an impressive nature. Something like "ring PSSA editor concerning feature article" would be a good one.

Should you be unfortunate enough to be forced to present a paper yourself, in order to justify the vast expense incurred by your employer in sending you for this extra holiday, feel free to pad out your material by including an overhead of a barely relevant Gary Larson cartoon. Make sure all overheads are hand-written, dirty and illegible to anyone beyond the first three rows. This has the benefit that nobody will

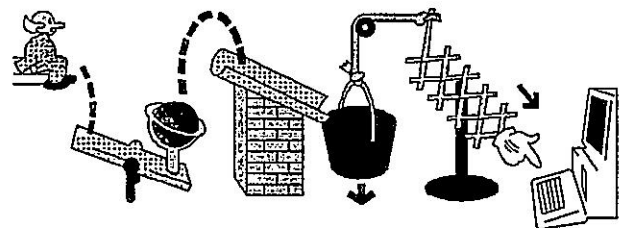
understand your presentation at all, and so you will not attract any annoying questions. To be on the safe side however, make sure you run overtime.

For the serious conference animal, it is considered decidedly naff to participate in any of the official social events, particularly those that do not involve alcohol. As an alternative ingratiate yourself with the "conference clique" - a group that always contains at least one member with a mystical and encyclopaedic knowledge of excellent local bars and restaurants.

The morning after the conference dinner wet your hair and slap yourself in the face a few times before going down to breakfast wearing your tracksuit. The reputation you are trying to acquire here is of someone who can drink ten pints of beer and *still* go for a jog the next morning.

Leave the conference early. A fictitious excuse such as a funding meeting is good. Pretending to be going of to another conference may arouse suspicion, and a suggestion of having to do some undergraduate teaching would label you as far-too conscientious.

Finally there is a school of thought that suggests that the maximum benefit from conferences is to be obtained by making copious notes from all the talks, seeking out delegates who are working in the same areas as you, comparing results, and discussing the latest developments in your field, culminating in ritual exchange of e-mail addresses. **This is dangerous heresy, and is to be avoided at all costs.**





PSSA '98: Final Announcement

Taken from the website:

<http://www.botany.uwc.ac.za/pssa>

The Phycological Society of Southern Africa (PSSA) will be holding its 15th annual conference from the 18th - 21st January 1998.

Algae in the Economy: Scope for community development

Venue: The Botany Department at the University of the Western Cape is organising this event. The conference will be hosted in Simons Town at the Oaklands Holiday Village.

Accommodation: Accommodation for three nights includes all meals and the conference dinner. Information on the types of accommodation can be found on the registration form.

Field trips: 1) The field trips are on a first come first serve basis.

- a) Trip to Kelpak - a company involved in the utilisation of kelp. Max. number is 20. There are no extra costs.
- b) Diving - in the scenic and beautiful area of Hout Bay. Max. number of people is 15. The cost involved are R120.00 (incl. weight belt, BC, DV, cylinder & fill, boat trip).
- c) Cape Point - the nature reserve at the tip of Africa. Max. number 20. Fee of R40.00 (incl. transport and entrance fee).

2) The following trips can be organised if there are sufficient participants:

- * Freshwater field trip
- * Plankton collecting

please contact us for further details.

3) Tours can also be organised with local tour companies. Once again, contact us for

Visiting Speaker: In keeping with the theme of the conference, Michael Guiry, from the University College Galway, will be our guest speaker. He will be presenting a paper entitled "The Irish Seaweed Industry Organisation: an interface with the community." An abstract of the paper will follow shortly.

Programme: A preliminary programme will follow shortly.

Abstracts: Please submit the title of either the paper or poster to be presented via the form. All abstracts must be sent via email and on diskette to Gavin Maneveldt after 31 July 1997.

Application forms: Available from the web site.

Contact: For further information contact Gavin Maneveldt. The mailing address for the congress is:

•PSSA - 1998 Organising Committee
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