PHYCOLOGICAL NEWSLETTER

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INSIDE THIS ISSUE:

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Message from the PSA President

Paul Hayes

At this the start of my term of office as President of the PSA I thought I should let you know something about me and what I would like to achieve over the coming year.

My day job is running the Science Faculty at the University of Portsmouth in the UK. Initially my research was targeted at unravelling the molecular structure of cyanobacterial gas vesicles, the mechanisms that allow their accumulation and the selective forces that have shaped their evolution. More recently my research focus has switched to the quantification of the genetic structure of planktonic populations and communities: like many others I would like to contribute to developing an understanding of genome/environment interactions. In addition to these studies I have collaborated with others to gain an improved understanding of the taxonomy of *Porphyra* and green & brown algal endophytes growing within seaweed hosts.

The PSA, like many other societies, is facing some interesting challenges as we move into this new decade. I feel deeply honored to have been elected to the post of President of the Society and to have been entrusted to build on the sterling work of my predecessors. We need to identify what has to be done to raise the profile of Phycology and to ensure that the PSA plays a leading role in achieving that aim. The Society has to broaden its base of active members and strive to serve the interests of all types of phycologists. We need to recognize that all sciences are increasingly international activities and it is important that societies, such as the PSA, reflect this. Although all major societies have an international membership, their governance usually reflects their national origins: societies must ensure that they cater for the needs of their diverse membership. The fact that the PSA has elected a non-US based President demonstrates a clear recognition that it has a role as a leading international organization. During my term as President I will seek ways to strengthen links with other groups representing phycologists (and those in cognate disciplines) worldwide. It is essential that phycologists come together to develop an understanding of the biology of algae and seek to bring a global perspective to our studies. We are a relatively small community and to compete effectively for recognition and funding none of us can afford to be isolationist. It is also important that the Society communicates clearly and works with you, its members, to develop a clear understanding of what you expect of us. I am under no illusions about the difficulty of delivering such an agenda within the single year of my term of office, but I am confident that with the excellent team of Society officers, Trustees and Committee members it should be possible to make significant progress.

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2010 PSA MEETING

Kellogg Center, Michigan State University
East Lansing, MI USA
9-13 July

The Phycological Society of America (PSA) will hold its 2010 annual meeting at the Kellogg Hotel and Conference center on the campus of Michigan State University in East Lansing, MI. Drs. Richard Triemer from Michigan State University and Eric Linton from the University of Central Michigan will serve as our local hosts.

The meeting dates are 10-13 July with an opening mixer on the evening of July 10 and optional field trips (sorry, no marine algae in Michigan!) either preceding or following the meeting. This is the second time that the annual meeting has been held at Michigan State. The tenth annual meeting (joint with AIBS), was held at MSU in September of 1955 when Dr. Gerald W. Prescott, a faculty member at MSU, then served as President of the Society.

In recognition of his contributions to phycology and to the Phycological Society of America, a special tribute is being planned (headed by Dr. Bruce Parker) to showcase Dr. Prescott's achievements in the world of algae and art (yes, art). As in the past, PSA will also sponsor plenary talks and associated mini-symposia with participants identified by the plenary speakers. Contributed papers related to the mini-symposia topics will be solicited and scheduled in featured contributed talk sessions immediately following each mini-symposium.

We hope to see you all in Michigan in 2010!

Please go to

http://www.psaalgae.org/website/opportunities/annual_meeting.html

for information on registration and abstract submittal.

PSA plenary/minisymposium topics and speakers for 2010 are as follows:

Algae and the Tree of Life (ToL)

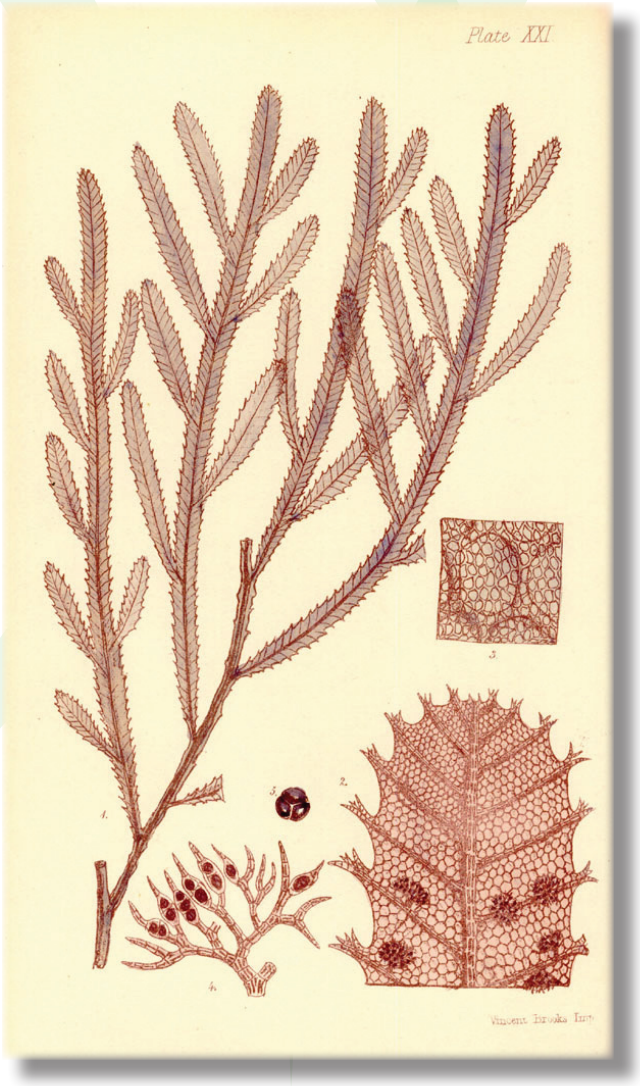
Bob Andersen -- Heterokonts
Chuck Delwiche -- Dinoflagellates
Hwan Su Yoon -- Red Algae
Mark Farmer -- Euglenoids
Laura Katz -- Protist Overview of ToL

Charophycean Green Algae (streptophytes) and the Origin of Land Plants

Organized by Mike Gretz

Lipids and Lipidomics in Algae

Organized by Jeff Leblond



MARINE ALGAE COURSE

Biology 539 (9 Credits) June 14 - July 16, 2010
University of Washington Friday Harbor Laboratories,
San Juan Island, Washington

Instructors:
Dr. Bob Waaland and Dr. Tom Mumford

Major Topics:

1. Biodiversity of marine algae will be investigated by introducing and practicing the techniques and skills essential for identification of marine macrophytes including seagrasses. Seaweeds from diverse habitats (intertidal, subtidal, sheltered and exposed, eelgrass beds, salt marshes) will be examined in field forays and laboratory studies of these communities in the San Juan Archipelago and on the outer coast of Vancouver Island. Record keeping essential for biodiversity analysis will be emphasized. Lab methods will emphasize the use of essential literature, internet databases, and microscopic examination in order to understand the morphological and reproductive diversity details required for identification of seaweed taxa. Two dredging trips on the R/V Centennial will access the deeper marine flora; we plan to use an underwater ROV to examine seaweed communities in select localities.

2. Functional role of seaweeds as primary producers in marine communities will be examined by lab and field methods emphasizing growth and photosynthesis. Seaweeds' interaction with other marine community components will be explored. Lab and field exercises will include introduction to selected analytical gear for measuring environmental parameters and seaweed functions such as photosynthesis and growth.

3. Quantitative analysis of seaweed distributions and abundances will be investigated with a combination of lectures, field and lab exercises. Emphasis will be placed on study designs, sampling procedures, methods of data analysis and data interpretation. Students will use different field sampling methods to analyze population and community data. Practical applications such as the design of monitoring programs at multiple scales will be addressed; prior statistical knowledge is not a prerequisite.

4. Methods for seaweed cultivation will be investigated for use at laboratory and commercial scales as tools for algal life history, growth rates and development studies. Mesocosms as experimental systems, and for production of food, chemicals and restoration will be discussed. Special emphasis will be placed on kelp monitoring and restoration techniques in the vicinity of Friday Harbor.

The course is appropriate for marine biologists, botanists and ecologists as well as oceanographers with interests in marine biodiversity, conservation biology, and coastal ecology with an emphasis on macroalgal primary producers. Graduate students and advanced undergraduate students (juniors, seniors) are encouraged to apply.

The FHL facilities and environment provide the ideal combination of laboratory facilities, housing and a great variety of marine habitat types with high biodiversity representative of cool-temperate marine habitats similar to others world-wide. Ready access to a diversity of field sites, small boats, a larger research vessel, labs with seawater aquaria for maintaining specimens and conducting experiments, excellent microscopy facilities, an excellent library and computing facilities with internet access make this an ideal environment for this course. Enrollment limited to 12 students. See http://depts.washington.edu/fhl/ for fee, housing, and other details. Note that generous fellowship funds are usually available to help defray course costs.

For additional information contact:
Bob Waaland (jrw@u.washington.edu) or
Tom Mumford (Thomas.Mumford@dnr.wa.gov) and
Friday Harbor Labs: http://depts.washington.edu/fhl/

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FRESHWATER ALGAE COURSE 2010

Where and when? Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, Scotland (near the tourist area of Pitlochry), Friday, 4 June – Friday, 11 June. This is the 15th year that the course has been offered.

What is the course about? The course takes full advantage of the excellent range of aquatic and terrestrial habitats in this beautiful area of Highland Perthshire to provide a sound introduction to the recognition, identification and ecology of freshwater algae. Emphasis will be placed on the use of the microscope and taxonomic keys (print and electronic) for the identifiction to generic and species level and their ecological importance. Field trips, on foot or by vehicle, will be varied, but not strenuous and will be complemented by laboratory work, illustrated talks and class discussion. This course focuses on how to get to grips with identification, and the broader aspects of algal morphology, structure, reproduction, and classification (morphological and molecular).

Who are the course tutors? The course tutors are Dr Eileen Cox and Prof Elliot Shubert. Eileen and Elliot conduct research at The Natural History Museum, London, specializing in diatoms and green algae, respectively. We will be joined for part of the course, by two Guest Tutors. Dr Laurence Carvalho (Centre for Ecology and Hydrology: EU Water Framework Directive) and Prof Geoff Codd (University of Dundee: Cyanobacterial toxins).

Who are the participants? The course is open to individuals with different backgrounds ranging from beginners to those who would like to refresh their knowledge of particular groups of algae or experience collecting in a different region of the world.

What is the full cost of the course? The course costs £440 per person (approx 528€ or $700), which includes sole occupancy accommodation, all meals and tuition.

Is there support for students? Yes, support for a student stipend is available from:

1. The British Phycological Society
   http://www.brphycsoc.org/funding.lasso
2. The Phycological Society of America
   http://www.psaalgae.org/website/opportunities/grants.html
3. The British Ecological Society
   http://www.britishecologicalsociety.org

How do you get to Kindrogan? Edinburgh and Glasgow have international airports. The airports have a coach connection to the main railway station in the respective cities. The nearest mainline railway station is Pitlochry, which is on the London Kings Cross-Edinburgh-Inverness route. Participants will be met at Pitlochry by Kindrogan staff.

Where can I find more information? For detailed information about the Kindrogan Field Centre:
http://www.field-studies-council.org/kindrogan/

For course information, go to:
http://www.field-studies-council.org/2010/courseinfo.aspx?id=304

For booking information, go to:
<http://www.field-studies-council.org/professional/2009/bookinginformation.aspx>

For a booking form, go to:
http://www.field-studies-council.org/2010/bookinginformation.aspx

SEE YOU AT KINDROGAN!

If you have any other queries, please contact:

Prof Elliot Shubert
e.shubert@nhm.ac.uk
Department of Botany
The Natural History Museum
London, UK
Tel 020 7942-5606 (UK)
Tel +44 207 942-5606 (International)

ALGAE IN FRESHWATER ECOSYSTEMS 2010
University of Michigan Biological Station

The course "Algae in Freshwater Ecosystems" will be offered this summer at the University of Michigan Biological Station. Teaching the course will be Drs Rex Lowe (Bowling Green State University) and Patrick Kociolek (University of Colorado, Boulder). The Summer Session is from June 26 through August 21.

In this course, students will conduct a survey of the algae of northern Michigan with an emphasis on taxonomy and ecology. Students will become familiar with the algae of streams, bogs, fens, swamps, beach pools, and the Great Lakes. Special attention will be given to field investigations of periphyton and phytoplankton community ecology and their application to water quality assessment.

The region around the Biological Station is extremely rich and diverse in freshwater algae, and the course offers practical experiences and research opportunities. Scholarships to the Station are available.

For more information, please see the Station's website:

http://www.lsa.umich.edu/umbs/

or write to either instructor:
Rex Lowe Lowe@bgsu.edu
Patrick Kociolek Patrick.Kociolek@colorado.edu

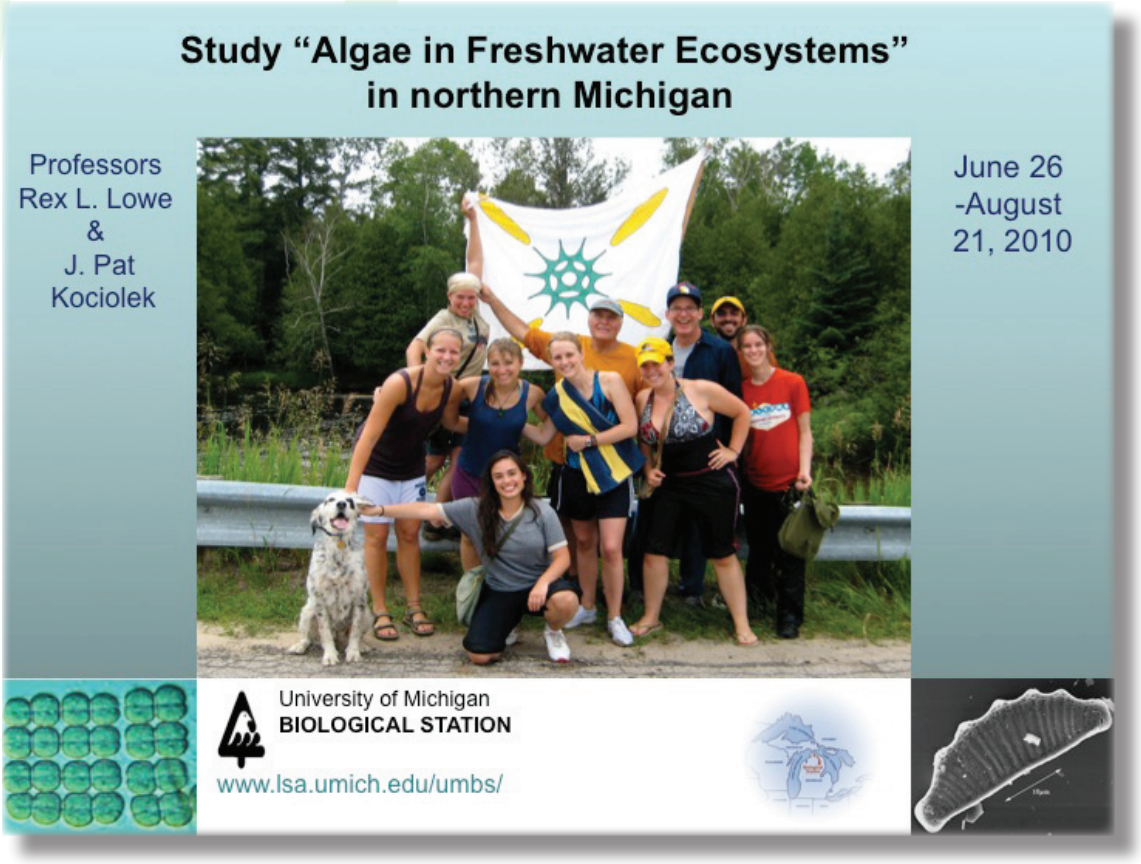
ALGAL IDENTIFICATION WORKSHOPS

Rex Lowe is also teaching two 2-3day workshops on algal identfication at Ohio State University's Stone Laboratory on Lake Erie August 2 & 3 and repeated on August 4 & 5.

The workshop will focus on Lake Erie algae with an empasis on invasive and harmful species. Attendees are encouraged to bring any problematic algal samples for assistance with identification.

For more information visit the website:

http://stonelab.osu.edu/



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DURHAM 2010
FRESHWATER ALGAL IDENTIFICATION COURSE

Dates: Sunday 4 July - Friday 9 July 2010

Venue: Hild-Bede College and School of Education, University of Durham, Durham, UK

Organisers: Professors Brian A. Whitton (Durham) and David M. John (London)

The aim of this course (since 1992) is to train staff from consultancies, research students, governmental and non-governmental laboratories, water companies and overseas visitors in the identification of the commoner and environmentally-important freshwater algae. The large majority are microscopic but included are macroscopic forms important for assessing the ecological status of flowing and non-flowing water. Other topics covered include sampling, ecology, monitoring, harmful and nuisance algae, and implications of the European Water Framework Directive.

The course provides an introduction for those with limited experience of freshwater algae, but has optional components for those who already have more background knowledge. The course is a mixture of lectures and practicals, together with an afternoon field trip. Members should arrive by 17:30 on the Sunday and the daily programme runs from 09:00 to 21:20 each evening. It ends formally after lunch on Friday, though there is an optional afternoon trip to sites along the River Wear.

Professors David John and Brian Whitton give the majority of the lectures. Dr Gordon Beakes (University of Newcastle), Dr Alan Donaldson (consultant) and Dr Martyn Kelly (Bowburn Consultancy) will also contribute.

Residence and meals are in Hild-Bede College. Arrangements can be made for special diet requirements. Members are encouraged to bring a laboratory coat and boots for a short field visit and (preferably) fresh algal samples from their local waters. Everything else is provided including access to *The Freshwater Algal Flora of the British Isles* and three identification CDs. Some may find it useful to bring their own portable computer. A training manual (2010 revision) will be distributed in advance of the course. Overseas members need *not* bring a laboratory coat or clothes for the field visit – these will be loaned.

The Durham Freshwater Algal Training Course of 2009 training course that included participants from the USA, New Zealand, Ireland, Sierra Leone as well as the UK

Travel: Durham is on the main rail line between London King's Cross and Edinburgh. Trains are about once an hour and the journey from London takes three hours. A taxi from the station to Hild-Bede College (about 1.5 miles, but a long hill for walkers) costs about £3.50. The nearest airport is Newcastle-upon-Tyne. There is a rail route from Newcastle airport to Durham, though this involves changing at Newcastle main rail station (overall from one to two hours). A taxi from Newcastle airport to Durham (26 miles) takes 35-45 minutes and costs about £45. The organizers usually meet members at the airport if they arrive on a day prior to the course.

Cost: The inclusive cost for all participants other than full-time research students is £870 (no VAT charge). The discounted price for full-time students or people from countries outside Europe is £770. Students who are members of the British Phycological Society may apply to the Society for support at:

http://www.brphycsoc.org/funding.lasso

Hild-Bede College can provide accommodation for anyone wanting to stay an extra night at the beginning or end of the course (about £32 per night). Payment can be included in the main invoice, provided organizers are infomed in advance; otherwise it should be paid directly to the college after arrival. Dinner on Friday (but not bed and breakfast) will be provided free to anyone wanting to stay the night.

Booking Provisional and firm reservations for one of the 15 places should be made by email to:

b.a.whitton@durham.ac.uk

to be followed by an official order OR a deposit of £50 to B.A.Whitton Algal Training, 74 Archery Rise, Durham DH1 4LA, UK.

Payment is required by 15 June. Refunds (minus £50 deposit) will be made to anyone paying early and cancels before 15 May; while a 50% refund will be made to anyone cancelling by 15 June.

For Further Information contact

Brian Whitton b.a.whitton@durham.ac.uk
phone ++44(0)191-386-7504

David John d.john@nhm.ac.uk
phone ++44(0)208-464-6367

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MEETINGS

49th ANNUAL ALGAL SYMPOSIUM THE NORTHEAST ALGAL SOCIETY

On April 17 – 19 2010, The Northeast Algal Society will hold its 49th Annual Algal Symposium on the theme Algal Biogeography: Shifts In Algal Distributions at Roger Williams University in Bristol, Rhode Island.

Attended by over 100 ecologists and biologists, this three day event provides prominent researchers and students the opportunity to present their on-going research, attend a five- lecture mini-symposium on biogeography, and collaborate with peers throughout the region. Saturday the 18th will include oral and poster presentations by undergraduate and graduate students and Sunday will feature a mini-syposium on biogeography.

Our keynote speaker for this mini-symposium will be Dr. Olivier DeClerck, from Ghent University, Belgium. Additional mini-symposium lectures will be given by Dr. Marci Marston (Roger Williams University), Dr. Tatiana Rynearson (University of Rhode Island), Dr. Craig Schneider (Trinity College) and Dr. Peter Siver (Connecticut College).

The first circular for the conference will be distributed in late January, with the second circular to follow in March.

We look forward to seeing everyone in Rhode Island!

Dr. Chris Lane
University of Rhode Island

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NATIONAL ALGAL ASSOCIATION
WEST COAST CHAPTER WORKSHOP
February 25th & 26th

Las Vegas, Nevada, Monte arlo Hotel and Casino

- Learn about algae derived products & applications
- Obtain investment advice for the fast growing algae market
- See working algae systems & equipment
- hear engaging speakers discuss the future of algae

Monique Berry
Executive Vice President
BioCentric Energy
949-939-4291

ECBOL2
2010 INTERNATIONAL YEAR OF BIODIVERSITY

2ND CONFERENCE OF THE EUROPEAN CONSORTIUM FOR THE BARCODE OF LIFE

2-4 JUNE 2010
UNIVERSITY OF MINHO, BRAGA, PORTUGAL

Dear Colleagues:

You are cordially invited to participate in ECBOL2

Please visit our website for more information at
http://ecbol2.bio.uminho.pt/ECBOL_2.html

For more information send an email with your name and institution with the subject "pre-registration eCBOL2" to be included in themialing list and receive email updates. The email address is:
ecbol2@bio.uminhopt

Felipe Costa
University of Minho
Braga, Portugal

NORTHWEST ALGAL SYMPOSIUM 2010

The 24th Northwest Algal Symposium (NWAS) will meet on the weekend of April 16th-18th, 2010 at the Cornet Bay Environmental Learning Center on Whidbey Island, Washington . The Cornet Bay Environmental Learning Centeris part of the Deception Pass State Park:
http://www.visitwhidbey.com/camp-grounds/Deception-Pass-State-Park.html

The Center is located on a small sheltered bay and was the site of the CCC camp that built most of the park structures in the 1930's. The site has a large dining hall, a recreational center (set up for talks), and 19 cabins each with 10 double bunks.

We also encourage the participation of the very large and active local citizen science and beach stewardship group, the Island County Beachwatchers

http://www.beachwatchers.wsu.edu/island/

The symposium will include oral and poster presentations covering any aspect of macro or microalgal research and this year we also particularly welcome talks on seagrasses, bioenergy and citizen science. The symposium will provide an excellent forum for the exchange of information and ideas in a relaxed and informal setting; long term algal aficionados and novices alike are encouraged to participate. Undergraduate and graduate students are, in particular, most welcome! Awards will be presented for the best student poster and best oral presentation.

Housing will be provided on site. Accommodations will be provided in cabins. Arrangements have also been made for group rates at local motels in Oak Harbor. Housing is not included with the registration fee. Meals will be provided from Friday evening through Sunday at noon. On Saturday night, we will be having a catered banquet on site in the dining hall. The banquet is included as part of the registration fee. A liquor license has been obtained for the symposium. There will also be an auction of phycological memorabilia to raise funds for student travel and registration assistance.

Students will be encouraged to apply for assistance for travel and registration as well as several paying positions to help with registration and audio visual equipment.

A field trip will take place in the Deception Pass area, a moderately to highly exposed rocky intertidal with very high currents. This will be an excellent opportunity for new and old to share knowledge and do a little mentoring.

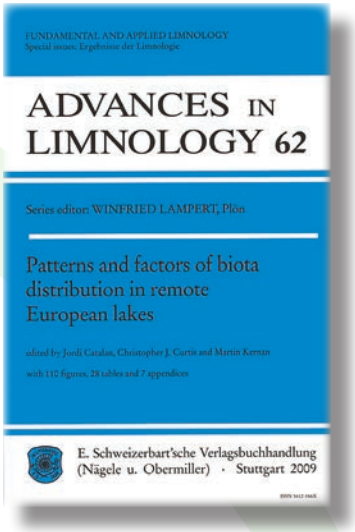
Please spread the word- all are welcome. Future announcements will be circulated by email and announced on ALGAE-L and the NWAS listserver. Also, please join the Northwest Algal Symposium group on Facebook. Registration & Abstracts will be due on the 1st of March.

For further information, please contact

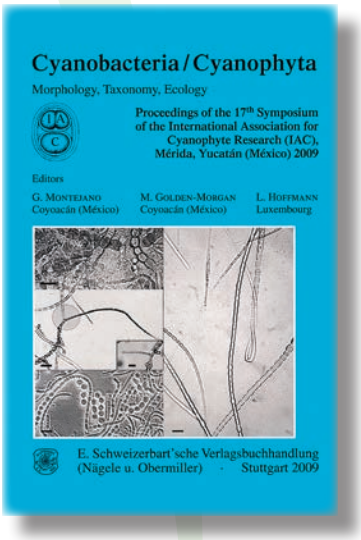
Tom Mumford tmumford@u.washington.edu
3647 Sunset Beach Dr NW,
Olympia, WA 98502-3537

BOOKS

NEW BOOKS FROM SCHWEIZERBART



Patterns and factors of biota distribution in remote European mountain lakes, Ed.: Jordi Catalan; Christopher J. Curtis; Martin Kernan 2009. 440 pages, (Advances in Limnology, Volume 62) ISBN 978-3-510-47064-8, paperback, 96.00 Euro Page URL:
http://www.schweizerbart.de/publications/detail/isbn/9783510470648/Patterns-and-factors-of-biota-distribution-in-remote-European-lakes



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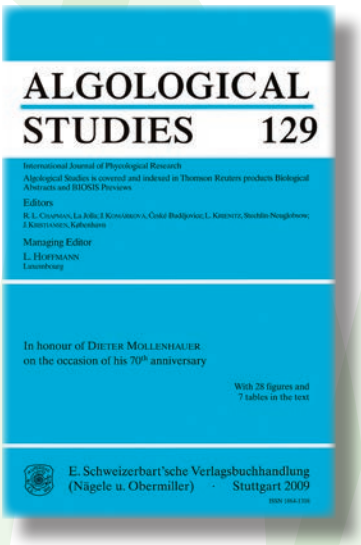
Algological Studies, Volume 130: Cyanobacteria / Cyanophyta - Morphology, Taxonomy, Ecology Proceedings of the 17th Symposium of the International Association for Cyanophyte Research (IAC), Merida, Yucatan (Mexico) 2009. 135 pages, paperback, 109.00 Euro, Page URL:
http://www.schweizerbart.de/publications/detail/artno/221013000/Cyanobacteria--Cyanophyta---Morphology-Taxonomy-Ecology



Algological Studies, Volume 129: In honour of Dieter Mollenhauer on the occasion of his 70th anniversary 2009. 96 pages, 87.00 Euro, Page URL:
http://www.schweizerbart.de/publications/detail/artno/221012900/In-honour-of-Dieter-Mollenhauer-on-the-occasion-of-his-70th-anniversary#

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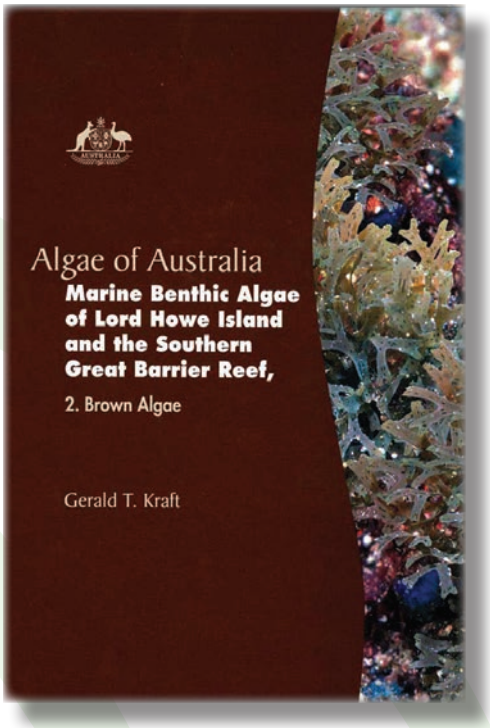
website: http://www.schweizerbart.de

NEW TITLES



Kraft G. T. 2009. Algae of Australia: marine benthic algae of Lord Howe Island and the Great Barrier Reef, 2. Brown algae. ABRS, Canberra; CSIRO Publishing, Melbourne. vi + 364 pp. ISBN 978 0 643 09737 7 hard-bound, A$140.00.

This beautifully written and handsomely produced book is second in an anticipated series by Gerald Kraft, the first being his 2007 volume 1 on the "Green algae" of this same iconic region of the southern Great Barrier Reef along with remote Lord Howe Island in the southwestern Pacific Ocean. Once again the material is presented in a thoughtfully organized manner, with an introductory section on the physical layout of the territory covered and an explanation of how this flora compares with comparable regions. A useful "Key to Genera" is presented, followed by the systematic treatment, each genus and species entry being provided with a detailed yet readable account, including up-to-date references to the literature and information on contributions from gene-sequencing data. Abundant illustrative material is inserted throughout, mostly of black and white photographs of habits, as well as photomicrographs of cross-sections, reproductive structures, and other informative details. Many of the black & white plates are collages of a dozen (or more) separate images. Mid-way through the book is a welcome splurge

of a dozen plates in full color, of marine habitats as well as shots of in situ specimens, both macroscopic and microscopic. A total of 92 species in 38 genera are described and illustrated in this volume. Two new genera are described: *Herringtonia* in the Dictyotales and *Lucasia* (by N. Yee and A. Millar) in the Sporochnales. There is a total of 29 newly described species, assigned to *Discosporangium, Hincksia, Hecatonema, Myriactula, Myrionema, Streblonema, Compsonema, Sphacelaria, Dictyota, Distromium, Lobophora, Padina, Spatoglossum, Stypopodium,* and *Sargassum.*

Ott, F. D. 2009. Handbook of the taxonomic names associated with the non-marine Rhodophycophyta. J. Cramer, Berlin and Stuttgart. xxiv + [i], 969 + [2] pp. ISBN 978-3-443-50034-4. Paperback. approx US$200.00 (or more).

This compendium of names of taxa, at all levels, of non-marine red algae represents the culmination of many years of library work and tracking down old and recent literature by Franklyn Ott. Careful detail is provided for all the entries. Of the 62 genera of "non-marine Rhodophyophyta" that are listed at the start of the volume, Ott concludes with an accepted list of 55 genera of non-marine red algae that he deems "worthy of continued recognition". *Askenasya, Asterocystis, Cyanoderma, Petrovanella, Pluto, Vanhoeffenia,* and *Zachariasia* are dismissed for various reasons. Several of these names have already been discounted by previous workers. Ott validates the names of some higher–level taxa, such as the orders Chrootheceales and Cyanidioschyzonales and the families Chrootheceaceae and Cyanidiodioschyzonaceae. He also proposes numerous transfers of species into *Pseudochantrasia*, and a limited number of transfers into *Audouinella* and *Chroothece*. The contents of the book (some 600 or so species) are variously organized, including an alphabetical listing of names as well as a complete nomenclatural and taxonomic treatments, with attention extending to infraspecific taxa. A comprehensive bibliography is provided.

Michael J. Wynne
University of Michigan Herbarium

SEAWEEDS FROM SRI LANKA

Coppejans, E., F. Leliaert, O. Dargent, R. Gunasekara, & O. De Clerck. 2009. Sri Lankan Seaweeds - Methodologies and field guide to the dominant species. Abc Taxa, volume 6, i-viii, 265 pp. Cost 24.20 Euro. For various shipping rates, see:

http://www.abctaxa.be/downloads/volume-6-algae-sri-lanka

This book is also downloadable free from the same site above!

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PHYCOLOGICAL TRAILBLAZER No. 32: Ante Ercegović

The main reason to include Ante Ercegović (Fig. 1) in this series of Phycological Trailblazers is to call attention to his many contributions in describing the algal flora, including Cyanobacteria, of Croatia and the Adriatic Sea. He was born on 25 October, 1895, in the town of Jesenice near Split, Croatia, into a farming family of modest means. He was able to carry out his studies with the aid of foreign assistance. After a classical education in Split, he completed his initial studies in the Faculty of Theology. Later, he enrolled in the Faculty of Natural Sciences of Ljubljana and Zagreb, where he studied biology and where in 1924 he obtained the degree of doctor of natural sciences. In his doctoral research involving the lithophilic vegetation inhabiting the dolomitic and calcareous habitats of Croatia, he discovered microscopic algae living on and in the rocks, forms whose existence had been unknown up till then. This initiated his scientific studies of the algae and led to his broader interest in both lithophytic/terrestrial and marine algae. Over his career, he described a large number of new genera and new species. It is worthwhile to call attention to his body of work and also to discuss the current status of some of the new taxa that he described.

According to Alfirević (1970), the body of Ercegović's scientific work can be divided into three distinct periods: 1) his research on lithophytic algae, including on submarine rocks; 2) basic questions of oceanography, such as productivity of the Adriatic, the capacity of this body of water to produce organic matter; and 3) his exploration phase, studying the vegetation of the benthos, the macroalgae attached on the bottom of the sea. In the early part of his professional career (the 1920s-30s), while in the Botany Dept. of Zagreb University, Ercegović worked on Cyanobacteria. In his first publication (1925) he described several new genera of rock-penetrating Cyanobacteria (*Croatella, Lithococcus, Lithocapsa, Pseudocapsa,* and *Voukiella). Croatella* is now regarded as a later taxonomic synonym of *Petalonema* (Geitler, 1932), and *Lithocapsa* is no longer recognized. But the other three names are included in the "Approved list of generic cyanobacterial names" (Komárek & Hauer, 2009). In 1927, he described three additional new genera of lithophytic "Cyanophycean" algae. Although the generic status of *Solentia* has held up, Frémy (1934) later interpreted Ercegović's *Aspalatia* to be a developmental stage of the red alga *Bangia*, and Geitler (1942) considered *Boanema* to be a developmental stage of the red algal genus *Nemalion*. He described other new genera assigned to the Cyanophyceae, including *Dalmatella* (1929a) (Fig. 2). But his new genus *Kyrtuthrix* (1929b) was treated by Frémy (1934) as a synonym of the earlier name *Brachytrichia* Bornet et Flahault. His *Hormathonema* (Ercegović, 1929b) was merged with his own *Solentia* when Le Campion-Alsumard & Golubic (1985) proposed the transfer of the type species, *H. paulocellulare,* to *Solentia,* a proposal subsequently

Fig. 1. Ante Ercegović at Dinard Colloque, France, 1957 (Image taken by W. R. Taylor).

validated by Beljakova (1988). According to Geitler (1942), his *Tryponema* (1929b) is obviously not cyanophycean. Ercegović's (1929c) *Lithonema* was a later homonym and was replaced with *Adrianema* by De Toni (1936) (Komárek & Hauer, 2009).

The new genus *Scopulonema* (Ercegović, 1930), though recognized by Geitler (1942), was later treated as congeneric with *Pleurocapsa* by Komárek & Anagnostidis (1999). In 1931 he described two new genera of Cyanobacteria, *Brachynema* and *Podocapsa,* but both were later homonyms and thus illegitimate. The former was renamed *Ercegovicia* by De Toni (1936). His (1932b) *Epilithia* was also a later homonym, predated by *Epilithia* Nylander (1853). He was not only describing new genera of Cyanobacteria but in this period was also describing many new species (of *Borzia, Calothrix, Chroococcus, Isocystis, Lyngbya, Radaisia, Scytonema*), often re-cycling the epithets "*endolithica*", "*epilithica*", and "*lithophila*".

In 1930 the Oceanographic Institute at Split was founded with the goal of fostering the exploration of the flora and fauna of the Adriatic. As a young naturalist, Ercegović was drawn to the rocky coastline and the azure depths of the Adriatic Sea. Ercegović moved from Zagreb to Split to become a researcher and teacher at the Institute. The second phase of his career commenced when he began investigating the physical-chemical conditions of the Adriatic, including sea-water temperature, salinity, concentrations of inorganic compounds, and correlations of these factors with changes in the productivity of the phytoplankton, the first step in the food-chain, leading up to the various fish. Ercevović's studies led him to conclude that the quantity of phytoplankton in the Adriatic was dependent on the dissolved salts, especially the level of phosphates, and the concentration of phosphate in the Adriatic was ten times (or more) less than that of seas of northern Europe. The amount of dissolved phosphate was only about 3 mg per ton of sea-water. This fact explained why the Adriatic lacked the potential for a large fisheries industry compared to northern seas (Ercegović, 1936, 1940).

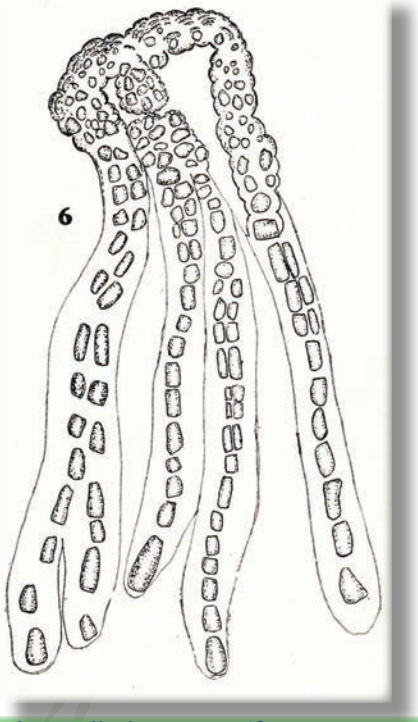

Fig. 2. *Dalmatella buaensis (from Ercegović, 1929a, fig 6).*

In the third phase of Ercegović's career, his attention was drawn to the benthic macroalgae, forms that could grow attached to rocks and at great depths. Ercegović (1948) provided an account of some of the brown algae occurring in the Adriatic basin, including several new species: *Elachistea jabukae, Myriactis microscopica,* and *Desmarestia adriatica* [now regarded as conspecific with *D. ligulata*], as well as the new var. *adriatica* of *Spermatochus paradoxus* and a new forma (*profunda*) of *Elachista intermedia*.

Ercegović (1949a) described the new genus *Yadranella (Y. adriatica sp. nov.*), placing it in the Nemaliales. Kraft & Abbott (1971), however, offered evidence to treat *Yadranella* within *Predaea* (family Nemastomataceae), namely, as conspecific with *P. ollivieri* J. Feldmann. Also in 1949, Ercegović (1949b) described several new species, including *Halymenia rhodymenioides* and *H. pluriloba* (Fig. 3), *Nitophyllum flabellatum, Peyssonnelia magna, Phyllophora fimbriata, Rodriguezella*

pennata, these all being currently recognized (Guiry & Guiry, 2009). But in that same paper his new species *Nemastoma constrictum* was treated as a synonym of *N. dichotomum* J. Agardh var. *caulescens* (Kütz.) C. Rodríguez-Prieto, M. Verlaque & A. Vergés (Rodríguez-Prieto et al, 2004). His *Halymenia trabeculata* is now thought to be either conspecific with *H. latifolia* Kütz. or as var. *trabeculata* within that species (Parkinson, 1980), and his *H. mucosa* was treated by Codomier (1972) to be conspecific with *Sebdenia rodrigueziana*, the latter binomial later being validated by Parkinson (1980) (Manghisi & Ribera 2007). Regarding his new species *Dudresnaya nodulosa*, it is now thought that he misinterpreted the condensed young primordial of indeterminate branches to be initial elements of sexual reproduction in the genus *Dudresnaya*. Feldmann & Feldmann (1967) recognized that this species was Ceramiacean, in a genus related to *Crouania*. This taxon is now known as *Gulsonia nodulosa* (Ercegović) J. Feldman & G. Feldmann (Berecibar et al., 2009).

He produced a lengthy treatment (1955a) of the genus *Ectocarpus* from the central Adriatic, describing many new species His *E. adriaticus* was treated at the varietal level of *E. siliculosus* by Cormaci & Furnari (1987). These same authors transferred Ercegović's *E. battersioides* and *E. paradoxoides* to the genus *Feldmannia*. Cormaci & Furnari (in Gallardo, 1992) transferred three of these species of *Ectocarpus (E. dalmaticus, E. geniculatus,* and *E. hauckii*) to the genus *Hincksia*. *Ectocarpus pectenis* appears unscathed.

In the same year (1955b) Ercegović described three new genera of brown algae: *Adriogloia* and *Dalmatogloia* (both Chordariaceae), and *Padinopsis* (Dictyotaceae) Although these three genera are still recognized as "Current" by AlgaeBase (Guiry & Guiry, 2009), Ribera et al. (1992) put all three genera in their category of "Taxa inquirenda". They remain poorly understood. For example, *Padinopsis* is known only from Ercegović's original single vegetative collection from a depth of 50-70 m off Jabuka Island. Ercegović (1956) described several new species of *Lomentaria (L. clavaeformis, L. jabukae,* and *L. subdichotoma*), which were all recently recognized by Afonso-Carrillo et al. (2009). Eregović's *Lomentaria tenera*, however, was a later homonym and was replaced with the new name *L. ercegovicii* by Verlaque et al. (1977). His *Chylocladia pelagosae* remains recognized.

It was obvious that the small wind-exposed Adriatic island of Jabuka, at 43º 5.7′ N. lat. and 15º 26.9′ E. long., captured Ercegović's attention. From 1947 and continuing into 1956, he was able to carry out littoral and sublittoral collections, culminating in his 1957a publication He compiled a list of about 300 species of algae from Jabuka. This list included the description of a number of new species, including *Acrochaetium incrassatum, Pseudochlorodesmis tenuis,* and *Pseudodictyon inflatum* [later transferred to *Acrochaete* by Gallardo et al. (1993)]. Nielsen (1972) transferred Ercegović's *Endoderma* (?) *hirsutum* to *Phaeophila* (with a query) and his *Endoderma* (?) *endolithicum* to *Entocladia* (with a query).

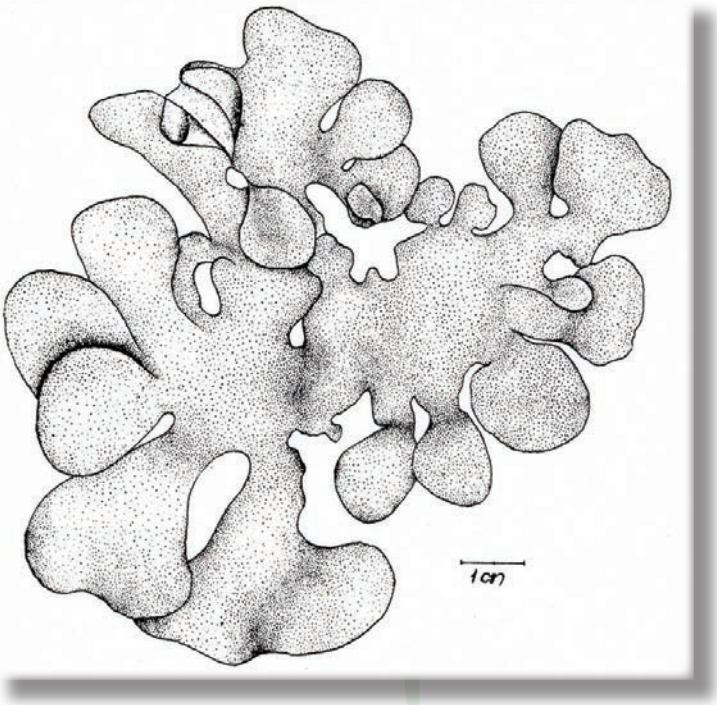

Fig. *3. Halymenia pluriloba (from Ercegović, 1963, fig. 8).*

The culmination of Ercegović's research was his monographic treatment of the brown algal genus *Cystoseira* in the Adriatic Sea. In 1952 he produced an impressive work in which a total of 15 species were recognized and described in detail, some with infraspecific taxa. The picture that emerged was that the genus was undergoing active speciation in the Adriatic (Ercegović, 1953). The new species included *C. crinitophylla, C. jabukae,* and *C. pelagosae*, which remain recognized. His *C. platyramosa*, however, was regarded as *C. spinosa* var. *compressa* (Ercegović) M. Cormaci et al. (Cormaci et al. 1992), and his *C. spicata* was treated as *C. amentacea* var. *spicata* (Ercegović) Giaccone in Gallardo (1992). He also delineated many infraspecific taxa of *C. abrotanifolia, C. adriatica, C. barbata,* and *C. discors*. Roberts (1978) has put Ercegović's findings into perspective. As a result of Ercegović's important work, several leading phycologists of the time communicated with Ercegović their interest in becoming better acquainted with the marine vegetation of the Adriatic and in sharing their own recent research findings. This all led to Ercegović hosting an international colloquium of phycologists that took place at the Institute of Oceanography and Fisheries in Split on 16-27 July, 1958. This gathering included Kurt Beth of Naples, Trygve Braarud of Oslo, Adrien Davy de Virville and Jean and Genevieve Feldmann of Paris, Carl Levring of Göteborg, Søren Lund of Copenhagen, Tscharna Rayss of Jerusalem, and Francis Walker of Edinburgh. At the conclusion of their discussions, the participants boarded a vessel of the station and cruised the Adriatic, stopping to dive and dredge at the island of Jabuka, where sublittoral collections were made (Alfirević, 1970).

In 1963 Ercegović described *Halymenia hvarii*, named for the island of Hvar, off the Croatian coast. He also described *Pterocladiopsis hirsuta* as a new genus and species of red algae but of uncertain taxonomic assignment because reproductive organs were lacking. His great love for his home region and the Adriatic Sea was reflected by some of the generic names that he proposed: *Croatella, Dalmatella, Dalmatogloia,* and *Yadranella*. His early collections are probably deposited in the Herbarium of Zagreb University (ZA). Although Ercegović initially failed to designate type specimens, he did state that he was depositing his original material in the herbarium of Zagreb or that of the Institute at Split. Designation of a type specimen was not a requirement of the Code (ICBN) until 1 January, 1958. According to Stafleu & Menenga (2000), his herbarium and types were left with the Oceanographic Institute in Split. But a major part of his herbarium was destroyed during the 1991-1995 local war in Yugoslavia, except for specimens of *Cystoseira* and *Sargassum* that were out on loan at the time (A. L. Lovric, pers. comm.). According to Verlaque et al. (1999), the holotype of *Cystoseria jabukae* was in the "Ercegović Herbarium at Split", but because of its poor condition, they were unable to borrow it.

By the time of his death at the age of 74 on 25 April, 1969, Ercegović had become know as an internationally recognized scientist. He was a member of the Yugoslav Academy of Sciences and Arts, the recipient of a prize from the Socialist Republic of Croatia, and a senior scientific advisor of the Institute for Oceanography and Fisheries in Split. Lovric's (1971) new subsp. *ercegovicii* of *Lithophyllum tortuosum* honored Ercegović's name. Ercegović was also remembered in tributes by Alfirević (1970), Pavletic (1970), and Pucher-Petkovic (1970). On the occasion of the tenth anniversary of his death, a publication (Ercegović, 1980) was issued that serves as a useful synthesis of his work on the marine algae occurring on the littoral shores and in the depths of the Adriatic Sea. It presented a checklist of species (including Cyanophyceae) that came to an impressive total of 544 taxa. It also provided a break-down of the vertical range of each taxon, their occurrence in the eulittoral and sublittoral. Some species were recorded to depths of 100 m, which corresponded to the lower sublittoral.

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JOB OPPORTUNITIES

Five Post-Doctoral Positions DOE ARPA-E Funded Microalgal Biofuels Project Iowa State University

Five post-doctoral positions are available to begin immediately on a DOE ARPA-E funded project to develop "A Genetically Tractable Microalgal-based Platform for Advanced Biofuel Production". The primary aim of the project is to convert the genetic model microalga *Chlamydomonas* into a viable alternative for microalgal biofuel production using a systems approach that combines metabolic engineering and mutagenesis with metabolome and transcriptome profiling and metabolic flux analysis. Goals include engineering of increased oil production, increased productivity and increased thermal tolerance in a genetically tractable organism that will facilitate the genetic combination of a variety of desirable traits. The available post-doctoral positions include opportunities to work with the 5 ISU Co-PIs: Larry Halverson, Basil Nikolau, David Oliver, Martin Spalding and Eve Wurtele. We seek highly motivated researchers with demonstrated outstanding ability and accomplishment in the general areas of

Algal/plant molecular biology
Bioinformatics and computational biology
Chlamydomonas genetics and genomics
Lipid biochemistry and metabolite profiling
Metabolic biology

A Ph.D. in biochemistry, genetics, molecular/cellular biology, computer-science/computational-biology or a related area is required. Experience with microalgae, especially *Chlamydomonas* would be beneficial for some positions but is not required. The successful candidates are expected to demonstrate independence and creativity. Good oral and written skills and a strong publication record in refereed journals are required. We seek highly motivated researchers with demonstrated outstanding ability and accomplishment. The positions are located in modern, well-equipped facilities at Iowa State University in Ames, Iowa and offer competitive salary and benefits with the opportunity for professional growth and advancement.

Please inquire about these postdoctoral opportunities by email or website:

isupostdoc@iastate.edu

http://www.plantsciences.iastate.edu/postdocs/

Qualified applicants should send, via e-mail, a complete curriculum vitae and a statement of research interest, and arrange to have three signed reference letters sent to

isupostdoc@iastate.edu

Postdoctoral Associate in Algal Biofuels Research

A postdoctoral research position is available in the laboratory of Dr. Richard Sayre, Director of the ERAC Institute for Renewable Fuels at the Donald Danforth Plant Science Center in St Louis

http://www.danforthcenter.org/sayre/

The research will focus on development of advanced microalgal recombinant transformation systems to control pathogen and herbivore attack. A background in molecular biology and plant/algal pathology is preferred. This position is part of the recently awarded National Alliance for Algal Biofuels and Bioproducts (NAABB) sponsored by the DOE. Successful applicants will be expected to demonstrate a high degree of research productivity and innovation. In addition, excellent oral and written communication skills and the ability to work well in a collaborative research environment are essential. The initial appointments will be for two years with renewal up to five years contingent on research progress and continued funding. The position will be available in the early spring 2010. Applications must be received by April 1, 2010.

Please submit a CV, names and email addresses of three references familiar with your research, and a statement of interest to:

Ms. Billie Broeker
Director of Human Resources
RE: Sayre Lab-NAABB
Donald Danforth Plant Science Center
975 North Warson Rd
St. Louis, MO 63132

or by email to:
bcbroeker@danforthcenter.org
with Sayre-NAABB-postdoc in the subject line

NEWS FROM COLLEAGUES

A new center for seaweed research

A center for seaweed research, aquaculture and development (CEVAM, Centre d'Étude et de Valorisation des Algues Marines) has recently been created in Quebec (eastern Canada). CEVAM is a provincially-funded partnership between Université Laval in Québec City and the Cégep de la Gaspésie et les Îles. The goals of CEVAM are to promote both fundamental and applied research on macroalgae in the Gulf of St. Lawrence and the Canadian Arctic and to assess the potential for the exploitation of algal resources in natural and aquaculture settings. Research on natural seaweed populations is focusing initially on the ecology of kelp beds in cold waters, looking more specifically at local and regional productivity and trophic interactions within these ecosystems. Other projects involve *Saccharina longicruris, Alaria esculenta* and *Palmaria palmata*. Check our website:
www.cevam.qc.ca

Collaborations: We would like to establish national and international contacts and we are also encouraging visits to our centre. A workshop on the ecology of seaweeds in cold waters is also being planned for this summer, for more information contact
Anissa Merzouk Anissa.Merzouk@qo.ulaval.ca

Graduate Studies: MSc and PhD positions are available in Dr. Johnson's laboratory at Université Laval. These research projects will focus on the productivity of kelps beds and trophic interactions between kelp and sea urchins in these ecosystems. Applicants should send their CV to
Dr. Ladd Johnson Ladd.Johnson@bio.ulaval.ca

POETRY AND SCIENCE

Arthur J. Stewart, an aquatic ecologist, is a science education project manager for Oak Ridge Associated Universities, as well as a poet and essayist. He is working to help "close the divide" between the cultures of art and science. Here are two poems aiming to bridge this gap:

A LOVELY NAME

Well, if you've got a lovely name
like Lake Itaska, or Tanganyika, or my favorite –
Haematococcus zimbabwiensis –
I'll remember it
in a minute, for a long time.

But saddle me to learn
this classroom of your fresh faces with names
like Roy or Marlene or the three
slicey syllables of Aliesha and I guarantee
it will take time. Be patient,

my new no-name faces: I'll drill you
each to your hearts' content; I'll ask you
to think by connecting facts and I'll watch
your furrowing brows and learn your names

one by lovely one.

IN HONOR OF MICHAEL DROOP[1]

Years ago in blundering around after becoming
enticed accidently by the beautiful
alga, *Haematococcus*, blood-sphere
in color in some phases of its
small life, each single flagellated cell
elegant with an intense green chloroplast
and a red eye-spot, the cell
surrounded by a clear gelatinous matrix
made visible under the microscope by one drop
of India ink; swimming about
thousands per liter in small pools
like bird-baths, where, in encysted phase
resulting from nutrient limitation in part
their tiny bodies aggregate and make
a rust-red ring at the water-line

I discovered Oh,

the name alone
is wonderful too: five full syllables that work
various muscles around the mouth. So no
small wonder Michael Droop seized upon this
creature for study, nine ways
to Christmas over more than three decades
of scientifically productive time. And thus arrived

elucidation of the need
for biotin, thiamine and especially cobalamine
by some kinds of algae, but not necessarily
all three vitamins by all algal types and

of greater breadth and consequence, sweet
formulation of the cell quota model.

1. Leadbeater, B.S.C. (2006). The 'Droop Equation'—Michael Droop and the Legacy of the 'Cell-Quota Model' of Phytoplankton Growth. Protist 157:345-358.

Information about these efforts can be found at

http://pubs.acs.org/cen/books/84/8401books.html

Algal illustrations from Harvey's *Phycologia Australica* from the PSA website: http://users.ugent.be/phycology/harvey/

Deadline for contributions for the next PSA Newsletter:

September 15th, 2009

Please contact Juan Lopez-Bautista