

ASLO BULLETIN

American Society of Limnology and Oceanography

Volume 9(3)

WINTER, 2001

MESSAGE FROM THE PRESIDENT

Board Meeting News 1

ANNOUNCING NEW EDITOR FOR THE ASLO BULLETIN

Introducing Greg Cutter 4

ASLO NEWS

Message From The Executive Director 4

Message From The Business Manager 5

Message From The Web Editor 5

L&O Status Report 6

Minorities Program 2000: Report On

The Copenhagen Meeting 8

Message From the Student Representatives 8

ASLO 2001 AQUATIC SCIENCES MEETING

Conference Overview 9

ASLO FORUM

Overview And Current Status Of U.S. EPA Nutrient
Criterion Guidelines For Surface Waters And Wetlands 11

BOOK AND CD-ROM REVIEWS

Euphausiids of the World Ocean CD-ROM 13

Nontraditional Careers in Science:

Recent Guidebooks Lead the Way 13

RECENT AWARDS TO ASLO MEMBERS

Dr. Stephen R. Carpenter, Dr. Ruben Sommaruga,
and Dr. William Jenkins 14

JOBS AND CALENDAR OF EVENTS

Web Site Addresses 14

ASLO MEETINGS

Special Conference On Phytoplankton Productivity:
An Appreciation Of 50 Years Of The Study Of Production
In Oceans & Lakes 15

Upcoming ASLO Meetings Beyond 2001 15

MESSAGE FROM THE PRESIDENT



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The ASLO board meeting in July left
the officers and staff with a lot of work
to do before the next board meeting in

February. Some of this work goes under the heading of chores
and is not worthy of space in the Bulletin, but other tasks are of
general interest and deserve some mention here.

New Publications

At the July meeting, I asked that the board consider the
possibility of ASLO developing a second major publication
as a companion to Limnology and Oceanography. My
rationale, which I presented in some detail in my last column,
was that ASLO has been spectacularly successful in the
publication of Limnology and Oceanography, which ranks
at the top of the list of scientific publications for both limnology
and oceanography. My feeling is that it could be exciting, and
potentially stimulating to our science and also to our society,
to seek similar success with a publication compatible with or
complementary to Limnology and Oceanography, but having
somewhat different goals.

The ASLO Bulletin is published by the American Society of Limnology and Oceanography to provide members with up-to-date information on Society activities and to serve as a forum for open discussion.

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

ADVERTISING: Send inquiries to Helen Schneider-Lemay, Business Manager, ASLO Business Office at the address below.

MOVING? Send your change of address to the ASLO Business Office, 5400 Bosque Blvd., Suite 680, Waco, TX 76710-4446, USA, (800) 929-ASLO (U.S., Canada, and Caribbean) or (254) 399-9635 Voice, (254) 776-3767 Fax, business@aslo.org E-mail

I have been trying out the idea of a new publication with anyone willing to discuss the subject over the last couple of years. Half or more of the people I have mentioned it to seemed quite favorable, although obviously waiting to be persuaded by a specific proposal that might emerge from the board. Others responded quickly that we already have too many journals. To this I would say that there are very few really good journals, and the really good journals are of extraordinary importance to the development and communication of information in limnology and oceanography. I prefer to view any new journal that ASLO might publish as something very fine and of compelling interest to limnologists and oceanographers, rather than just another of the many specialized or marginally useful journals that have proliferated over the last decade or so.

The board itself showed a lively interest in the potential for developing a new publication. Even prior to discussing the project itself, they already had half a dozen ideas for publication projects that would fill a need or establish a new niche. John Cullen spoke passionately about the need for synthesis as a counterweight to the tremendous volume of specialized publications. Pete Jumars showed a lively interest in rapid short communications, modeled on some of the physics journals. Other ideas came forth as well.

Ultimately, we decided that we should take advice from a committee, which is ASLO's customary way of dealing with a subject too complex for a complete analysis by the board, which must spread its effort over the many different agenda items that need to be packed into a short board meeting. A new ad hoc committee, which we are calling the publications committee, has now been formed. Its chair is Sybil Seitzinger, who did such good work for us as chair of the journals committee and who helped us reorganize the management of *Limnology and Oceanography*. Committee members include Nelson Hairston, Lars Tranvik, Carol Arnosti, Mike Pace, Carla Caceres, James McCutchan, David Kirchman, Greg Cutter, Bess Ward, Jonathan Phinney (ex-officio), and Everett Fee (ex officio). It will be difficult for the committee to form any opinion prior to the next board meeting (February), but we expect to hear a lot from the committee by the summer of 2001. The ASLO membership will be kept informed through the Bulletin, either by my column or perhaps a special article prepared by Sybil or the committee.

ASLO Bulletin

The ASLO Bulletin also was a subject for discussion at the July board meeting. I asked the board in July to think about making changes in the Bulletin. At present, the Bulletin seems to be stuck somewhere between a newsletter and a content-oriented publication such as the ones produced by a number of other professional societies (AGU's EOS, ESA's Bulletin, AFS's Fisheries, for example). My opinion is that the Bulletin needs to move toward one side or the other of this gray zone that it now occupies. The Bulletin could be cheaper and easier to prepare if it were restricted primarily to obligatory communications such as reports from officers and information about nominees for election. A move in the opposite direction would require a constant flow of content of general interest to the

membership. Of course there is plenty of content in limnology and oceanography not suitable for publication in L&O but still of great interest to members. For example, opinion and controversy are important elements in all the sciences, and yet we have no venue whatsoever for presenting such material to our members.

Our Bulletin has been edited by the executive director. For this reason, we put editorship of the Bulletin on the list of duties for Jonathan Phinney when we appointed him as our new executive director. Jonathan felt somewhat overwhelmed by this assignment, given that it was combined with numerous other assignments having to do with our desire to develop a public policy agenda. Also, my own feeling was that the Bulletin would fare best as an enterprise independent of the executive director's office under an editor whose sole work for ASLO would be editing the Bulletin and making improvements in it. The board ultimately agreed with this reasoning and authorized a search for a new Bulletin editor. The result of the search is that we have appointed Greg Cutter of Old Dominion University as our editor. Although unacquainted with Greg prior to the search, I am already confident that Greg is an ideal choice. He has diverse interests, including an interest in the written word (his college minor was English literature), knows a lot of people in our field and is ambitious about the future of the Bulletin. He also has been delightfully direct and clear in his business dealings with us about the Bulletin.

Greg will probably have a great personal influence on the future of the Bulletin. When we have decided the nature of the Bulletin, we will give him a free hand in running it. In the meantime, we need to reach some major decisions. In order to avoid having the board do this on its own, I have asked the publications committee to include consideration of the Bulletin along with publication of a new journal. This makes sense logistically, in that *Limnology and Oceanography*, any new journal, and the Bulletin should make a balanced package of publications for ASLO. Greg is a member of the publications committee and can give his opinions to that group as well as to the board directly about the future of the Bulletin.

Members probably are more interested in publication outlets than any other topic except possibly dues. For this reason, we invite and anticipate opinions and arguments from the membership concerning the publication issues that I have summarized here. We encourage members to send messages rather than muttering under their breath. If you feel inclined to do so, either now or when more concrete proposals are on the table for consideration, send your communications to Jonathan Phinney, executive director, and he will see that they are appropriately distributed.

Standing Committees

Membership on standing committees is being reviewed now as we anticipate the need to replace committee members whose terms have expired as of the end of this year. We have plenty of talent from which to draw, but I am uneasy about filling all of these important positions in the absence of any open solicitation. Societies too easily become locked into a pattern of appointing acquaintances of the officers and board members,

which leads to the impression of a society run by insiders. There is no intent for corruption here, but merely a need to avoid the brain damage of considering the entire membership every time an appointment is made. The only effective remedy that I know of is for members to write to me or the executive director and frankly admit their interest in being appointed to a committee. Especially shy members could always have a friend do the service for them. I would be pleased to receive any such suggestions, and currently have a number of positions to fill. For a list of committees, see the ASLO web page.

Public Policy Initiatives

The board took three actions at the July meeting related to public policy initiatives that are a present commitment of the society but currently undeveloped in any tangible form. First, the board decided to establish a new ad hoc committee, designated the public policy committee, to be headed by David Karl. The members of this committee have not yet been appointed and expressions of interest from the membership are welcome. The charge to the committee is to advise the board on specific tasks that can be undertaken by standing committees, special committees, or the executive director's office solely or in collaboration with committees in the realm of public policy, broadly construed to include education as well as policy in the strictest sense.

A second commitment that the last board made at its last meeting was to develop a searchable, subject-based directory of members that goes well beyond the old general listings of areas of interest in the ASLO directory. The subject-based directory would be prepared for our use and, even more importantly, for use outside ASLO. Through the executive director's office, the directory would be recommended to agencies, educational organizations, and others as a means of locating expertise on a particular subject. Jonathan Phinney and I have been working on this idea with Paul Kemp, our web editor. Paul has developed some wonderful suggestions that would be based on accumulation of information from self-initiated, brief interactive sessions between an ASLO member and a directory database. This proposal, which has been very well developed by Paul, is sitting on my desk while I ponder ways of trying it out without running the risk of trying the patience of the membership. Perhaps we will try it out on the board members and see how they like it and then make decisions accordingly. Of course, this specialized directory would include only those who agree to participate. If participation is widespread, and if we can gather enough specifics through the interactive software, we will have quite a valuable tool that would probably be as much use to us as to others, and would serve the public policy agenda.

The board also voted to attempt the development of a public policy contact network for ASLO. This network would not involve the entire membership, but only members who have a special interest in public policy as related to limnology and oceanography. The network would pair individual ASLO members with leaders in public policy or education on a regional basis, and would require that network participants establish routine contact with their counterparts in public

policy and use this contact as a conduit for passing scientifically valid information from the society into the public sector. The implementation of this idea is still under discussion and comments are welcome.

Other Subjects

Other interesting subjects that deserve more space than can be given here include electronic publishing and money. These are related to each other in an interesting way that I can describe in a future column.

This is a very pleasant time to work in the administration of ASLO affairs. Money is adequate, we have a great set of staff contractors, and enjoy a high reputation for our journal and for our meetings. Also, to keep us from getting dull, numerous critical problems loom on the horizon. Most of these problems are related to the preservation of an adequate revenue stream as scientific communication undergoes potentially drastic metamorphosis through electronic publishing. The strong card for ASLO is its reputation as a society that represents the very best in its fields of interest. In view of this asset, I cannot see how any practical problem would prevent ASLO from enduring indefinitely.

William M. Lewis, Jr.
ASLO President



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ANNOUNCING NEW EDITOR FOR THE ASLO BULLETIN

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It is with great pleasure that the ASLO board announces that Greg Cutter will be the new editor for the ASLO Bulletin starting in 2001. Greg brings impressive academic credentials to the position including peer-reviewed publications across multiple aquatic journals. His primary research interests have centered on biogeochemistry of selenium and sulfur

and its distribution and fate in fresh, estuarine and marine surface waters and sediments. In addition, he is quite knowledgeable of biological processes having chosen to study elements with a distribution and chemistry that are intimately tied to aquatic biota. He also teaches interdisciplinary courses such as "Chemical Limnology and Oceanography in the Coastal Environment." He has worked his way up the academic "food chain" at Old Dominion University since 1982 and became full professor in 1994.

Greg has been actively involved with ASLO over the years publishing in L&O, chairing meeting sessions including one at the February 2001 Aquatic Sciences Meeting, as well as being a mentor in the ASLO Minorities Program. He also has experience writing and editing for various publication types including popular sailing magazines and the journal, Marine Chemistry, where he is an associate editor.

Working in conjunction with the ASLO publication committee, the Bulletin will likely evolve into a different type of publication. (Please read Bill Lewis' President's Message in this issue for more details). As always, comments from the membership are encouraged to help steer the direction of the Bulletin. Please send them to the Executive Director, Jonathan Phinney (jphinney@aslo.org) and directly to Greg (gcutter@odu.edu).

Finally, the ASLO Board would like to thank Sue Weiler for her tireless effort in developing and publishing the Bulletin from its inception in 1992 until 1999. She provided a solid platform from which the publication committee can now explore new ideas and directions.

ASLO NEWS

MESSAGE FROM THE EXECUTIVE DIRECTOR



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First Year in Washington, D.C.

January 2001 marks my first anniversary as executive director and coincides with the first anniversary of the Washington, D.C. executive office. It was filled with a whirlwind of activities and challenges including developing new outreach programs and ongoing administrative details. I've appreciated the guidance during this first year from the ASLO board of directors and committee members, who graciously donate hours of their valuable time to ASLO.

Outreach Efforts. Much of my time this year has been spent developing contacts amongst the denizens in Washington including government agencies, other scientific societies (ESA, AFS, ERF, AGU, TOS), nonprofit conservation organizations, the media, and more recently, industry. Most of my efforts were spent introducing the society to the Washington community and publicizing the merits of its members. For example, the U.S. EPA will finish developing nutrient criterion for surface waters and wetlands in the United States by 2003. (See accompanying article by Dave Flemer in this issue). I submitted names of potential reviewers to EPA and the majority of reviewers of the lakes and rivers documents are also ASLO

members. The credit for having such erudite reviewers of course goes to the scientists who are experts in this field and are willing to participate.

ASLO is also revisiting the issue of iron fertilization of the ocean thanks to the credentials of society members. At issue is the filing of at least four patents for iron dispersal mechanisms and/or elixirs for iron seeding of the ocean. There has been little open exchange of the merits and efficacy of these projects. The impetus for industry involvement is to potentially sell carbon credits and/or enhance fish production. While aquatic scientists may balk at these ideas, there is money from venture capitalists (generally wealthy investors) being spent to develop strategies. As a first step, ASLO will sponsor an international workshop on the scientific and legal uncertainty surrounding ocean fertilization in April 2001 in Washington, D.C. It will start what I hope is a groundswell of activity from the aquatic science community to bring the best scientific information to bear on these projects and to develop a consensus on under what circumstances, if any, intentional fertilization of aquatic systems should go forward. Stay tuned. (NOTE: The April workshop is by invitation only. We will have a larger scientific symposium in 2002).

Public policy remains the primary outreach focus for the ED's office. As a first step, I encourage ALL members, including international scientists, to fill out the on-line directory for internal use only (www.aslo.org). Webmaster, Paul Kemp, has done a masterful job to make it short and easy. Also, Dave Karl is in the midst of reconstituting the ad-hoc public policy and outreach committee (PPOC) to help the ED's office develop a relevant and practical program for the society.

Please contact Dave Karl (dkarl@soest.hawaii.edu) or me with your interest level and any ideas on how to wade into the murky waters of public policy.

International Efforts. The ED's office and ASLO board member Carlos Duarte are keeping abreast of developments with ESLO (European Society of L&O). With the European Union becoming more established and the focal point for European science, it is a good time for ASLO to reassess the needs of the nearly one quarter of our membership from outside North America. Other North American-centric scientific societies have been struggling with this issue as well, and our office has been compiling information on their processes. Ideas on how to improve ASLO international role are always welcome.

Administrative challenges have centered around L&O copyrights and on-line access for institutions. A modified copyright statement had to be developed this year in light of the ease of copying articles directly from the website and the general increased public and government clamor for ownership of intellectual property. The new copyright measures better define the rights of authors and ASLO and bring L&O in line with comparable scientific journals. On-line access of L&O for institutions remains a tricky transaction when so much of our revenue depends on library and other institutional subscriptions. To date, there are few scientific society publications that have given this access to institutions. Nonetheless, ASLO will soon come to some finality on this issue in order to maintain its leadership role in scholarly publications.

As always I greatly appreciate comments and discussion on making ASLO more responsive to its constituents. Please email, regular mail, or visit the office when visiting Washington, D.C.

MESSAGE FROM THE BUSINESS MANAGER

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New Year's greetings from your business office! We hope that the year 2000 went well for all of you. We enjoyed meeting many of you at the ASLO/AGU meeting last January in San Antonio and at the ASLO meeting last June in Copenhagen, Denmark.

2001 will be a very exciting one for ASLO. The Aquatic Sciences Meeting in Albuquerque will be truly stimulating and a great start for the new year. The scientific program and schedule have been finalized, and program brochures have been mailed as well as posted on the web site. ASLO will have a booth in the exhibit hall and also will be staffing the registration desk throughout the meeting, so be sure to stop by and introduce yourself to us. We always enjoy meeting you.

The dues renewal cycle is almost concluded for 2001. If you have not renewed by the time you receive your Bulletin, be sure to do so right away. Your member benefits stop with the start of the new year.

This year, you will have the opportunity to renew on-line, purchase the CD ROM containing past issues of Limnology &

Oceanography (Volumes 1 through 43), receive the ASLO directory, read the ASLO Bulletin either on-line or hard copy, and continue to be a part of one of the most exciting and important scientific societies around.

Remember, the ASLO business office is your service desk! If we can help you in any way, please be sure to contact us.

MESSAGE FROM THE WEB EDITOR

Paul F. Kemp, SUNY, Marine Sciences Research Center, Stony Brook, NY 11794 (Tel: 631-632-8796; Fax: 631-632-8820), kemp@ocean2.msrc.sunysb.edu; webeditor@aslo.org

The ASLO website has become the most publicly visible face of ASLO, and the web pages are now visited more than one million times annually, from 100,000 different locations.

Enter the words "limnology" or "oceanography" into any Internet search engine, and the ASLO website will be in the top 10 websites returned (out of as many as 180,000 total sites!).

Two thirds of the million annual visitors are from home users rather than from educational institutions, government agencies or other businesses. I believe this reflects the increasing tendency for the public to search for information on the web. The new reliance on web resources also provides great opportunities at the national and international levels for disseminating news, information, and education about limnology and oceanography issues to the public. I look forward to a very active year in which ASLO greatly increases the website content offered to the public as part of its continuing efforts to increase services to the aquatic sciences community and the public alike.

Of course, we will continue to increase the services offered to ASLO members including electronic publishing of Limnology and Oceanography and the Bulletin, email notification of the contents of upcoming issues as well as when new issues are posted online. The most exciting new development is the release of the L&O CD archive. This venture into electronic publishing is now well established with remarkably few problems reported, and about one-quarter of ASLO members now opt for electronic-only access to L&O. The CD archive contains the entire collection of L&O from the first issue in January 1956 through the end of Volume 43 in 1998. The complete collection includes 261 issues and four supplements, containing more than 6,300 separate published articles and nearly seven gigabytes of information. The archive is distributed on 11 CDs, plus an installation CD. Information about the archive is available on the website at www.aslo.org/aboutcd.html.

Other new ASLO web services include the implementation of an aquatic sciences database open to all aquatic scientists to facilitate better communication and provide a resource for finding particular expertise. In just a few minutes, you can fill out an online form and submit as much, or as little information as you wish to the database. Using your personal password, you can return to update your personal information at any time. The direct link for the ASDatabase is www.aslo.org/asd.html. Groups of aquatic scientists working in specific areas are welcome to request opening a sub-directory of the ASDatabase. For example, the Sensor Technol-

ogy Database is already online, serving the sensor technology and development research community.

We have greatly expanded the use of ASLO bulletin boards to provide information about jobs, funding and student opportunities. The ASLO Positions Offered Board (www.aslo.org/jobs.html) receives nearly 100,000 visits per year, and over 400 new positions were posted in 2000. The executive director, Jonathan Phinney, and his staff have been very actively promoting the use of the ASLO funding opportunities page (www.aslo.org/funding.html) to announce new opportunities for research funding.

Internship, postdoctoral positions, and research funding opportunities specifically directed to students are on the increase (www.aslo.org/studentops.html). The CareerLink Program, introduced at recent ASLO meetings by student representative Maggie Squires, is now online. Students submit information regarding their skills, training and professional interests to the CareerLink database using an online form (www.aslo.org/students/careerlink.html). This information will be passed to prospective employers, and students are encouraged to contact the student representatives (studentreps@aslo.org) to arrange to meet with potential employers during ASLO meetings. Another new service directed primarily at students is an online bulletin board to assist students (and others) to locate roommates for ASLO meetings. The Roommates Wanted Board (www.aslo.org/roommates.html) has been quite active and successful as students prepare for the upcoming Aquatic Sciences Meeting in Albuquerque.

The enormous increase in website usage prompted ASLO to introduce a mirror site that completely duplicates the information and services of the main ASLO website. The mirror location in New York may provide a faster connection for some than the Texas location of the primary site. Please go to the mirror site at www.aslo2.org, bookmark the site and feel free to use it instead of the main website, or in emergencies. The mirror website always contains the latest information, updated from the main web server every three hours.

Finally, the ASLO Business Office has implemented a number of new member services including online membership renewals and new memberships, online meeting registration, and online updates to your member information. During the coming year we expect to offer online balloting for those (like myself) who find it difficult to remember to return paper ballots on time. Please feel free at any time to make suggestions and requests for new services, by writing to webeditor@aslo.org or contacting me at ASLO meetings. I am always interested in hearing new ideas!

L&O STATUS REPORT

Everett Fee, Editor in Chief, and Lucille Doucette, ASLO Journals Manager, Limnology & Oceanography Editorial Office, 343 Lady MacDonald Crescent, Canmore, AB T1W 1H5, CANADA (Tel: 403-609-2456; Fax: 403-609-2400); lo-editor@aslo.org, lo-manager@aslo.org

This report describes how L&O has changed under our management, which began two and a half years ago. In addition, we announce new policies and procedures that affect L&O reviewers and authors, and clarify the distinction among different types of L&O papers, which is a common source of confusion for prospective authors.

Management of the Journal—The time that it takes a journal to publish papers is one of the first things that authors consider when deciding where to submit their work. From 1995 to 1997 L&O was mailed three to five months after the date printed on the cover, and the average “in press” time (from when the final version of a manuscript is received to when the issue that it appears in is mailed) was 8 to 14 months. These problems indicated that the L&O infrastructure needed a complete overhaul. We, therefore, immediately made a variety of far-reaching changes including: 1) contracting Allen Press, the journal printer, to copyedit L&O manuscripts (a job previously done by L&O staff); 2) consolidating all other editorial operations at the new L&O office in Canmore, Alberta (previously L&O staff were located in Seattle, San Francisco, and Delaware); 3) creating new proactive office software to continuously monitor the status of all active manuscripts (~400 at any given time). These fundamental administrative changes soon had the desired effects. **Since November 1998 L&O has been mailed in the month printed on the cover and the average “in press” time has stabilized at four months.**

Peer Review

Next we turned our attention to the other primary factor affecting publication time: peer review. Essentially, this involves finding reviewers and then getting them to deliver their reviews in a timely fashion.

When we started fewer than 65% of L&O review requests were accepted; at present, 80% are accepted. This increase is particularly satisfying because it occurred despite a 58% increase in the number of review requests sent. Some of this improvement resulted from simply following up on unanswered review requests. If someone does not answer an e-mailed request within three days, we send a fax. This has reduced the number of unanswered review requests from 11% to 3%. We do not ask anyone to do a review if s/he 1) has already done two L&O reviews in the previous 12 months, 2) has sent us an L&O review within the previous two months, 3) is presently reviewing another L&O paper (or has a pending request), or 4) has previously notified us that s/he cannot review for L&O (e.g., is retired, on sabbatical, or edits another journal.) Not asking anyone to do more than two L&O reviews per year spreads the reviewing workload more evenly; it also involves additional qualified people, thus ensuring that our editorial perspective on any topic is not overly influenced by any individual. We also explicitly invite experienced scientists to have post-doctoral or advanced graduate students assist with the review; this expands our reviewer database, brings more minds to bear on the paper, and trains new scientists in peer review.

Finding willing and qualified reviewers is only part of the battle; getting them to deliver is the other part. When we

started, we received 58% of reviews within six weeks of when manuscripts were mailed for review; at present, 81% arrive within this time. This improvement occurred immediately after we began sending e-mail messages three weeks after mailing manuscripts for review requesting confirmation that the manuscript was received and that the review will be done on time. We are also making progress in reducing the number of very late reviews. Following up promptly on overdue reviews by telephone has reduced the number that we receive nine or more weeks after the manuscript was mailed from 12% in mid-1998 to 3% now.

The net effect of these new procedures is that L&O's average "in review" time (from when we receive a new manuscript to when the first decision letter is sent) has dropped from 4½ months in mid-1998 to 2½ months now—despite a whopping 93% increase in the number of reviews since we started. Electronic manuscript submission should lead to further improvement because it allows us to send papers to reviewers as e-mail attachments (see the website aslo.org/lo/msprep.html#Submissions for details about submitting L&O manuscripts electronically). Unfortunately, getting manuscripts to reviewers faster does not ensure prompt delivery of reviews. Indeed, late reviews continue to consume an inordinate amount of our time and attention and cause undue stress to authors waiting to learn the fate of their papers. To significantly improve L&O's peer review further we therefore need your help. Please accept our review requests and deliver your reviews promptly.

Policy Changes

One of our first policy changes was to eliminate the so-called "fast-track" (FT) review option. L&O records showed no difference in publication time between FT papers and manuscripts reviewed normally because virtually all successful FT manuscripts were granted an exception to the explicit rule that FT papers could not undergo major revision and re-review. FT review also created a lot of confusion and frustration by raising expectations unrealistically for both authors and reviewers.

We have also substantially expanded the size of the L&O editorial board. There were 14 associate editors in mid-1998, and 28 now (see aslo.org/lo/masthead.html for a list of current associate editors). This increase successfully addressed two problems: 1) we were receiving submissions in specialized topics that none of the associate editors felt comfortable handling and 2) there was too much work for 14 associate editors.

As a precondition for initiating peer review, the corresponding author must confirm, in writing, that applicable publishing charges will be paid if the paper is eventually published in L&O; these charges are detailed on the website aslo.org/lo/msprep.html#PublicationCharges. Further, prior to actual publication, the corresponding author must sign a publishing agreement granting copyright to ASLO. This form is also available on the website aslo.org/forms/copyright.pdf.

Our success in reducing L&O's time to publication has resulted in a huge increase in new submissions, from 372 in 1997 to ~550 in 2000! Because L&O's maximum size is fixed

(2000 pages per year) there are only a few ways that we can cope with this embarrassment of riches: 1) Narrow the scope of the journal. L&O has a long-standing editorial policy of not publishing laboratory or modeling papers that do not demonstrate relevance to natural environments. More recently, this policy has been extended to papers that focus exclusively on methodology; i.e., that do not provide data giving significant new insights into the functioning of aquatic ecosystems. 2) Increase the rejection rate, which is currently ~65%. 3) Reduce the average size of accepted papers. **The associate editors made a collective decision to try to avoid increasing the rejection rate by doing more work to reduce the average size of accepted papers.** Long tables are now being archived the L&O website (see below) rather than in the journal, and we are looking much more closely at figures and references to ensure that all are really necessary. We ask authors to assist our efforts to hold the line on rejection rates by submitting tighter, more focused manuscripts.

Electronic Publication

For the past two years L&O has been published in full on the web. Further, a CD-ROM archive of volumes 1–43 (1956–1998) will be available very soon. (See the website aslo.org/aboutcd.html for details). We also support user-subscribed mailing lists for automatic notification whenever a new table of contents or the .pdf files of a new issue are posted. Full details about these very popular services are available on the L&O website aslo.org/lo. (Click the "Mailing Lists" button and follow the links.)

One of our ventures into electronic publishing did not work out entirely as planned. Since May 1999 occasional L&O papers have been pre-published on the web. Each such "featured" paper is accompanied by a brief informal introduction discussing the significance of the paper; initially there was also a web-based discussion forum for each paper that made it easy to contribute comments about it. While these "featured" articles were extensively downloaded, there was virtually no on-line discussion. Therefore, although we will continue to feature exceptionally interesting L&O papers on the web (for complete details, see the website aslo.org/lo/lo-feature/), we no longer support on-line discussion of them.

Manuscript Types

Comments are essays (i.e., points of view) about papers published in L&O or a scientific issue of interest to our readers. They are not the proper place to report the results of new research. New research results should be submitted as a Note or Article rather than as Comment—regardless of whether the discussion of any new data focuses narrowly on an already published L&O paper.

Articles usually treat several related hypotheses and supporting data whereas Notes focus narrowly on a single issue and occupy fewer than 6 printed pages (submitted manuscripts should not exceed 20 pages of double-spaced, 12-point font; figures and tables should not exceed 6, must be submitted one per page, and are counted in the 20-page limit). Reviewing standards for Notes and Articles are the same. In order to save

space, Notes lack the standard headings (Materials and Methods, Results, Discussion) of Articles, using instead topical subheadings when that structure is helpful to guide the reader. Nevertheless, the underlying organization of a Note should be the same as in an Article.

Conclusion

We are pleased with the current status of L&O. In particular, the sharp increase in new submissions is a gratifying vote of confidence from the aquatic science community that bodes well for the future.

We could not have made so much progress in such a short time without the strong and enthusiastic support of our many colleagues at Allen Press and throughout the scientific community. We particularly thank Paul Kemp (the ASLO Web Editor), the L&O Associate Editors, Sharon Kindall (the L&O representative at Allen Press), Dave Kirchman and Pete Jumars (former L&O Editors-in-chief), and the ASLO Board, for giving us a free hand to "do it our way."

If you are interested in finding out more about new initiatives in scientific publication and L&O's role in this rapidly evolving subject, we invite you to participate in Special Session 29, "Aquatic Information Transfer in a Digital Millennium," at the 2001 ASLO Aquatic Sciences Meeting in Albuquerque.

MINORITIES PROGRAM 2000: REPORT ON THE COPENHAGEN MEETING

Dr. Ben Cuker, Hampton University, Dept. of Marine and Environmental Science, Hampton, VA 23668 (Tel: 757-727-5884, Fax: 757-727-5740); benjamin.cuker@hamptonu.edu

The 12th annual ASLO Minorities Program convened at the 2000 Aquatic Sciences Meetings in Copenhagen, Denmark. This program seeks to increase the diversity of students planning careers in the aquatic sciences. Some 48 students and 14 mentors participated this year representing 28 different colleges and universities from across the U.S. including Puerto Rico.

Program highlights included a field trip to the marine station at Helsingor and the Freshwater Biological Laboratory of the University of Copenhagen, a keynote address by Dr. Henry Williams, a tour of the city by canal boat, and the student symposium. Over twenty students gave presentations in the regular sessions, and a like number presented in the separate student symposium.

Thanks to the efforts of Dr. Susan Weiler, this year's program included over 20 graduate students. The program has been consistently supported by NSF (Oceans), and additional funds from NOAA were found to support graduate students. In her position as co-program director, Sue also organized special activities for the graduate students, including workshop to address graduate-student issues and a presentation on the history of minorities in the aquatic sciences prepared by Dr. Ambrose Jearld and presented by Dr. Carol Daniels.

Much of the success of this year's program came from the outstanding efforts of the local organizing committee, led by

Dr. Morten Søndergaard. Morten and his colleagues worked with DIS, the professional meeting staffers, to meet all of the needs of the program with splendid Danish hospitality.

Special thanks go to those ASLO members who served as mentors for the students including Brian Bingham, Carol Daniels, Doretha Foushee, Matthew Gilligan, Dionne Hoskins, Ambrose Jearld, Ashanti Sune' Johnson-Pyrtle, DeLois Powell, Hector Quintro, Carlos Robles, Miguel Sastre, Sue Weiler, Henry Williams, David Wynne and Edwin Cruz-Rivera.

Members interested in recommending students for future programs, or wishing to volunteer to be meeting-mentors, should contact Dr. Ben Cuker at: benjamin.cuker@hamptonu.edu.

MESSAGE FROM THE STUDENT REPRESENTATIVES

Maggie Squires, Dept. of Geography, Simon Fraser University, Burnaby, BC, Canada V5A 1S6 (Tel: 604-291-5633, Fax: 604-291-5841); msquires@sfu.ca

Student Rep: Two Sides Of The Job

About three years ago, I answered a request for volunteers to run for the position of student member of the ASLO board of directors, and about a year later, I attended my first board meeting in July in Washington, D.C. I now receive what I at first thought was an awful lot of reading material to assimilate especially since it is generally the height of my field season in the Canadian Arctic. I read a dozen reports from committees and others, as well as participate in email votes on administrative issues such as new L&O associate editors, a new Bulletin editor, a new copyright statement even before boarding a plane to attend the two-day board meeting.

I find that there are two distinct components of serving as a board member. First, student board members represent the interests and perspective of student members of ASLO in discussions and voting on current issues that ultimately affect the entire society. A more direct facet of the job is providing services to students, especially at ASLO meetings. These responsibilities involve both fostering initiatives of previous student representatives, as well as developing new services. Here are two examples of issues that the student reps currently offer to student members and are based on the level of responses from student members: 1) reducing the cost of attending meetings; and 2) facilitating the transition from student to professional.

To help lower the cost for students attending Aquatic Sciences Meeting, ASLO now offers a free online Room-mates Wanted service. In addition, reasonably priced hotels and motels are included as part of the block of rooms reserved for attendees at meetings.

To help students get connected to future employers, the CareerLink Program was instituted at the Copenhagen meeting in June 2000. There has been strong interest in this program from both students and professionals. The CareerLink Program also provides space for posting jobs at the ASLO booth during meetings, and resumes may be posted in a binder that is available for perusal during meetings. More details are on the ASLO website.

In addition to maintaining established programs, it is desirable to continue to evaluate the needs of the society and the needs of students. **To initiate this process, a student meeting will held during the Aquatic Sciences Meeting in Albuquerque and will provide a forum for the exchange of ideas and suggestions among students. Participants include L&O editor Everett Fee who will give tips for getting published (a subject dear to every student's heart), ASLO board member Mandy Joye who will give pointers about communicating science to policy makers, and ASLO executive director Jonathan Phinney who will provide an overview of ASLO's public policy activities in the U.S capital.**

I would like to close on a personal note and discuss the benefits of serving on the ASLO board as a student representative. It is both exciting and educational to be involved in the governance of a society led by a community of scientists. Exciting because the society is a dynamic amalgamation reflecting the interests and experience of the individual board members. Educational because the decisions made collectively by the board are deliberate steps towards the advancement of scientific understanding and linking scientific knowledge and public policy. It is also a great way to meet very prominent aquatic scientists who are passionate about the future of science and ASLO.

I strongly encourage student members of ASLO to take advantage of the opportunity to serve on the board of directors.

ASLO 2001 AQUATIC SCIENCES MEETING

Aquatic Sciences (ASLO) 2001 Meeting: Making Connections In The Twenty-First Century

The 2001 Aquatic Sciences Meeting (ASM) will be held in Albuquerque, NM, USA, February 12-16, 2001. We have an exciting venue and a full slate of scientific and recreational events planned. These are all described below and on the ASLO website (<http://www.aslo.org/albuquerque2001/>).

More than 1200 abstracts were received and scheduled during the meeting, and another couple of hundred people also have registered to attend. We expect well over 1500 conference participants based on previous year's experience. Please remember to register for conference and any optional events and make your hotel reservations as soon as possible. Thanks for continuing to help make the 2001 ASM a success. We look forward to seeing you in February.

Conference Co-Chairs:

Joe Ackerman (UNBC) and Saran Twombly (URI)

Organizing Committee:

Marlene Evans (NHRI), Paul del Giorgio (HPL), Dian Gifford (URI), Paul Harrison (UBC), George Jackson (TA&M), Thomas Kiørboe (DFU), Timothy Kratz (Wisconsin), David Lean (Ottawa), Doris Soto (Escuela de Pesqueras), Shin-ichi Uye (Hiroshima), Percy Washington (GAIA NW), Paul Wassmann (Tromso)

Ex-Officio Committee:

Asit Mazumder (UVIC), Jonathan Phinney (ASLO), Helen Schneider Lemay (ASLO)

Scientific Program & Activities

The conference will open with the Awards Ceremony to recognize outstanding ASLO members with awards such as the Lifetime Achievement Award, G. Evelyn Hutchinson Award, the Ruth Patrick Award, and the Lindeman Award.

Plenary speakers will highlight each of our conference subthemes:

As limnology and oceanography enter the 21st century, there is increasing focus on making connections within and among:

- (1) **Environmental systems (Bo Barker Jorgensen, Max Planck Institute for Marine Microbiology);**
- (2) **Spatial and temporal scales (Mary Power, UC Berkeley);**
- (3) **Disciplinary approaches (Mimi Koehl, UC Berkeley);**
and
- (4) **Science and society at local, regional and international levels (David Schindler, U of Alberta).**

A total of 45 Special Sessions have been organized to cover a wide range of subjects associated with the conference themes ranging from Microbial Genomics, C:N:P Stoichiometry, and Harmful Algal Blooms to five different sessions related to Biomechanics. (See the website for the complete list.) We have tried to minimize the overlap of special and contributed sessions of similar topics to provide everyone the fullest slate of papers possible from the first paper on Monday morning to the last paper on Friday at 12:15 p.m.

Twenty-five Contributed Sessions have been organized on interdisciplinary topics reflecting the diversity and strengths of the ASLO membership. Some of these sessions are organized around particular taxa (e.g., Bacteria, Fish & Fisheries) and environments (e.g. Coral Reefs, Streams), while others are organized by process (e.g., biogeochemistry, benthic-pelagic coupling) or approach (e.g., Remote Sensing and Technological tools).

The posters presentations have been organized into 19 clusters reflecting the connections between the various special and contributed sessions. **While the presenters will be at their posters during the designated session period (Poster Session Receptions: Tuesday through Thursday 5:00 –7:00 PM), the posters will be on display all week long.** This should provide ample opportunity for exposure and interaction beyond the scheduled session time. ASLO also will present several awards for the most Outstanding Student Posters to ASLO members who are first authors on research that has not been presented previously at ASLO or other scientific meetings.

Six Workshops have been organized for the conference. Three pre-conference workshops will take place on Sunday afternoon. These include: (1) Use of Remote Sensing in the Aquatic Environment; (2) Mass Spectrometry and the Aquatic Environment; and (3) Jane Butel's Cooking School. Please note that advanced registration is required, as space is limited for these workshops. We will also have three informal workshops on Tuesday evening after the Poster Reception. These workshops are open to all interested conference participants. They include: (1) Flow Cytometry Workshop; (2) Popular Science Communication; and (3) Autonomous Microprofiling (SCAMP) Users Workshop.

In addition, the Committee on Under-Represented Minorities in Limnology and Oceanography (CURMLO) will hold its 13th annual program. This is an exciting opportunity for minority students to meet and interact with aquatic scientists. For more information and updates, please see the conference website.

We will also be focusing on a number of other Student Activities including (1) ASLO's Career Link Program for people searching for a graduate program and/or a job; (2) a Roommates Wanted Bulletin Board to help find roommates for the conference; and (3) a Student Meeting on Monday at 6:30 PM. If you are a student, please plan to attend the brief meeting and support the student activities. More information is on the conference website and will be available through the ASLO booth located in the exhibit area.

Social Program & Activities

As usual, we will hold a number of exciting conference activities for your enjoyment. These include:

- (1) Opening Welcome Mixer Reception on Sunday afternoon;
- (2) Awards Presentation on Monday morning;
- (3) Annual Business Meeting on Monday;
- (4) Optional Wednesday Evening Reception at the New Mexico Museum of Natural History and Science;
- (5) Plenary Addresses each morning (Monday through Thursday);
- (6) Extended 30-minute Coffee Breaks after each plenary address to provide an opportunity for interaction and making personal connections among friends and colleagues;
- (7) Poster Sessions and Receptions on Tuesday, Wednesday, and Thursday evenings; and
- (8) Dance on Thursday night with live music provided by the Aviator Papa.

Be sure to register for the optional events as soon as possible as space is limited.

Special Activities

We have a number of exciting special activities planned in and around Albuquerque and environs that are available before and during the conference. These include: Indians Past and Present; A Day in Santa Fe, Rising Above the Rest, Lunch with the Llamas, and Monday Dinner with a Bird's Eye View. Be sure to sign up for these activities before January 29, 2001. Of

special interest are the low cost self-guided tours of: American Indian Cultural Tour, Nature Tour, Science and Technology Tour, Arts Tour, Frontier and Spanish Colonial Tour, Western New Mexico Tour, Mission Ruin Tour, Sandia Mountain Tour, and Jemez Mountain Tour. For more details, see the Call for Papers and on the ASLO conference website (www.aslo.org/albuquerque2001).

Accommodations

We have arranged housing for participants of the 2001 Aquatic Sciences Meeting at a wide variety of hotels ranging from \$50 to \$140 per night. We also have arranged shuttle service and Hospitality rooms that will be set up in the designated conference hotels to provide you with a place to relax, meet with colleagues, and continue conversations with others attending the meeting. Please be sure to register at a designated ASLO 2001 conference hotel through the housing bureau. The deadline is January 10, 2001.

Lunch and Dinner Dining

The convention center is located in beautiful downtown Albuquerque and is close to food courts and restaurants of all types. We are also planning to have shuttle buses to help people connect at dinnertime on Monday and Tuesday nights (remember the museum reception on Wednesday and the dance on Thursday). These will focus on different Albuquerque local flavors found in Old Town and the Nob Hill areas. More information will be available in the program, on-site in Albuquerque, and on the ASLO web (www.aslo.org).

Registration and Fees

Please visit the web site for more information <http://www.aslo.org/albuquerque2001>. Registration Fees: before January 10, 2001: \$ 225.00 US (members), \$ 300.00 US (non-members) and \$175.00 US (students). After January 10, 2001: \$ 275.00 US (members), \$ 350.00 US (non-members) and \$225.00 US (students). One-day registrations: \$95 US, Spouse/Guest: \$50.00 US, which includes the Sunday welcome reception, poster receptions, and the dance on Thursday evening.

Student Poster Judges

Please consider volunteering as a judge for the Outstanding Student Poster Awards. Please contact the ASLO business office for additional information (business@aslo.org; Tel: 254-399-9635 or 1-800-929-2756 [United States, Canada, and the Caribbean]; Fax: 254-776-3767).

Contacts

More Information and Logistics: ASLO Business Office: Tel: 254-399-9635 or 1-800-929-2756 [United States, Canada, and the Caribbean]; Fax: 254-776-3767, and email business@aslo.org.

Scientific Program Issues: Joe Ackerman, ASLO 2001 co-chair, University of Northern British Columbia, Prince George, BC, CANADA V2N 4Z9, Tel: 250-960-5839, Fax: 250-960-5539, ackerman@unbc.ca or Saran Twombly, ASLO 2001, co-chair, University of Rhode Island, Kingston, RI, USA 02881-0816, Tel: 401-874-2609, Fax: 401-874-4256, twombly@uri.edu.

OVERVIEW AND CURRENT STATUS OF U.S. EPA NUTRIENT CRITERION GUIDELINES FOR SURFACE WATERS AND WETLANDS

David A. Flemer, U.S. EPA, Ariel Rios Bldg. 1200 Pennsylvania Ave., NW (4304), Washington, D.C. 20460 (Tel: (202) 260-0619, Fax: (202) 260-1036); flemer.david@epa.gov

The “greening” of the nation’s waters is a long-standing problem and is national in scope. A recent report by the National Oceanic and Atmospheric Administration (National Eutrophication Assessment, 1999—<http://spo.nos.noaa.gov>) concluded that 82 of 122 estuaries included in the assessment experienced moderate to high expressions of eutrophic conditions. This and other published information confirms the EPA decision to move forward on the nutrient problem. If current trends in demographics and land use continue around the coasts, then freshwater supplies required to maintain salinity regimes in estuaries may increase in importance and exacerbate water quality problems as seen in San Francisco Bay. Estimates now place approximately 75-80 percent of the U.S. population within 75 km of a coast by the year 2010. Negative effects of nutrient over-enrichment have continued over the decades in spite of the Federal Water Pollution Control Act of 1972, the Clean Water Act (CWA) of 1987, as amended, and Federal and State programs designed to intervene and stem the tide of increased nutrient loading to aquatic ecosystems.

The nutrient enrichment problem also has global dimensions. For example, the European Union has developed an initiative to address nutrient enrichment, and a Directive on this topic will be published soon. The media has picked up on the potential of dust storms that originate in Africa providing nutrients as a stressor to Caribbean coral reef communities. Atmospheric nitrogen deposition has become another important nonpoint nitrogen pathway with negative consequences especially for coastal waters.

Environmental managers look to scientists to help answer the “what if” questions and nutrient criteria embody a range of “what if” questions. The need is especially critical now, as nutrient effects must be distinguished from other stressors. ASLO members have traditionally contributed to the “what if” questions, especially peer reviewed papers on factors influencing nutrient cycling and other basic science topics relevant to nutrient enrichment. The Society held an early symposium on “Nutrients and Eutrophication” and published the proceedings as the first special volume of *Limnology and Oceanography* in 1972. Other special volumes of *Limnology and Oceanography* (e.g., Volume 33 (4), Part 2)-Comparative Ecology of Freshwater and Marine Ecosystems) and regular issues continue to include highly relevant papers on the subject of eutrophication.

While ASLO scientists have often lead in developing the science behind eutrophication, most members are likely unaware of the recent U.S. Environmental Protection Agency (EPA)-led Federal initiative designed to assist States and authorized Tribes in development of numeric or quantifiable nutrient criteria. Nutrient problems are complex and there are

scientific uncertainties and important economic and political dimensions. Water quality criteria, of which nutrient criteria is a subset, must resolve somewhat antagonistic public desires for waterbodies such as boating, swimming, aesthetics, commercial and recreational fishing, water-borne commerce, and in the case of fresh waters, drinking water protection, and irrigation. In spite of the somewhat conflicting water uses, the CWA has an ultimate goal of no pollution and an interim goal of “fishable and swimmable.” Congress has left the definition and specific application of “fishable and swimmable” to EPA and States/Tribes.

The terms water quality criteria and water quality standards are sometimes used interchangeably but incorrectly in the media. Nutrient criteria provide the scientific basis for establishing the cultural aspect of nutrient-based water quality impairments, but by themselves are not enforceable by law. When water quality criteria are adopted by States into their standards they become enforceable by law. Standards must include three elements to ensure water quality protection: (1) designated waterbody uses, (2) criteria to protect those uses, and (3) an anti-degradation policy—i.e., no downgrading of designated or existing uses is allowed. Nutrient standards must contain these three elements and may include statements of economic considerations. To date, most States have only narrative nutrient standards which EPA has concluded do not provide adequate objective benchmarks by which to establish nutrient standards or assess and monitor nutrient pollution in the Nation’s waters. In particular, EPA’s position is that anthropogenic-based causal nutrients (e.g., total nitrogen, total phosphorus, and possibly iron in some coastal waters) should be quantified, not just “response” variables (e.g., algal compositional changes, increase in chlorophyll a as an indicator of algal biomass production, seagrass loss from algal shading, and dissolved oxygen deficiency).

Although national in scope, the extent and remediation of nutrient pollution in the U. S. varies from one region of the country to another due to a variety of factors including geomorphology, soil types, climate, hydrodynamics, and biology. EPA recognizes the considerable inherent natural variability in nutrient levels and nutrient responses in various water body types throughout the country. To accommodate regional differences, EPA is developing nutrient criteria on a water body type (rivers and streams, lakes and reservoirs, estuaries and wetlands) within a series of ecoregional for use by States and authorized Tribes. Estuaries and coastal waters have rather unique features and current classification systems may not substantially allow for aggregation into classes for criteria development. Additional progress on estuarine and coastal waters classification would be helpful.

Five factors are recognized as major “drivers” of the Nutrient Criteria Program. They are:

- 1) President’s Clean Water Action Plan published in 1998,
- 2) EPA Office of Water’s Criteria and Standards Plan,
- 3) Government Performance Results Act (GPRA),

- 4) EPA's National Strategy to Develop Regional Nutrient Criteria published in 1998 (available on the cited web page below, and
- 5) Thousands of outstanding court-ordered Total Maximum Daily Load cases involving nutrient impairment of the Nation's waters.

The "drivers" provide the legal and policy basis for EPA to develop and implement the National Nutrient Program.

The National Strategy for the Development of Regional Nutrient Criteria was published in June 1998 (EPA 822-R-98-002) and is available on the web page below as are technical guidance manuals. **The major elements of the strategy include:**

- Establishment of an EPA National Nutrient Team with Regional Nutrient Coordinators to develop regional nutrient databases and to promote State and Tribal involvement in the program.
- Grants and contracts are used to fund data collection and analyses.
- Use of a regional and waterbody-type approach for development of nutrient water quality criteria.
- Monitoring and evaluation of the effectiveness of nutrient management programs conducted by States/Tribes as they are implemented.
- Development of waterbody-type technical guidance manuals that will serve as "user manuals" for developing region-specific nutrient criteria to control over-enrichment.

The following nutrient criteria manuals have been published or are under development:

- 1) Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs, First Edition, EPA Office of Water, Office of Science and Technology, Washington, DC, 20460, April 2000, EPA 822-B00-001.
- 2) Nutrient Criteria Technical Guidance Manual: Rivers and Streams, EPA Office of Water, Office of Science and Technology, Washington, DC, 20460, July 2000, EPA-822-B00-002.
- 3) Nutrient Criteria Technical Guidance Manual: Estuaries and Coastal Waters, EPA Office of Water, Office of Science and Technology, Washington, DC, 20460, draft under development and available for public comment by December 2000.
- 4) Wetlands Nutrient Criteria Technical Guidance Assessment Manuals: Methodologies. Under development with public availability for comment by December 2000.

States and authorized Tribes also may develop criteria using other scientifically defensible methodologies. List below are relevant resources and a brief description.

- 1) Waterbody Classification- This is important because it can minimize variability within a class and maximize variability among classes. The Agency's approach uses the EPA Corvallis Laboratory's ecoregion approach for freshwater systems. Estuaries and coastal waters have rather unique attributes and classification to date has offered limited utility.

- 2) Database-The EPA Legacy STORET database (1990-1998) required careful quality assurance and quality control work on the part of State technical personnel. EPA personnel determined that older STORET data had more problems than the more recent data. Duplicate data were eliminated and some variables were identified by several descriptors and methodologies (e.g., chlorophyll a). The USGS National stream monitoring databases and additional State data supplements the core database. Other electronic databases would be desirable.
- 3) Criteria Variables- The EPA is requiring States/Tribes to include, as a minimum, total nitrogen, total phosphorus, chlorophyll a, and a measure of water clarity (e.g., Secchi disc measurements). EPA encourages States/Tribes to broaden the list of criteria where additional cause and response variables are applicable. For shallow streams, periphytic chlorophyll a data are important but few such data are available in STORET. Macrophytes are handled as a special case.
- 4) Reference Conditions- Three approaches are identified in establishing reference conditions: (1) direct observation (data collection) of sites which may take two forms: (a) professional judgment and history indicates sites which are minimally impaired and qualify as reference sites, (b) observation (data) of an entire population of lakes or stream reaches, (2) paleoecology or reconstruction of past conditions, and (3) model-based prediction or extrapolation of reference conditions from related data sets or knowledge. For estuaries and coastal waters, the approach depends heavily on historical knowledge of waterbody data, watershed characteristics, and loading estimates from the principle tributaries.

By December 2003, EPA plans to publish 17 nutrient criteria documents in the Federal Register (see web site below) for public comment (e.g., 8 for lakes and reservoirs, 8 for rivers and streams, and 1 for a wetland located in south Florida Everglades) within specific geographic regions (ecoregions) of the U.S. These criteria recommendations were developed with the objective of reducing and preventing eutrophication on a National scale. This information is intended to serve as a starting point for States and authorized Tribes to develop more refined nutrient criteria as appropriate using EPA water body-type technical guidance manuals and other scientifically defensible approaches. EPA is committed to updating the documents in the future as new scientific information becomes available. Additional information on the nutrient criteria program is available on the EPA-Office of Water web page: www.epa.gov/ost/standards/nutrient.html.

The EPA holds annual technical program and stakeholder informational meetings that are announced on the web site and in various newsletters. Regional Technical Assessment Groups also hold similar annual meetings and may hold technical meetings more frequently as required. Public participation is encouraged and critical to the process.

BOOK AND CD-ROM REVIEWS

EUPHAUSIID OF THE WORLD OCEAN CD-ROM

Authors: Edward Brinton, Mark D. Ohman, Annie W. Townsend, Margaret D. Knight and Amy L. Bridgeman

Reviewed by Robin Ross, Univ. California, Santa Barbara, California, USA

“Euphausiids of the World Ocean” is a CD-ROM monograph on the order of Euphausiacea that was issued by the Expert Center for Taxonomic Identification (ETI) at the University of Amsterdam as part of the World Biodiversity Database CD-ROM Series. “Euphausiids of the World Ocean” was produced at Scripps Institution of Oceanography by a well-known group of euphausiid biologists. This CD-ROM is an exhaustive source of information on the identification and distribution of euphausiids, with enough tidbits on the ecology and behavior of different species to keep all those interested in the world of these “brightly shining” creatures intrigued. Any marine biology library and zooplankton scientists should own this CD-ROM. Experts and neophytes alike will learn about the taxonomy, biogeographic distribution and larval development of the 86 species of euphausiids. For this review a recent undergraduate delving into zooplankton identification for the first time, a technician with extensive experience sorting zooplankton, and I all found this CD-ROM well organized, informative and easy to use.

Once the program is started, the Navigator window shows a series of icons identifying each section of this reference work. For the neophyte a brief Introduction, a module in the Identify It key shows the differences between euphausiids and other shrimp-like crustaceans, and a section called Higher Taxa provide general information and an explanation of the evolution of euphausiids and their affinities with other higher taxa. The Species section contains a ‘card’ for the adults and juveniles of each of the 86 species that includes a morphological description, distinctive characteristics, size and notes on its ecology and horizontal and vertical distributions. Detailed drawings of specific characteristics are identified with a camera icon. Video clips are available for some species of bioluminescence during swimming or aggregation behavior. All illustrations are listed under the multimedia tab on the species card, and can be brought up independently. If a term is unfamiliar, a click to a hot link brings up a definition, and a click on the camera icon brings up a well-executed diagram. For 70 of these species, the Larvae section contains a species card with a wealth of information on larval morphology, development, and size with complimentary illustrations of selected stages. This section is of particular interest to the experts, and is an invaluable synthesis by M. D. Knight of both published research, and her own unpublished files.

There are two sections available for identification of an unknown euphausiid - Picture Key and IdentifyIt. As the name implies, Picture Key is an identification key based on making choices between illustrations. Backtracking to make a different choice is easy, and a click on unfamiliar taxonomic terms

brings up the glossary with a succinct definition and illustration. IdentifyIt is an especially clever taxonomic key based on a character and state matrix. With an unknown specimen under the microscope to the left of the computer, the investigator opens the Euphausiid species file. On the left is a window for the character and its state, on the right a window with all 86 species listed. One adds a series of descriptive characters and their states to the left window, and the match of that suite of characters to each species is calculated. A perfect match of 100% identifies the species. The long list of characters includes geographic distribution, eye shape, rostrum, photophore distribution etc, with appropriate states to choose depending on the specimen. I found this section elegant, informative and the most efficient zooplankton key I have ever used.

The MapIt section is a grid-based (10° latitude by 10° longitude) biogeographical system that allows one to examine the distribution of a particular species, compare the distributions of two species pixel by pixel, or find what species have ever been found or might have been found in a specific pixel. A “fuzzy” search will also allow one to expand the range of the search to pixels surrounding the one identified. Once the species found in a particular area have been identified, the detailed distribution of those species can be examined - a biogeographer’s dream! The other sections, Glossary (104 terms), Literature and Index can be examined independently or through the text hyperlinks in the species cards or taxonomic keys or biogeographical database.

NONTRADITIONAL CAREERS IN SCIENCE: RECENT GUIDEBOOKS LEAD THE WAY

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For the past several years, the scientific press has been filled with headlines about overproduction of scientists, and growing unemployment and underemployment of researchers. As a result, science fields are filling up with more and more young investigators who are highly qualified and trained, yet are struggling to find permanent positions in university-based research. However, there are many unrecognized and fulfilling choices, in “nontraditional” or “alternative” careers in science.

For those interested in these options, the first question is usually: Where to begin? At best, most graduate (and undergraduate) science programs briefly touch on options other than the traditional university-based research track, if these choices are mentioned at all. For those contemplating alternative ways in which they might make a contribution to science, and searching for a place to begin this process, help has arrived in the form of several recent books on the subject.

The newest of these volumes, Karen Young Kreeger’s, *Nontraditional Careers in Science*, (Taylor & Francis Press, 1998), is endorsed by the American Institute of Biological Sciences. Although Kreeger focuses on biology fields, the

information she presents is easily extrapolated to any other field of science. In individual chapters on various career choices from science education to bioinformatics, Kreeger interviews practitioners in nontraditional fields. In their own words, science educators, bioinformaticists, and others give the reader a sense of what it's like to work in these fields, what additional preparation might be needed, and how they accomplished the "mindset switch" often needed for a successful career that takes an alternative path. In each career-specific chapter, Kreeger presents information on relevant professional societies, education and training programs, and job-hunting and networking outlets. "Often you don't know the backgrounds of those with whom you work and interact," the book maintains. "There are scientists in places you may never have expected." *Nontraditional Careers in Science* provides guidance on making that first move into seemingly uncharted territory.

For those with more of an earth sciences bent, Peter Fisk's, *To Boldly Go: A Practical Career Guide for Scientists* (American Geophysical Union, 1996) is an excellent guide to alternative careers. This important resource has been updated under a new title: *Put Your Science to Work: The Take-Charge Career Guide for Scientists* (AGU, 2000). It is a book about creating options and recognizing opportunities, two of the most important aspects of a successful nontraditional science career. Fisk cites the many transferable skills scientists have acquired, from conceptualizing complex projects, to working with the committee process, to problem solving. Like Kreeger's book, Fisk's guide contains a section in which successful "alternative careerists" are interviewed about their experiences. In addi-

tion, this book includes resume case studies, cover letter examples, interview suggestions, and ideas on how to make the most of opportunities.

In the aquatic sciences, two shorter, but nonetheless excellent, guides to career opportunities are available: *Careers in Oceanography and Marine-Related Fields* (The Oceanography Society, 1995), and *Marine Science Careers: A Sea Grant Guide to Ocean Opportunities* (University of Maine/University of New Hampshire/Woods Hole Oceanographic Institution Sea Grant College Program, 1996). The latter features interviews with some 40 individuals working in various marine science areas. The former has an extensive source list of information on careers in this field.

Lastly, one of the first such guidebooks remains one of the best—*Outside the Ivory Tower: A Guide for Academics Considering Alternative Careers* by Margaret Newhouse (Harvard University Office of Career Services, 1993). It tackles all areas of science, giving a mini-tour of nonacademic careers and demonstrating how the process of exploring alternative careers might work. **In line one of chapter one, Newhouse sums up what may be the most important point about alternative science careers. "Know thyself. To know yourself is, of course, the task of a lifetime, but it is also an essential first step in exploring alternative careers."**

All five of these publications will help the nontraditional science career-seeker answer the essential question: How do I discover what is out there that matches who I am, and what I'd like to do with my life?

RECENT AWARDS TO ASLO MEMBERS

Dr. Stephen R. Carpenter, Halverson Professor of Limnology and Professor of Zoology at the University of Wisconsin-Madison, USA was awarded the 2000 ECI Prize in limnetic ecology. The ECI (International Ecology Institute, Germany) Prize is awarded to an ecologist distinguished by outstanding and sustained scientific achievements. Dr. Carpenter received the 2000 prize for his demonstrations of the role of fish in controlling lake productivity and nutrient cycling, which has brought whole-ecosystem experimentation to a new level of sophistication.

Dr. Ruben Sommaruga, Associate Professor, University of Innsbruck, Institute of Zoology and Limnology, Austria, received the ECI's IRPE prize in the field of limnetic ecology. The IRPE Prize (International Recognition of Professional Excellence) honors a young ecologist (not older than 40 years)

who has published uniquely independent, original and/or challenging research representing an important scientific breakthrough, and/or who must work under particularly difficult conditions. Dr. Sommaruga is known for his scientific contributions to two fields, microbial ecology of hypertrophic lakes, and UV-photobiology.

Dr. William Jenkins is the 2000 recipient of the A.G. Huntsman Award, established by the Canadian marine community (Fisheries and Oceans Canada, Natural Resources Canada, Province of Nova Scotia, Canadian Assn. of Petroleum Producers). The award recognizes excellence in research and outstanding contributions to marine sciences. Dr. Jenkins received the award for his work on developing the tritium-helium dating technique and its application to ocean circulation, mixing, and productivity studies.

JOBS AND CALENDAR OF EVENTS

For a jobs listing, visit the ASLO jobs page at www.aslo.org/jobs.html. Submit job advertisements via the interactive form at www.aslo.org/forms/jobform.html

For a list of upcoming events, please go to <http://aslo.org/calendar.html>

If you would like to submit an event listing, you can do so directly by using the online form section.

ASLO MEETINGS

SPECIAL CONFERENCE ON PHYTOPLANKTON PRODUCTIVITY: AN APPRECIATION OF 50 YEARS OF THE STUDY OF PRODUCTION IN OCEANS & LAKES

March 18-22, 2002, University of Wales, Bangor, UK

The Conference

The year 2002 will see the jubilee of the publication of the Steemann Nielsen's seminal paper on the use of $^{14}\text{CO}_2$ to measure planktonic photosynthesis, which transformed post-war development in the areas of biological oceanography and limnology. This major conference will celebrate this seminal paper and reviews the progress in the study of phytoplankton productivity in both marine and freshwaters over the previous 50 years. The conference will host 13 keynote speakers, in addition to oral sessions and posters.

The Book

A book, "Phytoplankton Productivity" will detail the keynote talks. It will be published in time for the conference, and all participants will receive it as part of the conference package. The book will summarize the development, present state and future of contemporary topics in both freshwater and marine plankton productivity. It will be edited by Peter J. le B. Williams*, David N. Thomas* and Colin S. Reynolds** (*School of Ocean Sciences, University of Wales, Bangor, UK, **Institute of Freshwater Ecology, Windermere, UK) and will be published by Blackwell Science. The publisher is offering a 20% discount to all ASLO members.

The Keynote Speakers and Their Book Chapters:

Morten Søndergaard – Freshwater Biological Laboratory, Univ. Copenhagen, Denmark; Biography Of Steemann Nielsen

Richard T. Barber and Anna Hilting - Duke University Marine Laboratory, Beaufort, NC, USA; History Of The Study Of Plankton Productivity

Richard J. Geider - University of Essex, Colchester, UK; Physiology And Biochemistry Of Photosynthesis and Algal Carbon Acquisition

John Marra - Lamont-Doherty Earth Observatory, Palisades, NY, USA; Approaches to the Measurement Of Plankton

Ulf Riebesell and Dieter Wolf-Gladrow - Alfred-Wegener Institute for Polar & Marine Research, Bremerhaven, Germany; Diffusive Supply Of Inorganic Nutrients: Theory And Methodology

Marlon R. Lewis - Dalhousie University, Halifax, Canada; Variability Of Plankton And Plankton Processes On The Mesoscale

Michael J. Behrenfeld - Goddard Space Flight Centre, Washington, DC, USA; Assessment Of Primary Production On The Global Scale

Colin S. Reynolds - Institute of Freshwater Ecology, Windermere, UK; Origins And Causes Of Interannual Variability Of Freshwater Phytoplankton

David. M. Karl*, Robert Bidigare* and Ricardo Letelier† - University of Hawaii* and Oregon State University†, USA; Interannual Variability Of Phytoplankton In Oceanic Systems

Wihelm Ripl and Klaus-Dieter Wolter - Technical University, Berlin, Germany; Ecosystem Function And Eutrophication

Paul G. Falkowski - Rutgers University, New Brunswick, USA; Evolution Of The Productivity Of The Oceans & The Significance Of The Evolution Of Specific Groups

D. Glen George - Institute of Freshwater Ecology, Windermere, UK; Regional-Scale Influences On The Long-Term Dynamics Of Lakes

Victor S. Smetacek - Alfred-Wegener Institute for Polar & Marine Research, Bremerhaven, Germany; Marine Productivity: The Footprint Of The Past And Steps Into The Future

How To Register and Get More Details

Go to <http://plankton-productivity.org> or www.aslo.org to find summaries of the book chapters and information regarding the N. Wales environment. Click on "Expression of Interest" to access the registration form. You will be emailed with further information.

UPCOMING ASLO MEETINGS BEYOND 2001

AGU/ASLO Ocean Sciences Meeting – February 11-15, 2002, Honolulu, Hawaii

Aquatic Sciences (ASLO) 2002 Meeting – June 10-14, 2002 Victoria, British Columbia, Canada

Aquatic Sciences (ASLO) 2003 Meeting – February 10-14, 2003 Albuquerque, New Mexico, USA

DIALOG IV

Dissertations Initiative for the Advancement of Limnology and Oceanography

Program for Recent Ph.D. Recipients in Limnology, Oceanography and Related Disciplines

PURPOSE

The DIALOG Program was founded to reduce the barriers that limit the exchange of information across the biologically oriented aquatic sciences. Through this program, dissertation abstracts are collected and disseminated, a symposium is held to foster interdisciplinary understanding and collaborations, and demographic information is collected for human-resource purposes.

Ph.D. DISSERTATION COMPILATION

In order to provide a concise introduction to the work of the most recent generation of aquatic scientists, all individuals completing Ph.D. requirements after January 1, 1997 and whose work in biological, chemical, geological or physical science is relevant to biologically oriented limnology or oceanography are encouraged to "register" their dissertations through the DIALOG Program. Ph.D. dissertation citations and abstracts submitted to the DIALOG program are posted at www.aslo.org/dialog.html and citations are published in the *ASLO Bulletin*. To encourage participation and foster interdisciplinary understanding and collaborations, each eligible person who submits an abstract will

receive a printed compilation of submitted abstracts at the program's conclusion.

SYMPOSIUM

A symposium will be held for up to 40 recent Ph.D. recipients in order to catalyze cross-disciplinary and international understanding and collaborations. Each participant will present a poster and a brief overview of his or her Ph.D. dissertation research. Participants will also form working groups to discuss emerging aquatic science research, education, and policy issues. Funding-agency representatives will present perspectives on interdisciplinary and international aquatic science research programs.

Symposium Eligibility

The symposium is open to individuals who complete their Ph.D. requirements between **April 1, 1999 and December 31, 2000** and whose work in biological, chemical, geological, or physical science is relevant to biologically oriented limnology or oceanography. Individuals from all nations are eligible for consideration. A committee will select participants based on the application materials submitted. Symposium space is expected to be limited. Selection will favor those who wish to pursue interdisciplinary aquatic science

research. Support for travel and on-site expenses is provided by the agencies which fund the program (see below).

Symposium

Dates and Location

October 14 - 19, 2001

Bermuda Biological Station
for Research

Symposium

Application Deadline

May 1, 2001

HOW TO PARTICIPATE

ON-LINE dissertation abstract-submission forms and symposium application instructions are available at

www.aslo.org/dialog.html

Questions

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DIALOG is co-sponsored by the American Society of Limnology and Oceanography and Whitman College and is funded by the U.S. National Science Foundation, National Aeronautics and Space Administration, National Oceanic and Atmospheric Administration, Office of Naval Research, and European Commission.



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