

# PHYCOLOGICAL NEWSLETTER



**Phycological  
Society  
of America**

*The Premier Society for the Science of Algae*

*Supporting Student Research in...*

- Climate Change*
- Biodiversity*
- Water Quality*
- Harmful Algal Blooms*
- Biofuels*
- Genomics*
- Biomedicine*

*and other exciting areas of discovery*



*through grants-in-aid of research,  
travel, field studies, workshops,  
mentoring, and more.....*

**[psaalgae.org](http://psaalgae.org)**



**PSA Supports Students:**  
 Bold Award  
 Lewin Award  
 Croasdale Fellowship  
 Hoshaw Travel Award  
 Grants-in-Aid of Research

Phyco-colleagues, I thank you for the opportunity to serve as the president of our society, and I look forward to a productive year. Already, we have much good news to celebrate carrying over from last year: the successful debut at Phyco 50 in Philadelphia of Kat Zoula's documentary film *Beneath the Tide* about women seaweed farmers on Zanzibar Island in the East Indian Ocean that was sponsored by PSA; the announcement in the last newsletter of the Tiffany Award that will be presented by the PSA to persons promoting the importance of algae in human affairs to the general public; and finally the truly magnanimous gift of over \$900,000 to the PSA endowment from the estate of our late colleague, Dr. Norma J. Lang. Clearly, we have a lot to be thankful for and much work ahead as we contemplate how best to utilize these opportunities and gifts to promote phycology.

At the mid-year meeting of the Executive Committee (April 1 & 2), we will begin to discuss how best to use the funds generated from Dr. Lang's

gift. I invite you to send me your ideas about how to promote the future of phycology and of the PSA using these funds. We need to think strategically in this changing landscape of academic jobs that have moved away from organismal based questions and toward process based questions that use algae as model systems, as well as the many new areas of applied phycological research. What is the relevance of PSA in these



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new paradigms? How do we adapt and evolve as a society to meet these challenges and opportunities? It is in light of these changes that we need to think how best to apply newly generated funds.

PSA has also emphasized its public outreach in recent years, begun in earnest by Dr. Susan Brawley (President 2011) with a PSA sponsored booth at the National Science and Engineering Fair in Washington, D. C., April 2012, and this followed by a booth at the Family Science Days at AAAS meeting in Boston in February 2013. We again will be participating in the National Science and Engineering Fair in April 2016 in Washington, D. C., as a participant in a booth sponsored by CASS (Consortium of Aquatic Scientific Societies) to which PSA belongs. An advantage for us, being a small scientific society, is that we continue to have an outreach presence, but at less cost to the society. If you are interested in helping with the booth, please write me.

And this past October, as part of the society's outreach and to broaden its diversity, PSA sponsored a booth at the annual SACNAS (Society for the Advancement of Chicanos/Hispanics and Native Americans in Science) meeting that was held outside Washington, D. C. (see article on p. 3 by past president, Rick Zechman). The next SACNAS meeting will be in Long beach, CA in October, 2016, and PSA again will have a presence, likely as part of the CASS booth.

Looking ahead, please plan to attend the annual meeting in Cleveland, Ohio, July 24-30 at John Carroll University (see announcement on p. 4). The meeting will feature workshops, field trips to freshwater sites, stimulating scientific sessions as well as the first, and what I hope will be an annual, open-to-the-public lecture on some aspect of algal biology. And this will be a very affordable meeting. I look forward to seeing you there.

I close with sincere thanks to John Stiller, past president during my year as Vice President, and current past president, Rick Zechman, for their excellent leadership of the society these past two years as well as for their friendship. I also thank members of the Executive Committee and Board of Trustees for their ongoing contributions to make ours a leading scientific society. And I invite those of you who have been thinking of becoming more involved, to do so. It is a worthy endeavor.

~ Paul Gabrielson



## A Message from the Past-President (and Future)

Institutions across the US are focused on increasing diversity as vital to democracy, addressing global challenges, the well-being of their stakeholders and the country, and the advancement of an informed and civic-minded society. It is, quite simply, the right thing to do. This perspective is particularly true for institutions of higher education, but also the institutions and academic societies that are associated with discovery and higher learning. Scientific disciplines, in particular, have struggled to increase their diversity, but great strides are being made, in large part due to the contributions of SACNAS- the Society for Advancement of Chicanos/Hispanics and Native Americans in Science. Despite the name, SACNAS is concerned with advancing all under-represented groups in science, including African Americans, women, and the LGBTQA community.

Some may recall that my primary goal as PSA President was to take steps to enhance the diversity of the PSA membership. Enhancing our diversity will strengthen our Society, broaden our reach within the scientific community, and will promote a global perspective on the value of psychological research. To that end, I proposed to the Executive Committee, that the PSA occupy a booth at the SACNAS National Conference on Diversity in STEM in Washington, D.C. , October 29-31, 2015. John Hall (University of Maryland), Paul Gabrielson (University of North Carolina) and Ligia Collado-Vides (Florida International University) attended the meeting.

The proximity of the PSA booth near one of the main presentation venues ensured considerable exposure for the Society to many of the several thousand attendees. Paul, Ligia and John were struck not only by the large numbers of students and professionals who attended the meeting, but the sense of community among the attendees, and the potential for networking and connecting with students. Armed with a device to scan badges and collect contact information, a new PSA floor banner (see pg. 1), and a number of complementary online memberships for those with a strong interest in psychology, John, Paul and Ligia met with dozens of students, connecting many to potential algal research opportunities at their local institutions. Several of these students had posters on various aspects of algal biology, but none of them had prior knowledge of PSA.

I want to thank Ligia, John and Paul for their time, energy and service to the PSA for contributing to this important outreach event. I would also like to thank the Executive Committee for their support of this project. Regardless of the number of new and diverse members the PSA ultimately gains from this conference, it was valuable for the Society to share experiences, potential opportunities and unbridled enthusiasm for the study of algae- and perhaps most importantly, because we showed up!

The SACNAS website is <https://sacnas.org/>. The official #SACNAS2015 Storify site can be found at <https://storify.com/SACNAS/2015-sacnas-national-conference>.

~ Rick Zechman (Past President)



## Upcoming PSA Meeting: Cleveland, Ohio July 24-30, 2016

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Greetings Phycological Enthusiasts,

It is with great pleasure that we announce registration for the upcoming 2016 Annual PSA Meeting will begin February 1 and extend through April 11<sup>th</sup>. The meeting will be July 24-30, in lovely Cleveland, OH at John Carroll University. An excellent assortment of phycological symposia, events and excursions are planned, and we are anticipating a wonderful meeting.

Among the many planned events are:

- Plenary talks and symposia on Great Lakes algal issues, microbial biogeography, monitoring of aquatic habitats, and other hot phyco-topics
- Field trips to intriguing freshwater habitats
- Workshops on diatom systematics and taxonomy, issues relating to sequencing and Genbank, online phylogenetics, and publishing in the *Journal of Phycology*
- The night-life, food, and milieu of the Rock and Roll City, one of the hippest cities on the Great Lakes!

Please look for further details soon on the [PSA website](#), and feel free to contact any of our meeting organizers if you have any questions.

We look forward to seeing everyone there!

Dale Casamatta, PSA program Director  
([dcasamat@unf.edu](mailto:dcasamat@unf.edu))

Jeff Johansen, Local Organizer ([johansen@jcu.edu](mailto:johansen@jcu.edu))

Morgan Vis, Local Organizer ([vis-chia@ohio.edu](mailto:vis-chia@ohio.edu))



## Board of Trustees to Launch Legacy Society at PSA 2016

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The Board of Trustees will host an opening reception at the PSA 2016 Annual Meeting at John Carroll University for PSA members who wish to consider a gift to the Endowment as part of their estate planning. The Legacy Society will be a way for members and friends of PSA to leave a bequest of assets to the Society in their will. The recent gift by the late Dr. Norma J. Lang to the Endowment is an example of generosity on the part of a long-time, loyal member of PSA to help foster student support programs. The reception at PSA 2016 will be open to attendees who wish to join the Legacy Society. It will celebrate the establishment of this new Board of Trustees activity. The Board of Trustees encourages other members to think of how they might wish to support PSA, at any level from small to large, and include the Endowment in their estate planning. For further information on the Legacy Program, please contact Dr. Rick McCourt ([rmccourt@gmail.com](mailto:rmccourt@gmail.com)), Chair of the Board of Trustees, or Dr. Chuck Amsler ([amsler@uab.edu](mailto:amsler@uab.edu)), Board of Trustees member, who co-chair the Legacy Society committee.



## PSA Membership

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Dear Members,

For those of you who have renewed your PSA membership for 2016, thank you for your continued support and participation in the Society. If you have not renewed as yet, I hope you will soon and remain active in our psychological community.

As in the past, PSA members can choose to receive the print version of the Journal of Psychology or to view it online at Wiley's Online Library. It is important that members activate their accounts by creating a Wiley Online Library account and entering the subscription license code provided by Wiley at the time of your subscription or renewal. In addition, members can access the Journal via an app for iPads and iPhones. Information about using the Wiley Online Library or the Journal app can be found on the [PSA website](#). Additionally, members can publish in the Journal of Psychology without any page fees and have access to all content (including back issues) available in the electronic version of the Journal. Members also receive a 35% discount on all Wiley publications.

The Society continues to provide strong support for our student members including grants in support of research, funds to support travel to the annual meeting, and funds to offset the cost of attending field courses. Student members are eligible for three-year memberships as long as they are enrolled in a degree-granting program. As students transition out of degree programs or as professionals make career changes, the society offers a "transitional" membership that may be of interest to some members.

After many years of not having an increase in the membership fees, the Executive Committee proposed to increase membership subscriptions for professional members by \$ 5 USD beginning in 2017. The goal of this increase is to provide additional funding that can be used to support our ambitious goals for member activities, especially support of student members. As stipulated in the bylaws, the motion was introduced at the Business Meeting held at the 2015 Annual Meeting in Philadelphia. The motion proposed to structure fees as follows:

- Membership, online only (\$85 USD)
- Membership, print + online (\$95 USD)
- Joint Membership, online only (\$90 USD)
- Joint Membership, print + online (\$105 USD)

There will be no change in any of the other membership categories. After little discussion, the motion was passed by the Membership by a show of hands and without dissent. The exact subscription costs for international members will be set in the next month, taking into consideration currency exchange rates and postage.

As always, please do not hesitate to contact me if you have any questions. I encourage everyone to recruit at least one new PSA member this year to ensure that our society remains robust and impactful.

With regards,  
Deb

Deborah L. Robertson, PSA Membership Director, ([debrobertson@clarku.edu](mailto:debrobertson@clarku.edu))

## Upcoming PSA Student Awards

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### The 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.

### The Lewin Award

The **Ralph A. Lewin Poster Award** competition will be held at the annual PSA meeting. The Lewin Award was established in 2009 by colleagues of Ralph A. Lewin, former president of The Society and a distinguished teacher and researcher at The University of California at San Diego, Scripps Institution of Oceanography. The Lewin Award shall consist of a certificate and a monetary prize.

**Deadline:**  
**April 11, 2016**  
**For Both Awards**

**Lewin Award Eligibility:** Graduate students who are PSA members, regardless of nationality, are eligible to compete for the Lewin Award, as well as former students within twelve months of completion of their degree at the time of the meeting where the work is presented. Posters with multiple authors are permitted, but the student competing for the award must be the first and presenting author. 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.

Please see the PSA Website (<http://www.psaalgae.org>) for more information or contact Dr. Patrick Martone, Award Committee Chair ([pmartone@mail.ubc.ca](mailto:pmartone@mail.ubc.ca)).



Information on all of these awards and fellowships can be found under the PSA Awards and grants tab at the PSA website:

<http://www.psaalgae.org>

## PSA Student Grants

Each year over \$25,000 is awarded to support student members in furthering their research (Grants-in-Aid of Research), education (Croasdale Fellowship), and travel to the annual PSA meeting (Hoshaw Travel Award). Competition for these awards is high, so the committee recommends that students have their advisors review their application before submission. Also, the committee would like to remind applicants that all incomplete (i.e. not addressing all of the required points of each award, missing letter(s) of recommendation) or late applications will not be reviewed. The deadline and requirements for each award application is listed on the PSA website: <http://www.psaalgae.org/grants-and-fellowships/>. The committee looks forward to reviewing more great applications this year!

Please contact Dan Thornton ([dthornton@geos.tamu.edu](mailto:dthornton@geos.tamu.edu)) or see the PSA website for information and the reporting requirements of successful applicants:

<http://www.psaalgae.org/hannah-t-croasdale-fellowship>

**Deadline:**  
**Croasdale Fellowship**  
**March 1, 2016**

**Recent Awards:** Twenty students applied for Grants-in-Aid of Research in November 2015. After review and ranking of the applications by the PSA Grants & Fellowships Committee, four students received a grant of \$1,500 and six students received \$916.

## Ruth Hoshaw's 95th birthday!

Ruth Hoshaw, one of the eponymous founders of the PSA's Robert and Ruth Hoshaw Travel Award, celebrates her 95th birthday on February 4, 2016. Ruth is healthy and active and maintains the vigor and industriousness that marked her and Bob's commitment to the PSA. She is celebrating the event in Tucson, her home for over 60 years, with her two sons, Richard and Bill, daughter Anne, six grandchildren, and five great grandchildren. Ruth was a key person in the evolution of PSA into the mature scientific society it is today. From typing and editing Endowment Newsletters, to organizing the Headquarters Room at the Annual Meeting, hosting Board of Trustee meetings at their Tucson home, and devoting her indispensable organizational skills to the Society, Ruth remains a hero to those of us who grew up in PSA. She worked tirelessly with Bob and other PSA members, helped found the PSA Endowment. Because of her, Bob was a very effective President of PSA, and first Chair of the Board of Trustees. Bob was also an esteemed faculty member in Ecology & Evolutionary Biology at the University of Arizona until he passed away in 1993.



A life member of PSA, Ruth donates the journal to the University of Arizona's herbarium and reads the newsletter avidly. She is the UA Wildcats basketball team's most devoted fan (being from Indiana, birthplace of serious basketball), and plays tennis, quilts for great grandchildren, does jigsaw puzzles, and writes family histories for her children and theirs. Many of the Hoshaw Travel Award recipients have never met her but have benefited from her and Bob's generosity and foresight. If anyone wishes to send Ruth a birthday greeting, send it to Rick McCourt at [rmccourt@gmail.com](mailto:rmccourt@gmail.com) and he will compile them and deliver them to Ruth. Whether you know her personally or benefited from the Hoshaw Travel Award, please feel free to send a message. Also visit the PSA Facebook page and give a shout-out to this remarkable PSA member.

~Rick McCourt



## The Life and Times of Milton Sommerfeld



### Introduction

Milton Sommerfeld just celebrated his 75<sup>th</sup> birthday. A very active phycologist for 51 years, he and his colleagues have assembled the world's largest academic platform for algal growth and testing. Not bad for a poor dirt farmer's kid from Texas! Milt, as he is known to friends, was born in a farmhouse – not a hospital – near Thorndale, Texas, in 1940. He still owns the family farm, and his only sibling, a sister, lives on a nearby Texas farm. His first encounter with algae was related to a childhood task – removing adhered and floating algal masses from the cattle-watering trough on the family farm. Milt was encouraged to attend college because his parents and other relatives lacked that opportunity. He attended Southwest Texas

State College (now named Texas State University) in San Marcos, Texas, and earned a bachelors' degree in Biology in 1962. After teaching one year, he applied for and received an NSF Summer Fellowship for Teachers at the University of Texas and enrolled in a summer course taught by Harold Bold and Wayne Nichols. At the end of the course, Nichols asked Sommerfeld if he would consider going to graduate school at Washington University, St. Louis, Missouri. Milt had already signed a high school teaching contract, but Nichols was persistent and held the graduate student assistantship until the next year. Subsequently, Milt was awarded a National Defense Education Act (NDEA) fellowship and graduated with a Ph.D. in 1968, and as they say, the rest is history – but a long and interesting history!

### World's Largest Academic Algal Test Bed

The Arizona Center for Algae Technology and Innovation (AzCATI) is located at Arizona State University's Polytechnic Campus. This amazing facility is the world's largest academic algal test bed. Just as Yankee Stadium is the House that Babe Ruth built, AzCATI is the house that Milt Sommerfeld and colleagues built. Currently, the Center has 19,300 sq. ft. of laboratory and office space, and immediately across the street [E. Innovation Way South] is the 4-acre field site with a wide variety of outdoor ponds, panel and tubular reactors, and greenhouses that are used for growing pre-commercial quantities of algae biomass.



The idea to place the academic research labs immediately across the street from the field ponds and reactors was pure genius! Milt and his colleague, Qiang Hu, moved from the ASU Tempe campus to the Polytechnic campus because they wanted to take their algal research from the lab to the field. Samples from the outdoor reactors could be collected at any time by simply walking across the street – and then those samples could be immediately analyzed with the most sophisticated equipment available. Other universities have built field stations, but they are very often tens or even hundreds of miles away – and that distance makes it very difficult to sample and analyze samples in a real-time or immediate way. Furthermore, as AzCATI developed, it was clear that it was essential to bring scientists and engineers together to develop new systems and approaches to grow algae for diverse products and to train the next generation. Undergraduates, graduate students, postdoctoral associates and technical staff work together to enhance the synergy between phycologists and engineers.



The current field site contains a diversity of equipment for harvesting and processing large amounts of algal biomass, and manufacturing companies actually bring new equipment to this site for beta-testing. AzCATI is currently pursuing construction of a wastewater facility on site so that they can efficiently and directly develop better methods for using waste water

for algal cultivation and to bioremediate waste and discharge waters.

### **The early days**

What was Milt's vision that led to this remarkable Center of Phycology? Originally, Milt was contracted by the U. S. Department of Energy, following the Arab Oil Embargo of the 1970s, through the Aquatic Species Program to bioprospect for algae in natural saline waters of the Southwest. The goal was to isolate algal strains with rapid growth rates and high lipid content. He and his students traveled throughout the Southwest and isolated strains and evaluated their growth and oil content, and developed an algal strain collection. The facilities were simple at the start. He once used stadium lights from the football stadium to test high-light tolerant algal strains. The first outdoor facility was a tubular photobioreactor built on a small site next to the University women's softball field. In 2000, Milt hired Dr. Qiang Hu as a post-doctoral fellow, and their relationship developed into a powerful synergy. They worked extremely well together, and Hu quickly rose to the rank of full professor before leaving ASU to return to China in 2013.



Milt was also involved with administration at Arizona State University, serving first as Chairman of the Botany and Microbiology Department for eight years and then as

Associate Dean of Research and Facilities for 15 years. When the US federal government began downsizing the military, a number of military bases were closed. One was Williams Airforce Base in Mesa, Arizona, a suburb of Phoenix and about 20 miles from the Tempe campus of Arizona State University. The University acquired part of the base, established the ASU Polytechnic Campus, and Milt and Hu subsequently moved to the campus as a new research building was being constructed. The vision of having a research laboratory across the street from ca. four acres of open land for outdoor algae cultivation was moving forward.

While knowledge of the adjacent field site may not have been known to many in the academic world, the commercial world immediately realized the power of this test site and began to work with Milt and his colleagues. For example, Honeywell and Sandia worked with Milt and Hu to determine if algal oil could be used for producing jet fuel. The Mars family (M &M candy, Snicker's bars, Uncle Ben's rice, etc.) also began using the ASU test site, and then after a few years built a subsidiary company, Heliae Development, with the sole purpose of growing algae for commercial uses.

### Recognizing the success

Sommerfeld and Hu were named the Innovators of the Year in 2007 by Arizona Technology Enterprises and Arizona State University. The next year, TIME Magazine identified the fifty best inventions of Year 2008, and it ranked the algae-based biofuels facility at ASU as No. 11 on the list! How many phycologists do you know who have been so recognized?! In 2009, Milt and Hu were awarded the [Arizona] Governor's Celebration of Excellence Award for Innovation and in 2010 the Arizona Award for Research Excellence by the Arizona Technology Council. In 2011, Milt received the Award for Faculty Achievement in Research from the Arizona State University Alumni Association, and in 2012 AzCATI was

awarded the Leader of the Year in Technology by the Arizona Capital Times newspaper.

### Money pours in

In adding up the grant awards over Sommerfeld's Career, he has received more than 33 million dollars. AzCATI has received tens of millions of dollars, including a four million dollar award from the governor of Arizona, and by pure chance I was sitting by Milt when the award was announced at the 2010 Algal Biomass Meeting in Phoenix. Milt is currently a Co-PI on the U. S. DOE grant titled Algae Testbed Public Private Partnership (ATP3), which has an overall budget of 15 million dollars, and Milt is the PI on a U.S.D.A. grant on algal crop protection (ca. 1 million dollars). And this all began when Milt was a high school teacher enrolled in a summer course and made a seriously good impression on Harold Bold and Wayne Nichols.

### Early career

As a graduate student, Milt had Barry Commoner – a professor at Washington University – on his committee. Milt also interacted with Bruce Parker, who was a young Assistant Professor. This led me to ask Milt – who were your other mentors? Without hesitation, he mentioned Harold Bold, Gerald Prescott, Beth Gantt and Bob Hoshaw, which is



Sommerfeld & Lewin, Mexico, 1981

a very impressive lineup of mentors! As one story (among many), Milt told me about a PSA meeting that was to be held at ASU in 1974 and he was the local organizer. He had asked Gerry Prescott to lead the field trip that year, and Prescott came to Phoenix several weeks before the meeting so he could personally scout all the local waters for interesting algae. Prescott stayed with the Sommerfeld's, and Milt learned that even a great field phycologist like Prescott makes sure he is prepared before leading a field trip.

Milt's dissertation was titled "Comparative Studies in the Protofloridae", and he received his Ph.D. degree in 1968. He was simultaneously offered a post-doctoral fellowship in mycology with Prof. Melvin Fuller at the University of California-Berkeley and an Assistant Professor position at Arizona State University. And then fate struck – Fuller called Milt to inform him that he had accepted a position at the University of Georgia, and Milt quickly decided to take the position at ASU. Milt rose through the ranks and was made full professor in 1978. At this writing, Milt is author or co-author of 314 publications and presentations (oral/poster), and he has received 111 grants or contracts for over 33 million dollars. He has trained 35 Master's degree students, supervised approximately 25 post-doctoral fellows and mentored 10 Ph.D. students, including Michael Gretz, who was the PSA Treasurer from 2004 to 2006.

### **Service to PSA**

Speaking of the PSA, Milt was one of the original Board of Trustee members (along with Bob Hoshaw, Norma Lang and Richard Meyer). This gang worked very hard to establish the first endowment funds for the PSA, which now provides numerous awards and grants for a variety of purposes. Milt was "the guy" for designing, printing and delivering the PSA T-shirts for its first 11 years. We all have at least one of those T-shirts, and every now and then a classic shirt will appear at the PSA Auction,

thanks to Milt's generosity. Many of us recall that Milt and Carolyn sat at the PSA desk for many years where they provided help, directions and a cheery face for the rest of us – including some highly stressed young speakers looking for their presentation room. And who could forget his dance with Bruce Parker at the PSA Banquet at the UC Santa Cruz meeting??!! A legend in his own times!

### **Personal Life**

I have lived in Arizona during the winters for the past few years, and I have come to know Milt and his wife Carolyn rather well. When I asked him what was the most important aspect – me thinking about algae and careers – Milt immediately said family. This surprised me and pleased me because I also think family is the most important part of one's life. Milt has been married for over 50 years to his wife Carolyn, and they have a son and daughter (and now four grandchildren ranging in age from 7-18 yrs). Growing up on a farm, he enjoys the outdoors and loves to spend time with his family on fishing, hunting and camping forays. Indeed, his son is an avid and semi-pro bass fisherman, who certainly developed that interest from the many fishing trips with his father. His son is a teacher and his daughter is a writer/editor.

Milt is also a caring person who takes a personal interest in his students, post-docs and faculty. He organizes parties to celebrate various events from student graduations to major holiday parties, and these may be at his home or at AzCATI. Carolyn, who he fondly refers to as "my home staff", is delighted to support these activities regardless of party location, and she is always ready to make her famous "algae cookies".

### **Future Vision for the Center**

Innocently, I asked Milt about his vision for the future, and that began two hours of detailed discussions! The University is building the faculty associated with AzCATI and the Ira A.

Fulton Schools of Engineering, and plans to hire 6-8 faculty members in the areas of phycology and engineering. Student involvement is also a major part of the Center. The first panel reactors were built by students. Even today, students have the opportunity to work at every level from graduate and post-graduate research, and the work may include washing glassware and fixing leaks in distribution pipes or designing bioreactors or isolating and testing algae strains. The engineers can learn biology, and the biologists can learn engineering; such cross-discipline training is extremely valuable . . . and extremely rare. If I were a student or young faculty member, this is the place I would dream to be located.

Recognizing that the Center would struggle with only biofuels as a future – this due to the discovery of new oil fields, the implementation of hydraulic fracturing (fracking), and resulting low oil prices – the AzCATI is pursuing a variety of avenues. Currently, algae are being grown for pharmaceuticals, nutraceuticals, cosmetics, human health products, animal feeds, and for bioremediation of waste and discharge waters. The Center continues to be unique in its "across the street" co-location of powerful academic research laboratories and state-of-the-art outdoor ponds and reactors, and harvesting equipment. It is that proximity of lab and field located next to each other – basic and applied research on either side of the street – that makes this test site so valuable. Milt pointed out that it is the inherent quality of the algal strains that make commercial algal development possible, not the engineering or biochemical research. The site is now a National Test Bed site, and it has the infrastructure to coordinate, assist and facilitate projects from the academic and commercial arenas.

As with anyone who has been around the block a few times (and Milt started at the end of the Pleistocene), he spoke of mistakes made

in the past that should be avoided. He argues that the biofuels cycle will come again, and therefore we should keep algal biofuels on the back burner so that we are not faced with another "starting from scratch" position. He was emphatic that the valuable strains must be reliably maintained, and this warmed the cockles of my heart. Milt explained that several of the really outstanding oil-producing strains, developed as part of the Aquatic Species program, were lost. To this end, Milt is developing plans to cryopreserve existing strains and to further develop the culture collection at ASU.

Always staying at the forefront of research, Milt is currently planning field studies on genetically engineered algae. Sexually crossing a variety of strains also offers great promise. We discussed the future of breeding algae to develop better algal strains, and as two guys who were raised on farms, we understand that breeding totally dominates agriculture. Agricultural plants and animals were domesticated before recorded history, but we are domesticating algae in our lifetimes!

### Summary

As I am sure you will agree, Milt Sommerfeld has contributed enormously to phycology, not only in his many publications on basic research but also by his construction of a world's largest outdoor academic test bed site. While contributions to the PSA and phycology are certainly worthy of outstanding praise, it is my hope that the Center – the House that Milt Built – will continue to grow and contribute long after both he and I have gone to that great pond in the sky.

~ Robert A. Andersen

## Tribute

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### Janet Ruth Stein Taylor October 10, 1930 to January 16, 2016

Janet Ruth Stein Taylor was born on October 10<sup>th</sup> 1930 and raised in Denver, CO. She graduated with a BA from University of Colorado (1951) and then an M.A. from Wellesley College, Wellesley, MA (1953). Her thesis was *A Comparative Study of Brachytic and Normal Zea mays*. Thesis Supervisor: Dr. Rhoda Garrison. Her PhD research in Botany, from University of California, Berkeley (1957), was under the supervision of George F. Pappenfuss. Her dissertation was *A Morphological and Physiological Study of Three Colonial Volvocales*. In 1960 she received the “Darbaker Award” from the Botanical Society of America for the best phycological paper published in North America in 1960.

Between 1957 and 1959, Janet worked as a Technician at Berkeley and held visiting positions at the University of Minnesota Biological Station, and in the University Teachers Institute at Indiana University. She joined the Department of Botany of the University of British Columbia in 1959 as an Instructor, and after 5 years on the then traditional path for young women she became an Assistant Professor. Her teaching forte was the smallish class with a strong lab requirement. Many students noted her welcoming experience in 2<sup>nd</sup> year botany as a major influence in their choice of Botany as at least a minor in the BSc programmes. Throughout her career she was an effective mentor for undergraduate and graduate students as well as for newly appointed faculty members.



During her career (1959-1985), her research interests were in the Freshwater and Estuarine Algae (especially) of British Columbia. She did extensive fieldwork and identification and data-based preparation for what is now part of the *E-Flora of BC: Electronic Atlas of Plants of British Columbia* [www.eflora.bc.ca](http://www.eflora.bc.ca). She established the algal part of the UBC Microbial Culture Collection work that may well have led to her involvement as the Organizing Editor of the 4-volume *Handbook of Phycological Methods*, published by Cambridge University Press between 1973 and 1986.

Janet was an active member of the scientific societies that she joined, particularly of the Canadian Botanical Association/L'Association Botanique du Canada (Director; Editor of CBA/ABC Bulletin; Vice-President; President 1970-71) and the Phycological Society of America (Editor of the News Bulletin and Newsletter; Editor, *Journal of Phycology*, 1975-1980; Treasurer from 1982-1987; and President 1965).

Over the years Janet taught in the introductory Botany course, brought freshwater algae into the Department, became a stalwart colleague who lead the much respected advising group in the Department, and eventually served as Associate Dean of Science. She was one of the original authors of the textbook, edited by Bob Scagel, *Evolutionary Survey of the Plant Kingdom*, by Scagel, R.F., Bandoni, R.J., Rouse, G.E., Schofield, W.B., Stein, J.R. & Taylor, T.M. 1965 Wadsworth Press, Belmont, California.

Janet's graduate students were a diverse and independent-minded group. The first was Joseph Gerrath (MSc 1965; PhD 1965) who studied the ecology, culture and taxonomy of Desmids. His academic career was at the University of Guelph. Dean Blinn (PhD 1969) worked on saline environments and became a faculty member at Northern Arizona University. John Wehr moved to Durham University in the UK for a PhD (1982) and then onto Fordham University, NY, where he is a Professor and Director of the Calder Ecology Center. Martin Pomeroy, Richard Nordin, Helene Contant and Robert Prange all worked in Government. A post-doctoral husband-wife team, Davis and Diane Findley, from the U S Corps of Engineers, Mobile, AL, contributed much to our knowledge of the ecology of Skaha Lake in the BC Okanagan region during their work with Janet (1969-1971). Carol-Ann Borden (MSc 1969) did much of the early work on the culture collection, Gary Butler (MSc 1970), Marion McCauley (MSc 1974) and Bob Prange made strong contributions and went along their chosen paths. Robert Prange (MSc 1976) later did a PhD.

Janet married Roy Taylor, then Director of the UBC Botanical Garden, and moved with Roy to the Chicago Garden in 1985, and then to the Rancho Santa Ana Garden in Claremont CA. They retired to Nanaimo where both became involved in matters botanical and horticultural and were very active volunteers.

Janet was pre-deceased by Roy in 2013. Janet requested no ceremony and only this 'scientific' obituary.

Iain E.P. Taylor  
Professor Emeritus  
University of British Columbia



Janet Stein Taylor visiting the Botanical Research Institute of Texas, Fort Worth.  
(Courtesy of Fiona Getliffe Norris.)

## Meetings

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*Dear everyone with a scientific and/or commercial interest in seaweed*

With this 5<sup>th</sup> announcement of the **22<sup>nd</sup> International Seaweed Symposium** taking place in **Copenhagen, Denmark, June 19 - 24, 2016** we give you the following updates:

- **Last and final call for abstracts**
- **Important dates and deadlines**
- **Keynote Speakers**
- **Accommodation**
- **Registration Fees**

**Last and final call for abstracts:** ISS 2016 invites you to submit abstract of your basic and also applied research in order to make a strong program. So far 14 interesting topics have been defined full filling the main aim of the symposium and creating a platform for the future collaboration when Academia meets Industry<sup>2</sup>. Submission of abstracts is possible **until 14<sup>th</sup> January 2016**. Click [HERE](#) if you want to go to the abstract submission site at [www.iss2016.org](http://www.iss2016.org).

**Important dates and deadlines:**

- ◆ 14/01/2016 at 23:59 CET Deadline for submission of abstracts
- ◆ 01/02/2016 Abstract notification(accepted as oral/poster or rejected)
- ◆ 15/02/2016 Deadline for Early Bird Registration
- ◆ 19/06/2016 Icebreaker opening reception at Scandic Hotel Copenhagen
- ◆ 20-24/06/2016 ISS 2016 at Scandic Hotel Copenhagen

**Keynote Speakers:** The keynote speakers (all confirmed) are

- ✓ Ester Serrao, Assistant Professor, University of Algarve
- ✓ Catriona Hurd, Associate Professor, University of Tasmania
- ✓ Ole G. Mouritsen, Professor, University of Southern Denmark
- ✓ Rocky de Nys, Professor, James Cook University
- ✓ Brian Rudolph, Senior Manager, CP Kelco ApS



✓ Hans Porse, InterColloids

Read more about the keynote speakers and the titles of their lectures [HERE](#).

**Accommodation:** Denmark's capital, Copenhagen, sets a new record in 2016, when 100,000 international congress guests are expected to come to town. Therefore, we strongly recommend that participants at the ISS 2016 to book hotel rooms in very good time. The ISS 2016-website mentions six selected hotels in different categories (2-4 stars), located close to the venue. It is an optional opportunity to book hotel rooms in connection with the registration. Click [HERE](#) to learn more about the hotels. There are of course many other accommodation options in Copenhagen, but remember: whatever you want, so book early!

**Registration fees:** Remember that the Early Bird discount of up to 150 Euros is only available until 15<sup>th</sup> February

**Sponsors and exhibitors** are welcomed and requested to contact the ISS 2016 secretary on the email below.

This 22<sup>nd</sup> Symposium is organised by members of the National Organizing Committee (NOC); from the Seaweed Network in Denmark and the International Seaweed Association (ISA). The host is the National Food Institute of the Technical University of Denmark.

For information about ISA please visit: [www.isaseaweed.org](http://www.isaseaweed.org)

Read about MATCHMAKING for companies and make your company profile visible at [www.seaweedmatch.org](http://www.seaweedmatch.org)



We look forward to welcoming you and your colleagues in Copenhagen this year!

The Secretary

E-mail: [info@iss-2016.org](mailto:info@iss-2016.org)

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time you shop.

**Help spread the word by Liking  
and sharing the link on our  
Facebook page!**

# 55<sup>th</sup> Annual Northeast Algal Society Symposium



Theme: Alternative Nutritional Strategies

Westfield State University  
Westfield, MA  
April 22-24, 2016

Co-conveners: Carl Grobe: [cgrobe@westfield.ma.edu](mailto:cgrobe@westfield.ma.edu)  
Dale Holen: [dah13@psu.edu](mailto:dah13@psu.edu)

# The 28<sup>th</sup> NORTHWEST ALGAL and SEAGRASS SYMPOSIUM

May 6-8, 2016

Casey Conference Center, Whidbey Island  
Coupeville, Washington

The 28<sup>th</sup> Northwest Algal Symposium (NWAS) will meet on the weekend of May 6-8, 2016 at Seattle Pacific University's Casey Conference Center on Whidbey Island in Coupeville, Washington. The symposium will include a range of oral and poster presentations pertaining to the many aspects of research on marine primary producers being conducted in the Pacific Northwest and elsewhere. The NWAS will provide the usual relaxed and informal environment for students and professionals alike to meet old colleagues, exchange ideas and make new contacts and friends. Awards will be presented for the best student poster and best oral presentation.

Housing for participants and meals will be available at Camp Casey. The historic buildings at Camp Casey help maintain the unique ambiance of Whidbey Island we've all come to appreciate over the years! Additional housing will be available by individual arrangement at a variety of hotels and campsites in the Coupeville area located about 10 minutes away from Camp Casey. The Saturday evening banquet, auction and distinguished lecture will be held at the Officer's Club at the Whidbey Island Naval Air Station located 15 minutes from Camp Casey.

Please mark your calendars and inform your colleagues now! Future announcements will be circulated by email and announced on ALGAE-LIST. The links to the left may be used to complete the registration process. The 2<sup>nd</sup> Announcement will be available in February, including instructions for accommodations & meals as well as directions and a call for abstracts. The registration & abstract deadlines will be April 1, 2016

For further information about the 28<sup>th</sup> NWAS, please contact Rob Fitch ([rfitch@wvc.edu](mailto:rfitch@wvc.edu), (509) 682-6755) or Tim Nelson ([tnelson@spu.edu](mailto:tnelson@spu.edu), (206) 281-3640).

We look forward to an exciting, enjoyable and productive meeting for all participants!

Sincerely yours,

Rob Fitch & Tim Nelson

## Field Courses

### DURHAM COURSE ON FRESHWATER ALGAL IDENTIFICATION

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

Organizers: Brian Whitton (Durham) and David John (London)

Dates: Sunday 10 July - Saturday 16 July 2016

The course provides training for staff in environment agencies, water companies, museums, consultancies, museums, research students and overseas visitors in the identification of the more widespread and environmentally important microscopic and macroscopic freshwater algae. Topics introduced include monitoring, field sampling, preservation, harmful and nuisance algae. The course is run independently by the organizers.



**Tutors:** Prof. David John and Prof. Brian Whitton. Dr Gordon Beakes (University of Newcastle), Dr Alan Donaldson (consultant) and Dr Martyn Kelly (Bowburn Consultancy) also contribute.

**Venue:** Accommodation in Van Mildert College and the course in the School of Biological and Biomedical Sciences (about 600 m away). All meals and evening lectures are in the College.

**Lecture and practicals:** run until 2120 each evening (including the Sunday) and the formal part of the course ends at 1300 on the Friday. Most study during this period is in the laboratory or seminar room, but there is a short field excursion on the Tuesday afternoon. Following the end of the formal course there is a half-day field visit to river sites and to streams influenced by former lead-zinc mining, followed by a meal in an Alston pub in the Pennines.

**Costs:** The inclusive cost for all participants other than full-time research students is £900 (no VAT charge) for those making a firm reservation by 1st April. The discounted price for anyone wanting to leave after lunch on Friday is £860 and for full-time students wanting to stay the full period is £800. Students who have been members of the British Phycological Society for at least three months (*essential!*) may apply directly to the Society for some support, but any decision rests with the Society. Details are on the BPS website (<http://www.brphycsoc.org/funding.lasso>) - it is recommended that any application is submitted as early as possible.

Van Mildert College can provide accommodation for anyone wanting to stay extra nights at the end of the course (cost £36.50 for B & B, with, if required, lunch £10.00 and dinner £12.50). Payment can be included in the main invoice, provided organizers know well in advance, but otherwise it can be paid directly to the college after arrival.

**Further Information:**

Anyone wanting more details, including a copy of a previous year's programme and manual is welcome to contact

Brian Whitton: [b.a.whitton@durham.ac.uk](mailto:b.a.whitton@durham.ac.uk) phone +44(0)191-3867504 or

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)208-4646367/07920124825 or Department of Life Sciences,

Division of Diversity and Informatics, Natural History Museum, Cromwell Road, London SW7 5BD, UK



2015 Course Members

**Booking:** Provisional and firm reservations for one of 16 places should be made by email

([b.a.whitton@durham.ac.uk](mailto:b.a.whitton@durham.ac.uk)) or to B.A.Whitton Algal Training, 74 Archery Rise, Durham DH1 4LA, UK. A full refund will be made to anyone paying in advance, but then cancelling before 1 June, while 50% refund will be made to anyone cancelling between then and 1 July.

## SUMMER FIELD OPPORTUNITIES AT IOWA LAKESIDE LABORATORY

Four summer courses related to algae are being offered in Summer 2016 at Iowa Lakeside Laboratory. Classes target advanced undergraduates, grad students and post-docs, and professionals. There is even a class for high school students who can earn college credit!

### **ECOLOGY AND SYSTEMATICS OF DIATOMS**

16 May – 10 June 2016

Instructors: Mark Edlund, Sylvia Lee

This course, now in its 54th year of being offered, will introduce students to field and laboratory study of freshwater diatoms. We will visit diverse aquatic habitats of the Upper Midwest to make live and fossil collections of most freshwater diatom genera. Students will learn techniques in collection, preparation, and identification of diatoms. Lectures will cover diatom taxonomy, systematics, stream, lake, and wetland ecology, research applications, and biogeography. Students will assemble individual voucher collections as a means for practicing diatom research and species verification. As a final project, students will complete a taxonomic treatment of a species that will be ready to submit for peer-review to the *Diatoms of the United States* web project. This is an intensive, field-oriented class appropriate for advanced undergraduate students, graduate students, and post-graduate workers in ecology and diatom taxonomy. Students are encouraged to bring individual research materials, and there will be opportunities to discuss research approaches and practical problems of using diatoms in ecological and paleoecological applications. Two scholarships, the CW Reimer Scholarship and the EF Stoermer Scholarship, will be awarded based on scholastic merit. The JC Kingston Fellowship supports an assistant for the class. (see <http://www.continuetolearn.uiowa.edu/lakesidelab/university/scholarships/index.html> for scholarship info). Class size is limited to 10. Early registration recommended. Contact Mark Edlund if you get waitlisted.

### **ECOLOGY AND SYSTEMATICS OF ALGAE**

13 June - 08 July 2016

Instructor: Kalina Manoylov

An ecological perspective is used to explore the diversity of photosynthetic microbes that form the energy base of freshwater ecosystems, including cyanobacteria, green algae, and diatoms. Students will learn techniques in collection, preparation, and identification of algae. Lectures will cover all algal groups' taxonomy, systematics, and ecology. Environmental and economic concerns caused by algal growth will be examined. Field collections will be used to identify common genera of algae, study life histories, and examine environmental factors that affect growth and distribution. This is an intensive, field-oriented class appropriate for advanced undergraduate students, graduate students, and post-graduate workers in bioassessment, algal ecology, and taxonomy. Students are encouraged to bring individual research materials, and there will be opportunities to discuss research approaches using algae. Students should have a working knowledge of basic biology. Class size is limited to 10.

### **ECOLOGY OF ALGAL BLOOMS**

11 July - 22 July 2016

Instructor: Mindy Morales

Harmful algal blooms (HABs) are increasing in frequency and intensity worldwide. Despite the ubiquity of blooms, only a handful of algal and Cyanobacteria species are considered "bloom-forming". This course will investigate ecological mechanisms that trigger and maintain blooms in aquatic ecosystems, as well as the

physiological advantages that allow some species to bloom while others do not, with emphasis on Cyanobacteria. This intensive course will combine discussion of primary literature, applied field sampling techniques, species level taxonomic identification and physiological characterization (stable isotope or toxin analyses) of local bloom-forming taxa.

### COLLEGE PREP DIATOMS

25 July - 5 August 2016

Instructors: Sylvia Lee, Kerry Howard

This is a field-based, hands-on, introductory-level course on freshwater diatoms for advanced placement high school students. Course topics include: microscopy of live and prepared specimens, methods of diatom specimen collection & preparation, diatom morphology, ecology, and life cycles, diatoms & water quality, diatoms in forensics, introduction to peer-reviewed scientific literature, and introduction to multivariate statistics (ordination) using the R statistical program. Students will also conduct a group research project during the course and prepare personal collections of approximately 20 diatom genera. One-week and two-week options will be offered. High school biology (AP Biology preferred) is a prerequisite for this course. Students must apply by submitting a transcript, a 1-2 page essay on their interests in the course, and a letter of recommendation from a science teacher. Class size is limited to 10. Accepted students will receive room and board and a tuition waiver for 1 college credit. Registration will be \$50. Applications will be accepted starting in May. Contact Sylvia Lee for more details if you are interested.

**More Information/Registration?:** <http://www.continuetolearn.uiowa.edu/lakesidelab/>

#### Contacts:

Sylvia Lee

National Center for Environmental  
Assessment, U.S. EPA

[sylv.s.lee@gmail.com](mailto:sylv.s.lee@gmail.com)

Mark Edlund

Science Museum of Minnesota  
St. Croix Watershed Res. Stn.

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Mindy Morales

Iowa State University

[ammora@iastate.edu](mailto:ammora@iastate.edu)

## FRESHWATER ALGAE COURSE 2016

### Where and when?

Kindrogan Field Centre, Enochdhu, Blairgowrie, Perthshire, Scotland (near the tourist area of Pitlochry),

**Friday, 24 June – Friday, 1 July 2015.** This is the **21st** year that the course has been offered.

### Kindrogan Field Centre

The Kindrogan Field Centre is a self-contained and fully equipped field station set in wooded grounds on the banks of the River Ardle in the picturesque Scottish Highlands. It lies within easy reach of some of the remotest areas of the UK with inspiring landforms and a rich range of wildlife habitats. There is accommodation for 113 persons. The Centre has been modernized and has a common room, library, dining room, drying room, five classrooms / laboratories, conference room and bar.

Take a virtual tour inside the centre and the surrounding area at: <http://www.field-studies-council.org/kindrogan/>



### What is the course about?

The course takes full advantage of the excellent range of relatively unspoiled 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 identification to generic and species level, but also broader aspects of algal morphology, structure, reproduction, and classification (morphological and molecular). We normally see live examples of all major algal groups, including freshwater reds and browns.

For those with some prior knowledge of the algae, we hope that the opportunity to study samples from a range of habitats will broaden their knowledge and/or allow them to focus on particular groups.

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. An all-day field trip will sample numerous lochs, streams, rivers and marshes, including a whisky distillery tour.

The last evening we assemble in the bar for our world-famous “algal charades”.

### Who are the course tutors?

The **Course Tutors, Dr Eileen Cox and Prof Elliot Shubert**, have taught this course for the past 20 years and they have a wide-ranging expertise on freshwater algae. Eileen and Elliot specialise in diatoms and green algae respectively. Eileen is Head of Post Graduate Studies at The Natural History Museum, London. She has published a key to live diatoms. Eileen is currently Editor for *Diatom Research* and on the Editorial Board of *Fottea*. Elliot is Editor-in-Chief of *Systematics and Biodiversity* at The Natural History Museum. He has published a chapter (with Georg Gaertner) on the non-motile coccoid and colonial green algae (*Freshwater Algae of North America*, 2<sup>nd</sup> edition). We will be joined for part of the course by **Guest Tutor, Dr Laurence Carvalho**, Centre for Ecology and Hydrology, who will give a presentation on the EU Water Framework Directive with special reference to lakes and will describe their counting methods, and **Guest Lecturer, Prof Emeritus Geoff Codd**, University of Dundee, who will give a presentation on 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. Previous participants have come from over 35 different countries.

### What is the full cost of the course?

The course costs **£490** per person (approx. **650€** or **\$706**), which includes shared occupancy accommodation (sole occupancy accommodation is **£560**) + 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. Non-residents are charged **£367** (no B &B). This is excellent value for money and costs significantly less than other freshwater algal courses on offer.

**Is there support for students?** Yes, support for a student stipend is available. **Do not delay, apply today!**

#### 1. The British Phycological Society: <http://www.brphycsoc.org>

The deadlines for applications are: **1 February, 1 March, 1 May, 1 September & 1 December**. The sooner you apply, the better your chances are of receiving a stipend. Please note that you have to be a *bona fide* student member of BPS for at least three-months prior to making an application for financial support. <http://www.brphycsoc.org/funding.lasso>

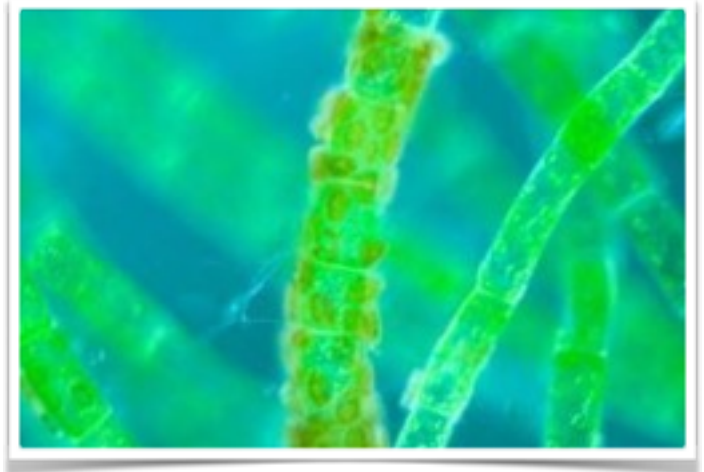
#### 2. Phycological Society of America: <http://www.psaalgae.org>

Graduate students who are members of the PSA are eligible for financial support to attend a phycology course at a field station from the Hannah T. Croasdale Fellowship. <http://www.psaalgae.org/hannah-t-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. Awards are made directly to the student in amounts up to \$1000 each. Completed application and letter of recommendation should be sent to: Dan Thornton ([dthornton@geos.tamu.edu](mailto:dthornton@geos.tamu.edu)) by **March 1st**.

#### 3. The British Ecological Society: <http://www.britishecologicalsociety.org>

Specialist Course Grants are available for BES members only (undergraduate and postgraduate) allocated on a first-come-first-served basis. The grant covers the course fee, which includes accommodation, but not travel. Complete an Application form, which is available from the BES office or downloadable from this webpage. <http://www.britishecologicalsocietygrants.org/TrainingAndTravel/>





**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/centres/kindrogan.aspx>

- For information on the Field Studies Council:

<http://www.field-studies-council.org/>

- Course information for 2016:

<http://www.field-studies-council.org/individuals-and-families/courses/2016/kd/freshwater-algae-59652.aspx>

- Booking information

<http://www.field-studies-council.org/individuals-and-families/booking-information.aspx> or [www.field-studies-council.org](http://www.field-studies-council.org)

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If you have any other queries, please contact: [e.shubert@nhm.ac.uk](mailto:e.shubert@nhm.ac.uk)

Prof Elliot Shubert  
The Natural History Museum  
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## MARINE BOTANY: DIVERSITY AND ECOLOGY FRIDAY HARBOR LABS

This 9 credit 5 week course will be taught at the University of Washington's Friday Harbor Labs Summer Term A: June 13 - July 15, 2016 by Dr. Thomas Mumford ([tmumford@uw.edu](mailto:tmumford@uw.edu)) and Dr. Jeffery Hughey ([jhughey@hartnell.edu](mailto:jhughey@hartnell.edu)). The class will unite classical phycological principles and methods with modern phylogenetics and genomics, with a focus on the macroalgae of marine benthic environments in the Salish Sea. This is a course appropriate for marine biologists, botanists, geneticists, and oceanographers with interests in marine biodiversity, conservation biology, and coastal ecology with an emphasis on using genetic data to support taxonomic and ecological studies, and to promote conservation biology. The course is ideal for upper level undergraduate and graduate students. Information on the course can be found at <http://depts.washington.edu/fhl/studentSummer2016.html#SumA-3> and applications made at <http://depts.washington.edu/fhl/studentApplicationInfo.html>.

## News from Colleagues

Dear colleagues,

I would like to bring to your attention the existence of the **BCCM/ULC collection of cyanobacteria**.

It has started on 15<sup>th</sup> February 2011 and maintains so far 200 cyanobacterial strains of diverse origins and taxonomic affiliations, but with a focus on the isolates from Antarctic and Arctic regions.



The collection includes more than 100 strains characterized by phenotypic (morphology based on microscopic observations) and genotypic (16S rRNA and ITS sequences) properties. The strains are unicyanobacterial, but not axenic. Cultures are distributed as living strains, but genomic DNA is also available on request.

Three types of services are offered by the collection:

**Public deposits:** these deposits are catalogued and publicly available for further use and/or study



**Safe deposits:** as full confidentiality is ensured, safe-deposited material is neither publicly catalogued nor distributed to third parties without the depositor's approval

**Distribution** of strains

The accession, control, preservation, storage and supply of cyanobacteria and related information in the frame of public deposits are ISO 9001:2008 certified.

Do not hesitate to contact us for additional information.



<http://bccm.belspo.be/about-us/bccm-ulc>



<http://bccm.belspo.be/catalogues/ulc-taxon-browser>

### Contacts



Dr Annick Wilmotte or Marine Renard

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## **SPECIAL ISSUE ANNOUNCEMENT IN BOTANICA MARINA**

### **“PHYCOMORPH - MACROALGAL DEVELOPMENT AND MORPHOGENESIS”**

Seaweeds (macroalgae) are an alternative, additional source of food, feed, fuel and livelihood for humans. Currently 16M tones of seaweeds are collected annually for consumption or industrial processing. Production could increase, especially in Europe (only 7% of the world's production), with more appropriate and efficient seaweed cultivation techniques, to match actual and future demands. This requires a step-change in knowledge of basic seaweed biology e.g. in growth, development and morphogenesis. A recently funded **COST Action Phycomorph** (FA1406) develops thus a European interdisciplinary platform integrating unique expertise, currently scattered worldwide.

The Special Issue is open for all contributors in the field of macroalgal development. It will cover all topics included in the Phycomorph COST project, i.e.: (i) fertility induction, (ii) reproduction and initiation of new generations, (iii) towards adult growth, as well as (iv) the development of novel technical tools. To find more information about Phycomorph, please go to <http://www.phycomorph.org/> or to [http://www.cost.eu/COST\\_Actions/fa/FA1406](http://www.cost.eu/COST_Actions/fa/FA1406).

Both fundamental and applied science papers are especially welcome. We encourage you to submit your research about macroalgal growth, development and morphogenesis as full-length contributions or short communications; (mini) reviews are also very welcome.

#### **Time Schedule:**

To have a paper considered for publication in this special issue, please submit a tentative title and abstract (maximum length of 250 words) not later than February 29<sup>th</sup>, 2016.

Manuscript submission deadline: June 30<sup>th</sup>, 2016

Before submission authors should carefully read the journal's Author Guidelines.

#### **Managing Guest Editors:**

Thomas Wichard ([thomas.Wichard@uni-jena.de](mailto:thomas.Wichard@uni-jena.de))  
Friedrich Schiller University Jena  
Institute for Inorganic and Analytical Chemistry  
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Department of Botany  
Athens 157 84  
Greece

First deadline:  
**February 29<sup>th</sup>, 2016**  
Manuscript Submission:  
**June 30<sup>th</sup>, 2016**

## MICROSCOPICAL OBSERVATORY FOUNDED IN BELCHERTOWN

A new non-profit research and education center that collects microscopical specimens and literature has been founded in Belchertown by Dr. Michael F. Dolan, in memory of his late wife, Dr. Sona (Kim) Dolan.

The new Sona Dolan Memorial Microscopical Observatory complements the protistology collections at the W.E.B. Du Bois Library at the University of Massachusetts, Amherst that Dr. Michael Dolan has organized over the last seven years. The UMASS Library has become the premiere depository for the professional papers and micrograph collections of protistologists in the United States, and currently holds the papers of Greg Antipa, William Balamuth, Lea Bleyman, Phyllis C. Bradbury, Henry James Clark, David G. Chase, Bronislaw Honigberg, Seymour Hutner, John Kloetzel, Paul Kugrens, David L. Nanney, Hope T. Ritter, Eugene B. Small, Arthur I. Stern, F.J.R. "Max" Taylor, Peter G. Verity, Howard C. Whisler and Christopher L.F. Woodcock. Descriptions of these collections can be found at this site: <http://scua.library.umass.edu/umarmot/?s=protistology>

The new Dolan Microscopical Observatory (DMO) is available for the deposit of specimens and related microscopical materials that the UMASS library does not collect. These materials – microscope slides, electron microscopical specimens, geological and micropaleontological specimens – will be available for loan to scholars. The center will also host teaching collections that will be available for student use.

In addition to specimens the DMO will include Sona and Michael Dolan's combined libraries with hundreds of books, journals and offprints in the fields of protistology and phycology. The library's goal is to compile the most comprehensive collection of protistological literature available. The Sona Dolan Memorial Microscopical Observatory was incorporated in the Commonwealth of Massachusetts as a charitable, non-profit organization in 2015. An application to the US Internal Revenue Service for 501(2) 3 tax-exempt status was filed in May. All donations to the Dolan Microscopical Observatory are tax-deductible to the extent allowed by law.

### **Craig Sandgren chrysophyte collection donated**

The Observatory has recently received a large microalgae collection in the chrysophyte slides of the late University of Wisconsin, Milwaukee Biology Professor Craig Sandgren. Prof. Sandgren's papers and an extensive scanning electron micrograph collection of over 60,000 prints and negatives were deposited in the Du Bois Library's Special Collections at UMASS Amherst. The Sandgren specimen collection consists of nearly 1000 light microscope slides of *Dinobryon*, *Mallomonas*, and *Synura*.

The Observatory is grateful to Prof. Sandgren's wife, Ms. Maria Terres-Sandgren, for the donation, and to Prof. John A. Berges, chairman of the Department of Biological Sciences at the University of Wisconsin, Milwaukee, for organizing the collection, and shipping it to UMASS.

Excerpts from Teacher Kim - Newsletter of the Sona Dolan Memorial Microscopical Observatory

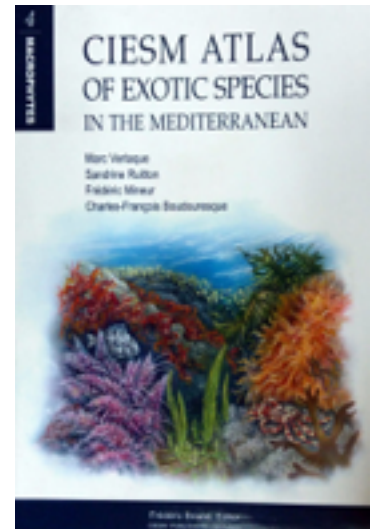
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## New Book Titles

**CIESM Atlas of Exotic Species in the Mediterranean. Vol. 4. Macrophytes.** 2015. By M. Verlaque, S. Ruitton, F. Mineur and C. F. Boudouresque. CIESM Publishers, The Mediterranean Science Commission, Monaco. 364 pp. ISBN 13: 978-92-990003-4-2. [96 Euros.]

“One major challenge for the authors was to keep up with a rapidly changing scene in a Basin already ranked as a marine biodiversity hotspot and now receiving an exponential influx of newcomer species. As a consequence, the Mediterranean Sea has become the marine region harbouring the largest number of introduced macrophytes in the world.”



### **Algae, Third Edition (Version 3.1)**

2016. By L. E. Graham, James M. Graham, Lee W. Wilcox, and Martha E. Cook  
© 2016 LJLM Press, LLC. ISBN 13: 978-0-9863935-3-2 ISBN 10: 0-9863935-3-3  
595 pp. eBook (PDF). \$40

Can be downloaded from [www.ljlmpress.com/algae.html](http://www.ljlmpress.com/algae.html) using PayPal account or credit card. Brief and detailed TOCs plus a sample chapter are available for download on the same page.

#### **Description:**

Previously offered in two print editions by Pearson Education, the authors acquired the publication rights to *Algae* and formed a company to continue to offer their textbook to instructors, students, and researchers in phycology and related disciplines.

The first 21 of the 23 chapters that appeared in the second edition of *Algae* have been revised and are being offered for use in Spring 2016 as Version 3.1. Work is still underway to update the final two chapters and, when completed, will be included in Version 3.2. (Instructors who make use of the final two chapters are asked to contact LJLM Press—[inquiries@ljlmpress.com](mailto:inquiries@ljlmpress.com)—for further information.)

In addition to the revised and updated text, Version 3.1 contains over 560 color images and 40+ new line art pieces, as well as over 30 new grayscale light and electron micrographs. JPEGs of text figures have been created for use by instructors.

The new edition of *Algae* is only available in an eBook format to keep costs down (and allow for the inclusion of color images). Students can download and keep their books.

If you are teaching a course that uses a phycology textbook, please contact the press at the above email address if you would like to receive information on downloading a free evaluation copy of this new version.



**Diatoms and the continuing relevance of morphology to studies on taxonomy, systematics and biogeography. Celebrating the work and impact of Patricia A. Sims on the occasion of her 80th birthday**

Ed.: Jakob Witkowski; David Williams; J. Patrick Kociolek

2015. VI, 228 pages, 560 figures, 5 tables

(Nova Hedwigia, Supplements, Vol. 144)

ISBN 978-3-443-51066-4, paperback, 119.00 €

[www.schweizerbart.de/9783443510664](http://www.schweizerbart.de/9783443510664)

**Algae and landscape: diversity of habitats, species and bioindicative value**

**Tribute to Dieter Mollenhauer**

Ed.: Burkhard Büdel

2015. 89 pages, 23 figures, 9 tables

ArtNo. ES221014800, paperback, 85.00 €

(Algological Studies; Vol. 148)

[http://www.schweizerbart.de/papers/algol\\_stud/list/148#issue1](http://www.schweizerbart.de/papers/algol_stud/list/148#issue1)

**Joint Aquatic Sciences Meeting, May 18-23, 2014 Portland, Oregon, USA**

Guest ed.: Michael D. DeLong; Thomas Hein; Martin C. Thoms

2015. 90 pages

ArtNo. ES342002102, paperback, 178.00 €

(River Systems, Volume 21, No. 2/3)

<http://www.schweizerbart.de/papers/rs/list/21#issue2-3>

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Phycological Newsletter by Aug. 15, 2016**

We also welcome your announcements regarding field courses, workshops, meetings, job opportunities, graduate student positions and other algal information throughout the year to add to the PSA webpage:

Please forward this information to

[kirsten.muller@uwaterloo.ca](mailto:kirsten.muller@uwaterloo.ca)