

# ASLO BULLETIN

American Society of Limnology and Oceanography

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**DON'T FORGET TO VOTE BY JUNE 15th!!!**

## MESSAGE FROM THE PRESIDENT:

### Report Card Findings: Section E, Goals for the Society

*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)*

I owe a sincere debt of gratitude to those of you who wrote letters and questionnaire responses. Thank you for the time and energy you invested. At this writing (9 February 1993), 204 out of our ca. 3500 members have responded. The percentage may seem small to some of you, but there is a lot of material to read and digest, which I have done with pleasure.

Based on the written comments it appears that ASLO is appreciated for doing a good job of nourishing your appetites for new knowledge and new facts, never compromising quality for parochialism or fad. Many or perhaps most ASLO members prize the pursuit of truth about nature above all other business, and they are happy that ASLO has staked its historical reputation on that pursuit.

I was particularly anxious to sample the range of opinions about matters that would arise during my term of service. Thus I am grateful for the insights I've received from you about perspective and priorities. None of you will be surprised to learn that our journal is a universal source of

pride and respect, and that our meetings maintain a free flow of provocative ideas. Those two elements are the essence of ASLO to most of you.

This report will focus on section E of the questionnaire: Goals of the Society.

**Question: Should ASLO use the resources and energy of its members to offer advice and testimony on science policy to federal agencies?**

A total of 139 people (89% of respondents, 4% of our members) replied; 77% said yes, 23% said no. The important inference in this case is that we have many well-educated members who welcome the opportunity to apply our collective knowledge to policy matters in the public arena. The ASLO Board will have to consider whether we can provide outlets for these sentiments without compromising the alternative opinions of our members.

**Question: Should we become involved in science policy and planning?**

Only 103 people (50% of respondents, 3% of our members) replied to this query; 55% said yes, 45% said no. There is no basis here to claim that as a professional society we have the will to act as a cohesive body in the political process arena.

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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P.O. Box 1897, Lawrence, KS 66044-8897 Tel: 913-843-1221; Fax: 913-843-1274; Omnet: allen.press

**Question: Should we open and staff offices in Washington and Ottawa?**

Despite objections from some of you about my political parochialisms regarding the French and English “Canadas”, the 166 (81% of respondents, 5% of members) who replied were solidly opposed (67% said no, 33% said yes). Much of the objection was based on cost, where comments could be used to judge, but there was a strong undercurrent of philosophical objection to activities that played on political opportunism rather than ivory tower intellectualism. (This is not a value judgment about either pillar of our culture.)

**Question: Should we develop white papers on aquatic issues and promote them within the government?**

A total of 173 people (85% of respondents, 5% of members) replied; 74% said yes, 26% said no. I interpret this to mean that our members won't object to efforts that articulate issues that are of practical concern, as long as we promote the debate in an open atmosphere, and don't become doctrinaire, insular, or dogmatic in our statements. Perhaps the ASLO report “What controls phytoplankton production in nutrient-rich areas of the open sea?” is a good model. That document accompanied a collection of scientific work presented in a special issue of L&O.

This may be the most difficult challenge to the Board of ASLO because we represent a broad intellectual constituency, and much of our wisdom or advice may appear to be directed at groups that serve only subsets of our membership.

**Question: Should we be active in offering testimony and accepting invitations to testify at government hearings?**

A total of 177 of you (87% of respondents, 5% of members) replied; 74% said yes, 26% said no. There was obviously a strong positive correlation of responses here with those to the previous question. As a group, our members represent a tremendous range of scientific expertise, and we have a lot of knowledge that can be applied for practical benefit. At least 100 members of the society want to see us being much more active in this regard. I don't get the idea that large numbers of you want to transform ASLO into a political action committee or advocacy group, however. Nor does it seem that all of you are ready to assign power of attorney to the ASLO board. In one sense, we may have to affirm that we expect members to offer their professional advice to the public and its representatives in government, when the advice is backed by scientific logic and factual detail. One mechanism would be through additional symposia in the geritol mold, accompanied by efforts to present the findings in a concise and accessible way. I interpret this response to mean that ASLO should press for mechanisms that encourage the search for scientific knowledge.

**Question: Would you be willing to pay for dues increases necessary to support enhanced activities of this nature?**

A total of 182 people (89% of respondents, 5% of members) replied; 62% said yes, 38% said no. Again, there was good correlation between opinions that ASLO members should speak out and the willingness to support the activities. Four people indicated that they would pay “whatever it takes” to achieve this goal. As a result, they will be receiving

dues increases of \$5000 each, which should be a first step toward developing our capabilities on this front. Seriously, there is the important message here that some people feel passionately that we need to be more aggressive on issues about which we know the most.

**Question: Should we confine our activities to scholarly issues and scientific debate?**

I may have inadvertently conjugated this question with the following one, and thus only 82 people (40% of respondents, 2% of members) replied. Of these, 55% said yes, and 45% said no. We are unresolved on this point, but I have the feeling that a great many non-responders are generally pleased with activities to date.

**Question: Are you willing to pay for increased costs if they support more special symposia?**

A total of 156 people (76% of respondents, 4% of members) replied; 54% said yes, 46% said no. The sentiment that I extracted from comments was that symposia were stimulating and useful, but that in general it would be best if they paid for themselves.

Finally, I asked for **opinions on priority rankings of nine specific topic areas** plus one wild card option (“other:\_\_\_\_\_”), which most people left blank. Some of you pointedly ranked “other”=1 and labeled it “journal and meetings”. I agree viscerally on that point, and intended no compromise on those prime matters. Given that ASLO has now employed a professional staff outside of its editorial office, it seemed responsible to determine the activities that were most in demand, however.

On a scale of 1 (tops) to 9, counting unranked categories in an otherwise ranked series as 9, the rankings were as follows (in all cases, n=193, and S.E. = 0.1 to 0.2:

Mean	
3.9	Increasing ASLO membership
4.4	Subsidizing student costs
4.5	Special symposia
5.0	Support for science and scientists in developing countries
5.1	Building an ASLO endowment
5.3	Public relations and links to the popular press
5.6	Attracting and retaining minority members
6.8	Establishing an ASLO fellowship
7.4	Organization and curation of the ASLO archives

Only the top 3 categories attracted rankings better than 5 (neutral in this scale). In terms of track record, our business office has initiatives to enhance membership, we substantially subsidize student costs in several ways, and we are developing plans for additional symposia. Overall, there is reason to believe that ASLO has been acting responsibly. Certainly we can always do more through the unselfish efforts of our members, but there is no indication from these responses that we are disappointing many people, or ignoring topics of widespread concern.

I am well aware that the quantitative data relayed here give us little more than a peek at the general opinions of ASLO members. They are, however, valuable as a lightning rod to attract candid remarks on a spectrum of topics. Not

one of the replies that came in sent showers of sparks, but many of them contained wisdom and insight. Please, if you think that I'm seriously misreading the general mood, tell me

so. I will try to put your opinions and counsel to good use, and I am making your collective remarks a matter of record in this column. I will report on additional topics next time.

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## ASLO NEWS

### FRESHWATER IMPERATIVE WORKSHOP REPORT

*Diane McKnight, USGS, 325 Broadway, USA, Boulder, CO 80303-3328*

In 1989, a federal interagency committee was formed to assess activities involving freshwaters, with a goal of increasing cooperation and developing plans that would meet the needs of the future. Over the past two years this interagency committee has continued to meet and is working towards an agenda called the Freshwater Imperative (FWI). To provide the scientific impetus and direction for the FWI, Robert J. Naiman (Univ. of Washington) and John J. Magnuson (Univ. of Wisconsin) organized and conducted a workshop that was held on January 9-15, 1993 at the University of Washington Friday Harbor Laboratories on San Juan Island in Puget Sound. A steering committee composed of G. Ronnie Best, Elizabeth R. Blood, Nelson G. Hairston, Jr., Gene E. Likens, Sallie MacIntyre, Jeffrey E. Richey, Jack A. Stanford, Robert G. Wetzel and myself also helped with the planning for the workshop. The workshop was attended by more than fifty scientists representing the full range of scientific disciplines and environments studied within limnology.

In the initial session of the workshop, a statement describing limnology as an integrative science (see inset below) and calling for an increased emphasis on basic research in inland waters, was presented by Jack Stanford and discussed by the entire group.

The workshop attendees met sequentially in five small

theme groups and in full session to develop research priorities and strategies for the FWI. The theme groups focused on broad topics 1) Environmental change, 2) events, lag times and legacies, 3) processes, scales and methodology, 4) approaches and methodology, and 5) linkages to the human condition. There was a significant range and overlap in the topics to serve to develop consensus. The discussions throughout the week were vigorous and open-ended as the participants exchanged ideas and proposed plans for advancing limnology into the future. The five theme groups worked long hours preparing the theme group reports, which were handed in on the last day of the meeting. At the midpoint and at the end of the workshop, two panels made presentations emphasizing the commonalities and the consensus that were appearing. By the end of the workshop, four overarching questions and five main areas for action had been developed. For all action areas, specific issues were identified and for some action areas prioritized based upon their significance for freshwater resources and upon the ability of limnology to provide the critical science to address the issue. Various approaches for conducting the required scientific research were considered, such as establishment of regional centers and centers of excellence for freshwater biodiversity studies, and of many more long-term freshwater research sites for study of pristine and impacted freshwater ecosystems. On the final evening, to help us remember the long history and the breadth of limnology, the participants were given a set of

### LIMNOLOGY: AN INTEGRATIVE PERSPECTIVE

*Statement developed by the Freshwater Imperative Steering Committee as introductory material for the January 9-15, 1993 workshop*

Scientists working on ecological problems of inland waters recognize the biophysical connectivity between different aquatic systems (precipitation, streams, rivers, lakes, ponds, wetlands, groundwaters) and the profound importance of materials and energy exchanges between aquatic, terrestrial and atmospheric components of local and regional landscapes. Clearly, water issues and problems cannot be solved without physical (including chemistry, geology, meteorology, etc.) and biological synthesis of environmental information at local to regional, and often even global, scales. The primary goal of the Freshwater Imperative is to foster development of a predictive understanding of the complex interactions that influence inland aquatic systems so that vital freshwater resources can be sustained for future generations.

Limnology was introduced over 100 years ago as the integrative study of inland waters. Therefore, by conception limnology is a synthetic science, composed of many different disciplines. Unfortunately, limnology in the United States has not been funded as a synthetic science; rather, knowledge of inland waters has been produced from within the various disciplines that deal with inland water issues and synthesis has been fostered mostly

through ecosystem-level analyses or in the context of specific ecological, environmental or water pollution problems.

For the primary goal of the FWI to be accomplished, we must modernize and vastly expand the infrastructure for basic research in inland waters. National emphasis on basic research in inland waters can be achieved by presenting our needs in the context of an integrative science that is responsive to pervasive water-related environmental problems that influence the quality of human life. Continued interdisciplinary rationalization of funding needs likely will not produce new national priority for basic science in water research.

Therefore, the Steering Committee of the workshop concluded that a new emphasis on limnology as an integrative, interdisciplinary science is needed to promote investment in the study and understanding of inland waters. We seek a union of scientists from the many different limnological disciplines to focus national attention, not on individual disciplines, but rather on an integrative science that can lead the nation to a predictive understanding of the influences of environmental change on the vitality of inland waters.

water samples from Lake Mendota, Lac Léman, the Okefenokee Swamp, Hubbard Brook and the Colorado River, which were mounted in a wooden base from native Northwest trees. The workshop attendees left Friday Harbor on the ferry enthusiastic about what had been accomplished, and excited that an important step had been taken towards fulfilling the vital role that limnological science should play in water resources in the future.

In the next few months, Bob Naiman and John Magnuson, with help from the Steering Committee, will synthesize the five theme group reports into one report which will be submitted to NSF. The FWI steering committee will then continue to circulate the report and solicit comments and ideas for the FWI, by conducting panel discussions at the June ASLO Meeting for example. When this process of comment and revision is complete, the report will be published as a book or possibly as a journal article. Anyone who would like to submit comments and ideas for the FWI are encouraged to contact Bob Naiman (Center for Streamside Studies, AR-10, University of Washington, Seattle, WA 98195), John Magnuson (Center for Limnology, University of Wisconsin, Madison, WI 53706), or any member of the steering committee.

#### **A REPORT ON THE L&O BACK ISSUES PROJECTS**

*Karen Hickey, ASLO Business Director, Allen Press, P.O. Box 1897, Lawrence, KS 66044-8897*

In June of 1990, ASLO began an effort to distribute the back issues of *Limnology and Oceanography* which are in storage at Allen Press. Years ago when it was inexpensive to print a journal, it was not uncommon for societies to overprint several hundred copies of each issue, as was the case with L&O. With the large excesses of many societies, Allen Press found it necessary to begin to charge inventory fees. There was not enough warehouse space for all these journals if each one continued to have the excesses as in the past.

Upon the notification of inventory fees, the ASLO Board decided to alleviate the storage fee problem and benefit ASLO members simultaneously. Initially, ASLO members were offered back issues at the cost to Allen Press of shipping and handling (\$1.50 per copy for domestic shipment and \$2.75 per copy for shipment elsewhere). We had an excellent response to this back issues sale and orders continue to trickle in.

In early 1992, Richard Weisburd contacted 148 institutions in Economically Developing Countries (EDC's) to assess their interest in back issues and ability to cover the shipping costs (Allen Press was able to reduce handling costs for these libraries to \$1.00/issue by packaging standard, 15-year sets and shipping by M-bag). Through his identification and efforts, ASLO will be shipping back issues at a reduced rate to 14 institutions and gratis to 53 others.

In addition to Weisburd's EDC program, I became aware of a project called the Latin American Library Enhancement Project (LALEP) through my work at Allen Press. Project coordinators are Marion Jenkinson (American Ornithologist's Union) and Mercedes Foster (National

Museum of Natural History). This program, which ships back issues gratis to Latin American countries, has been supported by 29 scientific societies and institutions through the donation of back issues. LALEP has also received support from various sources in the profit and non-profit sectors. Letters describing the opportunity have been or will be sent by LALEP to ca. 500 libraries. So far, L&O has been sent to 19 libraries, and that number will increase as more Latin American libraries respond.

Efforts are also underway to assess and meet the needs of institutions in Eastern Europe. One concerned member (who wishes to remain anonymous) came through with a wonderful idea in the late fall of 1992. With the breakup of the Former Soviet Union, many libraries have been unable to renew journal subscriptions; he thought there might be some L&O subscriptions in need of renewal. At his request I located all the previously subscribing Eastern European institutions which had lapsed over the last few years; 22 libraries were identified. I sent off a letter to each library asking whether they would like to receive the most recent issues (1991-1993); the only stipulation was that the back issues be available to a substantial readership. These letters were mailed in January and, although there have been no responses to date (Feb. 16), we hope to have some requests shortly. In the meantime, our dedicated member has been working to obtain sponsors for these institutions.

Lastly, and most importantly, we have had many ASLO members offer donations to the Back Issues Fund and offer names of EDC institutions which they thought would benefit from these efforts. Some members have made direct contacts to these libraries to determine their needs. It has been thrilling to see the advocacy and concern among the scientific community. I thank each of you for all the time and financial support that you have given to these projects.

#### **CHARLES R. GOLDMAN RECEIVES 1992 EARLE A. CHILES AWARD**

*Taken from the High Desert Museum's Earle A. Chiles Award announcement*

The High Desert Museum in Bend, Oregon has named Dr. Charles R. Goldman of the University of California at Davis as the recipient of the 1992 Earle A. Chiles Award. This award honors outstanding contributions to high desert resource management. Goldman is recognized for *authoritative scientific research on inland, deep-water ecosystems in the American West*. His ground-breaking studies in the High Desert and the High Sierra have not only resulted in a better understanding of how lakes in this region function, but also has had broad importance for the health of lake and reservoir systems worldwide.

Reflecting the combined disciplines of physics, chemistry and biology, Goldman's long-term studies have forged new territories in the science of limnology, particularly the ability to identify and analyze the role of nutrients in the process of water quality deterioration. Data collected over many years at Lake Tahoe, Pyramid Lake, Castle Lake and Crater Lake among others have enabled researchers to

predict and improve the health of these important ecosystems. Such findings have led to interdisciplinary solutions and conflict resolution in the areas of land-use planning, waste disposal, forest policy and watershed management, demonstrating that good science can be good public policy and good economics as well.

Established in 1983 in honor of Earle A. Chiles—Oregonian, businessman and philanthropist, the \$10,000 Award recognizes an individual for his or her accomplishments in promoting thoughtful management of the natural and cultural resources of the Intermountain West, or for the resolution of conflicts involving these resources. Goldman is former director of the U.C. Davis Institute of Ecology and currently director of the University's Tahoe Research Group. He has been a Fulbright Professor, a Guggenheim Fellow and a member of the President's Science Advisory Council. The Goldman Glacier in Antarctica is named in his honor.

## GLOBAL ENVIRONMENTAL CHANGE INTERVIEWS

Twelve experts describe the scientific, sociological, political and economic impacts of predicted global environmental change. Presentations of ca. 30 min. each are made by: William Kellogg, Senior Scientist (retired) NCAR; F. Sherwood Rowland, UC at Irvine; Berrien Moore, U. of New Hampshire; Irving Mintzer, U. of Maryland; William Clark, Harvard University; Charles Alexander, Senior Editor, Time Magazine; James Fouts, National Institute of Environmental Health Sciences; Pedro Sanchez, North Carolina State University; Gary Evans, U.S. Department of Agriculture; Alan Miller, University of Maryland; Claudine Schneider, (former) Congresswoman, Rhode Island; and Alan Hecht, Environmental Protection Agency. The series was produced from a semester-long undergraduate Honors Colloquium at the University of Rhode Island entitled "Global Environmental Change: The Science and Social Issues." A bibliography of complementary readings is available on request. For more information, contact: Lynne Carter Hanson, Special Assistant for Global Change, URI Graduate School of Oceanography, Narragansett, RI 02882 (Tel. 401-792-6211).

## ASLO FORUM

### ECOSYSTEM METABOLISM AND ENERGY FLOW: CONCEPT VS REALITY

Mario M. Pamatmat, 109 Robinhood Dr., San Rafael, CA 94901

Current models and research on ecosystem dynamics are in part based upon general acceptance of C and/or O<sub>2</sub> changes in water samples as accurate measures of metabolism or energy flow. However, some evidence shows that, while photosynthesis and respiration may dominate, other processes affect the cycle of oxygen in varying degrees, e.g., non-photosynthetic H<sub>2</sub>O<sub>2</sub> (Palenik and Morel, 1988) and O<sub>2</sub> (Pamatmat, 1988) production in the dark, non-respiratory O<sub>2</sub> uptake in the light (Laane et al., 1985), and a large discrepancy between direct and indirect calorimetry (Pamatmat, 1988). Accumulating evidence suggests that photons are fixed not only by living but also by non-living photoactive substances, and light energy is converted into other high-energy compounds besides organic carbon, e.g., superoxide radicals. Furthermore, not all light energy absorbed by chlorophyll is converted into chemical energy to be dissipated through respiration (measured as O<sub>2</sub> uptake) in successive trophic levels. Instead, some chemical energy is dissipated as heat with concomitant production, not consumption, of O<sub>2</sub>. Heat flow is a function of the total turnover of matter in the ecosystem, not of O<sub>2</sub> and C dynamics alone, important and central to the food web as these two substances may be.

The L/D bottle practice assumes that the sum of results from two different closed experimental systems is a good estimate of gross primary production in the natural, open system. Light and dark bottles may contain the same kinds and concentrations of organisms, but they represent different biological systems because they differ in rates of chemical and biological processes. Also, results of direct and indirect calorimetry, expected in conventional ecological energetics to be related by a constant oxycalorific coefficient, actually show a variable relationship. Heat flow can exceed heat equivalent of O<sub>2</sub> consumption because of anaerobic, fermentative, and non-metabolic heat production.

These realities so far have either been rejected or minimized in importance. Is it because they pose a threat to the established concept of ecosystem dynamics or because a workable alternative theory has not been developed? In any case, declaring heat flow measurements as uninterpretable and discouraging their future use in ecosystem research is like killing the messenger of bad news. Continuing to use O<sub>2</sub> uptake in dark enclosures as a measure of respiration, metabolism, or energy flow while rejecting, without testing, hypotheses posed by the aforementioned evidence is not in the best interest of science. A new, more comprehensive, concept of energy flow in ecosystem is called for.

Non-metabolic transformations in the euphotic zone are evidently of the same order of magnitude as respiration, and their role in ecosystem dynamics, productivity, and stability is a problem worth investigating. In my view, the ultimate test of our understanding of complex systems lies in our ability to explain heat flow, not daily, weekly, monthly, or annual averages, but continuously changing heat flow, and to predict its changing under changing conditions. Until we can interpret the heat flow in a closed bottle of water that is a minuscule sample of the open system, is the quest for predictive models of aquatic ecosystems really attainable?

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#### NSF GRANT APPLICATION GUIDE

The 1992 NSF Grants For Research and Education in Science and Engineering (GRESE) application guide, including current guidelines (October 1992) and strictly enforced limitations for proposals, is available. For your own copy, write NSF or call 202-357-7861 and ask for GRESE (NSF Publication 92-89).

## A SHORT TRIP TO URUGUAY

Richard W. Eppley (retired ASLO member), 1969 Loring St., San Diego, CA 92106

Last year I was recruited by the International Executive Service Corps (IESC) to give advice to a group in Uruguay on a curriculum in marine science. Both the IESC and marine science in Uruguay may be of interest. Here are some impressions based upon a one-month visit.

The IESC sends volunteers, mostly retired business executives, to private enterprises in developing countries that need advice in getting started, retooling, modernizing facilities, or establishing public affairs programs. In this case, a new private university needed advice in getting started and asked IESC to recruit two experts: one in the area of administration of a private academic institution and the other in marine science curriculum. The recruiter told me this was the first request for a marine science academician in her years at IESC. Also the IESC recruiting literature states that it is not interested in "doctors who are not hospital administrators, lawyers who are not primarily business executives, or professors without experience in the business end of an educational institution". Thus, IESC is not likely to offer many opportunities to retired ASLO members. Nevertheless, the opportunities it may offer are very desirable from my perspective in providing challenging problems, fine living conditions during the stay abroad, and wonderfully kind and friendly hosts. The IESC Volunteer's spouse is expected to participate and both are to be good ambassadors for the US, their own industry and for the IESC. The ability to teach is stressed in the IESC recruiting documents, I guess because their typical volunteer is from business and industry rather than academia.

The group in Uruguay that requested the aid was a commission appointed by the president of Uruguay and charged to develop plans and funding for a new private university to train people for (primarily) employment in marine-related fields, such as fishing companies, shipping companies, ocean-related tourism, marine environmental management, and coastal zone pollution. A representative of the group met with the two IESC volunteers daily for a month, working out the details for a feasible program. The three of us visited the national fisheries laboratory and a fish technology research laboratory as well as the proposed site of the new school in the resort cite, Punta del Este. I also met with a professor of comparative physiology and a natural products chemist from the University of Uruguay in Montevideo, both of whom have worked in the US, have international contacts in marine science and evidently support their research and travel with funds from developed countries. There is no department of oceanography at the University. People I asked didn't know of a limnologist at the university either. The national fisheries laboratory, however, had a project on toxic red tides, recently occurring near Punta del Este, and another on an endangered crocodilian found in their rivers.

The commission had already worked at fund raising for about two years by the time of my visit. It had sponsored a

lecture series the previous year, and had held a competition for a research project in marine science. The winners of the competition, a team of three young scientists, received about \$10,000 US equivalent. Theirs is apparently the only research grant in Uruguay supported by local funds. Their topic was the incidental death of a local, nearshore porpoise in gill nets and a means of prevention. They illustrate well the difficulties of building research careers in Uruguay. The first is financial. There is a lack of suitable employment. None of the three had a full-time job in science. The team leader worked part-time in an airline office. Apparently, most people maintain 2-3 jobs in order to make ends meet since no single job provides a living wage. A teacher, for example, is typically paid \$300-400 per month, while about \$800 per month is needed to maintain a middle-class standard of living. The research grant of \$10,000 was a god-send for the three of them: their only access to funds for field work, as well as important support for living expenses.

Second, without research libraries it is almost impossible to keep current in a field. For example, nobody I met (except the two professors and the lab directors) was a member of an international scientific society. None had seen *Science* or *Nature* recently, let alone L&O. The porpoise people knew of one US marine mammologist but only because he had visited and given a talk in Argentina and they had made the journey across the Rio Plata to hear him (I was able to help them establish contact with others). Participation in international scientific meetings and presenting research results is a luxury only a few established scientists can enjoy, and that infrequently and apparently with foreign or family funds. Opportunities for young people trying to get started in scientific research approach zero without foreign contacts. In fact, Uruguay has a long history of exporting the graduates of its single national university.

While I encountered few candidate ASLO members in Uruguay, the teachers who are ultimately hired by the new school to teach the marine science courses will be good prospects, as are the researchers at the national fisheries laboratory. There is a great hunger for informal contacts and friendships as these provide the best encouragement and sense of participation in international science. As a society we can probably best help them by providing the journal to the fisheries laboratory, the library of the new school and to the science library at the national university, although even the latter lacks advanced degree programs in limnology and oceanography. The ASLO membership roster will be useful in providing names and addresses. Even the mailing expense of sending L&O to Uruguay is formidable, however, let alone providing subsidized memberships. A fat endowment might earn enough to enable ASLO to do such things.

### YOUNG SCIENTISTS' NETWORK

The Young Scientists' Network is an open electronic forum for discussion of issues of concern to young scientists.

Topics of discussion include, but are not limited to, the current job situation, possibilities for change, alternative careers, and the future of science research in the United States. For more information, send a note to ysn-adm@zoyd.ee.washington.edu (Internet).

## CORE JOURNALS IN LIMNOLOGY: A REASSESSMENT

Stephanie C. Haas, Marston Science Library, University of Florida, Gainesville, FL 32611-2020

Journals that are cited frequently by researchers in a particular field become known as the “core” journals of that discipline. Citation analyses, counts of journals cited in research publications, are the most common means of determining core journals. The accuracy and value of such counts depends on a commonality of research interests, e.g., one fisheries research group may concentrate on coastal fishes, another on freshwater aquaculture. While we would expect to find some journals cited by both research groups, there would also be some obvious differences. Not infrequently, the same journal may appear “core” in multiple subject fields. Thus, the journal *Limnology and Oceanography* could be considered “core” in the fields of both limnology and oceanography.

The purpose of the present paper is to review published limnology core journal listings and to update these findings with additional citation counts. Each year the Institute for Scientific Information (ISI), publisher of *Science Citation Index* and *Current Contents*, issues a list of subject journals, published as part of its journal citation report. This list is often referenced by librarians when choosing new journals to purchase and/or journals to cancel. The 1989 ISI list was compared to four other studies. Two published studies, Resh (1985) and Gorham (1968) discussed core limnology journals. Resh’s work included a citation analysis of Wetzel’s (1983) textbook on limnology, while Gorham looked at journal citations published in the 15th (1962) and 16th

(1965) Proceedings of the International Association for Theoretical and Applied Limnology (SIL). To update these studies, the author completed citation analyses of Schwoerbel’s (1987) Limnology textbook and sections of the 22nd (1983), 23rd (1987), and 24th (1989) SIL Proceedings. Citations in the physical and chemical limnology sections were counted for all three conferences and biological limnology counts were made of the following sections in the 1987 Proceedings: Ecology of Aquatic Organisms; Microbes, Algae and Other Plants; Animals; and Fish and Fisheries.

**Results and conclusions.** ISI defines its limnology category as “the scientific study of physical, chemical, meteorological and biological conditions in fresh waters especially of ponds and lakes. Biological conditions are studied in an ecological context.” (Maureen Handel, pers. comm. April 26, 1991). Journals dealing with “the biology of individual freshwater organisms” are placed in their Marine and Freshwater Biology Category. In 1989, ISI included the following nine journals, ranked by an “impact factor” (ISI, 1989), in its limnology list: 1) *Limnology and Oceanography*; 2) *Water Resources Research*; 3) *Water Research*; 4) *Archiv für Hydrobiologie*; 5) *Journal Water Pollution Control Federation*; 6) *Journal of Freshwater Ecology*; 7) *Australian Journal of Marine and Freshwater Research*; 8) *Stygologia*; and 9) *Journal of the Institute of Water Environment and Man*.

**Table 1** (below) presents the comparative results for the other four studies. Only three of the ISI journals are found in the core listings of any of the other studies: *Limnology and Oceanography*, *Archiv für Hydrobiologie*, and *Water Research*.

**Table 1. Limnology Core Journals Comparison: Rank and Percentage of Total Coverage.**

Journals appearing in three or more studies appear in bold print

Study Source Total Citations	<sup>1</sup> Gorham, 1969 Proc. 1962, '65 2,568	<sup>2</sup> Resh, 1985 Textbook, 1983 2,166	<sup>2</sup> Haas, 1991 Textbook, 1987 347	<sup>2</sup> Haas, 1991 Proc. 1983, '87, '89 1,999
<b>JOURNAL TITLES</b>				
Appl. Environ. Microbiol.			10 (1.7%)	
Aquatic Botany	Began '75	16 (1.4%)		13 (1.3%)
* <b>Arch. Hydrobiol.</b>	2 (4.3%)	2 (4.9%)	1 (12.0%)	5 (4.1%)
Arch. Hydrobiol. Suppl.	Incl above	9 (1.7%)	2 (11.5%)	
<b>Can. J. Fish. Aquat. Sci.</b>	8 (1.4%)	4 (3.9%)		4 (5.1%)
Can. J. Zool.				16 (1.2%)
Ecological Monogr.		9 (1.7%)		
Ecology	5 (2.1%)	3 (4.1%)		7 (1.8%)
Ergeb. Limnol.				12 (1.4%)
Freshwater Biol.	Began '71	5 (3.3%)		9 (1.7%)
<b>Hydrobiologia</b>	7 (1.4%)	7 (2.9%)	6 (3.5%)	3 (5.7%)
<b>Int. Rev. Gesamten Hydrobiol.</b>	3 (3.5%)	9 (1.7%)	5 (5.2%)	14 (1.2%)
<b>Int. Ver. Theor. Angew. Limnol. Verh.</b>	1 (5.5%)	12 (1.6%)	3 (8.4%)	2 (6.4%)
J. Ecology		8 (2.5%)		
J. Plankton Res.				16 (1.2%)
* <b>Limnol. Oceanogr.</b>	4 (3.2%)	1 (13.9%)	4 (7.2%)	1 (10.9%)
Mem. Ist. Ital. Idrobiol.	6 (1.4%)	13 (1.5%)		
Mitt. Int. Ver. Theor. Angew. Limnol.			6 (3.5%)	
Oecologia (Berl.)				14 (1.2%)
Oikos		13 (1.5%)		6 (2.0%)
Pol. Arch. Hydrobiol.		13 (1.5%)		
Inst. Freshwater Res. Drottningholm Rep.	9 (1.3%)			
Schweiz. Z. Hydrol.	10 (1.1%)			
Science				7 (1.8%)
* Water Research				10 (1.7%)

<sup>1</sup> Ranked journals account for 25% of citations.

<sup>2</sup> Ranked journals account for 50% of citations.

\*These journals appear in the ISI 1989 listing of Limnology journals

Seven journals were ranked in three or more of the studies. A cross-study comparison (pooled citations) indicated the following % of total coverage (n = 7,080) for these journals: *Limnology and Oceanography* (8.8%); *Archiv für Hydrobiologie/Supplementband* (6.1%); *Proceedings, International Association for Theoretical and Applied Limnology* (4.7%), *Hydrobiologia* (3.2%), *Ecology* (3.1%), *Canadian Journal of Fisheries and Aquatic Sciences* (2.6%), and *Internationale Revue der Gesamten Hydrobiologie* (2.4%).

Showing consistently high citation levels over a period of years, this list appears to more closely approximate a "core" listing in limnology journals than does the ISI list.

#### References

- Fuseler-McDowell, E., 1988. Documenting the Literature of Marine Biology. *Proceedings of the International Association of Marine Science Libraries and Information Centers*, 3-7 October 1988, Miami, Florida. pp. 45-60.
- Gorham, E., 1968. Journal coverage in the field of limnology. *Limnol. Oceanogr.* 13: 355-369.
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- International Association of Theoretical and Applied Limnology. *Proceedings*: V. 22 (1983); v. 23 (1987); v. 24, 1989. E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.
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- Resh, V.E., 1985. Periodical citation in aquatic entomology and freshwater benthic biology. *Freshwater Biol.* 15: 757-766.
- Schwoerbel, J., 1987. Handbook of Limnology. Ellis Horwood, Ltd. Chichester, 228 pp.
- Wetzel, R.G., 1983. Limnology. Saunders, Philadelphia, 767 pp.

#### EXOTIC DAPHNIA IN THE U.S.

John E. Havel, Dept. Biology, Southwest Missouri State University, 901 South National Ave., Springfield, MO 65804-0095 (Tel. 417-836-5308; Bitnet jeh694f@smsvma)

*Daphnia lumholtzi*, an exotic cladoceran native to Africa, Asia and Australia, has recently appeared in reservoirs of the southern United States. Several groups monitoring the progress of its invasion met on December 2nd for a workshop sponsored by the Tennessee Valley Authority. The pooled results suggest that this species first appeared around 1990, rapidly invaded reservoirs in at least eight states (Kentucky, Missouri, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas), and commonly reaches high densities (up to 10/L) for a brief period in the late summer. The vectors for its dispersal into North America and among reservoirs are presently unknown.

We are very interested in hearing of other records, especially those in which long-term sample sets are available. Anyone with additional records are encouraged to contact me (address above) or Clyde Goulden (cgoulden@pennsas.upenn.edu).

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## ASLO MEETING ANNOUNCEMENTS

### 1993 ASLO ANNUAL MEETING

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

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.

Organization is in full swing now. So far we have 830 abstracts, covering freshwater, marine, and wetland topics. Five plenary speakers, including Ragnar Elmgren and Anders Sodergren from Sweden and John Hobbie, Mimi Koehl, Jim Sedell and John Cairns from the USA, promise excellent talks.

Edmonton is lovely at this time of year - generally clear and sunny with close to 16 hours of daylight. The banquet will be at Fort Edmonton - a reconstruction of the original fur trade post, with colourful entertainment from a selection of our major ethnic groups. See the Program for details on ordering tickets. Field trips to the Rocky Mountains, northern wetlands and southern grasslands are filling fast. If you have not already done so, fill out the registration and field trip forms and send them to Edmonton.

The Program/Abstract books were supposed to have been ready for mailing by March 5. Due to an unfortunate series of events, the ASLO '93 program and abstracts will

not be ready for mailing until approximately April 7. You should receive them within two weeks of posting; all overseas programs will be air lifted. On behalf of the local organizers, I apologize for the inconvenience. ASLO's regular printer, Allen Press, has not been involved in any way, so no other ASLO mailings are affected. We look forward to seeing you in Edmonton!

### 1994 JOINT AGU/ASLO OCEAN SCIENCES MEETING

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.

### 1994 ASLO ANNUAL MEETING

The summer 1994 meeting will be held in June, 1994 in Miami, Florida; dates have not yet been set. The meeting will be held jointly with the Phycological Society of America (PSA). The last joint meeting with PSA was in 1986, at the University of Rhode Island. This event marked the 50th anniversary of ASLO. Program Co-Chairs are Alina M. Szmant (ASLO) and Dennis M. Hanisak (PSA). If you are interested in organizing a special session, contact Alina Szmant, University of Miami/RSMAS, 4600 Rickenbacker Causeway, Miami, FL 33149 (Tel. 305-361-4609; Fax 305-361-4600; Internet aszmant@rcf.miami).

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## CALENDAR OF EVENTS, 1993

### 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).

### Fifth International Conference on Copepoda

**Dates:** June 6-11, 1993

**Location:** Baltimore, Maryland

**Contact :** Dr. B. Bradley, UMBC, Dept. of Biological Sciences, Baltimore, MD, 21228 (Tel. 410-455-2244); Fax 410-455-3875)

### 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).

### **Bioacoustical Oceanography Workshop**

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

**Location:** Friday Harbor, Washington

**Topics:** Use of acoustic techniques for studying biological oceanographic phenomena. Students will review basic principles and be introduced to theoretical and practical aspects of state-of-the-art acoustic methods. There will be ample opportunities to conduct hands-on research.

**Contact:** Charles Greene, Director, Ocean Resources and Ecosystems Program, Corson Hall, Cornell University, Ithaca, NY 14853 (Tel. 607-255-5449; Fax 607-255-8088).

**All participants will receive a stipend to cover travel and living expenses associated with attending the workshop.**

### **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.

### **ICES Zooplankton Symposium**

**Dates:** August 15-18, 1993

**Location:** Plymouth, UK

**Topics:** Meeting will focus on zooplankton production measurement and its role in global ecosystems and biogeochemical cycles. Goals are to stimulate new research directions to test the proposition that zooplankton population dynamics and ocean physics are directly coupled. Themes will include new technologies for rapid at-sea population characterization including production indices, and coupled physical/biological models.

**Contact:** Roger P. Harris, Plymouth Marine Laboratory, or J.C. Gamble, Sir Alister Hardy Foundation for Ocean Science, Prospect Place, Plymouth PL1 3DH, U.K. (Tel. 44 (0)752-222772; Fax 44 (0)752-670637; Omnet PML.UK or J.Gamble.CPR).

### **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.

**Information:** 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).

### **Joint ECSA/VAE Symposium on Particles in Estuaries and Coastal Waters**

**Dates:** August 30 - September 3, 1993

**Location:** Haren, The Netherlands

**Topics:** Physical, chemical and biological role of small organisms, organic particles, minerals and aggregates in shallow coastal systems.

**Contact:** Victor N. de Jonge, Rijkswaterstaat Tidal Waters Division, P.O. Box 207, 9750 AE Haren (GN), The Netherlands (Tel. 31-50-331359; Fax 31-50-340772).

## **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.

**Format:** 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 Conference on Toxic Marine Phytoplankton**

**Dates:** October 18-22, 1993

**Location:** Nantes, France

**Topics:** The purpose is to study noxious or toxic species, their proliferation in coastal areas or the open sea and their effects on human health, aquaculture and biological resources. Topics will include ecology, taxonomy, physiology, immunology, molecular biology, toxicology and epidemiology.

**Contact:** 6th International Conference on Toxic Marine Phytoplankton, Cité des Congrès, 5 rue de Valmy, 44041 Nantes cedex, France.

### **ASLO MEMBERS OFFERED DISCOUNT ON *COASTAL & ESTUARINE STUDIES***

The American Geophysical Union has taken over publication of Springer-Verlag's Coastal and Estuarine Studies, book series, and is offering ASLO members a 20% discount on books published after 1991, and a 30% discount on titles published in 1990 or earlier. For a listing of titles, please contact AGU Orders Dept., 2000 Florida Ave. NW, Washington, DC 20009 USA.

## 12th Biennial International Estuarine Research Conference

**Dates:** November 14-18, 1993

**Location:** Hilton Head, South Carolina

**Abstract deadline:** 30 April, 1993

**Contact:** Rick DeVoe, SC Sea Grant Consortium, 287 Meeting Street, Charleston, SC, 29401 (Tel. 803-727-2078; Fax 803-727-2080).

### International Association for Sediment Water Science's 6th International Symposium on Interactions between Sediments and 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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## JOBS

**Cape Cod National Seashore Collaboration.** The National Park Service is seeking the assistance of an aquatic ecologist/limnologist to direct monitoring of water chemistry to detect anthropogenic nutrient loading or acidification in kettle ponds at Cape Cod National Seashore. The scientist will guide field work, ensure data quality and provide data interpretation with

respect to management concerns. In exchange, the scientist will have publication rights to the data, opportunities for student participation in park internships, and free housing, laboratory and office space.

**Contact David Manski, Cape Cod National Seashore, South Wellfleet, MA 02663 (Tel. 508-349-3785).**

AD SPACE

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# BIOGRAPHICAL SKETCHES

## 1993 CANDIDATES

It is time to cast your ballot for the 1993 ASLO election. This particular election is extremely important, as we will be electing a Vice President and Treasurer in addition to two Members-at-large.

The candidate elected as Vice President will begin serving in June, 1993 and assume the ASLO presidency in June, 1994.

The present Treasurer, John G. Stockner is running unopposed due to the difficulty in finding a candidate willing to run against an incumbent. He plans to step down in June, 1996, at the end of his fourth term.

ASLO is governed by a Board of Directors consisting of the elected officers and seven Members-at-Large, one for every 500 members of the Society. Two Members-at-Large will be elected to replace Nancy H. Marcus and Kenneth L. Webb, who complete their 3-year terms in June. Continuing Members-at-Large are: Benjamin E. Cuker, Sally MacIntyre, Diane M. McKnight, Barbara B. Prézelin, and Bess B. Ward.

Biographies of the candidates are presented on the following three pages. Please vote for your preferred candidates on the enclosed Ballot. It is bright orange so you can't lose it without expending some effort, and constructed as a postcard with the return address pre-printed to facilitate mailing.

**Ballots must be received by  
June 15, 1993.**

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## VICE PRESIDENT

**Nancy H. Marcus** B.S. 1972 (*Goucher College*); M.Phil. 1975, Ph.D. 1976 (*Yale University*)

Dr. Marcus is a Professor of Oceanography and Director of the Florida State University Marine Laboratory.

Her research interests focus on the population dynamics and evolutionary ecology of marine zooplankton, specifically the phenomenon of egg dormancy in planktonic copepods.

She is currently a Member-at-Large on the ASLO Board of Directors and is serving as Chair of the ASLO Education and Human Resources Committee. She is an elected member of the AAAS Council and Committee on Council Affairs, President of Sigma Xi's Tallahassee Chapter, and Co-facilitator of the Association for Women in Science's Tallahassee Chapter. She is an Editor for *Marine Biology*.

### Representative Publications

- Marcus, N.H. and J. Schmidt-Gengenbach. 1986. Recruitment of individuals into the plankton: The importance of bioturbation. *Limnol. Oceanogr.* 31: 206-210.
- Marcus, N.H. 1990. Calanoid copepod, cladoceran, and rotifer eggs in seabottom sediments of northern California coastal waters. Identification, occurrence, and hatching. *Mar. Biol.* 105:413-418.
- Marcus, N.H. and K. Taulbee. 1992. Potential effects of a resuspension event on the vertical distribution of copepod eggs in the sea bed: A laboratory simulation. *Mar. Biol.* 114: 245-252.
- Lutz, R., Marcus, N.H. and J. Chanton. 1992. The effects of low oxygen concentrations on the hatching and viability of marine calanoid copepod eggs. *Mar. Biol.* 114: 241-248.

### Goals for the Society

I believe that the goals of the society should extend beyond providing forums (annual meetings or special symposia) for the exchange of ideas and research findings among colleagues and the publication of a top journal. ASLO should also promote the interests and activities of its ca. 4,000 members. ASLO should be recognized by academia, industry, government, and the general public as a prime source of information on environmental issues that affect or relate to aquatic systems. Increasing the public's understanding of science can only have a positive impact on the pursuit of science and therefore on the members of the Society. The Society must also continue to foster efforts aimed at increasing the participation of under-represented groups in aquatic science, developing informational brochures for pre-college students, and developing educational materials for pre-college and college levels. Support for these activities should be sought from federal, state, and local agencies and from private areas through fund raising.

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**Kenneth L. Webb** B.A. 1953 (*Antioch College*); M.Sc. 1954, Ph.D. 1959 (*Ohio State University*)

Dr. Webb is Chancellor Professor in Marine Science at the Virginia Institute of Marine Science, College of William and Mary.

His research interests are directed toward interdisciplinary investigations related to: energy flow and nutrient cycling in marine environments including estuaries, salt marshes, seagrass systems, and coral reefs; physiology of marine organisms; and uses of innovated technology such as image analysis in marine science investigations.

He served as Chair of the 1990 ASLO meeting in Williamsburg, and is currently a Member-at-Large on the ASLO Board of Directors and Chair of the ASLO By-Laws Committee.

### Representative Publications

- Webb, K.L., 1988. Comment on "Nutrient limitation of phytoplankton growth in brackish coastal ponds" by Caraco, Tamse, Boutros, and Valiela (1987). *Can. J. Fish. Aquat. Sci.* 45: 380-381.
- Sieracki, M.E., S. Reichenbach and K.L. Webb, 1989. An evaluation of automated threshold selection methods for accurate sizing of microscopic fluorescent objects by image analysis. *Appl. Environ. Microbiol.* 55: 2762-2772.
- Chu, F.-L.E., K.L. Webb and J. Chen, 1990. Seasonal changes of lipids and fatty acids in oyster tissues (*Crassostrea virginica*) and estuarine particulate matter. *Comp. Biochem. Physiol.* 95A: 385-391.

Sieracki, M.E. and K.L. Webb, 1991. The applications of image analyzed fluorescence microscopy for characterizing planktonic bacteria and protists. Pp. 77-100, in: P.C. Reid et al. (eds.), *Protozoa and Their Role in Marine Processes*. NATO ASI Series, Vol. G25, Springer Verlag, Berlin.

Koepfler, E.T., H.I. Kator, R.L. Wetzel, L.W. Haas and K.L. Webb, in press. Spatial and temporal bacterioplankton dynamics during destratification in the James River Estuary, Virginia. *Limnol. Oceanogr.*

### Goals for the Society

I look forward to the continued production of a very high quality journal by the Society. Continuation of the summer meeting as a forum where marine and freshwater scientists can meet and interact, both between and within disciplines, is highly desirable. I would also like to continue with the AGU/ASLO format winter meeting. ASLO should broaden its program to increase minority and under-represented group participation in the aquatic science professions. It should also improve its resources for educational advice for all clients. ASLO should play a responsible role in society as professionals with skills and knowledge related to the environmental problems facing the nation. These are some of my views, but in addition I think the president should try to respond to the majority wishes of the membership.

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## TREASURER

**John G. Stockner** B.A. 1962 (*Augustana College*); Ph.D 1967 (*University of Washington*).

Dr. Stockner is a Research Scientist with the Department of Fisheries and Oceans, West Vancouver Laboratory, W. Vancouver, British Columbia, Canada and head of the Plankton Ecology unit.

His research interests include marine and freshwater phytoplankton and microbial ecology, with a focus on autotrophic picoplankton and nutrient regeneration in ultra-oligotrophic ecosystems.

He has served as an associate editor of the *Canadian Journal of Fisheries & Aquatic Sciences*, and has recently edited a volume of *Int. Revue ges. Hydrobiol.*, on autotrophic picoplankton in freshwater ecosystems. He has served on various panels (both NSF and NSERC) and contributed to a number of workshops on microbial food webs. He is currently completing his third term as ASLO's Treasurer.

### Representative Publications:

Stockner, J.G. and K.G. Porter, 1988. Microbial food webs in fresh-water planktonic ecosystems, pp. 71-84. In: S.R. Carpenter (ed.) *Complex Interactions in Lake Communities*. Springer-Verlag, New York, N.Y., 283 pp.

Shortreed, K.S. and J.G. Stockner, 1990. Effect of nutrient additions on lower trophic levels of an oligotrophic lake with a seasonal hypolimnetic chlorophyll maximum. *Can. J. Fish. Aquat. Sci.* 47: 262-273.

Stockner, J.G., E.M. Klut and W.P. Cochlan. 1990. Leaky filters: a warning to aquatic ecologists. *Can. J. Fish. Aquat. Sci.* 47: 16-23.

Stockner, J.G. 1991. Autotrophic picoplankton in freshwater ecosystems: The view from the summit. *Int. Revue ges. Hydrobiol.* 76: 483-492.

Stockner, J.G. and Shortreed. 1991. Autotrophic picoplankton: community composition, abundance and distribution across a gradient of oligotrophic British Columbia and Yukon Territory lakes. *Int. Revue ges. Hydrobiol.* 76: 581-601.

### Goals for the Society

There have been many changes to ASLO during my tenure as Treasurer and we are currently witnessing renewed growth in membership and a period of financial stability. Our society is healthy and is vigorously seeking new avenues of outreach to our members, including the sponsoring of innovative symposia and workshops, funding of student fellowships and grants, and the establishment of an endowment fund. I am seeking a final term as ASLO's Treasurer to help secure the new endowment fund and to work with ASLO's finance committee to examine opportunities for new investment of ASLO's capital, to provide increased funds for new and existing ASLO programs.

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## MEMBERS-AT-LARGE

**Cabell S. Davis** B.S. 1975 (*University of Tampa*); Ph.D. 1982 (*Boston University Marine Program*)

Dr. Davis is an Associate Scientist in the Biology Department of the Woods Hole Oceanographic Institution.

His research is in the area of zooplankton ecology and focuses on species population dynamics, trophic interactions, seasonal species succession, and biological/physical interactions controlling distributions. Approaches used in his research include mathematical modeling, laboratory culture, and field sampling.

He was recipient of the 1988 ASLO Lindeman Award. He has co-convended international workshops and has served on several scientific committees and panels (NSF, NOAA, ONR).

### Representative Publications:

Davis, C. S., 1987. Components of the zooplankton production cycle the temperate ocean. *J. Mar. Res.* 45: 947-983.

Davis, C. S., G. R. Flierl, P. J. Franks and P. H. Wiebe, 1991. Micropatchiness, turbulence, and recruitment in plankton. *J. Mar. Res.* 49: 109-151.

Davis, C. S., S. M. Gallager, and A. R. Solow, 1992. Microaggregation of oceanic plankton observed by towed video microscopy. *Science* 257: 230-232.

Davis, C.S. and P. Alatalo, 1992, in press. Effects of constant and intermittent food supply on life history parameters in a marine copepod. *Limnol. Oceanogr.* 37(8).

Flierl, G. R. and C. S. Davis, 1993, in press. Biological effects of Gulf Stream meandering. *J. Mar. Res.*

**Turn to the next page for information on the other three candidates for Members-at -large.**

**Erica J.H. Head** *B.A. 1973 (University of Cambridge); M.Phil. 1976 (University of London); Ph.D. 1979 (University of Wales)*

Dr. Head is a Research Scientist in the Biological Oceanography Division (Biological Sciences Branch, Dept. Fisheries & Oceans) at the Bedford Institute of Oceanography, Dartmouth, N.S., Canada.

She is interested in physiological processes in copepods and her current research is focused on the role of copepods in the vertical flux of carbon and pigments in the ocean. She is particularly interested in identifying the pigment degradation products which are formed when copepods graze on phytoplankton, in quantifying the extent to which pigments are destroyed during digestion, and in examining how the degree of destruction varies in different marine environments and how it affects estimates of the contribution of copepods to pigment (and carbon) grazing and sedimentation.

She serves as the Canadian representative on the com-

mittees responsible for measuring physiological rates for zooplankton and for pigment analysis (HPLC) in the International JGOFS program.

Representative Publications:

- Head, E.J.H., 1988. Copepod feeding behavior and the measurement of grazing rates in vivo and in vitro. *Hydrobiologia* 167/168: 31-41.
- Head, E.J.H., 1992. Comparison of the chemical composition of particulate material and copepod faecal pellets at stations off the coast of Labrador and in the Gulf of St. Lawrence. *Mar. Biol.* 112: 593-600.
- Head, E.J.H. and L.R. Harris, 1992. Chlorophyll and carotenoid transformation and destruction by *Calanus* spp. grazing on diatoms. *Mar. Ecol. Prog. Ser.* 86: 229-238.
- Harrison, W.G., E.J.H. Head, E.P.W. Horne, B. Irwin, W.K.W. Li, A.R. Longhurst, M. Paranajape and T. Platt, 1993. The Western North Atlantic Bloom Experiment. *Deep-Sea Res. II.* 40: 279-305.
- Head, E.J.H. and E.P.W. Horne, 1993. Pigment transformation and vertical flux in an area of convergence in the North Atlantic. *Deep-Sea Res. II.* 40: 329-346.

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**Mark D. Ohman** *B.A. 1974 (University of California, Santa Cruz), M.A. 1977 (California State University, San Francisco), Ph.D. 1983 (University of Washington)*

Dr. Ohman is Assistant Professor and Assistant Curator at Scripps Institution of Oceanography, University of California, San Diego.

His research interests concern the population ecology of marine zooplankton, with principal focus on planktonic copepods. He is interested: in prey-predator interactions; fluxes from microbial food webs to metazoans; lipid metabolism and its

relation to zooplankton life histories; and the adaptive significance of diel vertical migration behavior.

He has served on GLOBEC working groups, as co-chair of an ASLO/AGU Ocean Sciences meeting special symposium,

chair of the Scripps Library Committee, a member of other institutional committees, and on NSF panels.

Representative Publications

- Ohman, M.D., 1992. Immunochemical recognition of oligotrich ciliates. *Mar. Biol.* 114: 653-660.
- Ohman, M.D. and Snyder, R.A. 1991. Growth kinetics of the omnivorous oligotrich ciliate *Strombidium* sp. *Limnol. Oceanogr.* 36: 922-935.
- Ohman, M.D., 1990. The demographic benefits of diel vertical migration by zooplankton. *Ecol. Monogr.* 60: 257-281.
- Ohman, M.D., 1987. Energy sources for recruitment of the subantarctic copepod *Neocalanus tonsus*. *Limnol. Oceanogr.* 32: 1317-1330.
- Ohman, M.D., 1986. Predator-limited population growth of the copepod *Pseudocalanus* sp. *J. Plank. Res.* 8: 673-713.

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**Robert H. Peters** *B.S. 1968 (University of Toronto); Ph.D. 1972 (University of Toronto)*

Dr. Peters is Professor of Biology at McGill University in Montreal, Quebec, Canada.

His limnological research deals with zooplankton autecology, the correlates of eutrophication, and, more recently, contaminant fluxes and effects. He also studies community structure and function, and the ecological applications of allometry in both terrestrial and aquatic systems. He maintains an active interest in the philosophy of science as it applies to ecology.

Until 1994, he is Director of Region XI (Eastern Canada) of the North American Society for Lake and Reservoir Management and an Associate Editor of the journal *Lake and Reservoir Management*, and is the incoming

President of the Society of Canadian Limnologists. In the past, he has served on the Editorial Board of *Limnology and Oceanography* and is the 1991 recipient of the Ecology Institute Prize in Limnetic Ecology.

Representative publications:

- Rigler, F.H. and R.H. Peters, in prep. Science and Limnology. Ecology Institute: Oldendorf/Lühe, Germany.
- Peters, R.H., 1992. Lessons from the size efficiency hypothesis. II. The mire of complexity. *Hydrobiologia* 235/236: 435-455.
- Peters, R.H., 1991. A Critique for Ecology. Cambridge University Press, Cambridge, 366 pp.
- Peters, R.H. and R. de Bernardi (eds.), 1987. *Daphnia. Mem. Inst. Ital. Idrobiol.* 45: 1-502.
- Peters, R.H., 1983. The Ecological Implications of Body Size. Cambridge University Press, Cambridge, 329 pp.