ASLO BULLETIN

American Society of Limnology and Oceanography

Volume 7(3) **FALL, 1998**

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Join your colleagues at the
ASLO '99 Meeting
February 1 - 5, 1999
Santa Fe, New Mexico
Program, abstracts and registration available at
www.aslo.org/santafe99

MESSAGE FROM THE PRESIDENT

OF BUSINESS MEETINGS AND ENVIRONMENTAL MATTERS

Thomas C. Malone, *Horn Point Laboratory, University of Maryland Center for Environmental Science, Cambridge, MD 21613 (Tel: 410-221-8406; Fax: 410-221-8473; malone@hpl.umces.edu)*

Prior to being elected President of ASLO, I studiously avoided going to Business Meetings. I had some vague notion that this was a time for the President to say a few nice words about what a great society ASLO is, for the Treasurer to summarize the Society's finances, and for the Secretary to talk about more meetings — boring. I'd rather be having a beer with friends. Come to find that the Business Meeting is much more than this. It is an opportunity for members to express their concerns and ideas for how to make ASLO a more effective vehicle to serve their needs and the needs of society. We are faced with major new challenges that must be addressed if the aquatic sciences are to make progress in solving the environmental problems of our time and achieving the level of public and political support that will be required to do so. The Business Meeting provides an important forum for how to improve what we do best, publish a technical journal and hold technical meetings. It is also becoming a forum to discuss the kinds of public outreach needed for a more informed public and for environmental science to be more highly valued by society and our elected officials.

Since the expansion of our society in 1948, ASLO, like most scientific societies, has been largely concerned with promoting communications among its membership and the scientific community at large on issues involving the aquatic sciences. Our Society has grown and prospered largely as a consequence of the quality of *Limnology and Oceanography* and the popularity of our annual meetings. These will always be the pillars upon which the successes of ASLO depend,

The ASLO Bulletin is published 3 times annually (March, August and November) by the American Society of Limnology and Oceanography to provide members with up-to-date information on Society activities and to serve as a forum for open discussion.

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TARGET DATES for submissions: February 10, July 10, & October 10

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www.aslo.org/

and we will continue to work hard to strengthen both. At the same time, it is becoming increasingly clear that environmental science has become too isolated from the public at large, from the political process that formulates environmental policy, and from the management process that implements policy (cf., Hartz and Chappell, 1997).

The isolation of academic science has occurred at a time when environmental problems generated by the interaction between human activities and the forces of nature are increasing in complexity and magnitude (Malone and Nemazie, 1996). In 1991, the Ecological Society of America challenged the scientific community with the "Sustainable Biosphere Initiative" (Lubchenco et al., 1991). Global change, biological diversity, and sustainable ecosystems were identified as priority areas of research based on their importance for the advancement of fundamental knowledge needed to manage systems for a sustainable biosphere. As the scientific community responded to this challenge, interactions among scientists that traditionally emphasized exchanges of information among individual scientists began to expand to embrace collaboration among individuals working in large teams and regional to global networks on problems of common interest. This, and the increasing sophistication of the instrumentation required for aquatic research, have resulted in an escalation of research costs relative to federal funding — the gap between national needs and the capacity of the nation's research institutions to respond is growing at a time when environmental protection and sustainable development are rapidly becoming high priorities on the national agenda.

Given the increasing significance of environmental matters to the public, it may seem ironic that political support for environmental science is so weak and poorly organized. However, as so clearly shown in "Worlds Apart" (Hartz and Chappell, 1997), the American public has little understanding of roles of environmental science (in contrast, for example, to environmental advocacy groups and government agencies responsible for the environment and natural resources). It should come as no surprise that our elected officials are bewildered by the plethora of technical reports and potpourri of government-sponsored research and monitoring programs that, when viewed as a whole, are simultaneously redundant, incomplete, and incomprehensible to the layman (and to me for that matter). The view from the hill is one of chaos, disorganization, and lack of objective information upon which to base priorities for environmental policy making.

There is a clear and immediate need for more timely access to objective information on environmental matters. More timely access not only means the formulation of environmental policies that are more scientifically sound, it means a more proactive (less reactive) approach to environmental governance. As a Society, ASLO has an important role to play. We must work to (1) increase the awareness of the media, policy makers and the public of scientific issues and the state of scientific understanding of them through the dissemination of and access to objective information and sources; (2) promote mechanisms (e.g., workshops, symposia) for achieving consensus on significant aquatic issues and for communicating them to policy makers and the public through more effective interactions with the media and directly through the preparation and communication of fact sheets (brief, cogent statements); (3) provide timely access to experts who have the stature and knowledge to provide scientifically sound advice to policy makers, government agencies, reporters, NGOs, and the public at large; and (4) develop an infrastructure that will provide the means for timely responses to important issues and grass-roots support for scientifically sound legislation.

But getting from A to B will not be easy. The Business Meeting provides an important forum to discuss ideas on how best to achieve the Society's newly approved goal of achieving more effective linkages between "knowledge and understanding in the aquatic sciences to the identification and solution of problems generated by human interactions with the environment." The Board has taken several steps in this direction:

(1) A Public Policy Committee has been formed (chaired by Dave Karl with David Allen, Don Anderson, Susan Cowles, Jim Elser, Fred Grassle, Tony Michaels and Saran Twombly) and asked to recommend priorities, policies and procedures for ASLO to address issues of public awareness, access to scientifically sound analyses, and timely responses to requests for ASLO to take a position on environmental issues.

(2) The Journal Committee (chaired by Sybil Seitzinger with Everett Fee, Edna Graneli, Nelson Hairston, Pete Jumars, Gene Likens, Dave Schindler, and Alan Steinman) has been asked to work with the Public Policy Committee to assess the desirability of producing a publication on topics of current importance and public interest and to recommend how this might be accomplished if so desired.

(3) As problems of environmental protection and sustainable resources become more important in economic, social and political terms, so will the ethical behavior of aquatic scientists. With this in mind, the Professional Ethics Committee (chaired by Ken Tenore with Sue Kilham, Amy Leventer, David Lodge, Gisele Muller-Parker, Herb Windom and Henry Williams) has been asked, among other things, to review ethical issues of concern to ASLO members and to keep the membership informed about these issues.

These are relatively new initiatives that are beginning to define new directions for ASLO in response to recommendations by the 1996 Committee on the Future of ASLO (*ASLO Bulletin*, Spring, 1997, vol. 6 (1)). The success of these efforts and the impact of ASLO on the "...ways in which science in the United States will be conducted and supported in the next several decades..." depend on the full participation of our members. We need to hear your thoughts, ideas and desires if we are to achieve the goals so well articulated

in the 1996 Futures report. I invite you to join me, other members of the ASLO Board, and your colleagues at our Business Meeting on Monday February 1, 5:30-6:30 p.m. at the Hilton Hotel's Mesa Ballroom.

References

Hartz, J. and R. Chappell. 1997. Worlds Apart: How the distance between science and journalism threatens America's future. First Amendment Center, Nashville, TN, 178 pp.

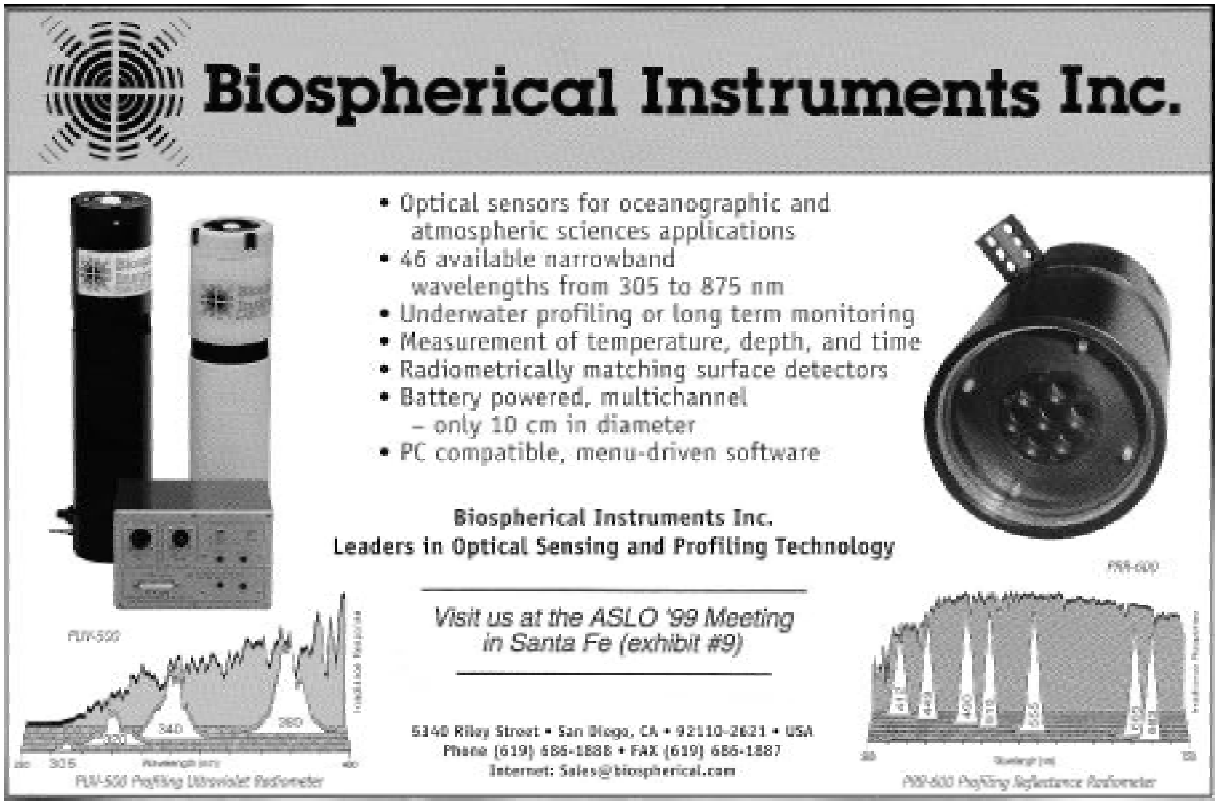
Lubchenco, J. et al. 1991. The sustainable biosphere initiative. *Ecology* 72:371-412.

Malone, T.C. and D. A. Nemazie. 1996. Toward a national agenda for research in the coastal zone: where are we? *Biol. Bull*. 190:245-251.

WE LOOK FORWARD TO SEEING YOU at the ASLO 99 meeting in Santa Fe!

Program information, abstracts, and on-line registration is available at **www.aslo.org/santafe99**

Please join us for the Business Meeting
Monday February 1
5:30 -6:30 pm
Hilton Hotel, Mesa Ballroom
Santa Fe, New Mexico



SEA BIRD AD
FULL PAGE

ASLO NEWS

MESSAGE FROM THE EDITOR: Reviewing for L&O

Everett J. Fee, *L&O Editor-in-Chief, 343 Lady MacDonald Crescent, Canmore, AB T1W 1H5, Canada (Tel: 403-609-2400; Fax: 403-609-2400; efee@telusplanet.net)*

Any journal, especially one published by a society, is a community project. Technical quality, breadth of thought, and lack of bias are dependent on the participation of the whole community, both as contributors and readers. L&O has long been the top-rated journal in aquatic science. I think that L&O's reviewers are the key to its success. Good papers are published in many journals; what distinguishes L&O from the others is how very few bad papers get in. L&O reviewers are notoriously picky, and any paper that can satisfy them has earned its place in the sun.

More than 400 papers are submitted to L&O every year. Almost all are reviewed by two (occasionally three) reviewers, and most are re-reviewed at least once more. Finding 1000 reviewers a year and getting them to deliver promptly is no small task. We are doing everything that we can to shorten the time that it takes to move manuscripts through the system to print, but getting reviewers to accept review requests and then getting them to deliver is beyond our control.

The most effective way that you can assure that L&O continues to thrive is by accepting review requests and returning your reviews promptly. Right now, participation in the review process is highly variable: some ASLO members review 5 or 6 papers a year, while others review none. It is particularly unfortunate that in the latter group are experienced veterans who publish regularly in the journal; their opinions would be especially valuable

Reading and thinking about a manuscript unquestionably adds to already busy schedules, but it needn't take a lot of time to prepare the actual review. What an editor faced with making a difficult accept/reject decision needs to know is whether the science is sound, novel, and of more than local interest. Good reviews are often quite brief and focus on the essential scientific issues. Some reviewers produce detailed lists of typographic errors and suggested re-wordings that are undoubtedly useful to authors if they are asked to revise their manuscripts; but this should not be the reviewer's primary objective. Professional technical editors go over accepted papers with a fine-toothed comb, so it is unnecessary for reviewers to dwell on these details.

Reasonable speed in reviewing is critical: if the turnaround is slow, authors will submit their papers elsewhere. Without question, the worst thing that can happen to a manuscript is that it falls into the hands of someone who agrees to review it but never delivers. It can take up to two months for us to conclude that someone isn't going to come through and to initiate the search for an alternate reviewer.

Ultimately, the quality of L&O is the responsibility of the people who read and comment on what is submitted and published in the journal. The whole community must participate in the process of quality assurance if we want to continue to read the best in aquatic science in L&O. Reviews are the most important determinant of what will and what will not be published in L&O. By agreeing to review for the journal and delivering your reviews in a timely fashion you make a substantial contribution. It is an activity that deserves your attention and that is appreciated enormously by your colleagues, the associate editors, and us in the Editorial Office.

ERRATA

C. Susan Weiler, Bulletin Editor

The most humbling experience an Editor can have is to make a mistake in an article composed by another editor! I thank L&O's new Editor-in-Chief, Everett Fee, for his good humor concerning two errors in the last issue of the *ASLO Bulletin*: the inadvertent cropping of one of his references at the bottom of page 9; and a similar snip which eliminated part of a sentence begun on p. 10 and continued on p. 11. Missing text is underlined below.

Bottom of p. 9 should have read: Fee, E. J., R. E. Hecky, S. E. M. Kasian, and D. R. Cruikshank. 1996. Effects of lake size, water clarity, and climatic variability on mixing depths in Canadian Shield Lakes . *Limnol. Oceanogr*. 41:912-920.

Bottom of p. 10 should have read: Over time, the printed version of L&O might evolve into a thin volume of easily browsed summary material (abstracts, figures, tables) that would lead interested readers to the web, which would contain the complete text as well as rich new information resources (e.g., video clips and "clickable" direct links to references.

MESSAGE FROM THE EXECUTIVE DIRECTOR: Great events and opportunities!

***C. Susan Weiler**, Executive Director (weiler@whitman.edu)*

For me, the most exciting part of ASLO's yearly cycle is the annual meeting (see p. 17)--there is nothing I enjoy more than finding out what's happening on the cutting edge of aquatic science, and meeting with colleagues from around the world. But that's just the beginning! Our meetings have always offered a wide diversity of events, and with the growing number of Sunday and evening workshops, student programs, and other happenings, there is an intellectual, professional and collegial richness that few society meetings match.

Please take a careful look at the program, including the special events that are scheduled for Sunday and throughout the week. If the 1999 meeting's Call for Papers isn't included with this mailing, it should reach you shortly.

If you are interested in becoming more actively involved in the Society, please take part in some or all of the following at the Santa Fe meeting:

• **Judges are needed** for Student Poster Award selections--If you haven't already served as a judge, you are missing a real treat! It's a wonderful opportunity to serve your community, and to learn about the work of the newest generation of aquatic science researchers, within and outside your primary area of expertise. You will be asked to judge no more than 10 posters. Please contact me at weiler@whitman.edu to sign up.

• **Mentors are needed** for Ben Cuker's program for underrepresented minorities. If you are interested in helping these undergraduate students make the most of their ASLO meeting experience, contact Ben Cuker (cuker@cs.hamptonu.edu). Whether or not you serve as a mentor, plan on attending the student symposium, currently scheduled for Tuesday Feb. 2, 1999 at the Ortiz Room, Hilton Hotel.

• **Join your colleagues at the Business Meeting!** As Tom Malone so eloquently noted in his Message from the President, you are all most cordially invited to participate in the annual Business Meeting, scheduled for 5:30 p.m. Monday February 1, 1999 at the Hilton Hotel's Mesa Ballroom. This is your opportunity to find out about the Society's current activities, and to become involved in the planning process for the future.

New membership category established. While our meetings and publications are the heart of ASLO, the Society is much more than this, and the Board is constantly searching for ways to fund more activities from non-dues sources. For example, the cost of producing this Bulletin is offset by advertising revenue. This year the ASLO Board of Directors developed a new category of membership for individuals and institutions who support the goals of ASLO and wish to contribute significantly to the Society. ASLO has many colleagues in the corporate world, and has received many benefits, including advice and contributions toward special programs and our endowment fund. Members benefit from the programs and special projects these funds enable, and also from receiving the latest information on new products to keep our research on the cutting edge. On behalf of ASLO, I want to thank our many corporate supporters, and in particular thank Turner Designs for being the first to sign up as a sustaining member under our new program. Starting in 1999, ASLO will provide links to all sustaining member institutions through the ASLO web page, at www.aslo.org/sustaining.html. Please check out this new page, which will become active on January 1, 1999.

Individuals as well as institutions may become sustaining members. For information on how to sign up, contact Helen Schneider Lemay at the ASLO Business Office (business@aslo.org; Tel: 800-929-ASLO or 254-399-9635).

Education is a continuing priority for ASLO. The new Education Section in the Bulletin is a wonderful example of this, and I thank Ray Gerber for his work as section editor. The section starts on p. 13 of this issue. Another example is the workshops held in conjunction with our meetings. Nancy Marcus' article on p. 13 gives a terrific introduction to one of the workshops planned for the Santa Fe meeting. Another, led by Bart De Stasio, will focus on activities which ASLO could undertake as a society. Please take part in these events.

ASLO members who wish to participate in an ongoing dialogue about educational issues in the aquatic sciences between meetings and issues of the Bulletin are invited to join the ASLO Education listserv. Here's how you subscribe:

1) Send an e-mail message to:

listserv@whitman.edu

2) In the text portion of the message, type:

sub aslo.education <your first name last name>

For example: sub aslo.education Susan Weiler

• **We invite you to get involved!** The projects highlighted above are just a sampling. If you are interested in becoming actively involved in an aquatic science issue, what better place to start than with ASLO? As a grass-roots organization, your voice and volunteer efforts are needed in a variety of areas. Please contact me (weiler@whitman.edu) or ASLO President Tom Malone (malone@hpel.umces.edu) if you would like to become more active in the Society .

I hope to see you in Santa Fe!

ASLO CONGRESSIONAL FELLOWSHIP: MY FIRST SIX WEEKS

***Laura Lyman Rodriguez**, ASLO Congressional Fellow (Laurar@mail.house.gov)*

Tuesday, September 1, 8:30 a.m. For months I looked forward to this date and time with anticipation, anxiety, excitement and even a little fear. This was the moment that my year as a Congressional Fellow would begin. What would the year hold? What would I work on? What would I do on a daily basis? Would I work in the House or the Senate, a committee or personal office? Was I up to the challenge of the fast-paced and mysterious legislative process, the bickering of party politics? And most worrisome, would I prove a disappointment to the members of AIBS and ASLO that had put their trust in me to be an effective and informative voice for science on Capitol Hill? With little knowledge left in my memory banks of any high school Civics lectures and having only recently emerged from the alternate reality of my graduate research, I was eager to learn anything and everything I could about science policy and the ambiguous (to me, anyhow) legislative process.

By mid-afternoon of that first day of orientation, I had accepted that mastering even the basics of the Congressional process was not to be done in a few weeks (or a few months for that matter) and, more importantly, that I was not in over my head. Rather, the scientific expertise I had to share with legislators would be ample trade for what they had to teach me about government. This year was about conversation, and I would be well prepared to hold-up my end of the bargain/exchange. With this new-found confidence, I settled into the AAAS orientation and its amazing calendar of lectures during which we were exposed to nearly every component of the policy mechanism.

To summarize the content of orientation would be impossible. The experience was one of the most dynamic programs I have ever participated in. All AAAS fellows (Congressional, Executive, Diplomacy, Defense and EPA) went through orientation together and thus, through the course of two weeks we heard from over 120 speakers and visited many offices and agencies throughout Washington, DC. The speakers ranged in experience and perspective from Drs. Neal Lane, Bruce Alberts and Harold Varmus to 1997-98 Fellows to science policy advisers whose careers spanned multiple administrations and political environments to experts on economics, world population growth, intellectual property, defense research, science journalism, the role of Think Tanks and lobbying groups, and of course, the legislative process from committee to the House/Senate floor. Highlights of our site visits included the Pentagon, Capitol Hill, the State Department, the National Academy of Sciences, the Executive Office Building, USAID, and the National Press Club. To say the least, at the end of the schedule we were all better informed about the current issues and concerns within science policy, as well as the interactions and relationships between federal agencies and private organizations with a scientific focus.

The next phase of the process was Placement. Two weeks after embarking on my fellowship it was finally time to consider the heart of my experience. All of the questions from my first day came flooding back with renewed urgency. What would I do? How was I going to identify the best office for me out of the 535 choices? Once I did identify choices, how was I going to distract frantic staffers trying to complete the year's business long enough to talk to me? I had at my disposal a few reference books, a telephone and a fax machine to guide me, and off I went to find direction. I began the process with an academic attack. I researched those members I thought might possibly be interested in someone with my background through reference books, the internet and former fellows. My next step was to incorporate the "political" approach and canvas the Hill introducing myself and delivering resumes. In total, I left my resume at over 20 offices, interviewed with 13 and selected my final choice from three great opportunities. I am happy to report that I will be spending my year in the personal office of Vernon J. Ehlers (R-MI) staffing him on Science Committee issues and assisting the legislative staff with scientific concerns pertaining to their individual issue areas.

After six weeks of preparation and months of anticipation, I am finally poised to "start" my fellowship. Today, as I sit in my new office I am again faced with the question I have been asking myself (and trying to answer for others) since early May: What am I going to do while working in Congress? Answer: I have only a vague idea, but I can't wait!

You are invited to meet Laura at the
ASLO Business Meeting
Monday February 1, 1998, 5:30-6:30 p.m.
Mesa Ballroom, Hilton Hotel
Santa Fe, New Mexico

MESSAGE FROM THE BUSINESS MANAGER

***Helen Schneider Lemay,** ASLO Business Manager, 5400 Bosque Blvd. Suite 680, Waco, TX 76710-4446 (Tel. 800-929-ASLO or 254-399-9635; Fax: 254-776-3767 (business@aslo.org)*

October 9, 1998

Dear ASLO Members:

Now is an exciting time around the ASLO Business Office. It's renewal time for your 1999 ASLO membership! Dues notices have been sent, and if you have not received yours, please let us know. As a reminder, your membership runs from January 1 to December 31 of each year. After January 1 your dues are delinquent, and you will no longer receive ASLO member benefits.

One of those benefits is the ASLO membership directory. The 1998-1999 membership directory and handbook will be published and distributed to current members in January. Be sure that the business office has both your renewal and all of your current information.

It is always nice to put faces with names, so if you will be attending the 1999 ASLO Aquatic Sciences Meeting in Santa Fe, please stop by the conference desk or the ASLO booth to introduce yourself.

Have a great holiday season and we hope to see you in Santa Fe.

CONGRATULATIONS RECENT PH.D RECIPIENTS!

***C. Susan Weiler**, ASLO Office, Whitman College, Walla Walla, WA 99362 (Tel: 509-527-5948: Fax: 509-527-3767; weiler@whitman.edu)*

On behalf of ASLO, I congratulate new Ph.D. recipients and welcome them to the aquatic science community!

Aquatic scientists completing their Ph.D. after January 1, 1997 are invited to register dissertations on the ASLO web page, **www.aslo.org/dialog.html**. All dissertation citations registered in this way will be published in the following issue of the *ASLO Bulletin* and citations and abstracts will be posted on the ASLO website (same address as above).

All those graduating after April 1, 1997 are encouraged to apply for the DIALOG symposium (see article below).

Citations received after July 10, 1998 are presented below, along with an e-mail address to facilitate interactions.

Baca, Robert M. 1998. The use of size distributions in ecological experiments. University of Mississippi (USA), 168 pp. (bybaca@olemiss.edu)

Beaulieu, Stace E. 1998. The ecology of glass sponge communities in the abyssal NE Pacific. University of California, San Diego (USA), 206 pp. (stace@ucsd.edu)

Booth, Melissa G. 1997. Solar ultraviolet radiation and the role of reca in marine bacteria. Oklahoma State University (USA), 106 pp. (booth@skio.peachnet.edu)

Boyer, Elizabeth W. 1998. Landscape scale controls on dissolved organic carbon flux in a mountainous catchment. University of Virginia (USA), 147 pp. (ewb7@cornell.edu)

Carrubba, Lisamarie 1998. Land use and water quality: linking field-sampling, GIS and modeling. University of Georgia (USA), 193 pp. (lcarruba@arches.uga.edu)

Cranford, Peter J. 1998. Temporal perspectives on food acquisition by suspension-feeding bivalves: *Placopecten magellanicus* and *Mytilus edulis*. Dalhousie University (Canada), 258 pp. (cranfordp@mar.dfo-mpo.gc.ca)

Culver-Rymsza, Karen E. 1998. The effect of nitrogen source on photoinhibition in marine phytoplankton. University of Rhode Island (USA), 191 pp. (kculver@gsosun1.gso.uri.edu)

Goser, Brigitte E. 1997. Density dependent life history in *Daphnia*: a change in life-history strategy. Aachen University of Technology (Germany), 210 pp. (goser@cl.nioo.knaw.nl)

Helmuth, Brian S. 1997. The physical ecology of sessile marine invertebrates: flows, fluxes and morphology. University of Washington (USA), 191 pp. (helmuthb@leland.stanford.edu)

Kaldy, James E. 1997. Production dynamics, reproductive ecology and demography of *Thalassia testudinum* (Turtle grass) from the Lower Laguna Madre, Texas. University of Texas at Austin (USA), 143 pp. (kaldy@nitro.tamu.edu)

Kinnunen, Ronald E. 1997. The effect of Lake Superior surface water temperature on lake herring (*Coregonus artedi*) length and year-class strength. Michigan Technological University (USA), 99 pp. (kinnunen@msue.msu.edu)

Kocum, Esra 1998. Phytoplanktonic primary production along a eutrophic, turbid estuarine gradient (Colne Estuary, UK). University of Essex (UK), 199 pp. (kocuej@hotmail.com)

Liu, Hongbin 1997. Estimating the growth rates of *Prochlorococcus* and *Synechococcus* in the sea from diel cell cycle analysis. University of Hawaii at Manoa (USA), 248 pp. (hongbin@utmsi.utexas.edu)

Mulholland, Margaret R. 1998. Nitrogen utilization, metabolism and the regulation of nitrogen fixation in *Trichodesmium* spp. University of Maryland (USA), 276 pp. (margie@cbl.umces.edu)

Ortiz-Zayas, Jorge R. 1998. The metabolism of the Rio Mameyes, Puerto Rico: carbon fluxes in a tropical rain forest river. University of Colorado at Boulder (USA), 344 pp. (ortizzayas@hotmail.com)

Petersen, John E. 1998. Scale and energy input in the dynamics of experimental estuarine ecosystems. University of Maryland (USA), 363 pp. (petersen@hpl.umces.edu)

Sauer, Peter E. 1997. Records of climate and late quaternary paleoclimate from stable isotopes in lakes and lake sediments, eastern Canadian Arctic. University of Colorado at Boulder (USA), 224 pp. (psauer@whoi.edu)

Swarzenski, Peter W. 1997. Non-conservative behavior of select naturally occurring radionuclides and metals in coastal waters. Louisiana State University (USA), 257 pp. (pswarzen@usgs.gov)

TeWinkel, Leslie M. 1998. The vertical migration of adult bloater (*Coregonus hoyi*): Characteristics, limits, and causes. University of Michigan (USA), 101 pp. (leslie_tewinkel@usgs.gov)

Twardowski, Michael S. 1998. The finescale distribution, origin, and photobleaching of the spectral absorption of dissolved organic matter in coastal waters. University of Rhode Island (USA), 289 pp. (mtwardo@oce.orst.edu)

Wommack, K. Eric 1998. Aspects of the ecological role of bacteriophages. University of Maryland (USA), 265 pp. (ewommack@arches.uga.edu)

Woodfine, David G. 1998. Water chemistry and phytoplankton metal contaminated and acidified lakes in the Sudbury Region, Canada. Trent University (Canada) 284 pp. (dwoodfine@trentu.ca)

DIALOG III SYMPOSIUM

***C. Susan Weiler**, Whitman College, Walla Walla, WA 99362 (Tel:509-527-5948; Fax: 509-527-5961; weiler@whitman.edu)*

The DIALOG (Dissertations Initiative for the Advancement of Limnology and Oceanography) program was developed to facilitate the development of collegial ties and catalyze the exchange of knowledge across the aquatic sciences (see *ASLO Bulletin* 3(1) and 6(2)). It includes collection of demographic information and Ph.D. dissertation citations and abstracts, and a symposium to bring together 40 recent Ph.D. recipients to foster collegial interactions across the range of aquatic science disciplines.

DIALOG III is now underway, with another symposium planned for October, 1999. Individuals completing their last Ph.D. requirement between April 1, 1997 and March 31, 1999 are eligible for the symposium.

Application instructions are on the ASLO web page: **www.aslo.org/dialog.html**)

Deadline for completed Symposium applications: **May 1, 1999**

Lipids in Freshwater Ecosystems

This book, edited by Michael T. Arts and B.C. Wainman, addresses the general lack of understanding of the role of lipids in aquatic ecosystems. The volume synthesizes and organizes the divergent literature on aquatic lipids into 11 chapters by various authors. For more information, see www.springer-ny.com.

ASLO STUDENT NEWS

STUDENT ACTIVITIES PLANNED FOR THE SANTA FE MEETING

Cristina D. Takacs *and* ***Karla Heidelberg****, ASLO Student Representatives to the Board (aslorep@montana.edu)*

The theme of the next ASLO meeting, "Navigating into the Next Century, refers not only to limnology and oceanography in the twenty-first century, but also to the role students will play in ASLO. This meeting represents the first time that the new Student Activities Committee will meet.

Our goal is to initiate and foster student involvement and opportunities in ASLO, and the fields of limnology and oceanography in general. Prior to this meeting, we would like to meet with student members to learn of your concerns and ideas regarding the future of our society. Therefore, the ASLO Board of Directors will sponsor a breakfast Monday (February 1, 1999) morning from 6:30-7:30 in the Mesa Room at the Hilton.

Another activity that is being organized is a student ski trip to the Santa Fe Ski Area on the Saturday following the conference (Feb. 6). Even if you do not wish to ski, join us for lunch at the bottom of the mountain. Lift and rental rates are reasonable, but we can get a group rate ($34) if at least 25 people plan to attend. Additionally, special rates are available for first-time skiers or snowboarders. For more information, send an e-mail to aslorep@montana.edu.

Shared hotel rooms: Once again we would like to help student members find roommates to share a hotel room at the Santa Fe conference. Simply send an e-mail to aslorep@montana.edu, enclosing the following information:

Last name, first name, e-mail address, gender, smoking or non-smoking, special preferences

Please format your message as above, including the commas to separate each field of information. You will be supplied with a list of potential roommates within a couple of weeks of submitting your request.

Finally, please do not hesitate to contact us at anytime with ideas or concerns that you may have regarding the Society. We always welcome your comments and look forward to hearing from you. Please come up to us in Santa Fe and introduce yourself; we may be recognized by the maroon "Board Member" ribbons that will be wearing.

ASLO FORUM

VISITING THE EXPO '98 IN LISBON

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The 1998 World Exposition - EXPO '98 - took place in Lisbon, Portugal, from 22 May to 30 September. This biannual industrial fair traditionally serves to present international productive power and innovative trends in technology to the public. Its exhibitions are selected from national and international competitions and are organized by private companies supported by government and industry of the host country. With its dedication to the theme "The Oceans - A Heritage for the Future", with more than 140 nations and 8.5 million visitors participating, the EXPO in Lisbon was the largest event of the International Year of the Oceans 1998.

According to the organizers, the EXPO '98 was intended to "enhance knowledge on the Oceans and their resources and to motivate the international community to consider the importance of its heritage and our responsibility in preserving it for future generations" (www.expo98.pt/en/imprensa/di/di_projectoetema.html). Four subthemes were proposed for the design of the different exhibitions: "Knowledge of the Seas and Ocean Resources"; "The Oceans and Leisure"; "The Oceans and the Earth's Ecological Balance"; and "The Oceans, a Source of Artistic Inspiration". The planning period lasted for five years and included a large urban regeneration project (building a new bridge across the river Tagus, a giant train station, a large marina, as well as many residential, commercial and official buildings stretching 5 km along the Tagus). The exposition itself was built on 60 hectares northeast of the city center (around Olivais Dock, on the river Tagus). Seventy percent of the new buildings were constructed for permanent use. Total costs were estimated to be US $1.7 billion.

Disregarding the critical coverage in the media, mostly concerned with the financial scandals of the EXPO '98, I would like to point out just one aspect of this event: With over 8.5 million people visiting the EXPO '98, this was probably the largest experiment ever on how scientific knowledge of the oceans can be made accessible to the public.

Some of you might have had the chance of visiting the EXPO '98 since several large scientific meetings were taking place in Lisbon and a variety of oceanographic expeditions started or ended there. I visited the EXPO '98 for one week in September, shortly before its official termination. During that period, more than 100,000 people wandered through the grounds of the EXPO '98 at one time, lining up patiently in front of the pavilions and sometimes waiting for 4 hours in 30°C weather to enter the most popular exhibitions (after having paid nearly as much as for access to one of the Disney World parks)—and all to get educated about science, technology and ecological ethics. This alone makes it worthwhile to consider the commercial and social value of scientific information. Remembering my own reactions to the presentations as well as those of the people around me, I think I learned a lot about what new technologies could do for the transfer of knowledge. For those who did not have a

chance to visit the EXPO '98: this is a short overview. More information is available at www.expo98.pt/en/homepage.asp.

The EXPO presented more than 120 pavilions from the participating countries and organizations as well as the six central pavilions: the "Ocean Pavilion", a giant aquarium built by P. Chermayeff, was designed to represent the seven seas; the "Knowledge of the Seas Pavilion" showed the historical development of oceanic discoveries; the "Portuguese Pavilion" focused on Portugal's pioneering role in Europe's overseas expansion and the "discovery" of new continents, commemorating the 500th anniversary of Vasco de Gama's voyage to India; the "Pavilion of the Future" explained the concept of a single global ocean and its impact on life on earth as well as the motivation of research and environmental protection; the "Virtual Reality Pavilion" offered a visit to a virtual underwater city; and the "Utopia Pavilion" presented a theater show on myths and legends of the Sea from the creation of the ocean by the gods to the sailor's daily fight with fearful seamonsters. These central exhibitions, as well as many of the national pavilions, were all based on multimedia presentations using the latest art in light, sound and moving-image technology as well as in virtual reality, optical illusions and all other kinds of special effects. Furthermore, in most exhibitions there was ample access to interactive computer programs and the World Wide Web, linking the visitor to oceanographic institutions, research vessels and scientific projects.

So, how was the visitor's knowledge "enhanced"? A visit to the Portuguese Pavilion is a good example: After entrance you were exposed to a light and sound show referring to the myths of the oceans and the dreams of humanity. This was followed by a special animation on a large screen, taking you back to the Middle Ages, as a witness of the preparation and realization of a voyage of discovery to the new continents. The next room took you right into the action of a current underwater archaeological excavation of a sunken Portuguese galley which was sailing the route to India; it included a very realistic display of the diver's work. Before leaving the Pavilion you passed a hall with several screens presenting facts on the ocean's cycling of water, nutrients and life. Such many-fold visual and acoustical impressions during each step through the different Pavilions of the EXPO produced the feeling of being entertained in a very new manner, since on many occasions one felt within the action rather than removed from it (as is an observer in conventional exhibitions). Definitely, the exhibitions nourished curiosity and imagination, and encouraged the development of a network in one's mind to catch the "hard data". However, presentation of scientific knowledge was usually not in any logical order and explanations were very short. So, despite all the possibilities for simultaneous education and entertainment generated by the new multimedia technologies, one problem became obvious in the exhibitions and might also concern many of the new interactive computer programs: In the flood of bits of information and impressions, the selection of important from less important news always requires a lot of understanding as a prerequisite.

CHARLES R. GOLDMAN RECEIVES 1998 ALBERT EINSTEIN WORLD AWARD OF SCIENCE

Former ASLO President Charles R. Goldman (University of California, Davis) has been honored with the 1998 Albert Einstein World Award of Science for his pioneering contributions to environmental science and understanding. This international award recognizes those who have accomplished scientific and technological achievements that have advanced scientific understanding and benefited humanity. The prize includes a medal, diploma and $10,000, and is given by the Mexico City-based World Cultural Council. The council formed in 1982, and awarded its first Einstein prize in 1984.

In alerting Goldman to this honor, Dr. Esteban Meszaros Wild, secretary general of the Council, said, "The prize is offered for your productive trajectory for more than 39 years of research on Lake Tahoe and the environmental research program that you have created and sustained in California and throughout the world that has brought true benefit to mankind."

Upon learning of the award, Goldman said it is "particularly important to me as I draw near to the end of my career as a lake-focused environmental scientist, since it more than justifies my efforts as well as those of my students and colleagues to provide the necessary science to protect Lake Tahoe for this and future generations.... The Lake Tahoe experience has provided a contemporary example of how long-term, carefully done research can be decisive in directing policy towards protecting our fragile ecosystems everywhere."

The Einstein award, which Goldman will receive in a November ceremony at Victoria University of Wellington in New Zealand, caps a year of extraordinary, worldwide attention to Lake Tahoe's environmental stresses, commencing with last year's Presidential Forum on the Environment. Following that forum, President Clinton pledged federal money for research and to preserve the Tahoe basin.

UC Davis developed plans earlier this year to build a new Lake Tahoe Center for Environmental Research, to house researchers and to welcome scientists from around the world who are interested in ecosystem management. Under Goldman's direction, the new center will bring scientists and policymakers together to strive for solutions to Lake Tahoe's troubles and to create models of freshwater lake preservation applicable globally.

Goldman joined UC Davis' College of Agricultural and Environmental Sciences in 1958, developing the first courses in limnology and founding the campus's Institute of Ecology. In addition to his studies at Lake Tahoe, Goldman's research accomplishments include helping to develop a highly efficient, low-energy wetlands system that strips nutrients from treated wastewater and urban runoff, and several studies of tropical reservoirs and their associated environmental problems.

Goldman's research is widely recognized as a major force in slowing further deterioration of Lake Tahoe, and influencing lake-studies programs at other lakes around the world.

In 1993, Goldman received the UC Davis Distinguished

Public Service Award. In announcing that award, campus officials noted that Goldman has "successfully translated scientific research into public policy and social action. In the 1960s, when his research documented that the discharge of sewage into Lake Tahoe was contributing to the decline in the lake's clarity, Goldman persuaded officials to begin exporting all sewage and solid waste from the Tahoe basin. He also was instrumental in showing the need for and promoting development of the Tahoe Regional Planning Agency in 1970 to regulate development and land use."

His research and professional development demonstrate the inter-relatedness of basic and applied research, and the importance of scientists working with policy makers to develop sound management strategies.

IN MEMORIAM: Holger W. Jannasch

Holger W. Jannasch died September 8, 1998 at his home in Woods Hole following a long battle with cancer. He was 71.

Holger Windekilde Jannasch was born in Holzminden, Germany, May 23, 1927 and grew up in the eastern province of Silesia. After being drafted into the German military at age 15 and discharged from a short imprisonment by the British in 1945, Holger pursued his childhood dream of becoming a forest ranger by getting a job as a forestry apprentice, starting as a lumberjack. That was a short-lived experiment which ended when he returned to school to complete his secondary education, which had been interrupted by World War II. His first scientific job, as a warden on a bird sanctuary off the German coast, was his introduction both to the ocean and to his future wife, Friederun, who was one of the few visitors to the uninhabited sand bar. He pursued graduate studies at the University of Göttingen and worked as a crew member on fishing steamers in the North Sea and North Atlantic between semesters from 1950 to 1954. His career directions became clear early in his graduate studies through several unexpected opportunities. A brief job at the University's Zoological Institute, identifying and labeling specimens of deep-sea mollusks from jars broken during wartime bombings, broadened his background in zoology, biology and biochemistry. In 1953 a three-month fellowship to the Zoological Station at Naples, Italy, introduced Holger to the international scientific community. At the Third International Microbiology Congress in Rome that year he met marine microbiologist Claude ZoBell, who invited him to work in his lab at Scripps Institution of Oceanography in La Jolla, CA. This gave him the opportunity to meet Cornelius van Niel of Stanford University's Hopkins Marine Station, whom Holger later called "the scientist of my life" for guiding his career direction. "He taught me to understand the conduct of science as a privilege and an obligation at the same time, and to see the endless, sometimes frightening, opportunities it offered for accomplishment."

In 1955 Holger received his doctoral degree in biology from the University of Göttingen. He worked as an assistant scientist at the Max Planck Society from 1956 to 1960, during which time he also held postdoctoral fellow appointments with Claude ZoBell at Scripps Institution of Oceanography from 1957 to 1958 and at the University of Wisconsin from 1958 to 1959. On his way back to Germany he was invited to visit WHOI by Stan Watson, whom he had met at the American Society of Microbiology Meeting. Another visit followed in 1961, during which he met John Ryther, Bostwick Ketchum and Paul Fye, and soon came the offer of a staff position. He later recalled that "Woods Hole impressed me with its smaller, more personal group of scientists and its beautiful New England surroundings: the personal touch and liberal research atmosphere I sensed. I was not mistaken, and never regretted my decision." Holger returned to Germany to complete commitments there, serving as an assistant professor in the Department of Microbiology at the University of Göttingen from 1961 to 1963. He held the position of Privatdozent at the University from 1963 until his death. He maintained a strong relationship with colleagues in Germany through the years, helping to establish the Max Plank Institute for Marine Microbiology in Bremen, dedicated in 1996.

Holger Jannasch moved to Woods Hole and joined the WHOI staff in October 1963 as Senior Scientist in the Biology Department. He worked for many years with Carl Wirsen and Steve Molyneaux, whom he called his "two steady teammates", and mentored dozens of graduate students, postdoctoral fellows and scholars, and visiting researchers from around the world. He shared his enthusiasm for learning in many ways, among them serving as director of the microbial ecology course at the Marine Biological Laboratory from 1971 to 1980. He continued his long association with MBL, teaching courses in marine microbiology, microbial ecology and microbial diversity and serving as a vital link between the institutions for many years.

An active sea-going scientist from the beginning of his WHOI career, Holger was a participant or chief scientist on more than 35 oceanographic cruises in the Atlantic and Pacific Oceans and the Mediterranean and Black Seas. His first cruise was aboard Research Vessel Atlantis II in 1964 in the Cariaco Trench, and his last aboard R/V Atlantis in April-May of this year in the Guaymas Basin.

Holger's research encompassed three major areas, microbial growth kinetics in seawater, effects of low temperature and high pressure, and processes at hydrothermal vents. Jannasch and colleagues conducted the first in situ experiments on microbial decomposition in the deep sea, unexpected research resulting from observations made on a lunch retrieved from the submersible Alvin after the sub was recovered following months on the ocean bottom in 1968-1969. He and coworkers identified the effect of pressure on microbial metabolism and documented the extremely slow rates of microbial decomposition in the deep sea. They designed and developed a variety of highly sophisticated sea-going instruments for collecting, culturing and sampling bacterial populations from deep-sea depths, and developed in situ deep-sea samplers and incubators in addition to pressure systems for work with barophilic bacteria. Their work

yielded valuable scientific information about the fragile nature of deep-sea food chains and the use of the ocean as a repository for humanity's wastes.

There is hardly an area of microbial ecology that Holger Jannasch has not influenced. He worked extensively in unique environments such as microbial mats and symbioses between animals and bacteria, and studied the microbiology of sulfur oxidation and reduction in the marine environment. He had a unique ability to plan and conduct scientific experiments at sea, using innovative approaches and techniques, and provided many insights and concepts that are now well known within the community of ecological scientists. Holger's writings are equally well known as he authored or co-authored about 200 publications.

"Science is an adventure, not a career" he once said, and his adventures were many. Holger greatly enjoyed the opportunities his work brought to meet colleagues around the world and to combine his work with traveling. His sense of joy and spirit of adventure were communicated to all who worked with him. He was always ready to describe and explain his work in fascinating detail and with wonderful humor. He gave generously of both his time and spirit, instilling in many the excitement of scientific discovery and the pursuit of knowledge.

Well-known in the international scientific community, Holger Jannasch served on the editorial boards of many scientific journals, including *Limnology and Oceanography*. He also edited several book volumes, including Advances in Aquatic Microbiology and Current Perspectives in High Pressure Biology. Holger was elected a Fellow of the American Association for the Advancement of Science in 1984. In 1995 he was elected a Foreign Associate of the National Academy of Sciences, a rare honor.

IN MEMORIAM: John C. Wright

***Ted Roeder**, Montana State University, Bozeman, MT*

John Clifford Wright, 78, passed away Nov. 17, 1997 as a result of an automobile accident. Wright was born and grew up in Livingston, MT., graduating from Park County High School. He then attended Montana State College (now MSU) in Bozeman, MT, graduating with a degree in microbiology. He received his doctorate from Ohio State University, Columbus, OH, and then conducted post-doctorate studies at Yale University, New Haven, CT, and Harvard University, Cambridge MA. It was at this time that Professor Hutchinson referred to him as "that bright young man from Montana."

Wright was a professor at Montana State University from 1950 to 1980 teaching general botany, phycology, plant ecology, and advanced aquatic ecology. He also co-authored "The Flora of Montana" with W.E. Booth. He was probably best known to readers of *Limnology & Oceanography* for his three papers on the Limnology of Canyon Ferry Reservoir, MT. He was also one of the pioneers in the study of primary productivity of flowing water (the Madison River in Yellowstone National Park).

John was executive secretary of the International Limnological and Oceanographic Society, and organized their international meeting in Madison, WI, in 1962. As a result he was instrumental in bringing several well-known limnologists to Montana State University, where they presented seminars and short courses to his graduate students. Wright received several training grants from the FWPCA (now the EPA) which enabled him to support a number of graduate students in aquatic ecology. These studies produced a number of papers published with other faculty members and his graduate students. He advised numerous M.S. and Ph.D. candidates to successful completion of their advanced degrees. His ability in developing advanced research projects earned the respect and admiration of his students. He will be missed as a valuable limnologist, mentor, and friend.

WOMEN IN SCIENCE, MATHEMATICS AND TECHNOLOGY: LISTSERVS

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There are more than 200 scholarly discussion lists that deal, at least in part, with issues of gender and science - let alone gender and mathematics or technology. There are over 50 lists dealing with gender equity. Here is a short list of popular groups along with descriptive and subscription information edited from WWW site descriptions. If you want information on other lists, check out Diane Kovac's Directory of Scholarly and Professional E-Conferences at www.n2h2.com/KOVACS/.

WISENET: Women in Science and Engineering Network The focus of this group is issues relevant to the education and employment of women in the sciences, mathematics, and engineering. To subscribe, send a message to listserv@UICVM.CC.UIC.EDU, no subject, with the message "subscribe wisenet first_name last_name".

WOMUNSCI - Women Undergraduates in Science WOMUNSCI, for WOMen UNdergraduates in SCIence, is a mailing list for discussion concerning the topic of increasing participation of undergraduate women in science. This list is devoted to looking at that question at the undergraduate level. Membership is open to college science educators and administrators and women undergraduates interested in science. To subscribe, send a message to majordomo@cs.umass.edu, no subject, with the message "subscribe womunsci_your e-mail address_your name

WITI - Women in Technology. The focus of the list is to discuss aspects of women in technology. To subscribe, send a message to witi-request@aero.org.

WIPHYS - Women in Physics Over 750 subscribers from around the world exchange advice, network, and discuss issues of interest to women in physics on WIPHYS. To subscribe, send a message to majordomo@aps.org, no subject, with the message "subscribe wiphys"

Graduate Women in Science Electronic Discussion Group-- This discussion group, affiliated with Sigma Delta Epsilon/Graduate Women in Science (SDE/GWIS), has the goal of connecting all interested women scientists with access to the Internet. One need not be a member of GWI to

participate. To subscribe send a message to sheri_cole@sombsb.ucsd.edu.

FIST - Feminists in Science and Technology. The purpose of this list is to discuss feminist issues in science and technology, feminist science and feminist critiques of science and technology. In addition, the purpose includes discussion of the teaching of science, and the implementation of technology. To subscribe, send a message to listserv@dawn.hampshire.edu, no subject, with the message "subscribe first_name last_name".

EDEQUITY - This list serves as a forum to discuss how to attain equity for males and females and how gender equity can be a helpful construct for improving education for all. This list gives people an opportunity to ask questions and exchange information about teaching strategies, useful texts and films, innovative programs, current research, and funding sources. To subscribe send a message to Majordomo@mail.edc.org, no subject, with the message "subscribe edequity" and/or to subscribe to the digest "subscribe edequity-digest."

WIGSAT - Women in Global Science and Technology Network. WIGSAT is a network of women scientists and technologists. One of the main goals of WIGSAT is to promote international collaboration and coalition building for development among women scientists and technologists around the world. To subscribe, send a message to mailto:WIGSAT-L@list.ifias.ca, no subject, with the message "subscribe."

EDUCATION

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COURSE DESIGN FOR NON-MAJOR INTRODUCTORY OCEANOGRAPHY COURSES

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In early July I attended a 5-day workshop on innovative approaches to teaching geoscience courses. The primary goal of the workshop was to design or revise a course to make it more effective in actively engaging students in learning. The workshop was sponsored by the College of William and Mary, the National Association of Geoscience Teachers, and the National Science Foundation. It was attended by approximately 30 geoscience professors representing a range of institutions from community colleges to research universities. We were guided in our efforts by five excellent facilitators: R. Heather MacDonald (College of William and Mary), Dean A. McManus (University of Washington), Jeffrey W. Niemitz (Dickinson College), Barbara J. Tewksbury (Hamilton College), and Kenneth L. Verosub (University of California, Davis).

My goal was to learn how to incorporate active learning approaches into the introductory oceanography course that I teach at Florida State University.

This is a course for non-science majors and is one of many courses that first and second year undergraduate students can select to fulfill their basic science requirement at the University. The course is offered in several different formats including large lecture for approximately 150 students, small lecture for 20-25 Honors students, and small lecture for the general student body.

Like most of the other faculty at the workshop and I venture to say, most of the people reading this article, I have generally relied on the traditional lecture format to "teach" the students. Moreover, I have typically presented the material in the order offered in virtually every introductory text — geological, physical, chemical, and biological oceanography. Since the course does not include a laboratory section I try to enrich the classroom experience with slides, videos, demos and most recently with material from various WWW sites. I present all of the material in electronic form using a computer and LCD projector. According to the syllabus my overall objective for the course is to introduce the students to the ocean, so that they will understand how it works and influences their lives. In addition, I have stated that I want to provide them with an understanding of the scientific process and the role of technology in supporting scientific study.

We spent quite a bit of time at the workshop refining the goals for our course. After two days I had a completely new set of objectives! My new discipline-specific objectives are: 1) to learn why/how the oceans are important and how human activities can impact the oceans and the planet; and 2) to provide students with the skills to critically evaluate issues that they may encounter in the future that relate to the ocean. In addition to these goals I established a set of non-discipline-specific goals. They are: to provide practice in essential life skills such as confidence to ask questions, oral and written communication, problem solving, organization, team work, responsibility, timeliness, and accuracy.

Now that I feel comfortable with these new goals I no longer feel compelled to include every fact about the ocean in the course. Instead, I plan to use the discipline of oceanography to teach the students about science and how science differs from other endeavors. I want the students to gain a sense of curiosity and develop life-long learning skills. This approach may not be appropriate for a majors course, but I do believe that it is appropriate for an introductory non-major course.

The workshop leaders introduced us to a variety of active learning approaches that can be substituted for the traditional passive approach of lecturing. We also learned alternative methods of assessment. While I don't expect to completely overhaul my course all at once, I do plan to introduce some active-learning exercises into the class when I teach it next Spring. First, I plan to re-organize the material into segments that are of topical interest. For example, I will start with a two-week segment that is focused on the issue of hurricanes and incorporate a jig-saw approach that relies on cooperative learning. The students will be divided into groups and asked to gather information on hurricanes e.g. paths, speed, storm surge, and damage. Each group will consider a different part of the overall topic. They will first discuss the information with the other students in their group and then re-assemble into new groups, each with one person from the first set of groups. Thus, each person brings something new to the re-assembled groups. They might be asked to consider questions such as —Where have hurricanes been most common? Where have they been strongest? Has the intensity and frequency of storms been increasing? The point of these exercises is to get the students to assume more responsibility for their learning and to be actively engaged. Before concluding the segment the students will be directed to read material on the atmospheric and oceanographic processes that relate to the development of tropical storms. They will be given questions to answer that relate to the material and they will discuss their answers in class.

By the end of the workshop I had developed a whole new outlook for teaching. Most importantly, I benefited tremendously by being able to interact with four other professors who were also working on introductory oceanography courses and who shared my enthusiasm for trying a new approach to teaching. They were Karen Grove (San Francisco State University), Elizabeth Wright (School of the Art Institute of Chicago), Keith Sverdrup (University of Wisconsin-Milwaukee), and Jill Whitman (Pacific Lutheran University).

A condensed form of the workshop will be held at the upcoming ASLO meeting in Santa Fe, on Sunday, January 31, 1999. The location and time will be published in the Program book and on the ASLO 99 web page, at www.aslo.org/santafe99.

PICK YOUR FAVORITE LAKE

***Arthur S. Brooks**, Center for Great Lakes Studies, University of, Wisconsin-Milwaukee, Milwaukee, WI 53201 (Tel: 414-382-1704; Fax: 414-382-1705; abrooks@csd.uwm.edu)*

Although the University of Wisconsin-Milwaukee sits on the shores of a Great Lake and has numerous small lakes and ponds close by, for those students who are not able to take the laboratory/field part of my general limnology course and actually get their feet wet, the topics discussed in class still need to be linked to the real world. In order to bring some personal relevance to the material being presented in class and accomplish the link, I ask each student to pick his or her favorite lake and to keep a notebook on that lake over the course of the semester. The lake chosen is often near their family summer cottage, a favorite fishing spot, or one of the major lakes of the world.

Over the course of the semester as we discuss various topics in class, the students are responsible for looking up specific information about their lake as it relates to the topic at hand. For example, when I lecture on the morphometry of lakes the students prepare a bathymetric chart of the lake along with a data sheet listing the dimensions of the lake, such as area, length, depth, shoreline development etc. When we consider dissolved oxygen, information about the oxygen content of the lake for different seasons and depths is gathered. This information is added to the notebooks as tables and graphs. I also ask for a written interpretation of the data. The assignment requires library work to locate studies that have been conducted on their lake, while some students collect their own data if information cannot be found in the literature. I help as needed, but consider the search for information in the library, and more recently on the World Wide Web, to be an integral part of the learning process. Specific data sheets are provided so that each student is responsible for gathering the same basic set of data for their lake, although some go much further in their quest for limnological knowledge and this is encouraged.

The notebooks must be turned in at various times during the semester as we complete sections of the course. This enables me to check for progress, evaluate how well I am presenting the material to the students and to provide guidance if a student is adrift. The completed notebooks, with all data sheets, graphs, references to data sources and written discussion are due no later than the last day of class. I expect the reports to be done in a highly professional manner with the discussion typed and the graphs and tables clearly presented. During the last week of classes, each student makes a brief presentation on an interesting feature of their favorite lake. The overall project counts for one fifth of the semester grade.

Information on the Favorite Lake assignment may be seen on my course web page at: www.uwm.edu/wcb.uwm/schools/532/204/abrooks/2/. The assignment may be found under the "Schedule" section, while the data sheets are located in the "Learning Links" section. Also within Learning Links are web connections to sites providing data for local and regional lakes as well as the lakes of the world.

Real-time data for the Great Lakes, local stream flow and weather conditions are also available.

Over the years, I have had an overwhelmingly favorable response to the assignment as it brings the lecture material to life in the real world. Students relish the opportunity to tell their family or fishing buddies why their lake appears brown or blue, what causes foam lines on their lake on a windy day, why the water gets cold at the beach under certain wind conditions and why there are no fish below the thermocline in a eutrophic lake. A few years ago, a student chose Lake Biwa in Japan as her favorite lake. She found a web site loaded with data as well as information on student exchange programs. She went to Lake Biwa her senior year and is now doing graduate studies on the lake with Jim Elser at Arizona State. There is no telling where a favorite lake report may lead!

MATH AND SCIENCE EDUCATION FOR HIGH SCHOOL STUDENTS: Using the Natural Laboratory of Southern Appalachia

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Western Carolina University's Upward Bound Math and Science Center, located in the southern Blue Ridge Mountains, has engaged high-school youth in student-directed environmental research over the past eight summers. We have found this educational approach very successful in motivating students to go to college and major in math or science.

The purpose of our program, which stems from an initiative of the US Department of Education, is to increase the number of low-income, first-generation students (particularly those from underrepresented groups such as minorities and women) who successfully complete post-secondary study with majors in math and science related fields. In the spirit of the national standards in science and math education, an additional purpose is to increase the technical competency and literacy of our students, so that these participants will be prepared to address issues that arise with technological advances in the workplace and in society in general.

The Math and Science Regional Center at Western Carolina University is a member of the federally funded TRIO Programs that enable Americans from low-income families to successfully graduate from college. TRIO includes Talent Search, Upward Bound, Student Support Services, Educational Opportunity Centers and the Ronald E. McNair Post-Baccalaureate Achievement Program.

Students are selected for our program from an eight-state region in the Southeast that includes Kentucky, Tennessee, North and South Carolina, Georgia, Alabama, Mississippi, and Florida. Contacts are made through sister TRIO programs and through high schools in our region. Our initial application form, which describes our research-based educational curriculum, requires students to submit background information and an essay about their interest in our program and a statement of their academic and career aspirations. This is followed by two recommendations, usually from high-school math or science teachers, which includes information about the student's academic strengths, weaknesses, and need for this program. Eligible students are sent an Interest Evaluation Form which reiterates the program's educational philosophy, environmental science theme, and academic expectations and presents the student with three examples of environmental research topics along with a short explanatory text, and graphical and tabular data related to each topic. Students then do some "homework" in the form of a written report that requires them to gather more information about the topic they have chosen, briefly analyze and comment on the data we have provided them, and provide us a short list of references. They also describe their research interests in an essay.

Based on information submitted, fifty students are chosen to spend a summer involved in an environmental research project on our campus. Although many of our students tend to be high achievers, their academic standing is not our primary consideration for selection. Eligible students are selected primarily based on need and their serious interest in our offer of a research experience. Serious interest is determined by the quality and consistency of their efforts through all stages of the application process.

Our ecological research-based curriculum gives us the flexibility to place students in projects that are multidisciplinary by design and which require small group cooperative activity. Environmental themes are appealing to

high-school students and the natural beauty of our location in the mountains of western North Carolina provides many of them with a novel exposure to the out-of-doors.

Our students work in small teams on an original student-initiated research project. Our students are guided by instructors knowledgeable in their research area. Our teaching staff includes graduate students, university faculty, environmental educators, and public-school teachers. The students develop research questions, design studies to answer those questions, implement their design, and analyze and present their results.

At the end of each summer student groups present their findings to an audience of peers, faculty, family, and the general public and submit their manuscripts for publication in our journal. This has resulted in eight volumes of symposium proceedings since 1991 with over seventy articles. Each summer every student receives a copy of this publication. Article topics from last summer include studies of stream channelization and microhabitat availability for fish, salamander interactions, uses of virtual reality for environmental education, riparian zone diversity of herbaceous plants and insects, land use and tree diversity, and a characterization of turbulence in natural and artificial streams.

We feel that this research-based inquiry approach provides our students with an audience for their work and reflects real-world activities in science. Inherent in this approach are all the attendant frustrations and rewards of conducting serious, original scientific research. This approach follows the National Research Council's recommendation that "...for students to develop the abilities that characterize science as inquiry, they must actively participate in scientific investigations, and they must actually use the cognitive and manipulative skills associated with the formulation of scientific explanations." Mathematics is emphasized as it pertains to the collection and analysis of data and the reasoning used to develop models of natural phenomena. As students encounter and deal with all the anomalies in their data, they experience authentic mathematical problems.

We also feel that it is important to address the preconceptions and the perspectives our students bring to our program concerning science and mathematics. As we continue our program we intend to investigate multicultural issues related to learning about, and applying, science and math in everyday life. We feel that cultural differences and prior experience contribute to the mental models which students use to make sense of new information. Knowing more about what influences our students' attitudes and behavior toward learning science and mathematics will help us prepare them for success in college.

Program evaluation data indicate that we have been successful. Our students are performing well in school and we see improvement in their scores on nationally normed tests. A recent survey of 151 of our students who have graduated from high school finds that 88% of them are in college, with 35% having received scholarships, and 65% are majoring in a math- or science-related field. This program has been rewarding for everyone involved. Evolution is the hallmark of the program as we continually experiment with, and refine, our approach. It is an educational experiment in progress. We invite you to join us at our website www.wcu.edu/ub_math_science/homebound.html and watch our growth.

RESEARCH EXPERIENCE FOR UNDERGRADUATES IN AQUATIC SCIENCES: Students Gain Early Career Access at ASLO 99 - Santa Fe

Russell L. Cuhel *and* ***Carmen Aguilar****, UWM Great Lakes WATER Institute and Center for Great Lakes Studies, 600 E. Greenfield Ave., Milwaukee, WI 53204 (Tel: 414-382-1700; Fax: 414-382-1705; rcuhel@uwm.edu or aguilar@uwm.edu)*

Research Experience for Undergraduates (REU) programs provide a stellar introductory opportunity for young scientists to decide if aquatic science careers are appealing to them. Days at sea, weeks in the laboratory, time in the library, and an assortment of workshops and academic pursuits place an often new and always stimulating perspective on college coursework. Immersion in an environment dedicated to cutting-edge funded research provides one of the best ways to understand the thrill and agony of the lives of oceanographers and limnologists. Yet few laboratories encompass such breadth that the true range of career choices is apparent.

There is little question that 21st Century environmental science will encompass more synoptic, big-picture, interdisciplinary research than ever before. While a great deal of specific expertise resides in each of the fields of limnology and oceanography, it will be the coalescence of skills and techniques that lead to great advances in environmental problem-solving. ASLO is making a significant effort to bridge the purported gap between limnology and oceanography. Programs such as DIALOG are working to foster interactions among scientists just entering the global research force. Recruitment into our ranks can be strongly improved through similar approaches at the undergraduate, preprofessional level.

Both career options and a taste of the somewhat unusual camaraderie among our "club" are available at national meetings. At our REU Site, we have been sending 1-4 students per year to the National Conference on Undergraduate Research (NCUR) since 1992. This gives some students a chance to present their work in a formal meeting format but without the trepidation of a full-blown society meeting, because all NCUR participants are undergraduates. Annual follow-up studies show that attending this meeting, along with participation in our 6-day research cruise, are the most significant correlates with perceived "success" (e.g., entering graduate school or professional service in an oceanography-related science). However, we always wished that we could afford to send them to an ASLO or AGU/Ocean Sciences meeting.

This year, the National Science Foundation Ocean Sciences REU Program (Don Elthon, manager) supported a pilot program to accomplish just that. Initiated by Jon Sharp (University of Delaware; 10-year REU Site) in 1997 and brought to logistic fruition (nightmare?) by our Site this year,

the supplement supports 14 REU students to attend the ASLO 99 meeting in Santa Fe and the ASLO/AGU 2000 meeting in San Antonio. The opportunity is open to all REU students and encourages underrepresented *disciplines* (e.g., physical and geological oceanography, modeling). The students will be prepared well for meeting navigation and then left largely to pursue their own goals with freedom to engage in hallway discussions, lunch and dinner meetings, and all the other non-session aspects that make our meetings so productive and enjoyable. Mentors will be identified to the students but will be available unobtrusively. It is our belief that this format will lead to student-initiated associations with active scientists at the precise time they are looking for their next big career step.

Because of the rather tight schedule this year (funding obtained in August, abstracts due in September), selection of students (one from nearly every 1998 REU Site) was left to the individual site directors. Each student will receive air- and shuttle-bus fare, registration, room, per diem meal expenses, ticket to the Historical Gala, and one year of membership in both ASLO and AGU. We are coordinating pre-meeting activities with Ben Cuker's CURMLO program, with particular emphasis on meeting navigation and poster presentation hints.

A special poster session (Multidisciplinary Activities of REU Students) is being held for these undergraduate student scientists. This session, nestled in with the professionals but somewhat less threatening with all peer presentations, contains work from all aspects of aquatic science research. We encourage everyone to visit these posters. We particularly ask that some of the more well-known, conceptually senior scientists try to interact with students in their area of interest, since this kind of encounter often registers strongly with younger scientists. The majority of the presentations will be by current seniors (juniors before their REU experience this past summer) who will be at a critical career juncture during the meeting.

We additionally welcome any input regarding next year's program, since we will have lead time at both the site and selection levels. Additionally, scientists wishing to serve as "behind-the-scenes" mentors-on-demand should please contact us this fall. The students and their abstracts will be available at the ASLO website under Special Session 54.

ASLO MEETINGS

NAVIGATE TO SANTA FE IN 1999! (February 1-5)

John A. Downing, *ASLO 99 Co-Chair, Department of Animal Ecology, Iowa State University, Ames, IA 50011-3221 (Tel: 515-294-2734; Fax: 515-294-7874; downing@iastate.edu) and*
Karen F. Wishner*, ASLO 99 Co-chair, Graduate School of Oceanography, University of Rhode Island, Narragansett, RI 02882-1197 (Tel: 401-874-6402; Fax: 401-874-6240; kwishner@gsosun1.gso.uri.edu)*

We would like to invite you all to "Navigate to Santa Fe," New Mexico for the 1999 ASLO Aquatic Science meeting, February 1-5, 1999. We think this is going to be wonderful meeting—a suitable farewell to the century that gave birth to ASLO, and an appropriate glimpse into the future that the new century holds for us. In addition to the ca. 1200 cutting-edge contributions from around the world, the week will be accented by an exciting plenary session, and special, daily thematic sessions to prepare us for the future's challenges.

Forward-looking Plenary Session: Since this meeting comes close to the 50th anniversary of the Society's decision to embody both limnology and oceanography and is the last ASLO meeting before the end of the century, plenary speakers will reflect on the freshwater and marine sciences as we face future challenges. The plenary session will feature:
• Dick Barber: How will Oceanic Ecosystems Respond to the Climate of the 21st Century?
• Sallie Chisholm: Dealing with Diversity: Structure and Function in Ocean Ecosystems.
• Gene Likens: Limnology and Freshwater Ecosystems in the 21st Century.

We hope that these plenary presentations will set the stage for an exciting week of science.

Thematic Sessions: We have organized daily thematic sessions of invited talks that will focus on topics of special importance at this point in our history. Daily themes are:
• New Global Partnerships (Tuesday);
• Historical Perspectives (Wednesday); and
• New Tools and Paradigms (Thursday).

On Tuesday, Bill Lewis's Global Partnerships thematic session will feature Tom Malone, Bob Wetzel, Steve Hamilton, Fred Grassle, and Hugh Ducklow who will explore international science issues that we face while working in the international arena. Wednesday afternoon's historical session organized by Nancy Slack will feature Nancy, Keith Benson, Warren Wooster, John Magnuson and Ron Rainger analyzing and discussing the histories of some of the most important people, places and ideas in our field.

Wednesday's theme will culminate in Val Smith's evening "Historical Gala" featuring informal chats by Tommy Edmondson, Karl Banse, and Alice Alldredge who will tell us what it was like to "be there". This event will provide an excellent opportunity to reflect on the past and future of our field. Tickets are limited to keep the atmosphere informal, so reserve right away!

Thursday's thematic session on Approaches and Paradigms for the New Millenium, organized by Steve Brandt and John Hobbie, will feature Mike Pace, Bob Costanza, Ken Tenore, Candace Oviatt and Farooq Azam examining the importance of philosophical, technical, economic and ethical approaches and paradigms in facing the challenges of the next century.

Special and Contributed Sessions: Rapid developments in the aquatic sciences mean that the 1999 meeting will offer an unprecedented variety of special and contributed sessions. The 51 special sessions represent a nearly 20% increase over the last aquatic sciences meeting. This indicates a strong

focus of the scientific program around emerging, critical issues. Sessions have been organized around themes that cut across traditional boundaries to increase interactions.

Workshops: Workshops will be offered covering such diverse issues as the future of the *Limnology and Oceanography*, education, funding programs, international issues, science communication, and several other late-breaking themes.

Overall: In recent weeks it has been exciting to see the program take shape. The wonders of the Web made the work more exciting still since >75% of the abstracts were submitted within 24 hours of the abstract deadline! It has been a privilege to sort these abstracts into a program with colleagues such as Dian Gifford, Mary Scranton, Helen Schneider-Lemay and Susan Weiler, helped out by Mary Rapien and Dawn Outram at URI. Meetings are a truly collaborative endeavor, and we are particularly grateful to our very active steering committee (Stephen B. Brandt, Carlos M. Duarte, Mary I. Scranton, Val H. Smith, Amelia K. Ward, Bess B. Ward) and the ASLO support staff, particularly Helen Schneider-Lemay and Susan Weiler, for their contributions to this meeting. The result of their efforts and the exciting contributions of those submitting abstracts and organizing workshops and other special events are a tribute to our community. Please join us in Santa Fe for the last Aquatic Science meeting of the Century—and don't forget your dancing shoes (a swing-band dance is on the agenda for Thursday night!!)

The Program book will mail with this issue of the *Bulletin* or follow shortly thereafter. The full program and abstracts, along with an interactive Registration form and a downloadable form for reserving hotel rooms, are available at:

www.aslo.org/santafe99/ or contact:
Helen Schneider-Lemay, ASLO 99 Meeting,
Tel: 800-929-ASLO Toll-Free in US, Canada and Caribbean; or 254-399-9635; Fax: 254-776-3767;
business@aslo.org.

We look forward to seeing you in Santa Fe!

JOBS

GRADUATE FELLOWSHIPS IN BIOGEOCHEMISTRY & ENVIRONMENTAL CHANGE

Cornell's Program in Biogeochemistry & Environmental Change (BEC) will award several fellowships to new PhD-level students for Fall 1999 to students with an interest in one of the program's focal areas: accelerated movement of N to coastal ecosystems; human effects on biogeochemical cycles in forests; and controls on atmospheric fluxes of methane. For information and application guidelines, check: http://biogeochem.es.cornell.edu/.

FOR MORE JOB ADVERTISEMENTS....

Visit the ASLO JOBS page: **www.aslo.org/jobs.html**
Submit job advertisements via the interactive form:
www.aslo.org/jobform.html
(This service is provided free to ASLO members).

NSF-BIOLOGICAL OCEANOGRAPHY: ASSISTANT OR ASSOCIATE PROGRAM DIRECTORS

The U.S. National Science Foundation's Biological Oceanography Program is seeking individuals interested in serving as Assistant or Associate Program Directors (rotators - visiting scientists) for a 2-3 year period. The participation of visiting scientists is instrumental in the Program's ability to serve the marine science community. If you are interested, or know someone you think might be, either immediately or over the next few years, please see the NSF web pages at:

http://www.nsf.gov/pubs/1998/vex9836/vex9836.txt

If you have some suggestions for the Program about potential candidates, please contact: Phillip Taylor, Director, Biological Oceanography Program prtaylor@nsf.gov or 703-306-1587.

CALENDAR OF EVENTS

Meetings and events submitted since the last issue of the ASLO Bulletin are presented below.
See the ASLO website, www.aslo.org/ for a more complete listing

ASLO 1999 Aquatic Sciences Meeting:
Limnology and Oceanography: Navigating into the Next Century

Dates: February 1 - 5, 1999 **Location:** Santa Fe, New Mexico

Topics: As we enter the next millennium, this meeting will celebrate the 51st year of ASLO and the unity of the aquatic sciences, and will serve as a forum for discussion of progress in the aquatic sciences, emerging trends, and future challenges (see p. 17). As with the previous aquatic sciences meeting, this one will include sessions covering a full range of topics. A full day of education and other workshops is planned for Sunday, January 31.

Web site: The full program and abstracts are on the ASLO web page, along with interactive registration forms and hotel reservation forms:

www.aslo.org/santafe99

Contact: Meeting co-chairs **John A. Downing**, Iowa State University (downing@iastate.edu) and **Karen F. Wishner**, University of Rhode Island (kwishner@gsosun1.gso.uri.edu) for registration; **Helen Schneider Lemay**, ASLO Business Office, (Tel: 800-929-ASLO (within the U.S, Canada and Caribbean; Fax: 254-776-3767; business@aslo.org), or visit the meeting website (**www.aslo.org/santafe99**).

Aquatic Ecosystems: Biodiversity, Man-Made Effects, and Self Purification

Dates: April 16, 1999 **Location:** Moscow, Russia
Topics: The department of Hydrobiology at Moscow University covers a broad range of aquatic ecology topics, including but not limited to biodiversity (phytoplankton, zooplankton, benthos), aquatic microbiology, ecotoxicology, ecological modeling, and biophysical approaches to studying functioning aquatic organisms. We study both marine and freshwater organisms and systems. All of those topics are within the area that is called "Hydrobiology" in Russian science, which is probably an approximate equivalent of the area labeled as "limnology and oceanography" (mainly biological aspects of it) in the U.S. On behalf of the department, Vadim D. Fedorov, Department Chair invites you to participate in a poster session on a variety of topics reflected in the title above. The event is tentatively scheduled for April 16, 1999. The deadline for abstracts is March 8, 1999.
Format: Poster format was chosen as we currently are not able to organize a full-scale meeting with many visitors. To make it clear, we do not invite visitors to travel to Moscow. Rather, we invite all who wish to send a poster via paper mail. Your poster will be included in the program. Those of our scholars who would like to discuss professional details with you will contact you using e-mail or other ways of communication. If the idea of the conference appeals to many colleagues, in future we will probably organize a larger forum.

We plan to publish the abstracts of the poster session. To cover publishing expenses, there will be a registration fee of $25.

Please inform us of your intention to send your poster and to publish your abstract, and we will send details.
Contact: Sergei Ostroumov, Department of Hydrobiology, Faculty of Biology, Moscow State University, Moscow 119899, Russia (saostro@glas.apc.org).

Sixth Symposium on Biogeochemistry of Wetlands

Dates: July 11-14, 1999 **Location:** Fort Lauderdale, Florida
Topics: The symposium will emphasize various biogeochemical processes occurring in freshwater and estuarine wetlands. Titles of oral or poster abstracts will be accepted through November.
Contact: University of Florida, IFAS Office of Conferences (Tel: 352-392-5930; Fax: 352-392-9734; mrp@gnv.ifas.ufl.edu); www.gnv.ifas.ufl.edu/~conferweb/#upcoming

Second International Symposium on Biological and Environmental Chemistry of DMS(P) and Related Compounds

Dates: August 25 - 28, 1999 **Location**: Haren, The Netherlands

The Role of *Phaeocystis* in Marine Biogeochemical Cycles and Fluxes

Dates: August 28 - 29, 1999 **Location**: Haren, The Netherlands
Topics: A first and very successful interdisciplinary symposium on DMSP was held in Alabama in 1995. Building on it, this symposium will include sessions on: DMSP biosynthesis, regulation and physiological functions; uptake, metabolism and biodegradation of DMS(P) and related compounds; Dynamics of DMS(P) and related compounds in marine ecosystems; DMS(P), global climate and biogeochemistry; and DMS(P) in the marine environment: The case *Phaeocystis*. We will build on the interdisciplinary research theme by combining the DMSP symposium with a second meeting focusing on the microalgal genus *Phaeocystis*. Topics will include: DMS(P) in the marine environment: The case *Phaeocystis*; *Phaeocystis* and the marine C-cycle; and *Phaeocystis*' competitiveness and its interactions with other trophic levels. Participation in both of these related symposia is recommended, but attendance at just one symposium will be possible too.
Contact: Winfried W.C. Gieskes, University of Gröningen, Dept of Marine Biology, PO Box 14, 9750 AA Haren, The Netherlands (Tel: tel: 31-50-3632259; w.w.c.gieskes@biol.rug.nl) or Jacqueline Stefels (j.stefels@biol.rug.nl).

Seventh International Conference on Salt Lakes

Dates: September 12 - 15, 1999 **Location**: Death Valley, California
Topics: The meeting will include a set of plenary talks and special sessions focusing on promising research directions in the study of saline waters, e.g., the roles of microbial and metazoan communities in nutrient dynamics, the influence of habitat geochemistry on biogeography of flora and fauna, benthic-pelagic linkages in saline lakes, modeling population and ecosystem processes, molecular adaptations to extreme environments, and the conservation of inland saline waters. A 5-day tour of saline ecosystems located at the western edge of the Great Basin will be offered following the conference.
Contact: John M. Melack, Donald Bren School of Environmental Science and Management, University of California, Santa Barbara, CA 93106 (Tel: 805-893-3879; Fax: 805- 893-4724; melack@lifesci.ucsb.edu)

15th Biennial International Estuarine Research Federation (ERF) Conference: Call for Abstracts

Dates: September 25 - 30, 1999 **Location**: New Orleans, Louisiana
Topics: The title of the conference is "Where the River Meets the Sea" and will focus of the following themes: River-Dominated Coastal Margin Ecosystems; Comparative Processes of Tropical and Temperate Estuaries; Physical Constraints of Ecological Processes; Processes and Consequences of Eutrophication; Scientific Principles of Estuarine Restoration and Recovery; and Value and Assessment of Estuaries. Contributed sessions for both oral and poster presentations include: Estuarine Processes; Estuarine Habitats; Perturbations of Estuaries; Estuarine Science, Management, and Education; Analyses and Tools of Estuarine Science.
Deadlines: Abstract deadline is 1 March 1999. Registration deadline is 1 August 1999.
Contact: For abstract submission and other information concerning the ERF99 Program, contact Robert R. Twilley Department of Biology, PO Box 42451, University of Southwestern Louisiana, Lafayette, LA 70504, USA (Tel: 318-482-6146; Fax: 318-482-5834; rtwilley@usl.edu); www.erf.org

Dissertations Initiative for the Advancement of Limnology and Oceanography: DIALOG III Symposium

Dates: October 18 - 24, 1999 **Location**: Bermuda
Content: The symposium goal is to foster interdisciplinary understanding and collaborations. Each participant will present a poster and 10-minute overview of his or her Ph.D. research and take part in working groups to discuss emerging aquatic science research, education and policy issues. Individuals from all countries who complete their last Ph.D. requirement between April 1, 1997 and March 31, 1999 and whose work is relevant to biologically oriented limnology or oceanography are eligible. A committee will select 40 participants based on application materials submitted (application form is available at www.aslo.org/dialog.html). Participant travel and on-site expenses will be supported by grants from NASA, NOAA, NSF, ONR, and the European Commission.
Contact: Susan Weiler/DIALOG, Whitman College, Walla Walla, WA 99362 (Tel: 509-527-5948; Fax: 509-527-5961; aslo.dialog@whitman.edu). www.aslo.org/dialog.html

4th MEDCOAST/EMECS Joint Conference

Dates: November 2 - 6, 1999 **Location:** Antalya, Turkey
Topics: This conference is held every 2 years to promote environmental management in the Mediterranean, the Black Sea, and other enclosed coastal seas. Sessions will include: physical, ecological. and conservation issues; integrated coastal and ocean resource management and development; and coastal engineering, modeling and data management.
Contact: MEDCOAST Secretariat, Middle East Technical University, 06531 Ankara, Turkey (Fax: 90-312-210-1412; medcoast@rorqual.cc.metu.edu.tr).

Post-Graduate Training Course in Limnology

Dates: April - September; annually **Location**: Mondsee, Austria
Topics: This 6-month course gives an overview of the structure and functioning of freshwater ecosystems, enhances research skills, and encourages a critical approach to sampling techniques, data analysis and data interpretation. Various limnological problems are studied in detail and strategies for finding specific solutions are offered. The goal is to increase scientific capacity building in developing countries. Participation is limited to 10, with instruction in English. The Austrian Government will grant scholarships to individuals from Nicaragua, Cape Verde, Uganda, Rwanda, Mozambique, Burkina Faso, Ethiopia, Buthan, El Salvador, Guatemala, Costa Rica, Senegal, Zimbabwe, Namibia, Tanzania, Burundi, Kenya, Nepal and Pakistan. Deadline for applications is November 30 for the following year. Since 1997, the course has been part of an 18-month MSc. program in "Limnology and Wetland Ecosystems".
Contact: Institute of Limnology, Course Administration, Gaisberg 116, A-5310 Mondsee, Austria (Tel: 43-6232-4079; Fax: 43-6232-3578; unesco@nibdsee@oeaw.ac.at).

ASLO 2000 Annual Meeting: Aquatic Sciences: Research Across Boundaries

Dates: June 5 - 9, 2000 **Location**: Copenhagen, Denmark
Topics: For the first time in our 64-year history, ASLO will hold its annual meeting outside of North America. This meeting will include a broad aquatic science program that should be of interest to aquatic science researchers and students from all over the world. The meeting theme was chosen to emphasize the current need for aquatic science research across boundaries; e.g. land/sea, air/water, freshwater/marine, sediment/water, physical/biological, rivers/lakes, solutes/particles, empirical data/theoretical models. The European location provides an opportunity to also highlight the significance of international collaboration and the increased number of research issues which transcend international boundaries. Plenary and selected keynote speakers will cover the meeting theme.
Contact: Bo Riemann, ASLO 2000 co-chair, National Environmental Research Institute (DMU), P.O. Box 358, DK-4000 Roskilde, Denmark (Tel: (+45) 46 30 12 00; Fax: (+45) 46 30 11 14; bri@dmu.dk) and Morten Sondergaard, ASLO 2000 co-chair, Freshwater Biological Laboratory, University of Copenhagen, Helsingorsgade 51, Hillerod, DK-3400 (Tel: (+45) 48 26 76 00; Fax: (+45)-48-24-14-76; flabms@inct.uni2.dk).

International Symposium on High-Mountain Lakes and Streams: Indicators of a Changing World

Dates: September 4 - 8, 2000 **Location**: Innsbruck, Austria
Organizer: Institute of Zoology and Innsbruck, University of Innsbruck
Contact: hmls2000@uibk.ac.at; www.zoology.uibk.ac.at/congress