

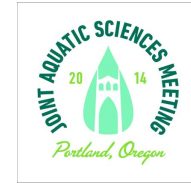
## Highlights



**NORDAL WILLE**  
TRAILBLAZER



**TRIBUTES**



**JASM 2014**

# PHYCOLOGICAL NEWSLETTER



## A Message from PSA President John Stiller

To begin, I would like to thank our membership for the opportunity and honor of serving as President of the Phycological Society of America for 2014. I also want to thank my immediate predecessor, Linda Graham, for all her efforts over the last year, and for her guidance during my year as Vice-President/President Elect. This will be an exciting year for the Society. Our annual meeting will be held May 18-23 at the Oregon Convention Center in Portland in conjunction with three other leading aquatic scientific societies. The meeting brings together the PSA, the Society for Freshwater Science (SFS), Association for the Sciences of Limnology and Oceanography (ASLO) and Society of Wetland Scientists (SWS) in an inaugural Joint Aquatic Sciences Meeting (JASM). The theme for this landmark conference is “Bridging Genes to Ecosystems: Aquatic Science at a Time of Rapid Change.” With over 3500 expected to attend, there will be many interesting opportunities for PSA members to network with other scientists from a broad range of aquatic disciplines. At the meeting PSA will be sponsoring the participation of Dennis Meredith, noted author of the book *Explaining Science*, in a special session on “Communicating the Value of Aquatic and Wetland Ecosystems to the Public and Policy Makers.”



...continued on page 2

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Dennis also will lead a workshop entitled “Tools and Techniques for Communicating Research”; topics will include how to give compelling talks, design informative slides, obtain and use visuals, write research explanations, produce effective posters, and work successfully with institutional and public information officers. Our Education Committee is helping to coordinate this workshop, so please contact Chair Robin Kodner ([Robin.Kodner@wwu.edu](mailto:Robin.Kodner@wwu.edu)) for more information. Portland is a great city to visit and the dates of the meeting are much earlier than most years; please do not delay in making your plans.

The 2014 meeting also will mark the beginning of a special year for our Society; 2015 is the 50<sup>th</sup> anniversary of the inaugural issue of the *Journal of Phycology* published in March 1965. A number of great ideas have been put forward in the Executive Committee about how best to commemorate the Journal’s “golden anniversary”, which will culminate in a special celebration at our 2015 meeting in Philadelphia. If you have suggestions for how the Journal and Society can best mark this historic milestone, or want to help out with planning, please contact me ([stillerj@ecu.edu](mailto:stillerj@ecu.edu)), Board of Trustees Chair, Rick McCourt ([psaalgaebot@gmail.com](mailto:psaalgaebot@gmail.com)) and/or the Journal editorial office. Ideas for the Philadelphia meeting also can be shared with Dale Casamatta ([dcasamat@unf.edu](mailto:dcasamat@unf.edu)), Chair of our Program Committee.

Exciting and productive meetings and workshops like these are only possible through the dedicated efforts of PSA members, generally working through Society Committees like the Education and Program Committees highlighted above. Committee Chairs always are on the lookout for help; please feel free to contact me if you would like to participate more actively in the Society and its endeavors. Promoting student research, education and development are particularly important to our mission, and to the future of phycology, and our Grants and Fellowships (Chair: Amy Carlile ([acarlile@newhaven.edu](mailto:acarlile@newhaven.edu)) and Student Award (Chair: Paul Gabrielson ([drseaweed@hotmail.com](mailto:drseaweed@hotmail.com))) Committees can always use additional reviewers and judges. Please consider volunteering for these or one of our other standing committees. A complete list is available on the PSA website.

So here is to a healthy, happy and productive 2014! I look forward to seeing you in Portland.



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# Joint Aquatic Sciences Meeting 2014

We are pleased to announce that registration and abstract submission is now open for the exciting 2014 Joint Aquatic Societies Meeting (of which PSA is a member), to be held May 18-23 in Portland, OR. This will be a historic meeting in that it brings together four societies associated with aquatic endeavors, united under the theme of **aquatic science at a time of rapid change**.

The abstract submission deadline for the 2014 Joint Aquatic Sciences Meeting is Friday, February 7. Please go to <http://www.sgmeet.com/jasm2014/> to learn more about the meeting, to review the list of scientific sessions, and to submit an abstract. In order to have your abstract considered for acceptance, you must submit before the abstract deadline of 23:59 U.S. Central Standard Time on Friday, 7 February 2014. **Abstract submission will not be extended.**



**Abstract Deadline:  
February 7, 2014**

## Plenary Lectures from the following:

Stuart Bunn, Griffith University, Australian Rivers Institute  
Laurel Larsen, University of California, Berkley  
Ginger Armbrust, University of Washington  
Patricia Soranno, Michigan State University  
Julian Olden, University of Washington, School of Aquatic and Fishery Sciences

Check out the website for information on each of these speakers  
<https://www.sgmeet.com/jasm2014/plenarylectures.asp>

An abstract submission fee of \$50.00 USD for professionals or \$30.00 USD for students is required for each submission. Registration is not required at the time you submit your abstract. After you have submitted your abstract, you may log back in and pay the required registration fee. **Please note that the early registration deadline will be extended to March 7, allowing you more time to register and take advantage of reduced registration rates.** Please watch the web site for more information.

Please contact JASM 2014 Project Manager, Lynda West ([lyndaw@sgmeet.com](mailto:lyndaw@sgmeet.com)), if you have any questions about the meeting.

# Upcoming PSA Award & Fellowship Deadlines

## Bold Award

Students are invited to participate in the Harold C. Bold Award competition, awarded for the outstanding student research presentation at the Annual PSA Meeting. This award, named in honor of the late Professor Harold C. Bold, has been awarded at PSA Annual Meetings since 1974. The winner will be awarded a certificate and monetary prize.

**Bold Award Eligibility:** Graduate students who are PSA members, regardless of nationality, are eligible to compete for the Bold Award, as well as former students within twelve months of completion of their degree. The work presented must be that of the student, must be presented orally by the student in English, and should be a complete or nearly complete project. Only one presentation may be made per year and students may enter no more than twice, and not in successive years. Previous Bold Award recipients and those who have failed to give a scheduled Bold Award paper without valid reason are ineligible.

**Important Note:** Students wishing to be considered for this award must notify the Award Committee chair (Dr. Gabrielson, address below) via e-mail or regular mail on or before the abstract deadline. An ORIGINAL signed letter from the student's research director (mentor or major advisor) or department chair, verifying that the candidate is a student and that the work to be presented represents the initiative, imagination, and labor of the student must be sent to Dr. Paul Gabrielson, the Bold Award Committee Chair to the following address: Dr. Paul W. Gabrielson, Bold Award Committee Chair, 2637 Shadetree Ln, Hillsborough, NC 27278 USA, Ph. 1-919-644-3238, Cell. 1-919-612-2392, email: [drseaweed@hotmail.com](mailto:drseaweed@hotmail.com)

**Abstract Deadline:**  
**February 7, 2014**

**Letter from Research  
Director:**  
**April 1, 2014**



## Lewin Award

The **Ralph A. Lewin Poster Award** competition will be held at the annual PSA meeting under the following criteria:

- ▶ An individual applying to be considered for the Lewin Poster Award must be a student of no more than one year past graduation at the time of the meeting where the work is presented and must notify the Award Committee Chair (address below) of his or her intention to apply for the award competition by the abstract deadline.
- ▶ The individual must be a Psychological Society of America member.
- ▶ Posters with multiple authors are permitted, but the student competing for the award must be the first and presenting author. Regardless of the number of authors, the student's mentor must certify that the poster is primarily the result of the candidate student's initiative, imagination, and labor. This ORIGINAL signed letter from the student's research director (mentor or major advisor) or department chair, verifying that the candidate is a student and that the work to be presented represents the initiative, imagination, and labor of the student must be sent to **Dr. Gabrielson**, the Award Committee Chair, by deadline (for last minute applications, an e-mail letter from the mentor, IF sent from an official university e-mail address is sufficient by the deadline but the hard copy letter must still be sent). Send this letter to the following address:  
Dr. Paul W. Gabrielson, Lewin Poster Award Committee Chair, 2637 Shadetree Ln, Hillsborough, NC 27278, USA, email: [drseaweed@hotmail.com](mailto:drseaweed@hotmail.com)
- ▶ Only one poster per student per year may be entered in the competition. If meeting rules allow multiple posters to be contributed by the same presenting author, the student must designate which poster is to be considered for the award. Poster size limit is 3' x 4'.
- ▶ There is no limit to the number of years in which a student may enter this competition. Posters describing the same overall project may be entered in multiple years but only if there are new data included in successive years. Posters on a student's project that has previously won this or the Bold Award are not eligible. Students who have won the Poster Award are eligible to present the same project in the Bold Award competition in a later year if additional data are included.
- ▶ Judging will include multiple aspects of the poster itself as well as the student's ability to informally discuss his or her's work at the poster session.

**Abstract Deadline:**  
**February 7, 2014**

**Letter from Research  
Director:**  
**April 1, 2014**

## PSA Croasdale Fellowship

The Hannah T. Croasdale Fellowships are designed to encourage graduate students to broaden their phycological training by defraying the costs of attending phycology courses at biological field stations. The purpose of the award is to broaden phycological training and not necessarily to further research goals. Proposals to study at field stations associated with universities other than the student's own are especially encouraged.

**Application and  
reference letter  
deadline:  
March 1, 2014**

Please see the fellowship webpage for application procedure details: [http://  
www.psaalgae.org/website/opportunities/grants/croasdale.html](http://www.psaalgae.org/website/opportunities/grants/croasdale.html)

**Successfully Funded Students:** Students given awards will be required to submit **4 separate items**. **1)** A final report (1 page) that indicates the activity/course and how it benefited the student's education. **2)** The student will be required to provide financial accounting (with receipts). **3)** The student will be asked to provide a photograph of themselves doing something professional and meaningful (e.g., learning about algal diversity at the beach). **4)** A short paragraph of what the student did with the PSA funding suitable for posting on the PSA Website. All of these items should be submitted to [Amy Carlile](#) as soon as possible.

The PSA Grants and Fellowship  
Committee is looking for new  
reviewers! Please contact Amy  
Carlile ([acarlile@newhaven.edu](mailto:acarlile@newhaven.edu))  
for more information.



Please see the PSA Student awards  
web page for application procedures:  
[http://www.psaalgae.org/website/  
opportunities/student\\_awards.html](http://www.psaalgae.org/website/opportunities/student_awards.html)

# Tribute

## Terence J. Evens (1967-2013)

It is with deep sorrow that we report the passing of Terence John "TJ" Evens, who died on September 21, 2013 in Cape Coral, FL. TJ was considered by many to be a fine scientist, with over 40 publications, but, more importantly, a wonderful husband, father, and friend of many. He is survived by his wife, Carol, whom he met while doing research in Antarctica, and daughters, Kayla and Jordan. TJ was an active member of the Phycological Society of America, having served the society in several roles, most recently as program director from 2008-2010.

In 1992, TJ received his B.A. with honors in Natural Sciences from New College of Florida, and then received his Ph.D. in 1999 in

Marine Sciences from the University of California, Santa Barbara under David Chapman. While there, TJ studied 1) the photophysiological characterization of primary photoprotective response capabilities of marine micro- and macroalgae (photopigments, fluorescence parameters, nutrient status, thylakoid architecture, enzyme kinetics, secondary catabolites, oxygen production), 2) physiological responses of Harmful Algal Blooms (HABS) to high light and ultraviolet radiation, and 3) design and optimization of algal



June 2013. TJ and family at Kayla's High School graduation. Jordan (daughter), Carol (wife), Kayla (daughter), TJ.

photobioreactors for analytical research. He then took a position with the U.S. Department of Agriculture, Agricultural Research Service (USDA-ARS) at the Southern Regional Research Center in New Orleans, LA where he 1) studied the ecology and physiology of harmful algal bloom species in response to agriculturally-derived nutrient sources and, 2) designed, constructed and optimized computer-controlled algal photobioreactors and culture systems for analytical research. In 2003 he took a Research Ecologist position at the USDA-ARS U.S. Horticultural Research Laboratory in Ft. Pierce, FL where he studied the effects of mineral nutrients, particularly  $\text{NO}_3^-$  and  $\text{PO}_4^{3-}$ , on microalgal growth as an indicator of aquatic ecosystem health. In 2011 he left the USDA-ARS for a new and energizing position with Algenol Biofuels, a small biofuels research company with a new algal-based technology that he thought would truly contribute to solving global energy needs.

Throughout the years, TJ made lifelong friends...from simple hellos at a hostel to intense scientific explorations. Our world is a much better place because of TJ.

~Carol Evens, Jeff LeBlond, and Randall Niedz

## Tribute

# Grethe R. Hasle (1920–2013)

Grethe Rytter Hasle passed away quietly in her sleep during the night between November 8 and November 9 at 93 years of age. Grethe Hasle was active until the very last. She drove her car for the last time a week before she died; she went on skiing holidays with her grandchildren in her eighties and she visited her log cabin with her family until after her 90<sup>th</sup> birthday. Grethe had her last scientific discussion ca. 2 weeks before she died, making sure that the scientific ideas she could not explore herself were passed on. Her huge collection of photos and samples from all over the world will be transferred to the Natural History Museum of Oslo and will make up the core of new algal collection.

Grethe was a very dedicated, inspiring and productive scientist. She started her scientific career at University of Oslo and worked on dinoflagellates and the taxonomy of coccolithophorids and ciliates. In 1968 she was awarded a doctorate in philosophy for her dissertation focussing on the phytoplankton in the Pacific Southern Ocean. After a visit to the diatom specialist Dr. Friedrich Hustedt in Bremen, Grethe Hasle found her true calling in life. She obtained diatoms from all parts of the world and built up an enormous knowledge on diatoms ranging from pennate to centric genera.

The high quality of Grethe Hasle's work is illustrated by her 1965 publication in "Skifter utgitt av Det Norske Videnskaps-Akademi", on *Pseudo-nitzschia*. Her description of *Nitzschia pungens* forma *multiseriis* (now *Pseudo-nitzschia multiseriis*) serves as a prime example of basic science unexpectedly attaining global interest, when in 1987-88 this diatom was found to be responsible for the production of domoic acid, causing Amnesic Shellfish Poisoning in humans. Throughout the years, Grethe assisted international researchers on the difficult taxonomy of diatoms including *Pseudo-nitzschia*. When she was asked what was most important to focus on in marine phytoplankton, she replied "What is there and how much of it is there?" She pursued this question throughout her career with meticulous dedication.

Grethe Hasle was nominated as Full Professor in Marine Botany at the University of Oslo in 1977, the third female professor in Natural Science at the university. She was also an elected member of the Norwegian Academy of Science and Letters in 1980, as the first woman in the Science class. In 1999 she received the Excellence Award by the Phycological Society of America, and in 2002 she was awarded the Yasumoto Lifetime Achievement Award by ISSHA. The diatom genus *Haslea* was named in her honour, as were a number of other algal species.

Her death marks the end of a generation of marine botanists working on diatoms. She stands out as an example to be admired and followed, not least by the many students whom she taught at international courses and who learned to appreciate her knowledge and her ready willingness to assist whenever a problem arose. Her death leaves a gap in the diatomologist community.

~Nina Lundholm and Øyvind Moestrup



Photo by Jahn Thronsen

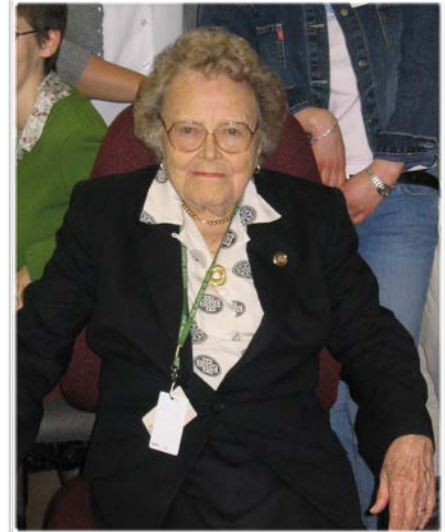


# Tribute

## Ruth Patrick (1907-2013)

Diatom and stream ecology pioneer Ruth M. Patrick passed away in Philadelphia on September 23, 2013 at the age of 105. Dr. Patrick was a botanist, specializing in diatoms, and innovative in developing methods to monitor environmental pollution using aquatic organisms. In 1907, she was born in Topeka, Kansas and received her doctorate from the University of Virginia before starting an unpaid position at the Academy of Natural Sciences (ANSP) in Philadelphia in 1937. Dr. Patrick's interests revolved around diatoms and, with Dr. Charles Reimer, wrote "The Diatoms of North America, Exclusive of Alaska and Hawaii" in two volumes (1966, 1975) which are still an important resource for diatomists worldwide. She also supported the diatom herbarium at ANSP, which is, by numbers of slides and samples, one of the largest and most important diatom collections in the world.

Through her work with diatoms, Dr. Patrick connected species composition to environmental conditions of streams, and specifically focused on the ability to determine the degree to which a stream was polluted. At the time, the paradigm was to examine how the streams affected organisms, rather using organisms to determine stream health. Using this new approach, Patrick founded the Department of Limnology at the ANSP in 1947, which was renamed the Patrick Center for Environmental Research in her honor in 1983.



Ruth Patrick in 2005 at the 15th NAWQA Diatom Taxonomy Workshop at ANSP (Photo: M. Edlund)



Diatom lab from University of Michigan visits the diatom herbarium, ANSP, 1996. L-R: Becky Bixby, Charlie Reimer, Mark Edlund, Norman Andresen, Gene Stoermer, Matt Julius, Ruth Patrick (Photo: M. Edlund)

Drs. Patrick and Reimer trained many influential diatomists and their legacy is evident in the number of "academic offspring" active in the diatom community. Patrick published more than 200 papers (starting in 1933), working well in her 90s and remaining active at the ANSP when she was 100. Dr. Patrick's awards was numerous throughout her career. Notably, she was the 12<sup>th</sup> woman to be elected into the National Academy of Sciences in 1970. In 1996, she was awarded the National Medal of Science from President Clinton and received life achievement awards from the American Society of Limnology and Oceanography and the National Council for Science.

~Becky Bixby

## Phycological Trailblazer No. 40: Nordal Wille

The life story and accomplishments of the Norwegian botanist-phytologist [Jordan] Nordal [Fischer] Wille (Fig. 1) (28 Oct. 1858 - 4 Feb. 1924) are certainly worth a re-telling. In a tribute to him on the 150th anniversary of his birth, Jørgensen & Vaalund (2008) called him the "most important promoter of botany in Norway in the last century". His contributions were significant mostly in terms of freshwater green algae. But he also studied other groups of algae including seaweeds, and he was very knowledgeable of flowering plants. Wille's birth was a bit of a surprise for his parents in that his Mother delivered him when she was 47 years old (Jørgensen & Vaalund, 2008). He had a difficult time growing up, afflicted with asthmatic bronchitis and bullied by his fellow students. But fortunately for him, he found his salvation in the sciences, and it helped that he was very bright. With a deep interest in geology, fossils, and botany, he was invited to participate in field trips. In 1878 he earned a scholarship to do research on freshwater algae. One of his earliest papers was an account of the fusion of gametes in the subaerial alga *Trentepohlia umbrina* (Wille, 1878).

Wille's early mentoring was from several people. Because Wille was the only person then in Norway interested in freshwater algae, he contacted the Swedish phycologist Veit Wittrock, and in 1878 Wille went to Stockholm and became Wittrock's student (Stafleu & Cowan, 1988). Despite a great age gap, the two developed a solid working relationship and

friendship. In 1881 Wille went to Copenhagen and studied with Eugenius Warming and then in 1882 on to Berlin, where he studied with Simon Schwendener. He also spent time working with Axel Blytt in Oslo. But after completing his education, there was no position open in Norway for him. So Wittrock offered him a position (as Regnellian Curator) in Stockholm in 1883. Wille's thesis work, done at the Biological Station in Kristineberg, Sweden, was on the anatomy of algae in relation to their function. He was the first person to receive a doctoral degree in botany (in 1885) from the Royal Frederic University (later the University of Oslo). He next became a deputy professor in Stockholm (in 1886), but a serious quarrel with the mathematician Gösta Gittag-Leffler prevented Wille from achieving full

professorship there (Jørgensen & Vaalund, 2008).

Wille participated in the German "Transit of Venus" Expedition of 1882-1883. The "Transit of Venus" is the celestial event when Venus crosses the sun, and this German expedition observed the 1882 transit of Venus on the grounds of Trinity College in Hartford, Connecticut. The chief astronomer left an inscribed stone marker so that the location of the main instrument would be known to future generations. But the marker was moved in 1959 to make way for the construction of a new building. There is a plaque on the library of Trinity College commemorating their visit. This expedition involved Wille's making collections of both terrestrial algae and benthic marine

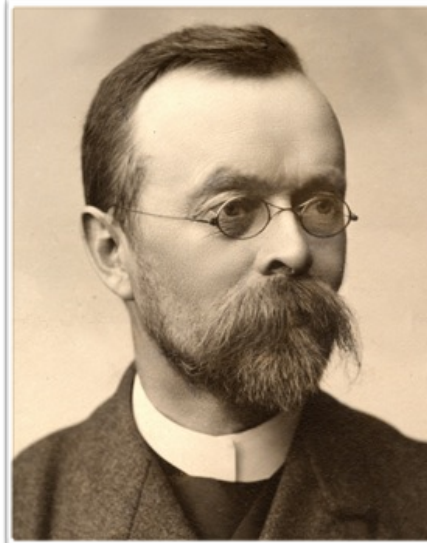


Fig. 1. Nordal Wille. [From the internet.]

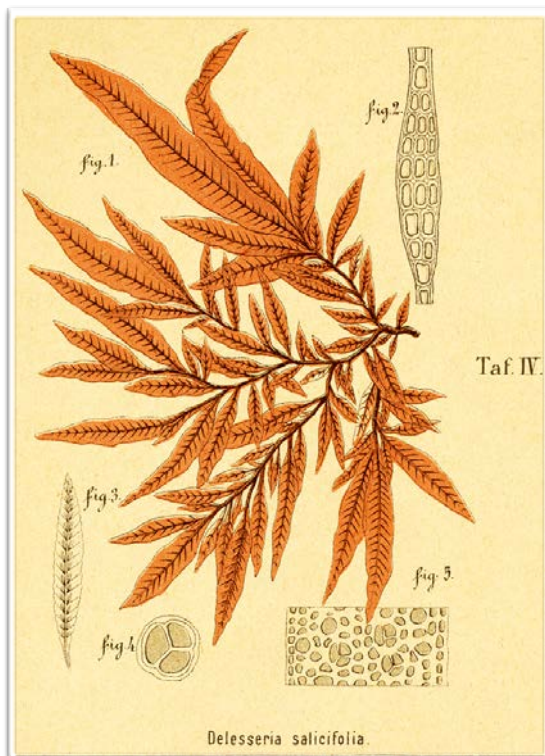


Fig. 2. *Delesseria salicifolia* Reinsch [now *Paraglossum salicifolium*]. Based on a collection made by Wille on South Georgia, Feb., 1883 [Reinsch, 1890, pl. IV.]

algae in the subantarctic island of South Georgia. Reinsch worked up the macroalgal collections made by Wille, with many new species described (Reinsch, 1888). Later, Reinsch (1890) had a more detailed account with plates (some in color) depicting Wille's collections (Fig. 2).

In 1889 Wille became the botanist at the College of Agriculture at Aas, which is 50 km south of Oslo; today it is the Norwegian University of Life Sciences. Wille married the daughter of the Director in 1891, and they had a son. But Wille's wife died in 1908 after a long illness, and the son, Hans Georg, was later to commit suicide. In 1911 Wille remarried, but that wife died of the influenza pandemic in 1917. He married for the third time the next year, 1918, and his wife, 30 years younger, whom he had met on a train, bore him a

daughter (Else Ingeborg) in 1920. During the darker periods later in Wille's life, this daughter was to become a ray of sunshine (Jørgensen & Vaalund, 2008).

Wille was appointed professor of botany at the Royal Frederick's University in Christiania [Oslo] in 1893, a position he would hold through 1924. He mentored a number of students, including H.H. Gran, H. Printz, and K.M. Strøm (phycologists or oceanographers) as well as half a dozen others working on terrestrial topics. After Wille's tenure at the Biological Station in Kristineberg, he planned for a new biological station at Drøbak, at the Oslofjord. That became a reality in 1894, and Wille served as its first director. One of his responsibilities as professor in Oslo was being Director of the Botanical Garden. At the time that he took it over, it had become very run-down and overgrown with vegetation. But he worked hard to turn it into a model farm. When Axel Blytt died in 1898, Wille became director of the Botanical Museum, and he planned to move the Museum from the University to Tøyen and thus to join the garden and the museum in one place. The Museum was completed in 1915. Also in that year Wille (1915b) published his thoughts on how vascular plants immigrated into Norway following the Ice Age. His primary idea was that the way to understand the distribution was to study the methods in which plants spread in the present time rather than by proposing vague and unprovable hypotheses of past events.

Wille (in Warming, 1884) is credited with the recognition and validation of the class name Chlorophyceae. Evidence of Wille's stature as an authority on green algae is that he was invited to write many chapters on the Conjugatae, Chlorophyceae, and Characeae in the prestigious "Die natürlichen Pflanzenfamilien" of Engler & Prantl (Wille, 1897a), a well illustrated compendium of the genera (Fig. 3). This work was an immense

success at the time. A supplement was later published (Wille, 1909b-1910a), where Wille validated the class names Siphonocladophyceae and Chaetophorophyceae (Wille, 1909b). He established several new genera of green algae: *Elakatothrix* (Wille, 1898), *Pseudendozonium* (1901a), *Pseudotetraspora* (Fig. 4) (1906b),

Fig 3. *Penicillus capitatus*.  
[Wille, 1897a, fig. 93.]

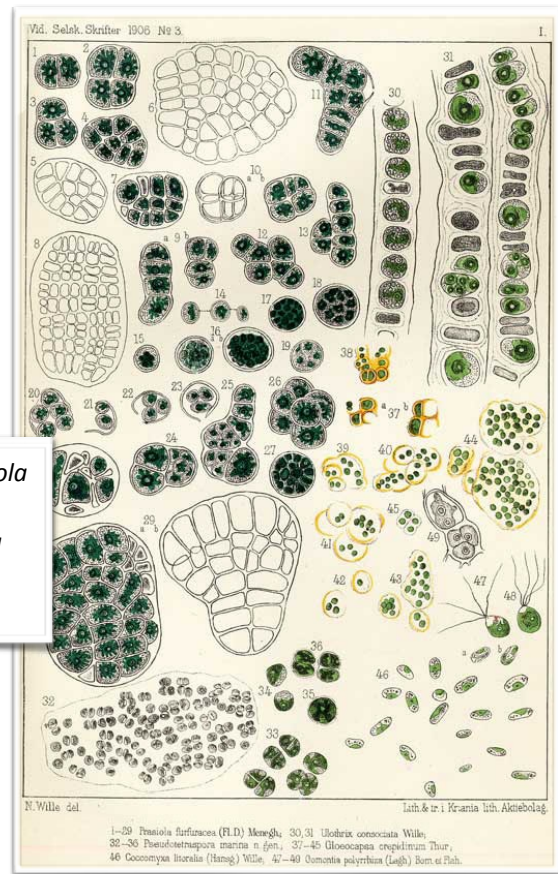


*Pseudopringsheimia* (1909b), *Pseudulvella* (1909b) and *Wittrockiella* (1909a). He described *Chlorogloea* (1900a), a new genus of Cyanobacteria. Wille's (1909b) *Monocilia*, however, is a later synonym of *Heterococcus* Chodat. He also described a new genus of red algae, *Vanhoeffenia* (Wille, 1924), from the Kerguelen Islands, but Bourrelly (1970) thought that it was likely synonymous with *Chroothoece*. Wille (1903b) established the new genus of snow algae *Chionaster*, with the type *C. nivalis* (Bohlin) Wille. Although Wille regarded *Chionaster* as a green alga, it is now treated as a fungus (Hoham, 1976; Nedbalova et al. 2008; Lukavsky & Cepák, 2010). Wille described *Ulva californica* in the "Phycotheca Boreali-Americana" of Collins et al. (1899). Wille (1899, 1900b) was credited by Setchell & Gardner (1920) with using the nuclear condition to distinguish *Spongomorpha* from *Acrosiphonia*, the former genus being restricted to species with uninucleate cells and the latter genus with multinucleate cells. Ström (1924) was later to refer to Wille's "highest exactness in observation and description" and

that Wille was "the universally recognized master of our science" (Fig. 5).

Wille also participated in some expeditions. He joined a geological excursion to the Caucasus and Turkestan in the autumn of 1897. He collected 130 samples of freshwater algae, and these were later worked up by Ström (1920). Wille worked up the collections made by others, brought back from such places as South America, the Antarctic, the Faroes, and the Arctic (Jørgensen & Vaalund, 2008). One example is his paper on freshwater algal collections brought back by the Austrian missionary J. Menyhardt from Zambesi, South Africa (Wille, 1903a). He worked up the algae brought back

Fig. 4. Plate 1 from Wille (1906a): 1-29 *Prasiola furfacea*; 30-31 *Ulothrix consociata*; 32-36 *Pseudotetraspora marina*; 37-45 *Gloeoecapsa crepidinum*; 46 *Coccomyxa littoralis*; 47-49 *Gomontia polyrhiza*.



from the mountainous regions of Central Asia by the Swedish explorer Sven Hedin, describing them (Wille, 1907), including *Hedinella pamirica* gen. et sp. nov. of the Ulotrichaceae (Wille, 1922a).

Over his 40+ years of his professional career Wille was involved with many forms of general education, including giving speeches on gardening. He was "keenly interested in politics and agriculture" (Ström, 1924) and an early advocate for the improvement of social conditions. Wille pursued the passage of laws for more environmental protection in Norway and gave



Fig. 5. Wille at the lab bench. [From the internet.]

concerned about the lack of housing around 1910, and he agitated for the creation so-called garden cities in the outskirts of Oslo to house both working-class families and for the middle class. He believed that more green belts were needed for the production of oxygen, and that "a green, healthy environment leads

to good manners for the people." He was ahead of his times.

At the invitation of Nathaniel Britton, Director of the New York Botanical Garden, Wille was given the opportunity to spend three months in Puerto Rico collecting freshwater algae. Starting in late Dec. of 1914 Wille traveled throughout the island, making collections and making observations. Wille (1915a) reported on his preliminary observations of the algae, mostly at the generic level. After Wille's death, Dr. Britton was able to enlist Nathaniel L. Gardner to work up the more than 2,000 collections and to produce a very detailed account that included 3 new genera and 214 new species of freshwater Cyanobacteria (Gardner, 1927), an impressive treatment.

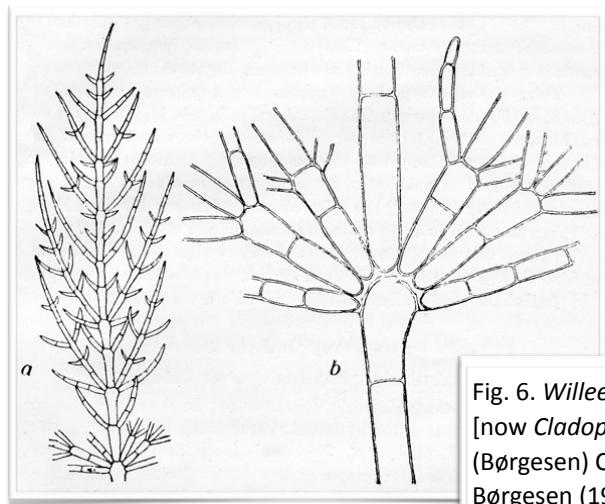


Fig. 6. *Willeella ordinata* Børgesen [now *Cladophora ordinata* (Børgesen) C. Hoek [Fig. 4 in Børgesen (1930)]]

an important speech on this topic in 1904. A consequence of his success was that such a protection law was passed as early as 1910 (Jørgensen & Vaalund, 2008). Most of the other countries in Europe did not have such laws until after World War II. Wille was also

Starting around 1905 Wille's health had begun to decline, and so he requested to be replaced as professor. Gran got that position. But after his 10 years of planning for a new Sciences building, a falling out happened between Wille, who wanted the building to be located at Tøyen, and Gran, who favored Blindern to be the location. Eventually, by 1920, the Blindern alternative

was chosen for the new University area. It was a crushing defeat for Wille, who essentially retreated into obscurity after that time. His spirit had been broken (Jørgensen & Vaalund, 2008). He died four years later. But he left behind a legacy of significant work on the algae. Strøm (1924), Wollenweber (1924), and De Toni (1925) compiled his many publications.

Schmidle (1900) based his new genus *Willea* on *Crucigenia irregularis* Wille (Wille, 1898).

Børgeesen (1930) named the new genus *Willeella*, based on the new species *W. ordinata* Børgeesen (Fig. 6) and originally assigned it to the green algal family Anadomenaceae. But van den Hoek (1982) later relegated this taxon to the level of a Section within *Cladophora*.

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Acknowledgments: I am most grateful to Dr. Tor Bokn of Oslo, Norway, for kindly translating the tribute to Wille by Jørgensen and Vaalund (2008).

**Michael J. Wynne**  
**University of Michigan Herbarium,**  
**Ann Arbor**



## Meetings



**5<sup>th</sup> Congress of the  
International Society for  
Applied Phycology 2014**

**ISAP  
2014**

Australian Technology Park, Sydney, Sunday 22 - Friday 27 June 2014

Abstracts closing on January 31- submit during your break for an algae experience in Sydney!

Also featuring:

- [Photographic competition](#)
- [Algae Gastronomy Cocktail Event](#)
- The [Great Biofuels Debate](#)
- & 4 great [plenary speakers](#)

For more information  
please visit  
[www.isap2014.com](http://www.isap2014.com)



8<sup>th</sup> Central European Diatom Meeting  
Zagreb, Croatia  
April 10-13, 2014  
<http://diatoma.biol.pmf.hr/>

**Croatian Botanical Society** is pleased to invite you to participate in and contribute to the following topics:

- isolated and protected environments
- endemic diatoms
- speciation in diatoms
- toxic diatoms
- introducing novel technologies

**Key note speakers:**

David Mann  
Andrzej Witkowski  
Peter Kroth  
Regine Jahn





**Application deadline:**  
**June 8, 2014**

**Ocean Global Change Biology  
Gordon Research Conference  
July 6 to 11, 2014, at the Waterville  
Valley Resort, New Hampshire  
Chairman: Dave Hutchins,  
University of Southern California**

Full program will be  
available by Mar. 6,  
2014  
See the GRC website for  
more information:  
[http://www.grc.org/programs.aspx?  
year=2014&program=oceanglob](http://www.grc.org/programs.aspx?year=2014&program=oceanglob)

**N  
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S**

On behalf of Brian Wysor, Eric Roberts, JD Swanson and the Northeast Algal Society executive committee I would like to invite you to join us at [Salve Regina University](#) in Newport Rhode Island, April 25-27 2014, for the 53rd Annual meeting of the Northeast Algal Society. Our meeting this year will feature a mini-symposium emphasizing *Algae as Model Systems*, and we are delighted to announce two of our keynote speakers Drs. [David Domozych](#) and [Mark Cock](#) who will discuss their work using algae to explore the biosynthesis of cell walls and the evolution of developmental processes that lead to the construction of complex multicellular organisms, respectively.

**Full Program: Feb. 1, 2014**  
**Registration: mid-March**

The 6<sup>th</sup> European Phycological Congress (EPC6) will be held from **23-28 August 2015** at the Hotel Novotel West London, UK. EPC6 is being co-sponsored by the Federation of European Phycological Societies (FEPS) and the British Phycological Society (BPS). Early registration will begin in mid 2014. There will be ample opportunities to present oral papers and posters. The Congress is open to all phycologists world-wide.

**For more information  
check out  
[www.epc6.org](http://www.epc6.org)  
in February 2014**

We look forward to welcoming you to London in 2015. Jane Lewis and Elliot Shubert, Co-Chairs, Local Organising Committee; Olivier de Clerck and Peter Kroth, Co-Chairs, Scientific Committee; Chris Maggs, President of BPS; and Burkhard Becker, President of FEPS

# Field Courses

## Marine Algae

### Friday Harbor Labs

University of Washington

Dates: 16 June to 18 July 2014

Instructors: Dr. Wilson Freshwater ([freshwaterw@uncw.edu](mailto:freshwaterw@uncw.edu)), Dr. Paul Gabrielson ([drseaweed@hotmail.com](mailto:drseaweed@hotmail.com))



The theme of the course is principles, methods, and applications of marine macroalgal biodiversity studies. This is a hands-on field and laboratory intensive course. Students will learn classical and contemporary methods to characterize, identify and classify marine algae.

For more information about the course, visit:

<http://depts.washington.edu/fhl/studentSummer2014.html>

For information on the Friday Harbor Labs, including how to apply, housing, and financial aid packages, visit: <http://depts.washington.edu/fhl/>

Croasdale Fellowship: see page 6 of this newsletter

### 2014 Algal Field Courses Iowa Lakeside Lab



The Eugene F. Stoermer endowed scholarship was recently established at the Friends of Lakeside Lab. Through the generosity of family, friends and the diatomist community, an annual award will be provided to a student or researcher enrolled in the Ecology and Systematics of Diatoms course. Over \$6500 was raised at the 2013 North American Diatom Symposium for this award. Thank you to everyone for support of the endowment and for continuing the E.F. Stoermer legacy to train every student interested in diatoms.

### ECOLOGY AND SYSTEMATICS OF DIATOMS

(19 May – 13 June 2014)

Instructors: Sarah Spaulding

([sarah.spaulding@colorado.edu](mailto:sarah.spaulding@colorado.edu)), Mark Edlund

([mbedlund@smm.org](mailto:mbedlund@smm.org))

### ECOLOGY AND SYSTEMATICS OF FRESHWATER

ALGAE (16 June - 4 July 2014)

Instructor: Kalina Manoylov ([kalina.manoylov@gcsu.edu](mailto:kalina.manoylov@gcsu.edu))

Information on the field station, scholarships, courses, and course registration is available at:

<http://www.continuetolearn.uiowa.edu/lakesidelab/>

## Freshwater Algae course at the Kindrogan Field Centre, Scotland, UK. 20-27 June 2014

**Instructors: Eileen Cox, Elliot Shubert**

This course provides an introduction to the diversity and identification of freshwater algae and involves informal lectures, field collection from a variety of sites and microscope work. A basic knowledge of biology is required.

The course costs **£420** per person, which includes shared occupancy accommodation (sole occupancy accommodation is **£490**) + all meals (please notify the Centre if you have any special dietary needs) + transport from/to Pitlochry and to field sites + use of the library and internet + tuition.

For more information, contact Elliot Shubert [e.shubert@nhm.ac.uk](mailto:e.shubert@nhm.ac.uk)



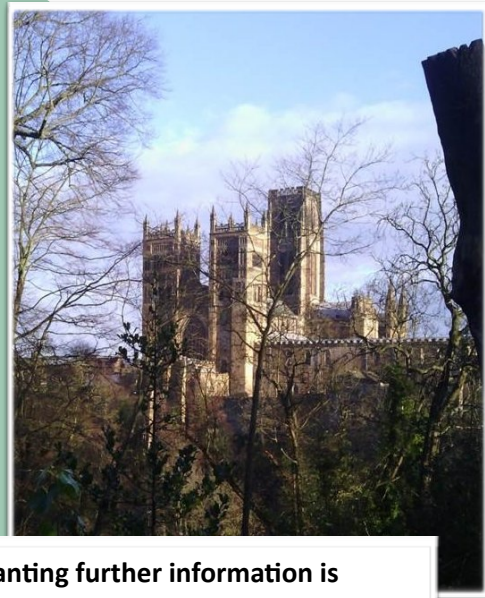
## Durham Freshwater Algal Training Course

Van Mildert College and School of Biological and Biomedical Sciences, University of Durham, UK.

**Organizers:** Brian Whitton (Durham) and David John (London) **Sunday 6 July - Friday 11 July 2014**

**Aim:** To train staff from government and contract agencies, water management organizations, consultancies, research students and overseas visitors in the identification of the more widespread and environmentally-important microscopic and macroscopic. Topics introduced include ecological monitoring, harmful and nuisance algae and their control.

**Cost:** Inclusive cost for all participants is £980 (no VAT charge) and there is a discounted price for full-time students is £800.



**Anyone wanting further information is welcome to contact:**

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

**David John** [d.john@nhm.ac.uk](mailto:d.john@nhm.ac.uk) or  
[d\\_m\\_john@ntlworld.com](mailto:d_m_john@ntlworld.com) phone  
+44(0)208-464-6367 or  
+44(0)7920124825 (mobile)

## Fellowships

### Fellowship to the Mountain Lake Biological Station

The University of Virginia's Mountain Lake Biological Station (MLBS) in the southern Appalachians is excited to offer a limited number of fellowships to support station and residency costs for researchers to explore new projects or collect preliminary data. This is a rare opportunity to make an extended stay of up to 2 months at one of North America's premier field stations at no cost to the researcher. Preference will be given to individuals and projects with the potential to develop into long-term research activities at the Station. We especially encourage applications from individuals in the postdoctoral or early faculty phases of their careers, but will not exclude other individuals from consideration.



Mountain Lake Biological Station announces Early-Career Fellowships.

**Deadline: March 14, 2014**

Interested individuals should submit a single pdf file including CV and a 2-3 pp proposal outlining the proposed research to [MLBS@virginia.edu](mailto:MLBS@virginia.edu). Review of proposals will begin March 14, 2014. For more information about the fellowship program, research opportunities or Mountain Lake Biological Station ([mlbs.org](http://mlbs.org)), please contact the Director: Butch Brodie ([bbrodie@virginia.edu](mailto:bbrodie@virginia.edu)).

## Workshops

**ATP<sup>3</sup>**

Algae Testbed  
Public-Private Partnership

### Routine Measurement and Biochemical Analysis of Microalgal Cultures

ATP<sup>3</sup> Workshop Winter 2014 – Feb 24-28 at AzCATI, ASU, Mesa, AZ

For information about this and future workshops please visit [www.atp3.org](http://www.atp3.org)



This laboratory-intensive workshop was designed to provide an introduction to the observation and measurement of microalgal cultures and common analytical methods for the evaluation of biomass content. Topics presented are relevant to those interested in obtaining an overview in biochemistry, routine laboratory procedures, and data analysis. Field training will include handling and collecting cultures from ponds and photobioreactors. Participants will have ample opportunities to work in the laboratory and learn how to measure culture density (cell counting and optical density), light and fluorescence microscopy, gravimetric analyses (wet weight, dry weight, ash-free dry weight, ash and moisture content), and techniques for extracting and analyzing biomass compounds, including bulk proteins, starch, carbohydrates and lipids.

# Workshops

## UTEX 2014 Workshops at The University of Texas at Austin

### **Bioprospecting, Isolation and Analysis of Microalgae (March 19-21)**

Cost: \$1000 (lunch included)

Description: This three-day workshop is designed to teach the principles and practices of microalgal strain collection, enrichment, screening, isolation, identification, and natural product characterization. Presentations and hands-on laboratory activities are tailored to take participants step by step through the process of collecting samples from the field, establishing and characterizing cultures, and identifying and analyzing metabolic products of interest.

### **Biochemistry and Laboratory Analysis of Biomass Composition (June 4-6)**

Cost: \$1000 (lunch included)

Description: This three-day workshop was developed to provide an introduction to common laboratory techniques used for the analysis of microalgal biomass and biochemical content. Participants will have numerous opportunities to work in the laboratory observing cultures by microscopy, measuring cultures by spectrophotometry, performing gravimetric analyses, and bulk characterization of proteins, lipids and carbohydrates.

### **Introduction to Phycology: ecology, physiology and taxonomy - and - Genetic Modification of Cyanobacteria and Microalgae (June 21-25)**

Cost: \$1800 (lunch included)

Description: This is an intensive five-day workshop covering a wide range of topics related to algal biodiversity. Detailed lectures and hands-on laboratory activities led by experts in the field are designed to provide a broad introduction to algal ecological diversity, natural habitats, cell biology, biochemistry, growth

For more information please visit:

<http://web.biosci.utexas.edu/utex/workshopoverview.aspx>

## Notices of New Titles

*Guía de las Macroalgas y Fanerógamas Marinas del Mediterráneo Occidental.* By C. Rodríguez-Prieto, E. Ballesteros, F. Boisset and J. Afonso-Carrillo. 2013. 656 pp. [soft-bound]  
Ediciones Omega, Barcelona. ISBN 978-84-282-1592-3, 55.00 €  
<http://www.ediciones-omega.es>

*Chrysophytes and related organisms: new insights into diversity and evolution. Proceedings of the Eight International Chrysophyte Symposium, Charles University of Prague, Czech Republic, August 12-17, 2012.* Neustupa, J., J. Kristiansen & Y. Nemcová. (eds.) 2013. *Nova Hedwigia, Beiheft*, 142. ix + 190 pp.  
ISBN 978-3-443-51064-0, paperback, 91.00 €  
<http://www.schweizerbart.de/9783443510640>

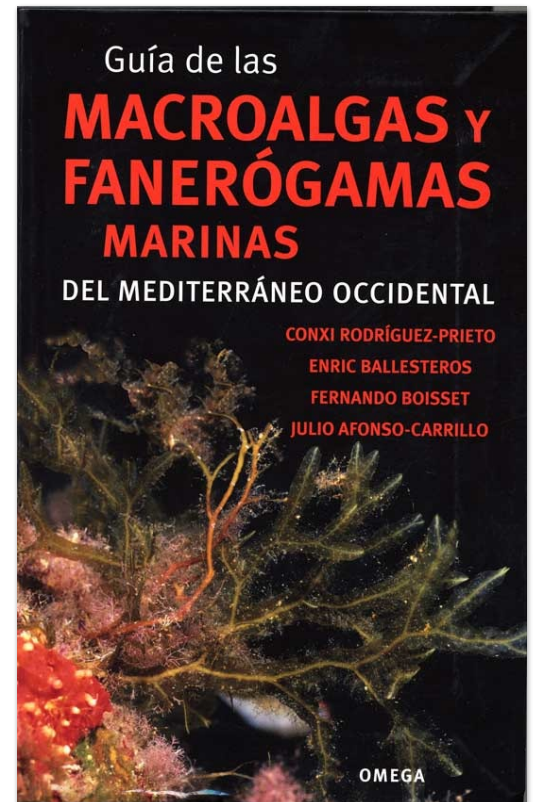
*Species composition and distribution of diatom assemblages in spring waters from various geological formations in southern Poland.* By A. Z. Wojtal. 2013. *Bibliotheca Diatomologica, Band 59*. 436 pp. ISBN 978-3-443-57050-7, paperback, 159.00 €  
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ArtNo. ES141018202, paperback, 106.00 €  
<http://www.schweizerbart.de/papers/fal/list/182#issue2>

*International Conference on the Status and Future of the World's Large Rivers April 11-14, 2011 Vienna, Austria.* Habersack, H. & T. Hein (eds.). 2013. ArtNo. ES342002003, paperback, 168.00 € (River Systems Volume 20 Issue 3-4)  
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*The Red Algal Families Delesseriaceae and Sarcomeniaceae*  
By Michael J. Wynne. 2014 ['2013']. 326 pp. [Hard-cover]  
Koeltz Scientific Books, Koenigstein, Germany. 82.00 €  
[www.koeltz.com](http://www.koeltz.com) E-mail: [koeltz@t-online.de](mailto:koeltz@t-online.de) (or)  
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The Red Algal Families  
Delesseriaceae and Sarcomeniaceae



Michael J. Wynne

# News from Colleagues

## Nordic Microalgae – a web site with information system on aquatic microalgae

**Bengt Karlson** Swedish Meteorological and Hydrological Institute, oceanography,  
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The web site Nordic Microalgae and aquatic protozoa is available at <http://nordicmicroalgae.org> since mid-2011. It contains information on marine and freshwater microalgae and related heterotrophic organisms. Both plankton and benthic organisms are included. At present there are more than 1500 images, information on cell volume and biomass calculations, etc. The information is supplied by microalgae specialists, mainly from the Nordic area. The system is based upon the concept of taxon sheets which contain information on a certain taxon, e.g. name, taxonomic position, harmfulness, size, biovolume information, images, videos and links to other resources. Images and videos of organisms are contributed by registered users through a user-friendly web interface. Downloadable check lists of species and higher taxa are regularly quality controlled and updated. In autumn 2013 a version adapted for smart phones and tablets was introduced. It is available at <http://m.nordicmicroalgae.org>. Long-term funding for developing and maintaining the web site comes from the Swedish Research Council through the Swedish Lifewatch program. The content of the web site is made available through Creative Commons Attribution. New users and contributors from all over the world are welcome.

**Nordic** Microalgae and aquatic protozoa
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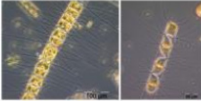
### Introduction

Visit version for smartphones and tablets: [m.nordicmicroalgae.org](http://m.nordicmicroalgae.org)

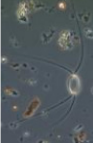
**Welcome to Nordic Microalgae**

The web site is a source of information about microalgae and related organisms in the Nordic area, i.e. the Baltic Sea, the North East Atlantic and lakes, rivers and streams in the area. This site is of use for science, education, environmental monitoring etc. The content of the site is mainly supplied by the users.


**Latest added illustrations**



Chaetoceros decipiens  
Jan 6, 2014  
Susanne Busch  
HELCOM-PEG



Chaetoceros debilis  
Jan 6, 2014  
Susanne Busch  
HELCOM-PEG



Aulacoseira granulata  
Jan 6, 2014  
Susanne Busch  
HELCOM-PEG

### RECENT NEWS

**Galleries for smart phones and tablets**  
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**Image of Chaetoceros debilis winner**  
2 Nov 2013 - 20:58  
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**HELCOM-PEG 2013**  
1 Nov 2013 - 15:55  
[Read more](#)

[News archive](#)


### STATISTICS

**Number of species:** 4486  
**Number of taxa:** 6600  
**Number of images:** 1524  
**Number of videos:** 1  
**Number of contributors:** 46



Nordic Microalgae is developed and operated by the Swedish Meteorological and Hydrological Institute (SMHI) with funding from the Swedish LifeWatch project.

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## VII Mexican National Phycological Congress

The VII Mexican National Phycological Congress took place at Facultad de Estudios Superiores Iztacala UNAM, in Mexico City, during October 16-18, 2013. More than 236 phycologists participated in this event that consisted of six keynotes: Green and Red Algal Tree of Life, Mexican Seaweeds with economic importance, Diatoms and environmental reconstruction, Cyanobacteria and water quality, Harmful Algal Blooms, and Cyanobacterial HAB. One symposium was organized for biotechnology including pigment production, Hydrogen algal production, and biotechnology (fig. 1).



Fig. 1. Keynote speakers, from top left: MSc Gabriel Castro, Dr. Rosa Olivia Cañizares, Dr. G. Torzillo, MSc. Roberto Cortes Altamirano, Dr. Margarita Caballero, Dr. Sylvia Bonilla, Dr. José Zertuche, Dr. Juan Manuel López Bautista, and Dr. Elvira Perona.

This event resulted in 127 presentations given by Mexican phycologists, with the participation of colleagues from Colombia, Italy, Uruguay, USA, Venezuela, Chile, Costa Rica, Ecuador, Puerto Rico, Argentina and Spain (Fig. 2). During the congress, 10 pre-congress workshops were offered on four different Institutions, seven of them included around 60 students. There was also a student competition with 5 presentations, one as an Honors Thesis, three MSc Theses, and

one Doctoral Dissertation. Given the excellent research quality of all five participants, each one of them received a student membership from PSA offered by the PSA PastPresident, Dr. Juan Lopez-Bautista. Other awards were given as follows: Viviana Patricia Reyes Gómez (Fig. 3) for her work on Biodiversity of macroalgae from Providence and Santa Catalina Islands, Colombia (Honors Thesis), Sergio Diaz Martinez for his work on the Taxonomic molecular assessment on morphospecies of *Padina* (Dictyotaceae) in the



Fig 2. Cover of the Memoirs of the VII Mexican Phycological Congress.

tropical Mexican Atlantic and Pacific (MSc), and Karina Esqueda Lara for her Dissertation on the Morphology and molecular systematics on *Dinophysis* and *Phalacroma* species (Dinophysales, Dinophyceae). Besides the wonderful atmosphere of the research presentations, the organizer provided several meals during the congress, including a “Taquizza”, a taco buffet-style and a tasting of drinks based on *Spirulina*. The last event was a cena-baile or banquet that included live music that allowed the participants to dance at the rhythm of several Mexican ballads. Congratulations to the Mexican Phycological Society for organizing a successful scientific event!

~ Gloria Garduño Solórzano, President of the SMF 2010-2013



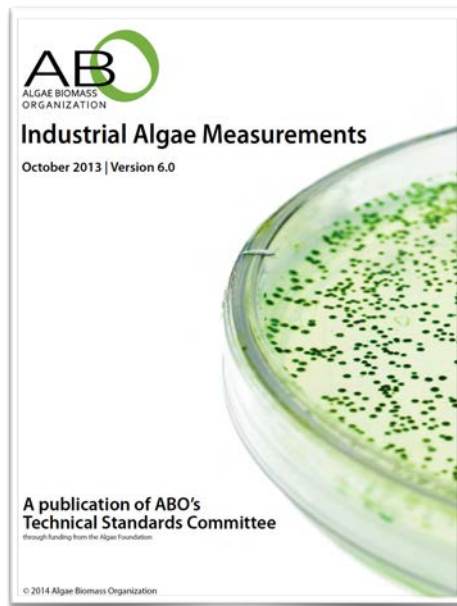
Fig. 3. L-R: The organizer President of the Mexican Phycological Society, Gloria Garduño, student Viviana Patricia Reyes Gómez (winner of the Honor Thesis), PSA past-president Dr. Juan Manuel Lopez-Bautista and Co-Organizer MSc Luis E. Aguilar-Rosas.

## Industrial Algae Measurements document

**Keith E. Cooksey** Microbiology Department, Montana State University.

In the last Phycological Newsletter (49:2) the Algae Biomass Organization (ABO) noted that they will have the Industrial Algae Measurements document (IAM6.0) for view soon. I am pleased to report that this document will be available on the ABO website by the end of January 2014. The address is <http://www.algaebiomass.org/wp-content/gallery/2012-algae-biomass-summit/2010/06/IAM-6.0.pdf>.

Although the name of the document implies it is focused on industrial needs, it will be useful to anyone who seeks to assess molecular content in microalgal biomass. Those who are familiar with the applied phycology literature will be aware that comparing information on algal analyses from lab to lab is difficult as there are no universally accepted standards. The ABO standards committee has compiled and tested a set of reasonable standard methods. For instance, the document covers measurements as simple as direct biomass determinations, to more advanced methods to assess cellular content by GC (with and without MS) as well as IR and NMR spectroscopies. Because of the current focus of the bioproducts industry, there is considerable information on the determination of lipids, however other macromolecules are not ignored. The compilation of methods involved laboratory personnel at National Laboratories, universities and industry, and all methods have been tested with various strains of microalgae. The IAM 6.0 is a comprehensive document for everyone interested in analyzing microalgal biomass and should provide a suitable introduction to the field for new researchers, particularly new graduate students. Probably of less interest to non-industrial workers is the section on Life Cycle Analysis, but it is informative to understand the procedures necessary to make an algal product and sell it! The document also contains pertinent references to the methods suggested.



**Submit your contributions to the next  
Phycological Newsletter by Aug. 15, 2014**

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