

# ASLO BULLETIN

American Society of Limnology and Oceanography

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## MESSAGE FROM THE PRESIDENT:

### Report Card Returns

*John T. Lehman, Division of Biological Science, Natural Science Building, University of Michigan, Ann Arbor, MI 48109 (Tel. 313-763-4680; Fax 313-747-0884; Omnet j.lehman)*

In the previous issue of our Bulletin I invited your comments about ASLO activities, goals and priorities. I'm pleased to report that at this writing (9 November 1992), about four weeks after the mailing, I have received more than 150 replies to the questionnaire. The response level represents almost 5 percent of the membership, and each day's mail brings about 10 additional replies.

First, I thank you for sparing the time to write down your thoughts and opinions. Your advice will be of great help as the ASLO Board tries to establish priorities and develop courses of action in the future months. For those of you still planning to pen your remarks, I assure you they will be welcome any time, but your comments will have the best chance of being included in summary form with my next report to the members if they are received by early January, 1993.

To date, relatively few student members (14) and foreign members (13) have responded. Not surprisingly, most respondents are full members who report their disciplinary interests almost equally split between limnol-

ogy (65) and oceanography (61), although a fair number list alternative disciplinary emphases such as geochemistry, biogeochemistry, and ecology.

A few of you expressed concern that the items offered for priority consideration did not include the journal or our annual meetings. I take it as axiomatic that those two features of ASLO are the essential *raison d'être* of the society, and that their existence and support is not subject to debate. Please tell me if you disagree, however.

From the responses I have in hand, there are no evident discipline-based trends in opinions or priority setting. I will defer a full accounting until my next message, but some sentiments are becoming clear already. It is safe to say that most respondents are pleased with the quality of L&O, but they do not favor any additional society publications unless they are financially self-supporting. The Bulletin is well received, and a strong majority favors the hard-copy version rather than an electronic publication.

Most of the members who have responded favor a more public posture by our society on the issues that we best understand, and they endorse the development of policy papers and expert testimony. The idea of opening offices in Washington, D.C. or Ottawa has little support,

The ASLO Bulletin is published 3 times annually 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 1993 submissions: Feb. 10, July 10, & Oct. 10, 1993.

**ADVERTISING:** Jobs, opportunities: \$14/line (80 characters & spaces per line); send to Susan Weiler (address above)..

For-Profit advertisers: Camera-ready copy only. Send to Karen Hickey (address below).

**MOVING?**

Please send your change of address to: **Karen J. Hickey**, ASLO Business Director,  
P.O. Box 1897, Lawrence, KS 66044-8897 Tel: 913-843-1221; Fax: 913-843-1274; Omnet: allen.press

but the objection seems to be based principally on grounds of expense rather than philosophy.

By far the highest single priority from respondents is increasing ASLO membership, followed in second place by subsidies for student costs, which we do provide. I interpret this as a sign that most of us think that ASLO has a lot to offer, and that we would like to welcome ever greater numbers of professionals into our fold. To achieve such a

goal, we will need to develop strategies to attract individuals who may not be aware of the scope and diversity of talent and interests that our society encompasses.

Please continue to provide me with your comments and opinions. I am grateful for the advice and insights you have already shared, and I hope that all members will find this to be a satisfactory way to voice their opinions, if they wish to do so.

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## ASLO NEWS

### MESSAGE FROM THE (INTERIM) EDITOR: A Time of Change for *Limnology and Oceanography*

David Kirchman, College of Marine Studies, University of Delaware, Lewes, DE 19958 (Tel. 302-645-4375; Fax 302-645-4028; *Omnnet* d.kirchman)

Appointment of a new editor can signal changes in a journal, but my taking on the task of Interim Editor is only one of several changes in L&O that have occurred over the last few years. It will also probably mark the beginning of still further changes over the next year or two.

Pete Jumars, who stepped down last July after six years of exceptional service as the L&O Editor, oversaw the largest change in the journal: start up of the associate editor system. This system is necessary given the fairly large size of the journal and its diverse range of topics. We now receive roughly a paper a day, solicit at least two and sometimes as many as four reviews per paper, write one or more decision letters per paper, and edit the accepted papers. The topics of these papers range from the physics of light absorption by water to decomposition of dead ducks in marshes. Pete could see that it was too big a job for one editor, and so he initiated the current system of associate editors.

We are still working out the bugs of that system, as implied by John Lehman's "A Report Card on the Future of ASLO" published in the last ASLO Bulletin. John's request for feedback about L&O indicates that we are considering two models for journal operations in the future: a single editor and the current associate editor system. In fact, space probably did not allow him to say that these two models represent extremes among several different possibilities.

Before considering alternatives, a short overview of the current system may be useful. A paper is sent to the Seattle office where an associate editor is chosen to handle it. (We try to pick an associate editor familiar with the topic of the paper, but there will always be more topics than associate editors.) After looking at either the title page plus abstract (fax) or the complete paper (regular mail), the associate editor sends the names of four reviewers to Seattle. We ask for four in case the first two reviewers are too slow or busy to do the review. The Seattle office then sends out the paper for review. L&O people in this office also will bug the reviewers, send the paper to more reviewers if necessary, and handle any queries from impatient authors. Once two reviews are received, they are faxed to the associate editor

who then writes a letter conveying his or her august decision. That letter and the reviews are sent by the Seattle office to the authors and reviewers. If revisions and a second round of reviews are necessary (the case for most papers!), the process is repeated. Papers surviving the review process are edited by Lyn Cole in Seattle. After receiving a clean copy of the paper from the authors, Lyn sends it on to Allen Press who sets the manuscripts. Page proofs and publication soon follow.

You can see that the current system is like a wheel with Seattle as the hub and the associate editors, authors, and reviewers the spokes. Where is the editor, permanent or otherwise? In addition to acting as another associate editor, the editor handles all articles submitted to the Comment section of the journal and mediates disputes if authors feel they got a raw deal from an associate editor. Right now those are the editor's duties in normal times.

But these are times of change for the journal, as I already mentioned. As interim editor, I see one of my jobs is to give opinions "from the trenches" about how to improve the current system. I don't think that the future L&O will be run like either of the two models briefly mentioned by John Lehman. I doubt that we can find someone who is both capable and willing to be the sole editor of L&O—is there another Yvette Edmondson out there? On the other hand, the current system can be improved. But how? And if it takes more money to do the job, how should we pay? These are the questions that we must answer over the next year.

Some signs point to problems with the current system. The last few L&O issues have been mailed months later than the date on the cover. And the time between submission and publication of a paper can be quite long. There are no easy explanations for this tardiness. Part of the problem is the associate editor system that we have now. Also, publication of regular papers suffers when the journal puts out special issues, for example the recent one entitled "What controls phytoplankton production in nutrient-rich areas of the open sea?" Reviewers are notoriously slow, and authors sometimes don't help when they fail to follow directions or are slow in revising manuscripts. In any case, I want to emphasize that the people connected with the journal, those in Seattle and the associate editors, all work hard and conscientiously. But I suggest that we can do better without lowering the journal's standards.

I add to John's call for input about the journal and how we can improve it. Many of you are probably familiar with the operation of other esteemed journals. Do these offer any good models for us to learn from? Also, you may want to comment from the view point of a reader, author or reviewer. In many ways, selection of the permanent editor is less important—and a smaller change—than deciding how the journal will be run in the future.

### **MESSAGE FROM THE SECRETARY: 1994 ASLO Meeting Plans**

*Polly A. Penhale, ASLO Secretary, College of William and Mary, Virginia Institute of Marine Science, Gloucester Point, VA 23062*

The Call for Papers for the ASLO '93 meeting in Edmonton are out, and plans for ASLO meetings in 1994 are well underway, with two meetings to be held with other scientific societies. Membership interest in joint meetings has been keen (see ASLO Bulletin 1(2) for details), and ASLO will be meeting with two societies with which we have held successful meetings in the past.

The Ocean Sciences Meeting, sponsored by ASLO and AGU will be held February 21-25, 1994 in San Diego. The last joint Ocean Sciences Meeting was held in 1990 in New Orleans; 1994 will be an opportunity to repeat this very successful meeting.

The summer 1994 meeting will be held with the Phycological Society of America. Dates and location have not yet been set, but the site is expected to be in the Southeast US. The last joint meeting was in 1986, which was the 50th anniversary of ASLO.

### **DISTRIBUTION OF L&O BACK ISSUES: Status Report**

*Susan Weiler, Executive Director*

After more than three years of effort to distribute excess back issues of L&O for the cost of shipping and handling, Allen Press will soon dispose of the remaining surplus copies (when the excess stock has been disposed of, back issues will still be available, but at the regular price!) On behalf of ASLO, I would like to thank those who have helped advertise this opportunity and make this resource widely available:

- Polly Penhale initiated the effort to distribute as many back issues as possible before destruction, and spearheaded efforts to inform members of the opportunity to obtain back issues at rock-bottom prices.
- Karen Hickey has managed this effort, and coordinated closely with the Smithsonian Institution to distribute back issues through their Latin American program.
- Richard Weisburd has worked tirelessly to distribute back issues to institutions in Economically Developing Countries (EDC's). Richard took the lead in identifying EDC institutions throughout the world and informing them of the opportunity to obtain back issues of L&O. As a result of his efforts, approximately 100 institutions have been able to either purchase a 15-year set of back issues (1976-1991 plus three symposium issues) or be matched with donors.

- Many ASLO members, most of whom have requested to remain anonymous, responded to Weisburd's challenge to help colleagues and institutions in EDC's (ASLO Bulletin 1(2), p. 10). Their contributions have enabled institutions who could not afford the \$108 cost of shipping and handling to receive the 108-issue set.

While tremendous success has been achieved, there are still some institutions which have requested back issues but cannot pay even the \$108 cost of the 15-year, 108-issue set. Richard submitted proposals to several international agencies, and all have been turned down. If during this holiday season you would like to make a gift to an aquatic institution or colleague in eastern Europe or a developing country, please consider contributing to the ASLO Back Issue Fund, sponsoring ASLO membership for an EDC colleague, or subsidizing an EDC institutional subscription to L&O. If funds for the distribution of back issues become available, your contribution will be used to support continuing subscriptions. Please contact Karen Hickey for details (P.O. Box 1897, Lawrence, KS 66044-8897).

### **ASLO DIRECTORY: How's Your Entry?**

*Susan Weiler, ASLO Executive Director, with help from Jacques Le Fèvre, Laboratoire d'Océanographie Biologique, Université de Bretagne Occidentale, B.P. 452, 29275 Brest Cedex, France*

Jacques Le Fèvre has provided some suggestions for improvement of the ASLO Directory and we are presently trying to implement some of the ideas offered by him and other members. The Directory is discussed below, with the hope that greater understanding will enable members to use it more effectively and motivate members to update and correct their entries so the information will be as complete and accurate as possible.

Until recently, a separate mailing was used to solicit information for the Directory, largely because a computerized ASLO data base was not maintained for records and because the Directory was published very infrequently. Now that ASLO has entered the computer age and publishes a Directory each year, the Directory mailing has been eliminated and the same information is used for the Directory and Society mailings. This new system increases the importance of the data entered on the membership application and dues renewal forms.

- **Names:** Names are listed in the Directory as they appear on your L&O mailing labels. You should take care to see that your name and address is acceptable for both purposes. For example, one member had been receiving copies of L&O for some time with his first and last names transposed. Since he received his L&O copies in a timely manner, he saw no need to inform Allen Press of the error until a colleague brought the Directory listing to his attention.

One member has bemoaned the lack of diacritic signs in the Directory, and others may be silent-but-angry. Unfortunately, we are constrained by the computer system used by Allen Press and it is presently impossible to program in all the signs that would be needed for our

members. Until a complete and user-friendly computer capability is achieved, only the letters of the English alphabet can be entered by the office workers. We regret this inconvenience. If you are unhappy with this arrangement, please contact Karen Hickey so that she can pass the message on to Allen Press; if we get enough complaints, maybe we can move the proverbial mountain.

Many individuals list only their nickname, or provide initials instead of a given name. We hope that all members will divulge their full professional name for the Directory (i.e., that generally used in published papers or official correspondence). We are also trying to remove all the titles (Dr., Prof., Mr., Ms., Director, etc.) and to list the individual's highest degree after the name. **Please help us by providing Karen Hickey with your full professional name and highest degree.**

• **Addresses:** Addresses are also listed as they appear on the mailing labels for L&O. **If you would prefer to use a different address for the Directory and all ASLO mailings, please send changes to Karen Hickey.**

One member pointed out that the format of many entries in the ASLO Directory may slow the delivery of mail in some countries. To ensure the most efficient mailing of L&O, addresses are formatted as required for use by the U.S. Postal System's electronic sorters. Provided that it is compatible with the format required by the US Post Office for shipment of L&O (country should appear by itself on the last line), addresses in the directory should reflect the format specified by individual members. **If your address is not formatted as you would like it, please inform Karen Hickey.**

We are happy to report that, as of Jan. 1992 the Canadian postal system format is consistent with the U.S. postal system, with city, province, and postal code on one line and Canada on the following line. All provinces have been abbreviated to the 2-letter code specified by the Canadian postal service. While both QC and PQ are acceptable for Quebec, starting in 1993 all will be standardized to QC. Jacques Le Fèvre has clarified the western European postal code system for us, but we are still woefully ignorant about the preferred format for most countries outside North America. Again, **please check your address carefully both for accuracy and format, and send changes to Karen Hickey.**

• **Telephone and Fax Numbers:** It has been recommended that ASLO standardize its format for telephone numbers for ease of international dialing. There is always a certain amount of trade-off between convenience for international, intra-national, and local dialing, and in the past we have left the preference to individual members. In order to provide members with a more consistent format, we are going to experiment this next time by asking members to specify the number for non-local calls.

For countries other than the United States and Canada, the country code will be listed at the beginning of each number (e.g., (+54) for Argentina). Given the diversity of formats for area and other internal codes and the time and

money it would take to delineate codes for every number in the ca. 50 countries with ASLO members, we will not attempt to standardize or designate internal codes. We do however strongly encourage you to specify the appropriate number for calls outside your area, on the assumption that your compatriots will be able to figure out what to add or drop for internal calls. **Please check your entry to ensure that your telephone and fax numbers are listed correctly for non-local calls.** Since country codes are well known, Karen Hickey will see that these are entered into the data base for everyone. So you need not worry if you do not know your country code or have not given it to Karen already. Needless to say, if no phone or fax number is listed for you, please send it to Karen Hickey. Entries received by Jan. 15, 1993 will appear in the next Directory.

• **Electronic Mail Boxes:** In the last Directory, the field for electronic mail addresses was too short to encompass many addresses, and some entries were inadvertently truncated. We apologize if you were cut off, or were trying to contact someone with a truncated entry! Fortunately, the full addresses were stored in the data base, and will be resubmitted for the new Directory. **Please check your Directory entry carefully and report any errors (other than truncation or new listings) to Karen Hickey.**

• **Expertise:** The ASLO Directory also includes codes and space for disciplinary, field, and environmental specialty. **Please check your entry for both completeness and accuracy.**

• **Address for changes:** Send updates to Karen Hickey, ASLO Business Director, P.O. Box 1897, Lawrence, KS 66044-8897 USA (Tel. 913-843-1221 or 800-627-0629 (US & Canada); Fax 913-843-1274; Omnet allen.press). Just so you'll have no excuses for non-compliance, a form is included on the last page of this Bulletin....

## EDUCATION COMMITTEE REPORT

*Nancy H. Marcus, Education Committee Chair, Dept. Oceanography, Florida State University, Tallahassee, FL 32306 (Tel. 904-644-5498; Fax 904-644-2581; Omnet n.marcus)*

The Education and Human Resources Committee welcomes input from members of ASLO as to directions and projects to address. The committee currently consists of Nancy Marcus (Chair), Steve Schwartz, Clarice Yentsch, and Saran Twombly. The committee is presently reviewing the education programs offered by other societies. As an example of what other societies are doing, the Ecological Society of America has recently initiated an NSF funded project aimed at improving ecology education at the K-12 levels. A topic that certainly warrants examination is the availability of teaching materials in limnology and oceanography for all educational levels. With regard to the issue of human resources the committee plans to focus on the participation of women in limnology and oceanography as another committee already exists for the purpose of considering issues that bear on minority participation.

## NSF: REVISED PROPOSAL GUIDELINES AND FORMS

The National Science Foundation has revised the guidelines and forms for preparing proposals. A notice issued by Walter Massey on September 3, 1992 is reprinted below. **Please note that the 15-page limit will be strictly enforced!** If you have any questions about this information, you should contact the Program Director of the grant program that you are planning to apply for support.

Notice No. 114, September 3, 1992 from Walter E. Massey, NSF Director:

NSF is revising the Grants for Research and Education in Science and Engineering brochure and related proposal and grant forms, effective October 1, 1992. Major changes will be as follows:

- increased emphasis on the importance of conformance to the proposal preparation guidelines provided in the GRESE. Conformance to the guidelines will be strictly enforced unless prior approval to depart from them has been obtained from the appropriate NSF Assistant Director, or Division Director if approval authority has been delegated. In particular, the fifteen-page limit on the text of the proposal Project Description applies unless alternative or additional guidelines are provided in a specific program announcement or solicitation. The Project Description includes results of prior NSF support, which is limited to five pages of the Project Description.

- Encouragement of submission of longer duration grant proposals. The GRESE now indicates a "norm" of three years for grant award duration.

- A requirement that biographical sketches be limited to two pages per investigator.

- Revised provisions on "group" proposals and equipment proposals.

- Clarification of the significance of the signature requirements in various grant-related forms for Principal Investigators, Co-Principal Investigators and Authorized Organizational Representatives.

- NSF has revised the proposal cover sheet and the final report Form 98A.

- NSF is now requiring a new annual progress report form which includes certification language for all ongoing NSF grants.

- Clarification that bioengineering research, with diagnosis or treatment-related goals, that applies engineering principles to problems in biology and medicine while advancing engineering knowledge is eligible for support. Bioengineering research to aid persons with disabilities is also eligible.

- The requirement for a human resources statement for renewal proposals has been clarified to be applicable to academic institutions only.

- Various editorial and updating changes, consistent with changes in NSF programs and organization.

The principal thrust of these changes is to lessen the burden on proposers and reviewers by reducing proposal length and increasing the average award duration. At the

same time, applicants and grantees are reminded that in signing proposals and other grant-related documents they are certifying as to the truthfulness of the statements and information submitted.

The new proposal cover sheet includes certifications to this effect on pages 1 and 2 of the cover sheet, which must be completed by both the Principal Investigator(s) and by the Authorized Institutional Representative. The new Progress Report Form includes a similar certification by the Principal Investigator(s). All progress reports must include this form with the Investigator's signature for the certification on the form. Progress reports submitted electronically must include the text of the certification; an electronic version of the form, including the required certification, will be available on STIS. The forms in the GRESE must be used for all proposals and reports submitted on or after October 1, 1992.

A revision to GRESE reflecting these changes will be effective for proposals submitted on or after October 1, 1992. The NSF Grant Policy Manual will be revised to reflect these changes.

I am confident that these changes and clarifications will be of long-term benefit to the scientific and engineering research community.

*Walter E. Massey, Director*

### Centennial of Nansen Drift Honored

*Bente E. Johannessen, Nansen Environmental and Remote Sensing Center, Edvard Griegsvei 3A, N-5037 Solheimsviken, Norway*

June 24, 1993 will mark the 100th anniversary of the date Fridtjof Nansen and his companions set out on one of the most daring and exciting research expeditions the world has ever seen. They allowed their vessel, the FRAM, to be frozen in the ice close to the New Siberian Islands of the Arctic Ocean. Three years were to pass before the ice released its hold on the FRAM and allowed her to return to Norway. A Nansen Centennial Symposium will be held to honor Fridtjof Nansen and the pioneering drift of the FRAM 100 years ago; see the Calendar section for details.

### Biological Oceanography: New Textbook will emphasize physical-biological interactions

ASLO Member Peter Jumars recently completed a graduate-level, introductory textbook on biological oceanography that is intended for nonbiologists. The book is scheduled to appear in February as **CONCEPTS IN BIOLOGICAL OCEANOGRAPHY: AN INTERDISCIPLINARY PRIMER**, Oxford Univ. Press, New York, 348 pp. If you have specific questions about how it might fit your curriculum, contact Pete. If you would like to inspect a copy when it appears, write to Oxford University Press, 200 Madison Avenue, New York 10016.

## MINORITY STUDENTS AND MARINE SCIENCE AFFAIRS

Cheryl Lyn Dybas, National Science Foundation, 1800 G St. NW, Washington, DC 20550

The following report about our CURMLO program appeared in *Directions*, published by the National Science Foundation. Dybas is a Science Writer in the National Science Foundation's Office of Legislative and Public Affairs.

Jellyfish are "the good guys," says Karen Octavia Long, a student at the University of Maryland at Baltimore. In February 1992, she presented a paper on the importance of jellyfish as predators and prey in marine ecosystems at the annual meeting of the American Society of Limnology and Oceanography (ASLO) in Santa Fe, New Mexico.

Long, a biology student, is one of 57 science students from across the nation who attended ASLO '92, as part of a program to increase participation of minorities in the aquatic sciences. The project is funded by the National Science Foundation's ocean sciences division and coordinated by Benjamin Cuker, an associate professor of marine sciences at Hampton University in Hampton, Virginia. Says Cuker, "This is the first time a marine scientific society has joined forces with an historically minority university to broaden its membership."

Other scientific papers presented by minority students in a special ASLO session discussed such topics as volcanic beach sand in Hawaii, growth of lady finger and ellipse clams, age analysis of striped bass populations in Georgia, red rock crab predation in Oregon, and grazing experiments in the rocky intertidal zone of the lower Chesapeake Bay.

Says Joan Mitchell, ocean sciences program manager at NSF, "I was happy to see the scientists who attended ASLO supporting the efforts of these students. The special student session was better attended than many of the regular technical sessions, and the students weren't bashful. They looked forward to the meeting to talk with scientists about research as well as graduate programs at their respective universities."

Cuker couldn't agree more. The aquatic scientist had been attending ASLO and other annual professional oceanography gatherings for more than a decade and had seldom seen minority scientists at these meetings. Says Cuker, "Obviously we had fallen short in getting and keeping minority students interested in pursuing careers in the aquatic sciences."

Cuker, who has taught at historically black colleges and universities since 1981, urged scientists on the ASLO board of directors, of which he is now a member, to form a special committee to address the issue. The committee's findings led Cuker to apply for NSF funding for the ASLO project, which he says has made a big difference in the last three years.

Adds Grant Gross, director of NSF's division of ocean sciences, "Ben's enthusiasm has been infectious among the students and their mentors—and with ASLO members in general. This program could be a model for other disciplines.

In the program's first year—1990—it attracted minority students from traditionally black colleges such as Jackson State University in Mississippi and Savannah State College in Georgia, and also from predominantly white schools such as the University of North Carolina, Duke University, and the University of South Carolina. Participants spent a weekend at Hampton University, where they were involved in lectures and specimen-gathering in Chesapeake Bay aboard the research vessel *Pirate's Cove*. The students then traveled to Williamsburg, Virginia, where they attended ASLO '90. Two of them gave presentations on original research.

NSF later awarded Cuker a grant to continue the program for three more years—at ASLO '91 in Halifax, Nova Scotia, ASLO '92 in Santa Fe, New Mexico, and ASLO '93 in Edmonton, Alberta. "We're developing a network of minority marine science students," he says. "Once there are enough of them entering aquatic fields, they can begin acting as mentors for others. I'm looking forward to the day when these students start bringing their students to ASLO meetings."

Adds Doretha Foushee, a marine microbiologist at the U.S. Environmental Protection Agency Laboratory in Gulf Breeze, Florida, who acted as a mentor at ASLO '91 and '92, "We have to present aquatic science as an important field to these students, show them how to get involved in the fun, and how to channel their interest into enrollment in a graduate program."

Mentors like Foushee, marine biology professor Matthew Gilligan at Savannah State College, fishery biologist Ambrose Jerald of the Northeast Fisheries Center in Woods Hole, Massachusetts, and marine biologist Brian Bingham of the Shannon Point Marine Center in Anacortes, Washington, led the 57 students attending ASLO '92 through the mechanics of making a presentation at a scientific society meeting, getting into aquatic science graduate programs, and building a career in the field after graduate school.

Says Tammi Gibbons, a student at the University of Missouri at Columbia who presented the paper on lady finger and ellipse clams at the Santa Fe conference, "This program has really 'done it' for me in terms of getting and keeping my interest in marine science going. I plan to go on to graduate school in the field, and from what I heard from other students at ASLO '92, they plan to, as well."

Adds Brian Bingham, "All of the students thoroughly enjoyed attending ASLO, and felt it was an eye-opening experience. They particularly liked the student paper session—and are all eager to present something of their own in the future."

During the conference, several of the students mentioned how much they valued the opportunity to talk with NSF staff scientists and researchers from universities around the country. Cathy Needham, a student at the Shannon Point Marine Center, shared her feelings about the ASLO/NSF program.

"I'm the first in my family to go to college," she

explained. "And neither of my parents graduated from high school, so I've been unsure about the direction to take in my studies." After talking with several oceanographers at ASLO '92, however, Needham was excited about marine biology as a career choice and was thinking about applying to graduate school in the field.

Says Bingham, "It was great to see how this program could completely change a student's perspective."

### **MEETING MENTORS NEEDED FOR MINORITIES PROGRAM AT ASLO '93**

*Benjamin Cuker, CURMLO Committee Chair, Marine and Environ. Science, Hampton University, Hampton, VA 23668 (Tel. 804-727-5884; Fax 804-727-5084; Omnet b.cuker)*

Once again the Committee on Under-Represented Minorities in Limnology and Oceanography (CURMLO)

will be conducting a special minorities program at the ASLO annual meeting. Society members are needed to serve as "Meeting Mentors". Each meeting mentor will be assigned 1 - 3 students who are interested in the field in which the meeting mentor is knowledgeable. The students will accompany their meeting mentors to several of the meetings sessions. It will be the task of the mentor to help the students plan session attendance, provide some interpretation of presentations, and to introduce students to other colleagues. Mentors should arrange to arrive by early in the afternoon on the day before the meetings so that they can get acquainted with their charges. Being a meeting mentor is fun and rewarding! Persons interested in serving as a meeting mentor for ASLO '93 in Edmonton should contact me at the above address.

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## **1993 ASLO AWARD NOMINATIONS**

### **G. EVELYN HUTCHINSON MEDAL**

*Lawrence R. Pomeroy, Chair, G. Evelyn Hutchinson Award Nominations Committee, Institute of Ecology, University of Georgia, Athens, GA 30602 -2202 (Tel. 706-542-3415; Fax 706-542-6040; Omnet l.pomeroy; Bitnet pomeroy@uscn)*

Nominations are being solicited for the 1993 G. Evelyn Hutchinson Medal. The medal is awarded annually to the individual who best exemplifies the standards of scholarship and creativity set by Professor Hutchinson's work in limnology and oceanography. The award is made in recognition of continued excellence in any aspect of limnology and oceanography. Emphasis in selection will be given for work done during the preceding 5-10 years or for contributions of an active scientist whose work continues to be recognized for its importance in aquatic sciences. The award is intended to symbolize the quality and innovations toward which the society strives and to remind its members of these goals. ASLO members who have been honored with this award are: Richard C. Dugdale, W.T. Edmondson, Richard W. Eppley, Eville Gorham, John E. Hobbie, Gene E. Likens, Daniel A. Livingstone, Trevor Platt, Lawrence Pomeroy, David W. Schindler, and Robert G. Wetzel.

The G. E. Hutchinson Medal is the only career award by ASLO to its members. Medalists are recommended by a committee (currently half medalists and half non-medalists), based on nominations received from ASLO members. Surprisingly few nominations are received. The award not only gives visibility to the recipient but to his (and someday, I hope, her) institution and to ASLO. If your field of specialization within ASLO has not been recognized by an award to its leading practitioner, or if you are tired of the succession of aging, male medalists, get involved! The committee has to work with the nominations it receives. Submitting a convincing nomination will take at least an hour of your time—maybe two or three hours if you have to locate the nominee's vitae and get supporting signatures. Please give two or three hours of your time to making this

award a dynamic process that represents the full membership of ASLO.

The 1993 medal will be awarded at the ASLO '93 meeting in Edmonton, AB Canada. Each nomination must be supported by a letter (not to exceed two pages) on qualifications. This letter should be crafted so that it could be the basis of the presentation speech for the nominee who is selected for the award. The nomination package may also include a list of important publications and other pertinent information, but in total this package shall be no more than three pages. A nomination letter can be supported by signatures of more than one ASLO member or a list of supporting signatures can be sent to support the nomination package. Nominations should be sent to the me at the above address. **The deadline for receipt of nominations is February 12, 1993.**

### **LINDEMAN AWARD**

*Bess Ward, Chair, Lindeman Award Committee, Marine Sciences Department, University of California, Santa Cruz, CA 95064 (Tel. 408-459-3171; Fax 406-459-4882; Omnet b.ward; internet bbw@cats.ucsc.edu)*

Nominations from all ASLO members are invited for the 1993 Lindeman Award, to be presented at the ASLO '93 meeting in Edmonton, AB, Canada. This award is presented annually in honor of Raymond L. Lindeman (1915-1942), to recognize an outstanding paper written by a young aquatic scientist.

The initial gift to create a fund for the Lindeman award was made in 1986 by Lindeman's colleague in graduate school, Charles B. Reif of Wilkes College, PA. Lindeman received his PhD in March, 1941 from the University of Minnesota, and in Sept. 1941 began postdoctoral work with G. Evelyn Hutchinson at Yale. His career was cut short by his death in April, 1942; he was only 27. The paper for which he is most remembered was published posthumously in 1942 ("The trophic-dynamic

aspect of ecology," *Ecology* 23: 399-418). This paper was a result of his thesis work on Cedar Creek Bog, Minnesota, and a draft version was completed before Lindeman joined Hutchinson at Yale. Hutchinson was instrumental in getting the manuscript accepted for publication (it was initially rejected by reviewers). This paper has since become the foundation for research on the flow of energy in plant and animal communities. For more information about Lindeman, see:

Cook, R.E., 1977, Raymond Lindeman and the trophic-dynamic concept in ecology, *Science* 198: 22-26; and Reif, C.B., 1986, Memories of Raymond Laurel Lindeman, *Bulletin of the Ecological Society of America* 67: 20-25)

**This is a tremendous opportunity to inspire and recognize young ASLO scientists. Please make your nomination soon!** Previous Lindeman Award recipients are:

- 1987: **James W. Ammerman**, for Ammerman, J.W. and F. Azam, 1985, Bacterial 5'-nucleotidase in aquatic ecosystems: A novel mechanism of phosphorus regeneration, *Science* 227, 1338-1340;
- 1988: **Marlon R. Lewis**, for Lewis, M.R., W.G. Harrison, N.S. Oakey, D. Hebert, and T. Platt, 1986, Vertical Nitrate fluxes in the oligotrophic ocean, *Science*

234: 870-873;

- 1989: **Cabell S. Davis III**, for Davis, C.S., 1987, Components of the zooplankton production cycle in the temperate ocean, *J. Mar. Res.* 45: 947-983;
- 1990: **James J. Elser**, for Elser, J.J., M.M. Elser, N.A. MacKay and S. R. Carpenter, 1988, Zooplankton-mediated transitions between N- and P-limited algal growth, *Limnol. Oceanogr.* 33: 1-14;
- 1991: **Bart T. De Stasio, Jr.**, for De Stasio, B.T. Jr. 1989, The seed bank of a freshwater crustacean: Copepodology for the plant ecologist, *Ecology* 70: 1377-1389; and
- 1992: **Sherry L. Schiff**, for Schiff, S.L., R. Aravena, S.E. Trumbore and P.J. Dillon, 1990, Dissolved organic carbon cycling in forested watersheds: A carbon isotope approach. *Water Resources Res.* 26: 2949-2957.

Eligible papers must deal with the aquatic sciences, be written in English by an author who is no older than 35 years in 1991, and must be published in a 1991 volume of a peer-reviewed journal. Nominations should consist of a copy of the paper and a brief letter describing the impact of the paper on the field. Please send them to me at the address above. **The deadline for receipt of nominations is February 12, 1992.**

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## ASLO FORUM

### THE FRESHWATER IMPERATIVE: AN INVITATION TO PARTICIPATE

Robert J. Naiman (Co-Chair), Center for Streamside Studies, AR-10, University of Washington, Seattle, WA 98195 and John J. Magnuson (Co-Chair), Center for Limnology, University of Wisconsin, Madison, WI 53706, G. Ronnie Best, University of Florida; Elizabeth R. Blood, University of South Carolina; Nelson G. Hairston, Jr., Cornell University; Gene E. Likens, The New York Botanical Garden; Sally MacIntyre, University of California at Santa Barbara; Diane M. McKnight, U.S. Geological Survey; Jeffrey E. Richey, University of Washington; Jack A. Stanford, University of Montana; and Robert G. Wetzel, University of Alabama

Momentum is gathering to develop a Freshwater Initiative for the United States (Threlkeld, 1991; and Wetzel, 1991). As a result of the collective efforts by an ad hoc committee of several scientists, professional societies and individuals, the initial steps in that process are now being taken. In June 1992, The National Science Foundation, in cooperation with other federal agencies, provided funds to identify opportunities and frontiers in inland water research (limnology, aquatic ecology) for this decade and beyond. The goal is to provide a predictive understanding of inland aquatic ecosystems and resources as related to global environmental change. The intent is to foster enhanced communication, collaborative research, and decision-making capabilities in the freshwater arena. We, the Steering Committee for this effort, seek your participation in this important activity.

Based on the activities of the Ecological Society of America's Sustainable Biosphere Initiative (Lubchenco et

al., 1991), we envision that it will take at least 1.5 years to identify opportunities and frontiers, develop a reasonable consensus on priority items, and prepare a final document for publication. The process requires your active participation and support. The Committee will meet 6-7 times, hold a workshop with a subset of members from the professional community (by invitation), meet with colleagues at professional meetings to receive additional input and inform others of our activities and progress, and invite opinions from colleagues underrepresented on the committee or from emerging research areas.

How can you participate? We ask that you send written suggestions, comments, and opinions to any member of the Steering Committee (names and affiliations are listed above) with a copy to each of the Co-Chairs (Robert J. Naiman and John J. Magnuson). Your letter will be acknowledged and your comments thoughtfully considered as discussions continue towards development of the final document.

How will the final recommendations be used? We envision that recommendations in the final document will be used by the National Science Foundation, other federal agencies, and Congress as a guide for developing priorities for funding future programs. The final document will identify key issues, provide an analysis of each issue, highlight issues which provide unusual opportunities or research frontiers, discuss significant advances that can be achieved, and provide a discussion of how recommendations can be implemented. In effect, the document will

address the knowledge required to sustain viable freshwater systems in a changing world. Letters which address each of the above items will be especially useful.

Where do we go from here? The Steering Committee will continue to refine the issues with the assistance of the professional community. We have invited a subset of inland water scientists to meet with us in Friday Harbor, Washington during January, 1993 to further define the issues. Then the real work begins as we develop the final documents and present them to the broader community for comment. It is our intent to focus on fundamental research issues related to inland aquatic ecosystems (including humans as an integral part of ecological systems), to examine a continuum of spatial and temporal scales, and to define the boundaries of our discussions by the nature of the question or issue. In effect, we have no preconceived ideas about the content of the final document. The Committee is searching for compelling opportunities and frontiers in inland water research that will foster an environmental balance in our rapidly changing world. We hope you will be willing to share your ideas with us.

#### References:

- Lubchenco, J., A.M. Olson, L.B. Breubaker, S.R. Carpenter, M.M. Holland, S.P. Hubbell, S.A. Levin, J.A. MacMahon, P.A. Matson, J.M. Melillo, H.A. Mooney, C.H. Peterson, H.R. Pulliam, L.A. Real, P.J. Regal and P.G. Risser, 1991. The Sustainable Biosphere Initiative: An ecological research agenda. *Ecology* 72: 371-412.
- Threlkeld, S.T., 1991. The Freshwater Initiative: An opportunity to enhance limnology at the National Science Foundation. *Limnol. Oceanogr.* 36: 1062-1065.
- Wetzel, R.G., 1991. On the teaching of limnology: Need for a national initiative. *Limnol. Oceanogr.* 36: 213-215.

### ON THE TEACHING OF LIMNOLOGY: The Role of Computer "Games"

Vadim Melnichuk, Institute of Limnology, Academy of Sciences, Sevastyanov Str. 9, 196199, St. Petersburg, Russia. Fax 7 812 2987327

The comments of Wetzel (1991) on not adequately teaching limnology in the United States are also valid for Russia; schools of Limnology should be developed in both and probably in other countries as well. Wetzel's statement is correct in that limnology or aquatic ecology should be taught as a general subject, and essential characteristics of inland waters should be conducted at every institution of higher education. But what is to be done to reach this goal? After recognition of the problem must follow an assessment of the possibilities for improving the situation.

I propose the idea of adjusting ecosystem models to the level of computerized "ecological games" for students at all educational and professional levels. I see several advantages to this approach:

- 1) Within a modeling framework biological, geochemical and physical processes can be brought together.
- 2) Modeling is an interactive process in the sense that one problem may often give rise to other problems/questions. Aquatic systems in general and lakes in particu-

lar lend themselves extremely well to modeling because they are systems where almost all components are coupled.

3) Modeling is the best tool for water quality forecasting because the complex nature of an ecosystem often results in the impossibility of assessing future trends in water quality by simple extrapolation.

4) The core of any computer ecological game is to use knowledge of the relations between the forcing functions and internal variables. Students can see how a system adapts to changing conditions, and the complexity of the system can be altered as student expertise increases.

5) There are multiple possibilities for "improving" water quality during a game by using control parameters such as external nutrient loading, water temperature, water level, etc. Students could utilize their knowledge of all biotic and abiotic processes involved in a mathematical model or appropriate ecological game by changing forcing functions to achieve a particular "goal".

6) Such ecological computer games can be amazingly effective at revealing student abilities and targeting areas of interest. Furthermore, those who demonstrate interest or expertise in biochemical or physical processes, in differential equations involved in the models, or in some other aspect could be encouraged to pursue more complicated courses and computer modeling at the next level of education.

7) Additional opportunities are connected with Wetzel's appeal for light or interesting limnological reading. To support and guide ecological computer games, a special guidebook or textbook with a lot of exercises is of great importance. Such computer games and supporting text could be challenging, educational, and fun.

The problem is how to convince scientists to spend a great deal of time and much trouble on the transformation of aquatic computer models into computer ecological games. A few patterns are known. For example, Matisoff and Robbins (1987) showed how a model for biological mixing of sediments can be used for educational purposes. I don't know whether it is possible to involve active research teams in the development of computer ecological games. Perhaps the unfavorable situation for scientists in Russia, Estonia, and other countries will force them to switch their professional activity from research into this sort of a business. International collaboration in the development and use of computerized teaching tools could provide much-needed products and jobs.

#### References:

- Matisoff, G. and J.A. Robbins, 1987. A model for biological mixing of sediments. *J. Geol. Education* 35: 144 - 149.
- Wetzel, R.G., 1991. On the teaching of limnology: Need for a national initiative. *Limnol. Oceanogr.* 36: 213-215.

**Please join us in Edmonton, Alberta, Canada, May 30-June 3, for the 1993 Annual Meeting** to be held at the University of Alberta. This meeting, held jointly with the Society of Wetland Scientists, aims to bring together marine, freshwater and wetland scientists.

## **DON'T FORGET THE PHYSICS!**

*Charles W. Hill, Jr., 3220 Louisiana Avenue Parkway, New Orleans, LA 70125*

Lawrence R. Pomeroy's review of the 1991 text **DYNAMICS OF MARINE ECOSYSTEMS. BIOLOGICAL-PHYSICAL INTERACTIONS IN THE OCEANS** by Kenneth .H. Mann and J.R.N. Lazier (*Limnol. Oceanogr.* 37(4), 1992, 914) is, in a word, terrific. Pomeroy's first paragraph should be required reading for all biologists, not to mention biological oceanographers.

Particularly insightful is Pomeroy's observation that "Marine chemistry ought to be sandwiched in place by physical processes on one side and biological processes on the other." This is a restatement of my long-held view that biology is "merely" organized chemistry, and chemistry is just organized physics.

Physics is basic. The biologist (and chemist) who fails to understand this truism does so at her (or his) peril. I, by the way, pretend to be a biologist.

## **REPORT OF THE COMMISSION ON THE FUTURE OF NSF**

*Kerry D. Bolognese, Staff Director for the Council of Ocean Affairs, 1755 Massachusetts Ave. N.W. Suite 800, Washington, DC 20036-2102 (Tel. 202-232-3900; Omnet k.bolognese).*

The report of the Commission on the Future of the National Science Foundation was published on Nov. 20, 1992 and contained a variety of recommendations, which were grouped under the following categories: General Recommendations; Research Recommendations, Education Recommendations; and Structural Recommendations. Within these categories the report:

- unequivocally reaffirms the Foundation's key role in the support of research in science and education;
- calls for a more coherent and stronger U.S. science policy;
- strongly supports the initiation of proposals by investigators and selection of those funded by merit review carried out by experts;
- calls for greater integration of science and engineering research into society in recognition of the public's increasing expectations for the results of this research;
- supports more active use of partnerships, especially with industry and other government agencies in strategic research areas;
- emphasizes the need for research that crosses traditional disciplinary boundaries and links science and technology;
- calls for the integration of science and technology into the U.S. educational curriculum at all levels and for all students;
- urges the size of NSF grants be examined;
- recognizes the importance of dissemination of the knowledge derived from scientific and engineering discoveries;
- calls for greater private sector involvement in decisions which affect classes of research allocation and expenditures;

- endorses graduate fellowships and traineeships;
- encourages NSF to foster greater international cooperation in research;
- calls for a national plan to keep instrumentation and facilities adequate for the conduct of pioneering research and engineering;
- urges that NSF's responsibilities and its budgetary needs be examined in the context of a newly conceived federal R&D budget that supports a stronger, broader policy (education—discovery— development—application—competitiveness—quality of life).

While these represent some of the important highlights of the report, there are other elements which are of interest. If you would like a copy of the report, please let me know.

## **PERSPECTIVES ON THE CHANGING ROLE OF NSF**

*Sarah Horrigan, National Association of State Universities and Land-Grant Colleges, 1 Dupont Circle, Suite 710, Washington, D.C. 20036 (Tel. 202-778-0846; Fax 202-296-6456; Omnet s.horrigan)*

It was nearly a half-century ago, in 1944, that President Franklin Delano Roosevelt requested Vannevar Bush, an electrical engineer from MIT and then head of the Office of Scientific Research and Development, to compile a report on the how the federal government could continue to promote scientific progress following the end of World War II. Roosevelt's request resulted in **SCIENCE - THE ENDLESS FRONTIER**, and, 5 years later, the establishment of the National Science Foundation. (The NSF reprinted **SCIENCE - THE ENDLESS FRONTIER**, with an introductory essay by science historian Daniel J. Kevles in 1990. Call 202-357-7861 or write NSF, Attn: Forms and Publications, 1800 G Street NW, Room 232, Washington DC 20550 for a free copy.)

"The endless frontier" proposed by Vannevar Bush may be becoming "the last blank check", according to an opinion piece written by Representative George Brown (D-CA), Chair of the U.S. House of Representative's Science, Space, and Technology Committee. Brown's staff has produced a report on the health of the U.S. research enterprise, which is one of a proliferation of reports addressing the question of how research will be done (available from the Science Committee at 202-225-3359). In addition, numerous federal agencies, including NASA, NIH, EPA, and NSF are in the process of examining how they do business and developing their own strategic plans.

Much of this re-examination is no doubt due to the New World Order; after all, much of Vannevar Bush's impetus for establishing the National Science Foundation was national security, which may have a different definition in 1993 than it did in 1945.

The impetus for the National Science Foundation's self-examination was probably the report which accompanied the Senate Appropriations bill for VA HUD and Independent Agencies last summer. Appropriations committees are those which actually allocate funds (as opposed to authorizing committees such as Rep. Brown's which specify the direction and conduct of programs, and

may set ceilings on the amount of funds a program can receive). The report notes that the “new world order requires the Foundation to take a more activist role in transferring the results of basic research from the academic community into the marketplace” and sets out a number of required activities and reports, including establishing a formal working relationship with the National Institute of Standards and Technology (NIST), a specific plan for the manufacturing initiative, a revision and review of the environmental research initiative, and about a dozen others. The specificity of the report language was a surprise to NSF—and indicated that Congress was getting impatient for NSF to rethink its role.

The National Science Board-NSF’s governing body—established a Commission on the Future of NSF last August, charged with “recommend[ing] to the [National Science] Board how best to meet the nation’s challenges in research and education--today and for the 21st Century”, according to James Duderstadt, chairman of the NSB. Included in the specific charge is examining ways for NSF to assume greater responsibility for developing links between academic science and industry, echoing the language of the Senate report. The Commission is made up of 15 prominent members who are to report to the NSB and NSF Director Walter Massey by November 20.

Other groups are also considering the linkages and partner-

ships between university researchers, the federal government, and society. The Carnegie Commission on Science, Technology and Government has issued a report entitled “Enabling the Future: Linking Science and Technology to Societal Goals” (call 212-998-2150) which echoes many of the themes of the report issued by the House Science Committee. The President’s Council of Advisors on Science and Technology (PCAST) has been holding public hearings on the partnership between the federal government and research-intensive universities, and will present a report in December.

All this soul-searching reflects both the military and economic climate in the world today. So what should research scientists do about it? First of all, don’t get defensive. Federal funding for research is a privilege, not a right, and a defensive attitude only turns people off, both the public and the Congress. Second of all, think about some of the creative ways in which your research or research in your field demonstrate the type of linkage that Congress is asking the science community to produce. Then TALK about those links—to the public affairs office on your campus, to the person who does “federal relations”, to elementary school classes, to your local newspaper. Even though it sounds disgustingly like “PR”, think of it as education. Lots of people don’t know what neat and exciting things scientists do. And you may be doing yourself a favor.

## AD SPACE

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## 1993 ASLO MEETING ANNOUNCEMENTS

### ASLO 1993 ANNUAL MEETING

The theme for the 1993 annual meeting is "Freshwater, Marine and Wetland Interfaces: Dynamics and Management." This first joint meeting of ASLO and the Society of Wetland Scientists (SWS) will be held May 30 to June 3, 1993 at the University of Alberta in Edmonton, Alberta, Canada.

There are four tours planned for after the conference: Rocky Mountains (Banff, Lake Louise and Jasper); Boreal Peatlands and Lakes; Saline Lakes and Irrigation; and

Royal Tyrrell Museum of Paleontology.

The Call for Papers has already been sent to members, and the deadline for abstracts is January 1, 1993. For further details, and to put your name on the mailing list if you are not a member of ASLO or SWS, write to: ASLO/SWS 1993 Conference, Environmental Research & Studies Centre, University of Alberta, CW-401L Bio Sciences Building, Edmonton, Alberta, Canada T6G 2E9 (Fax: 403-492-8160).

For information on 1994 ASLO meetings, see p. 3.

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## JOBS

**Ecosystem Ecologist/Biogeochemist: Assistant Professor** position available in Water Resources Laboratory and Biology Department of the University of Louisville. Preferred research areas include biogeochemistry, floodplain/lotic interactions, or aquatic ecosystem ecology. Ph.D., national publications, and strong abilities in teaching, geochemical analysis, and statistics required. Send vita, graduate transcripts, representative publications, and names of five references to: Dr. James H. Thorp, Director, Water Resources Lab., Univ. of Louisville, Louisville, KY 40292. Application review will begin January 11, 1992 and continue until a suitable candidate is hired. The University of Louisville is an Equal Opportunity, Affirmative Action Employer. African-Americans, women, and other minorities are encouraged to apply.

**Graduate Research Assistantship in Aquatic Ecology.** USEPA-funded project on the ecological impact of exotic zebra mussel and rusty crayfish in streams and lakes in Indiana, Michigan and Wisconsin. Project is directed by Drs. Gary Lamberti and David Lodge of the University of Notre Dame. Support will be teaching and research assistantships, including tuition/fees of about \$14,530 per year plus a monthly stipend of about \$1,089. Send letter, resumé, transcripts, GRE scores, and names of three references immediately to the following sabbatical address: David Lodge, UNC-Chapel Hill, Institute of Marine Sciences, Morehead City, NC 28557 USA (Tel. 919-726-6841). Applications are due at U. Notre Dame by 15 January 1993.

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## CALENDAR OF EVENTS, 1993

### EXXON VALDEZ Oil Spill Symposium

**Dates:** February 2-5, 1993

**Location:** Anchorage, Alaska

**Topics:** This will be the first comprehensive forum to present results of the scientific studies conducted following the March, 1989 EXXON VALDEZ oil spill in Prince William Sound, Alaska. Over \$100 million was spent on damage assessment studies during the three years following the accident to determine the extent of injury to natural resources that was caused by the 11 million gallon spill of Prudhoe Bay crude oil. Topics will include fate and toxicity of oil, effects of clean-up, intertidal impacts, injury to marine birds, marine and terrestrial mammals, marine and anadromous fish, subtidal effects, subsistence impacts, archeology impacts, and restoration.

**Contact:** Brenda Baxter, Coordinator, Alaska Sea Grant College Program, University of Alaska, Fairbanks, AK 99775-5040 (Tel. 907-474-7086).

### The International Decade for the East African Lakes (IDEAL) Symposium

**Dates:** February 18-21, 1993

**Location:** Kampala, Uganda

**Topics:** Limnology, climatology and paleoclimatology of the East African Lakes, including: tectonic framework, modern climatic setting, sedimentology of the Rift Lakes, paleoclimate dynamics inferred from Rift Lake sediments, paleoclimate of East Africa inferred from other proxies, chemical limnology, East African Cichlid species flux inferred from mitochondrial DNA sequences, nutrient dynamics, primary productivity, pelagic ecosystems, food webs, nearshore ecosystems, fisheries resources, and anthropogenic effects.

**Contact:** Mr. G. Kitaka/Dr. Eric Odada, IDEAL International Symposium, C/O UNESCO-ROSTA, P.O. Box 30592, Nairobi, KENYA (Fax 254-2-215-991; Telex 22275 UNESCO) OR Dr. Thomas Johnson, IDEAL International Symposium, Duke University Marine Laboratory, Beaufort, NC 28516 USA (Fax: 919-728-2514 E-mail: (Omnet) Duke.UNC).

## **Wetland Biogeochemistry Institute's 2d Biennial Symposium on Biogeochemistry of Wetlands**

**Dates:** February 22-24, 1993

**Location:** Baton Rouge, Louisiana

**Topics:** Symposium will emphasize various biogeochemical processes occurring in freshwater and estuarine wetlands. Topics will include: role of wetlands in improving water quality; role of wetlands in global climate change; nutrient cycling in wetland ecosystems; use of wetland biogeochemical processes to characterize regulatory wetlands; plant-soil interactions in wetlands; and reactions of toxic organics in wetlands.

**Registration deadline:** January 1, 1993.

**Contact:** Karen Gros, Wetland Biogeochemistry Institute, Louisiana State University, Baton Rouge, Louisiana, 70803-7507, USA (Tel: 504-388-8806; Fax: 504-388-6423) or Mr. G. Kitaka/Dr. Eric Odada, IDEAL International Symposium, C/O UNESCO-ROSTA, P.O. Box 30592, Nairobi, Kenya (Fax: 254-2-215-991 TELEX: 22275 UNESCO).

## **Conference on Rehabilitation of the River Rhine**

**Dates:** March 15-19, 1993

**Location:** Arnhem, The Netherlands

**Topics:** Review of recent efforts to improve water quality and to restore river habitats. Biologists, chemists, and hydrologists are invited to present research findings on disturbed river systems and express views on necessary management actions. Engineers are invited to report on the progress in waste water control and ecologically sound design of hydraulic engineering works. Policy makers are requested to express their views on the optimal management of the river. Focus will be on the River Rhine but a limited number of papers dealing with other rivers are also invited.

**Deadline for abstracts:** September 1, 1992.

**Contact:** Conference Secretariat, Buerweg 51, 1861 CH BERGEN NH, the Netherlands (Fax :31-20-5-999-600).

## **International Symposium on the Ecological Basis for River Management**

**Dates:** March 23-26, 1993

**Location:** University of Leicester, England

**Topics:** Water quantity, water quality, fish stocks, amenity/recreation, the natural environment, and catchment land use.

**Contact:** Dr. David Harper, Ecology Unit, Department of Zoology, University of Leicester, Leicester LE1 7RH, England.

## **IEA Carbon Dioxide Disposal Symposium**

**Dates:** March 29-31, 1993

**Location:** University of Oxford, England

**Topics:** Environmental impacts/issues, policy and international initiatives, ocean disposal, aquifers, depleted oil wells/enhanced oil recovery, depleted gas wells, biological processes/chemicals and fuels, all in the context of their relation to carbon dioxide disposal.

**Contact:** The IEA Greenhouse Gas R&D Programme, "Carbon Dioxide Disposal Symposium", CRE, Stoke Orchard, Cheltenham, Glos, GL52 4RZ, United Kingdom.

## **3rd Meeting of The Oceanography Society**

**Dates:** April 12-16, 1993

**Location:** Seattle, Washington

**Topics:** Role of the Ocean in Global Change; Physical Control of Food Chain Variability; Advances in Coastal Ocean Research; and Perspectives, New Directions, and News in Oceanography.

**Deadline for Abstracts:** February 1, 1993.

**Contact:** The Oceanography Society, 1124 Wivenhoe Way, Virginia Beach, VA 23454 (Tel. 804-496-8958).

ASLO members may register at the TOS member rate.

## **Short Course, Computer-Intensive Statistics in Biology**

**Dates:** May 19-21, 1993

**Location:** Denver, CO

**Topics:** Introduction to computer-intensive statistical methods for biologists, taught by Bryan Manly and based on his book, Randomization and Monte Carlo Methods in Biology.

**Contact:** L.L. McDonald, WEST, Inc. 1402 S. Greeley Hwy, Cheyenne, WY 82007 (Tel. 307-634-1756).

## **ASLO and Society of Wetland Scientists Joint Meeting**

**Dates:** May 30-June 3, 1993

**Location:** Edmonton AB, Canada

**Topics:** The major theme of the conference is "Freshwater, Marine and Wetland Interfaces: Dynamics and Management." The meeting will cover the full range of aquatic science.

**Contact:** ASLO/SWS 1993 Conference, Environmental Research & Studies Centre, University of Alberta, CW-401L Bio Sciences Building, Edmonton, Alberta, Canada T6G 2E9 (Fax 403-492-8160).

## **Group for Aquatic Primary Productivity (GAP), 6th International Workshop**

**Dates:** June 7-15, 1993, 1993

**Location:** Saskatoon, SK, Canada

**Topics:** Effects of physical forcing on primary production processes in inland and marine environments. Based on a program of active experimentation and data analysis, the main objectives are to assess the states of knowledge on the workshop theme, perform joint field experiments using different techniques to test their compatibility and reliability, and define major gaps and urgent research needs. Keynote presentations on physics, chemistry, biology and modeling. Experimental program includes physics, nutrient stimulation, light/shade adaptation, and P/R quotients.

**Contact:** Richard D. Robarts, National Hydrology Research Center, Environment Canada, 11 Innovation Blvd., Saskatoon SK, Canada S7N 3H5 (Tel. 306-975-6047; Fax 306-975-5143). Participation limited to 80 persons. Contact Robarts before April 15, 1993 if interested.

**Bus available to take GAP participants from ASLO '93 meeting in Edmonton to Saskatoon (6 June, \$50).**

## **Nansen Centennial Symposium**

**Dates:** June 21-25, 1993

**Location:** Bergen, Norway

**Topics:** Theme will be the Role of the Polar Oceans in Shaping the Global Environment. Topics will include: Polar Ocean Circulation and Dynamics; Convective Processes in the Polar Regions; Polar Ocean Carbon Cycle Chemistry and Biology; Polar Ocean-Global Climate Interactions, Paleoceanography and Paleoclimate; and Detection Strategies for Climate Change in the Polar Oceans. Deadline for abstracts: December 15, 1992.

**Contact:** Bente E. Johannessen, Nansen Environmental and Remote Sensing Center, Edvard Griegsvei 3A, N-5037 Solheimsviken, Norway (Tel. 47-05-29-72-88; Fax 47-05-20-00-50; Omnet O.Johannessen).

## **5th International Congress on the History of Oceanography**

**Dates:** July 7-14, 1993

**Location:** La Jolla, California

**Topics:** In the past, congresses have brought scientists and historians together to discuss the development of physical, biological, chemical and geological oceanography from ancient to modern times and to explore the historical development of oceanography in relation to education, culture, economics, politics and law. The theme of the 5th Congress will be "Oceanography: The Pacific Perspective". Although the Pacific will be the special focus, contributions addressing oceanography of any region will be welcome.

**Contact:** ICHO V, University of California, San Diego, Office of Conference Manager, Mail Code 0513, 9500 Gilman Drive, La Jolla, CA 92093-0513, USA (Fax 619-534-2042).

## **International Conference on Environmental Management of Enclosed Coastal Seas '93**

**Dates:** July 19-21, 1993

**Location:** Baltimore, Maryland

**Topics:** Perspectives on integrated policymaking and implementation in multi-use, multi-jurisdictional seas; advancements in marine and estuarine science and interactions between science and management; and examinations of citizen involvement in the stewardship of enclosed coastal seas.

**Contact:** EMECS '93, c/o Coastal and Environmental Policy Program, University of Maryland, Box 775, Cambridge, MD 21613 (Fax 410-228-3843).

## **3rd International Symposium on Cladocera**

**Dates:** August 9-16, 1993

**Location:** Bergen, Norway

**Topics:** All aspects of Cladoceran ecology and systematics.

**Organizers:** Petter Larsson, Anders Hobaek, Ole T. Kleiven, University of Bergen.

**Contact:** Bennet/HSD Kongress-Service, P.O. Box 1721 Nordnes, N-5024 Bergen, Norway.

## **1st Gordon Conference in Biological Oceanography**

**Dates:** August 16-20, 1993

**Location:** Colby-Sawyer College, New London, New Hampshire

**Topics:** Predictive Theory in Biological Oceanography and its Evaluation, including sessions on methods for imposing diverse constraints, new developments in foraging theory, prediction of phytoplankton blooms, the phycosphere and other small-scale diffusional environments, trophic transfers, analog models, recruitment, the interface between functional and numerical responses, and genetic constraints.

**Applications:** Available from Dr. Alexander M. Cruickshank, Gordon Research Conferences, Gordon Research Center, University of Rhode Island 02881-0801; (Tel. 401-783-4011; Fax 401-783-7644; Bitnet: bcp101@uriacc. Attendance is limited to 100, including 30 speakers and discussion leaders. The full agenda will be published in *Science* on January 19, 1993. Specific information can be obtained from ASLO members Pete Jumars (Chair) or George Jackson (Vice Chair).

## **International Conference on Food Webs: Integration of Patterns and Dynamics**

**Dates:** September 12-16, 1993

**Location:** Pingree Conference Center, W of Fort Collins, Colorado

**Topics:** Review food web research, with the goals of: exploring food web research as an integrative paradigm; fostering interaction among scientists using different approaches; improving integration of food web theory into other areas of ecology; and exploring new approaches. Specific topics will include: temporal and spatial factors that affect food web structure; top-down and bottom-up factors; nutrient cycling and the importance of detrital food webs; complex interactions in food webs; comparison of approaches (connectivity, energy flow and species interactions); applications to managed ecosystems; and exploring generalities among different communities.

**Contact:** Michael J. Vanni, Dept. Zoology, Miami University, Oxford, OH 45056 (Tel. 513-529-3192; Fax 513-529-6900; Bitnet mjvanni@miamiu).

## **BIOGEOMON-Symposium on Ecosystem Behavior: Evaluation of Integrated Monitoring in Small Catchments**

**Dates:** September 18-20, 1993

**Location:** Prague, Czechoslovakia

**Topics:** The purpose is to bring together experts who interpret and scientifically evaluate data from biological and chemical monitoring of small catchments and from related monitoring programs. Topics will include: the design and operation of monitoring networks; long-term changes and mass balances of ecosystems; response of biota to environmental changes; models of ecosystem behavior; and predictions of policy makers. To promote close interaction among researchers, BIOGEOMON will have the character of a workshop, with review lectures and contributed poster presentations which will serve as the basis for panel discussions.

**Contact:** Tom Paces and Jiri Cerny, Czech Geological Survey, Malostranske namesti 19, 118 21 Prague 1, Czechoslovakia (Fax 42-2-7980965).

## **12th North American Diatom Symposium**

**Dates:** September 23-25, 1993

**Location:** University Field Station (Delta Marsh), Manitoba, Canada

**Topics:** Verbal and poster presentations on any topic pertinent to diatoms, extant or extinct, freshwater or marine. No concurrent sessions. A panel discussion or debate involving participants and invited speakers will also be held.

**Contact:** L. Gordon Goldsborough, Dept. Botany, Brandon University, Brandon, MB, Canada R7A 6A9 (Tel. 204-727-9786; Fax 204-726-4573; e-mail: goldsborough@brandonu.ca).

## **International Symposium on the Ecological Effects of Arctic Airborne Contaminants**

**Dates:** October 4-8, 1993

**Location:** Reykjavik, Iceland

**Topics:** Technical sessions include: Factors and Processes Influencing Arctic Deposition; Airborne Contaminants in the Arctic; Human Health Issues; Effects on Arctic Ecosystems (Ecological Effects of Airborne Contaminants and Detecting Ecosystem Response); Contaminant Relationship to Climate Change; and Information Gaps and Research Needs (Panel Discussion).

**Contact:** Dixon H. Landers, Arctic Contaminants Research Program, USEPA Environmental Research Laboratory, 200 SW 35th St., Corvallis, OR 97333 (Tel. 503-754-4427; Fax 503-754-4716).

## **6th International Symposium on Interactions between Sediments & Water**

**Dates:** December 5-8, 1993

**Location:** Santa Barbara, California

**Purpose:** Present and discuss current research associated with all aspects of freshwater and marine systems, their sediments, and especially the interactions between the sediments, suspended matter, water, and biota; the role of sediments and suspended matter in aquatic ecosystems; and the management of water resources.

**Contact:** Wilbert Lick, Department of Mechanical & Environmental Engineering, University of California, Santa Barbara, CA 93106 USA (Tel. 805-893-4295; Fax 805-893-8651; Registration Fax: 805-684-6979).

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Country Code Number (format for calls from outside your area is preferred)

Fax Number: (\_\_\_\_\_) \_\_\_\_\_  
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E-Mail Service: \_\_\_\_\_ Mailbox Name: \_\_\_\_\_

Year of Birth: 19\_\_\_\_ and Sex: M/F\_\_\_\_ (birth and sex for demographic purposes only; will not be printed)

Highest Degree: \_\_\_\_\_ Year Awarded: \_\_\_\_\_  
(Demographic purposes only; will not be printed)

Discipline \_\_\_\_\_  
Enter codes in order of priority if you list more than one code  
B - Biological; C - Chemical; G - Geological; O - Optical; P - Physical

Disciplinary Specialty: \_\_\_\_\_  
\_\_\_\_\_  
30 letters, punctuation marks and spaces maximum

Field: \_\_\_\_\_  
Enter codes in order of priority if you list more than one code  
LIM - Limnology OCE - Oceanography

Environmental Specialty: \_\_\_\_\_  
Enter codes in order of priority if you list more than one code  
E01 - Lakes/Reservoirs/Ponds; E02 - Rivers/streams; E03 - Great Lakes; E04 - Wetlands;  
E05 - Estuaries; E06 - Coastal Ocean; E07 - Open Ocean; E08 - Most or all

\* List your full professional name (used on papers or official correspondence)

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