

ASLO BULLETIN

American Society of Limnology and Oceanography

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Remember to Vote

MESSAGE FROM THE PRESIDENT

ACTION ITEMS

Nancy H. Marcus, Department of Oceanography, Florida State University, Tallahassee, FL 32306 (Tel: 904-644-5498; Fax: 904-644-2581; Internet: marcus@ocean.fsu.edu)

Included in this issue of the ASLO Bulletin are two very important action items that require careful attention by the ASLO membership:

• **1995 Candidates for office:** This year we will elect a new Vice President and two new Members-at-Large. The Nominating Committee (Ben Cuker (Chair), John Cullen, and Saran Twombly) have assembled an excellent slate of candidates. Please read the biographical sketches and candidate statements presented in this issue of the *Bulletin*, and cast your vote using the enclosed ballot.

• **Revisions to ASLO's Articles of Incorporation and Bylaws:** The Bylaws Committee (Ken Webb (Chair), Richard Roberts, Lynda Shapiro, Henry Williams, Peter Starkweather, Susan Weiler, and I) met in Minneapolis in September 1994 to develop a revised set of Articles and Bylaws. Several Board members provided advice and David Kirchman, the Editor of *Limnology and Oceanography*, was asked to respond on matters relating to the journal. The resulting draft was circulated to the ASLO Board of Directors for comment, and suggested changes were forwarded to

Ken Webb. The final version is now presented to the general membership for approval. Ken has provided an excellent overview of the changes and rationale for these changes, with the current and proposed documents presented in side-by-side format. I would like to draw your attention to the following aspects of the revised version: The responsibilities of the elected representatives and professional staff are more clearly defined; the current editorial structure for L&O with an Editor-in-chief assisted by Associate Editors is formalized, the content of *Limnology and Oceanography* is now the responsibility of the Editor and Associate Editors instead of an Editorial Board; the position of Executive Director, which has existed for several years, is now identified in the Bylaws as an essential staff position; and authorization is given to the Executive Committee and Board of Directors to use a variety of modern modes of communications to conduct ASLO business.

A great deal of time and effort was devoted to developing a slate of candidates for the ASLO Board of Directors and to revising the Bylaws. I hope you will acknowledge the efforts of the two committees by taking time to review the materials and vote. *Your participation is essential.*

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

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TARGET DATES

for 1995 submissions: February 10, July 10, & October 10, 1995

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ASLO NEWS

FUTURE MEETING PLANNING AND ORGANIZATION

Polly A. Penhale, ASLO Secretary (Tel: 703-306-1033; Fax: 703-306-0139; Internet: ppenhale@nsf.gov)

During my term as ASLO Secretary, the planning and organization of meetings has changed considerably. In the past, universities were able to offer many services at no cost to the ASLO meetings. These included items such as meeting rooms, audiovisual services, administrative and secretarial services, etc. Such "gifts" allowed ASLO to offer moderate to low registration fees. As university budgets became more constrained, the ability of universities and institutions to provide the meeting with services has been reduced considerably. Universities often require meetings to hire the services of university conferences planning services in order to best handle the complexity of meetings on campus. The ASLO aim has been for meetings to be self-sufficient; thus, registration fees have increased over the years.

ASLO members are also faced with increased budgetary concerns. We have tried to offer more pre- and post-meeting field trips and workshops, so that members will have activities that encourage them to stay over Saturday night, which results in lower airline fares. We are making a concerted effort to attract more exhibitors, whose income would help reduce registration fees. In addition, we are exploring other means to help support meetings and other options with regard to meetings.

Suggestions are beginning to come from members regarding how best to plan meetings to serve the ASLO membership. Suggestions include holding the meetings mid-week to mid-week, holding meetings at hotels rather than universities, using the same location for 3-5 consecutive meetings, hiring an outside contractor to handle the conference organizational aspects of meeting, etc.

We'd like to hear from members on the subject of meeting planning and organization, as discussions will continue over the next year. Meeting planning will be on the agenda of the upcoming Board meeting in Reno (June 11, 1995). Please contact me before June 1 at the above numbers or Internet address, so that I can share your thoughts with the Board.

ASLO HOME PAGE: UP AND RUNNING AT <http://www.ngdc.noaa.gov/paleo/aslo/aslo.html>

C. Susan Weiler, ASLO Executive Director, Whitman College, Walla Walla, WA 99362 (weiler@whitman.edu)

Thanks to suggestions and offers of help from many members who responded to my article in the last Bulletin, the "first edition" of the ASLO Home Page is up and running, with a qualification that it is still very much under construction. And given the rate of technology development, I am sure this electronic marvel will always be "in prep."! But, be it ever so humble, at least we have something tangible on which to build.

I want to particularly recognize and thank three people.

ASLO member David M. Anderson with NOAA's paleoclimatology group in Boulder, CO volunteered to initiate me into the mysteries of the HTML (Hyper Text Markup Language) used in the World Wide Web (WWW) Project. Through David's efforts, the ASLO page has been "housed" at NOAA's National Geophysical Data Center. Alan Schussman, a student at Whitman College, is formatting the Home Page and translating the document into HTML. ASLO member Paul Kemp is helping with "pointers" to other sources of aquatic science information, and has posted the ASLO page to the various newsgroups, indices and web robots. This project could not have developed so rapidly or so well without their help. With YOUR contributions and use, the page will be a formidable resource.

As of this writing, the ASLO Home Page contains the following:

- Society information
- ASLO meeting information
- *Limnology and Oceanography* information, including instructions for authors and reviewers
- Bulletin Board for posting items of interest to the aquatic science community
- Job announcements
- Calendar section, with announcements of ASLO and other meetings and courses
- DIALOG Program information and Ph.D. Dissertation citations and abstracts
- Pointers to other WWW aquatic science and job resources, and to other Home Pages

There has been some discussion by the Board regarding Home-Page listing of member names and e-mail addresses, and possibly other member information such as street address, phone and fax number, and disciplinary information. Since the information could be updated several times per year, this would provide better information than the annual Membership Directory. However, it would also permit uncontrolled access to member information and potential unauthorized distribution of advertisements and information to the members, which could become a nuisance. The Board plans to discuss this issue at the Reno Board and Business meetings. Please share your thoughts with the Board by contacting me or any officer or Member-at-Large (comments received by May 20 will be most useful). And please join the discussion at the ASLO Business Meeting in Reno!

And please, do let me know any time you have suggestions for improving the Home Page!

Messages may be posted by contacting me through the ASLO Home Page, or at weiler@whitman.edu. Please let me know if you would like your Home Page (or another resource) linked to ASLO's page.

ASLO Home Page

<http://www.ngdc.noaa.gov/paleo/aslo/aslo.html>

COUNCIL OF SCIENTIFIC SOCIETY PRESIDENTS: MEETING REPORT

Nancy H. Marcus, ASLO President, Department of Oceanography, Florida State University, Tallahassee, FL 32306 (Tel: 904-644-5498; Fax: 904-644-2581; Internet: marcus@ocean.fsu.edu)

One of my responsibilities as President of ASLO is to represent the Society at various meetings. In December I attended the Fall meeting of the Council of Scientific Society Presidents (CSSP). I participated in two sessions, one that addressed Science/Math Education, and one on Environmental Stewardship.

During the education session, the National Academy of Science sought assistance in developing a survey of scientific societies, to gain information on their undergraduate-education activities. I volunteered to assist with that effort. We also listened to a number of speakers including: Mary Good, Undersecretary of Commerce for Science and Technology, Daniel Goldin, Director, NASA, Anne Peterson, Deputy Director of NSF, and Cornelius Pings, President, Association of American Universities. The underlying theme of these presentations was the changing climate for university research. In addition, the importance of improving science literacy and improving communication between scientists and the general public were stressed over and over again.

FRESHWATER ECOSYSTEMS AND CLIMATE CHANGE SYMPOSIUM REPORT AVAILABLE

Diane McKnight, Symposium Co-Chair, U.S. Geological Survey, 3215 Marine Street, Boulder, CO 80303-1066 (Tel: 303-541-3015; Fax: 303-447-2505; Internet: dnmcknig@mcknight.cr.usgs.gov)

The summary report from the ASLO/NABS symposium "Regional Assessment of Freshwater Ecosystems and Climate Change in North America" will be available to members of both societies by March 30, 1995. The report contains two-page summaries from each of the eight regional working groups (see report in the fall, 1994 issue of the *ASLO Bulletin* for details). The summaries briefly review the following major topics discussed at the symposium:

- (1) regional characteristics;
- (2) potential responses to climatic changes predicted for a doubling of atmospheric carbon dioxide; and
- (3) preliminary recommendations.

The symposium report will be distributed directly to symposium participants and to the sponsoring agencies (U.S. EPA and U.S. Geological Survey). Please contact me at the above address if you were not at the symposium but would like to receive a copy of the summary report.

The full regional reports will be published in a special issue of the journal *Hydrologic Processes*, and the contributed papers will be published in a special issue of *Limnology and Oceanography*.

HOW TO DESIGN A DISSERTATION PROJECT

If you're a student wondering how to go about designing a dissertation project, or an advisor looking for a reference to give your students, try:

Lanyon, S.M. 1995. How to design a dissertation project. *Bioscience* 45(1):40-42.

BALANCING WORK AND FAMILY: REPORT OF SURVEY ON INSTITUTIONAL POLICIES

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Introduction

Women scientists have always sought creative solutions to balancing professional requirements and family needs. Increasingly this dilemma is being recognized as an issue affecting careers of both men and women because the demographics of the work force have changed substantially. The U. S. Department of Labor predicts that 81% of all marriages will be dual career partnerships by 1995 (Reynolds and Bennett 1991). In a survey of the 41 participants at the recent DIALOG symposium for recent Ph.D. recipients, 80% (average of male and female) were married, and 58% of the men's and 100% of the women's partners were also professionals (Weiler, 1995). Institutions must take note that dual-career issues are an increasing part of the career decision-making process. For marriages in which both partners are professionals or academics there are two important challenges related to supporting careers of both partners:

- 1) finding appropriate employment in the same geographic location, and
- 2) balancing demands of work and family to create sufficient time for both.

What strategies are individual scientists and the institutions which hire them currently using to accommodate changing work patterns and family structure? The purpose of the this survey was to document responses to these two issues by individual oceanographers and limnologists and the institutions which hire them. It was hoped that this information would be useful for individuals formulating job search strategies or seeking new policies at their place of employment. It should also benefit faculty and administrators involved in making and evaluating new policy regarding hire and promotion decisions of women scientists and dual career couples who are both employed in science.

Methods

A survey was published in the *ASLO Bulletin* last spring inviting individual responses. In addition a similar survey was sent to 31 institutions most frequently employing members of the Society of Limnology and Oceanography. Of those institutions contacted (Table I), 17 replied. There were 18 responses by individual ASLO members. While this was a small number the individual responses were valuable in providing information about different institutions than those responding to the institutional survey and several came from individuals working outside the United States.

Responses from the individual and institutional surveys were kept separate. Responses to several questions were grouped according to the two most important issues, hire and promotion and tenure, but also included analysis of special policies regarding child care or provision for family oriented services. Responses were scored according to yes versus no answers or no answers. However, if institutions reported no official or written policy but provided comments, these are discussed separately.

Results

Possibly the most useful information from the individual survey were responses to questions 3 and 4 on policies actually used and policies not available but “most desired”. Twelve of the 18 responses specifically mentioned the desirability of work schedules alternative to the traditional full-time work load or, less frequently, the opportunity to take extended leave after the birth of a child. The desirability of multiple options permitting flexible work schedules reflects a common theme in other reports on women scientists with children and dual career couples for which both spouses are in the academic or scientific professions (Weiler and Yancey 1992, Lubchenco and Menge 1993, Goldberg and Sakai 1993).

Based on the assumption that responses to the individual survey reflect conditions most likely to attract women or dual career professionals to a particular institutional setting, I have grouped responses of institutions according to policies that affect maternity and paternity leave, accommodate part-

time tenure-track options, and allow splitting a single position (Table I). While mentioned specifically in only 2 responses, programs which assist in hiring both partners (spousal opportunity programs) are also important and are grouped with the previous policies. Policies which allow for reduced work loads automatically incur the need for special evaluation procedures related to promotion and tenure to allow for expected but reduced productivity. Options such as an extended tenure clock were also scored (Table I).

• **Leave Policies.** All institutions with 50 or more employees are required by federal law (The Family and Medical Leave Act of 1993) to allow 12 weeks of unpaid, job-protected leave for certain family reasons to employees that have worked 1,250 hours during the past year. It was clear that some individuals were unaware of this option and one institution still had not updated its written policy of 6 weeks parental leave. Responses from individuals in Germany, Holland, Canada, and Australia indicated the more progressive leave policies of other western style nations (Bookman

Table I. Institutional responses to ASLO survey on Balancing Work and Family. 17 of the 31 institutions contacted responded. **Bold** print indicates institutions responding to the survey; “?” denotes that no information was provided by a responding institution on a particular topic.

University	Family Leave	Part-time Tenure	Split Positions	Partner Opportunity Programs	Extended Tenure Track Clock	Day-care or Family Program
Columbia U.	yes	yes	?	?	?	?
MIT	yes	?	?	no	yes	yes
Michigan State U.	yes	?	?	yes	?	
Michigan Tech. U.	yes	no	yes	no	yes	no
Oregon State U.	yes	yes	yes	yes	?	yes
¹ Skidaway	yes	—	—	—	—	—
Texas A&M	yes	no	no	no	no	yes
U. Alaska	yes	no	yes	no	yes	no
U. Calif. Davis	yes	yes	no	yes	yes	yes
U. Calif. San Diego/SIO	yes	yes	² no	² no	yes	yes
U. Miami	yes	no	yes	no	yes	no
U. Michigan	yes	no	no	no	yes	no
U. Rhode Island	yes	yes	yes	no	no	yes
U. Texas	yes	no	no	no	yes	no
U. Washington	yes	yes	no	no	yes	yes
U. Wisconsin Madison	yes	yes	yes	yes	yes	no
WHOI	yes	no	no	no	yes	yes
TOTAL with policy	17/17	7/17	6/17	3/17	12/17	8/17
PERCENT with policy	100%	41%	35%	18%	71%	47%

¹ No official policies due to small size and special nature of the institute. Little unofficial experience with policies because faculty are 11 male, 1 female.

² No official policy but has been arranged on a case by case basis.

The following universities were contacted but did not respond: Duke U., Louisiana State U., Old Dominion U., SUNY, Stonybrook, U. Calif., Los Angeles, U. Calif. Santa Barbara, U. Delaware, U. Florida, Gainesville, U. Georgia, Sapelo Island, U. Hawaii, U. Maryland, U. Minnesota, U. South Florida, St. Petersburg, Virginia Institute of Marine Science.

1991), which guarantee three or more months of paid leave. However, paid leave is usually available only to women. One German scientist mentioned that gender specificity in leave policy can be counter productive for women. Its consequence has been that men rarely take leave related to family obligations, giving women little choice about their career efforts. Exacerbating this problem is the fact that day care placements are difficult to find (*Science* 1994).

Responses from Universities indicate that it is fairly common to grant unpaid leave for a semester or a year. On the other hand, MIT provided results of a 1990 survey indicating that 70% of women and 45% of men felt that taking leave would be held against them in departmental evaluations or would be too difficult to orchestrate at a high-pressure institution such as MIT. An individual respondent to the ASLO survey employed at Harvard also indicated the difficulty of taking leave. For some individuals a more viable alternative than leave is the option of a temporarily reduced work load. Most universities surveyed indicated that scheduling options to reduce teaching loads were negotiable within a discipline group.

• **Part-time Employment.** Another option to reduce work responsibilities includes permanent part-time employment or part-time tenure-track positions. Permanent part-time employment was listed as common at almost all institutions for non-tenure track or soft-money positions. However, there may be a growing acceptance of this option for tenure-track positions; 41% listed this option (Table I). Lubchenco and Menge (1993) discuss their very positive experience with this option 18 years ago at Oregon State University, one of the few academic institutions allowing this arrangement at the time. Institutions reported a similar frequency for the option to split or share positions for dual career couples, either as an official policy or negotiated on an individual basis (Table I).

• **Partner Opportunity Programs.** Less than 20% of institutions reported special programs to identify employment opportunities for spouses. Given the increasing number of dual-career couples in which both are scientists or academics this is a surprisingly low number. The University of California reported that between 1985 and 1991 spousal employment problems were increasingly listed by tenured faculty as one reason for resigning positions and in 1991 this was the most common reason given by candidates deciding not to move to the UC system.

Some institutions do have programs in place to encourage the hire of dual-career couples. University of Wisconsin grants 1/3 salary from the provost for a spouse if an appropriate university position can be found. Oregon State University has a family employment program offering placement services and encouraging award of one-year temporary appointments to qualified spouses.

Spousal hire remains a delicate issue at many institutions because providing a ladder position for a spouse inevitably means someone else is not hired. Currently, most responses to the issue of dual career couples appear to be on an ad hoc basis.

• **Promotion and Tenure Decisions.** The fact that parental leave is so commonly granted is clear recognition of the fact that parenting can temporarily reduce time available to work. At most (71%) of institutions responding, accommodation has also been made for this loss in productivity that is often associated with a leave by extending the probationary period before tenure decisions are made (extending the tenure clock) (Table I). Institutions usually have a stated limitation such as a maximum extension of two years for birth or adoption of two children. University of Michigan reports that almost all assistant professor women who give birth extend their tenure clock for one year; more rarely male assistant professors who take primary responsibility for child care do so as well. There is probably little precedent for extended tenure clock plans which accommodate equal sharing of parental duties by both partners in dual-career relationships, despite the fact that this is a realistic choice for couples where both are in tenure-track positions.

Some institutions report a flexible plan in which extension of the tenure clock is allowed whether or not a leave is taken. This plan accommodates part-time work schedules and allows more options for those faculty who fear that leave would count against them in departmental evaluations (e.g. reduced teaching loads while maintaining research programs).

Rarely do institutions report any special accounting procedures for promotion decisions involving non tenure-track or soft money individuals who take parental leave or choose part-time work options (Table I). It is assumed that while these individuals are rated by the normal process, some allowance is made on an unofficial basis to account for reduced productivity per year. Discussion of official policy to evaluate part-time individuals would be useful.

• **Day Care Programs.** The convenience and availability of on-site day care was important to 46% of individual respondents. Seven institutions reported availability of day care and two have programs to assist employees in finding day care.

Conclusions

In one respect results of this survey may be viewed as encouraging. A great many institutions have adopted policies that allow more flexibility in work schedules of scientists to allow combining career and family responsibilities. For example, provision for part-time tenure track positions, split or shared positions, and extension of the tenure clock under flexible leave or work scheduling plans all increase the options available for creative solutions to finding appropriate jobs and enough time in two-career families. On the other hand, arranging career paths around family responsibilities is not yet a fully accepted route to a successful scientific career. Statistics from a 1990 MIT survey indicate that more female than male scientists may choose less demanding jobs than are commonly considered main-stream. Only 11% of female graduate students compared with 36% of male graduate students felt that they were most likely to pursue a tenure-track appointment.

Would answers to this question have differed if part-time positions were more often considered mainstream or if taking leave were recognized as more acceptable? Changing institutional policy may go a long way toward allowing more scientists to attempt non-traditional routes to successful careers while at the same time being accorded status as full-fledged professionals. Moreover, increased demands on the time and job search strategies of male as well as female scientists have become more acute as the demographics of the work force change. Recognition by administrators that this is not a gender-specific issue will also help greatly.

Bibliography

Bookman, A. 1991. Parenting without poverty: The case for funded parental leave. Pp. 66-89 in J.S. Hyde and M.S. Essex (eds), *Parental Leave and Child Care: Setting a Research and Policy Agenda*. Philadelphia Temple University Press.

Massachusetts Institute of Technology. 1990. Final Report, Ad Hoc Committee on Family and Work, November 7, 1990. 41 pp.

Goldberg, D. and A. Sakai. 1993. Career Options for Dual Career Couples: Result of an ESA Survey on Soft Money Research Positions and Shared Positions. *Bulletin of the Ecol. Soc. of America* 74:146-152.

Lubchenco, J. and B. Menge. 1993. Split positions can provide a sane career track - a personal account. *Bioscience* 43:243-248.

Reynolds, C. and R. Bennett. 1991. The career couple challenge. *Personnel Journal* 70:46-48.

University of California at Davis. 1991. Partner Opportunity Policy and Statistics on Hiring and Retention. 10 pp.

Weiler, C.S. and P.H. Yancey. 1992. Dual-career couples and academic science. *Journal of College and Science Teaching* 21:217-222.

Weiler, C.S. 1995. 1994 DIALOG Symposium Report. *ASLO Bulletin* 4(1):10-12.

Women in Science. 1994. Comparisons across cultures. *Science* 263:1475.

**DISSERTATIONS INITIATIVE FOR THE
ADVANCEMENT OF LIMNOLOGY AND
OCEANOGRAPHY (DIALOG): 1994 PROGRAM
SUMMARY**

C. Susan Weiler, ASLO Executive Director, Dept. Biology, Whitman College, Walla Walla, WA 99362 (weiler@whitman.edu)

Through funding by the U.S. National Science Foundation, National Oceanographic and Atmospheric Administration, National Aeronautics and Space Administration, and the Office of Naval Research, ASLO's DIALOG Program was established in 1994. Its goal is to reduce the historical, institutional and philosophical barriers that limit the exchange of information between limnologists and oceanographers, and to foster interdisciplinary and inter-institutional research. The program targets recent Ph.D. recipients whose work includes a component relevant to biologically oriented aquatic science. The program involved:

- publication of the submitted Ph.D. dissertation abstracts;
- a symposium to facilitate exchange across institutions and disciplines; and
- establishment of a centralized data base for applicant characterization and tracking.

A total of 80 applications were received. We have no way of knowing what proportion of the eligible application pool this represents, or whether it is a representative cross section. If any of you who read this could write me to let me know how many aquatic science Ph.D.'s graduated from your institution over the last 1 to 5 years (and, if possible, the sort of demographic information described in the next paragraph), I would be most grateful.

For inclusion in the dissertation compilation and data base, applicants were asked to provide their: year of birth; gender; citizenship; ethnic/cultural background (U.S. participants only); primary field of dissertation research (limnology or oceanography; several have worked in both marine and freshwater environments, and many have joint interests); three key words describing area of expertise; Ph.D.-granting institution; full dissertation citation; and a 1-page dissertation abstract. The 80 program applicants included:

28 (35%) limnology	52 (65%) oceanography
28 (35%) females	52 (65%) males
42 (53%) U.S. citizens: 27 (64%) male and 15 (36%) female;	
10 (24%) limnology and 32 (76%) oceanography.	
10 (12%) Canadians	
28 (35%) citizens of other countries (<i>Brazil 1; Chile 3; China 1; Denmark 1; Germany 3; Ireland 1; Israel 1; Italy 2; Kenya 1; Mexico 2; Netherlands 4; Spain 5; Switzerland 1; Turkey 1; and United Kingdom 1</i>).	

Fifty three of the applicants (42 U.S. citizens and 11 non-U.S. citizens) received their highest degree from U.S. institutions (Table I). Oceanography was the primary dissertation area among U.S. citizens (32 oceanography and 10 limnology) and among applicants with degrees from U.S. institutions (39 oceanography and 14 limnology). Limnology and oceanography were more evenly split among non-U.S. applicants with degrees from institutions outside the U.S. and Canada (Table II; 15 oceanography and 13 limnology).

**Remember to
Vote!**

Read and Consider

Candidate Biographies and Statements
Bulletin pages 16 - 20

and

Revised Articles of Incorporation and Bylaws
Included with Bulletin mailing

Ballots must be received by June 1, 1995

Table I. Institutions granting Ph.D. degrees to 1994 DIALOG program applicants. Dissertation fields are listed as Lim (limnology) or Oce (oceanography), based on the primary area of dissertation research. The eligibility window for completion of dissertation requirements was June 1, 1992 - September 1, 1994.

Lim	Oce	U.S. Institutions:	Lim	Oce	Non-U.S. Institutions:
2	0	Dartmouth College	0	1	Bar-Ilan Univ. (Israel)
0	1	Duke Univ.	0	3	Dalhousie Univ. (Canada)
0	1	Florida Inst. Technology	1	0	Queen's Univ. (Canada)
1	1	George Mason Univ.	0	1	Middle East Tech. Univ. (Turkey)
1	0	Iowa State Univ.	1	0	Politecnico di Milano (Italy)
0	1	Johns Hopkins Univ.	1	0	Rostock Univ. (Germany)
0	2	Louisiana State Univ.	3	0	Univ. Amsterdam (Netherlands)
0	1	Massachusetts Inst. Technology/WHOI	0	1	Univ. Copenhagen (Denmark)
1	0	Michigan Technological Univ.	1	0	Univ. Hamburg (Germany)
1	0	Michigan State Univ.	1	1	Univ. Kiel (Germany)
0	1	Mississippi State Univ.	1	1	Univ. Laval (Canada)
0	2	Oregon State Univ.	1	0	Univ. Manitoba (Canada)
0	1	Stanford Univ.	0	1	Univ. Nairobi (Kenya)
1	1	State Univ. New York at Stony Brook	0	1	Univ. Plymouth (United Kingdom)
0	1	Texas A&M Univ.	0	1	Univ. South Hampton (United King.)
1	0	Univ. California at Davis	3	0	Univ. Valencia (Spain)
0	6	Univ. California at San Diego	0	1	Univ. Victoria (Canada)
1	1	Univ. California at Santa Barbara	0	1	Univ. Western Ontario (Canada)
0	5	Univ. California at Santa Cruz	1	0	Vrije Univ. (Netherlands)
0	1	Univ. Delaware	14	13	TOTAL
1	0	Univ. Florida			
0	2	Univ. Hawaii at Manoa			
0	1	Univ. Maine			
0	2	Univ. Maryland at College Park			
0	3	Univ. North Carolina at Chapel Hill			
0	1	Univ. Rhode Island			
0	2	Univ. South Carolina			
0	2	Univ. Washington			
1	0	Univ. Wisconsin at Madison			
2	0	Univ. Wisconsin at Milwaukee			
1	0	Yale Univ.			
14	39	TOTAL			

Table II. Number and percent of limnologists and oceanographers among ASLO student members and DIALOG applicants.

Lim	Oce	Total	Group
ASLO Student Members			
322 (43%)	434 (57%)	756	United States
67 (64%)	37 (36%)	104	Canada
81 (49%)	83 (51%)	164	all other Countries
DIALOG Applicants			
10 (24%)	32 (76%)	42	U.S. citizens
3 (30%)	7 (70%)	10	Canadian citizens
15 (53%)	13 (46%)	28	other citizenship
14 (26%)	39 (74%)	53	Ph.D. degrees from U.S. institutions
3 (33%)	6 (67%)	9	Ph.D. degrees from Canadian institutions
11 (61%)	7 (39%)	18	Ph.D. degrees from other institutions

The low proportion of U.S. limnologists was unexpected. With more than 3,800 members worldwide, ASLO membership includes roughly equal numbers of limnologists and oceanographers. Based on this, the organizers anticipated that comparable proportions of limnologists and oceanographers would apply to the program. Table II compares the number and proportion of limnologists among ASLO's U.S. student membership (43%) and among the U.S. DIALOG applicants (24%). It is not known whether difference reflect the proportion of limnologists and oceanographers completing Ph.D. requirements, differences in interest or awareness of the DIALOG program among groups, or some other factor. The mean, median, and range of ages of applicants during the year his/her Ph.D. degree was completed (year Ph.D. awarded - year of birth) were: 33, 32 and 25 - 43 years for U.S. applicants: and 34, 32 and 28 - 48 years for applicants from outside the United States.

The abstracts were compiled in a volume which includes: dissertation citations arranged alphabetically by last name; dissertation abstracts (80 total), arranged alphabetically by last name; and directory of applicants, including name, address, phone and fax number, and e-mail address, primary field of dissertation research (limnology or oceanography)

and up to three key words, describing areas of research interest and expertise. Dissertation citations submitted to the program are presented on pages 9-10. A report on the DIALOG symposium is provided in the next article. If you wish to obtain a copy of the DIALOG dissertation compilation, please contact me at the above address. Copies are limited and will be distributed on a first-come, first-serve basis.

We definitely know that many of those who were eligible did not apply to the program, some through lack of interest, but others through lack of awareness. It would be useful to know how many we have missed. I would be most grateful to any of you who can provide me with statistics on the number of students receiving Ph.D.'s in limnology, oceanography or related sciences from your institution over the past 1- to 5-year period.

If you were eligible for the last DIALOG program but did not apply, it is not too late to submit your dissertation abstract and demographic information for our data base and presentation on the ASLO Home Page. Please send inquiries to Mary Meeker, meekerme@whitman.edu..

Please inform your students and colleagues about this program. We hope the next program will include all eligible aquatic scientists!

Future DIALOG Programs

Contingent on obtaining external funding, ASLO plans to hold a second DIALOG program, with an eligibility window for completion of Ph.D. requirements of March 1, 1993 - March 1, 1996 (18 months forward and back from the first program deadline). Space has been reserved to hold the next symposium the week of October 14, 1996 at the Bermuda Biological Station for Research.

For more information, contact the ASLO DIALOG Program, Whitman College, Walla Walla, WA 99362 USA, meekerme@whitman.edu.

If you wish to be placed on the mailing list for the next (contingent-on-obtaining-external-funding!) program, please send your street and e-mail addresses, and date you completed (or expect to complete) your dissertation requirements to Mary Meeker at meekerme@whitman.edu.

Add Your Ph.D. Dissertation Abstract to the ASLO Home Page

If you have received your Ph.D. since June 1, 1992 and did not submit an abstract for the 1994 DIALOG Program, but would like to have your abstract included on the ASLO Home Page, please send your full name, mailing address, phone, fax, e-mail, year of birth, gender, citizenship, primary field of dissertation research (limnology or oceanography), 3 key words describing area of expertise, Ph.D.-granting institution, complete dissertation citation (name, year, title, institution, and # pages), and a 1-page abstract (must fit in a 6" x 9" space using Times 12 font, to meekerme@whitman.edu. e-mails or discs only please, with a hard copy if special characters are used (send to Mary Meeker, Whitman College, Walla Walla, WA 99362).

ASLO Home Page:

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<http://www.ngdc.noaa.gov/paleo/aslo/aslo.html>**

Dissertation citations submitted to the 1994 DIALOG Program. The program accepted dissertations completed between June 1, 1992 and September 1, 1994).

- Aarup, Thorkild.** 1994. Satellite imagery of Danish and neighboring waters: Interpretation of satellite ocean color data of the transition zone between the North Sea and the Baltic Sea. University of Copenhagen (Denmark), 162 pp.
- Aguiar, Carmen.** 1992. Biogeochemical cycling of manganese in Oneida Lake, New York. University of Wisconsin at Milwaukee, 360 pp.
- Arancibia-Avila, Patricia E.** 1994. Physiological ecology of *Mougeotia* (Zygnemataceae) from an experimentally acidified lake. University of Wisconsin at Madison, 153 pp.
- Baines, Stephen B.** 1993. Extracellular release and sinking as fates of planktonic primary production: Variation along productivity gradients and between lakes and the ocean. Yale University, 284 pp.
- Barnhisel, Delynn Rae.** 1994. Ecological and evolutionary consequences of the caudal spine in the Cercopagidae (Crustacea, Branchiopoda). Michigan Technological University, 166 pp.
- Bittner, Marta A.** 1994. The effect of dissolved natural organics on the chronic toxicity of cadmium to *Mysidopsis bahia* Molenock (Crustacea: Mysidacea). George Mason University, 208 pp.
- Boersma, Maarten.** 1994. On the seasonal dynamics of *Daphnia* species in a shallow eutrophic lake. University of Amsterdam (Netherlands), 159 pp.
- Bolgrien, David W.** 1993. Delineation of the hydrodynamics of Lake Michigan and Lake Baikal using satellite-derived surface temperatures. University of Wisconsin at Milwaukee, 170 pp.
- Brown, Christopher W.** 1993. Distribution patterns of coccolithophorid blooms and their biogeochemical significance. University of Rhode Island, 278 pp.
- Callaway, John C.** 1994. Sedimentation processes in selected coastal wetlands from the Gulf of Mexico and northern Europe. Louisiana State University, 223 pp.
- Carmona, Maria Jose.** 1992. Induction of the sexual phase and its related aspects in the rotifer *Brachionus plicatilis*. University of Valencia (Spain), 266 pp.
- Chen, Ceilia Y.** 1994. Demographic consequences of seasonal variation in environmental stress. Dartmouth College, 174 pp.
- Chen, Robert F.** 1992. The fluorescence of dissolved organic matter in the marine environment. University of California at San Diego, 149 pp.
- Conversi, Alessandra.** 1992. Variability of water quality data collected near three major southern California sewage outfalls. University of California at San Diego, 110 pp.
- Cooper, Sherri R.** 1993. The history of diatom community structure, eutrophication and anoxia in the Chesapeake Bay as documented in the stratigraphic record. Johns Hopkins University, 302 pp.
- Cynar, Frank J.** 1992. The biogeochemical cycling of methane in the surface ocean off southern California. University of California at San Diego, 235 pp.
- Dekker, Arnold G.** 1993. Detection of optical water quality parameters for eutrophic waters by high resolution remote sensing. Vrije University (Netherlands), 222 pp.
- Deslarzes, Kenneth J.P.** 1992. Long-term monitoring of reef corals at the Flower Garden Banks (northwest Gulf of Mexico): Reef coral population changes and historical incorporation of barium in *Montastrea annularis*. Texas A&M University, 170 pp.
- Dickson, Mary-Lynn.** 1994. Nitrogen dynamics in a coastal upwelling regime. Oregon State University, 227 pp.
- Douglas, Marianne S.V.** 1993. Diatom ecology and paleolimnology of high Arctic ponds. Queen's University (Canada), 161 pp.
- Dower, John F.** 1994. Biological consequences of current-topography interactions at Cobb Seamount. University of Victoria (Canada), 231 pp.
- Edmands, Suzanne.** 1994. Genetic and evolutionary consequences of various reproductive strategies in the sea anemone Genus *Epiactis*. University of California at Santa Cruz, 187 pp.
- Esparcia, C. Angeles.** 1993. Rotifer population distribution in the oxycline of "la laguna de las Cruz": Metabolic adaptations of *Brachionus plicatilis* to microaerobic conditions. University of Valencia (Spain), 288 pp.
- Ferrier, M. Drew.** 1992. Fluxes and metabolic pools of amino acids in algal-cnidarian symbioses. University of Maryland at College Park, 177 pp.
- Frenette, Jean-Jacques.** 1993. Impact of hydrodynamic factors on photosynthesis and the fate of primary production in an oligotrophic lake. University of Laval (Canada), 177 pp.
- Giovannini, Phillip.** 1994. Water quality dynamics in aquaculture ponds: An investigation of photosynthetic production and efficiency variations. University of California at Davis, 192 pp.
- Graham, William M.** 1994. The physical oceanography and ecology of upwelling shadows. University of California at Santa Cruz, 205 pp.
- Haberstroh, Paul R.** 1994. Wave-forced porewater mixing and nutrient flux in a coral reef framework. University of Hawaii at Manoa, 249 pp.
- Hamblin-Katnik, Claudia.** 1993. USEPA water quality criteria for copper: I. Exceedence of criteria in freshwater streams. II. Influence of dissolved organic matter on toxicity. George Mason University, 203 pp.
- Hare, Jonathan A.** 1994. Biological and physical processes affecting the larval survival and estuarine recruitment of bluefish, *Pomatomus saltatrix*. (Pisces: Pomatomidae), along the eastern coast of the United States. State University of New York at Stony Brook, 264 pp.
- Hu, Shixi S.** 1994. Competition in a seasonal environment: *Daphnia* population dynamics and coexistence. Michigan State University, 109 pp.
- Hutchins, David A.** 1994. Regeneration and recycling of biologically required trace metals by marine plankton communities. University of California at Santa Cruz, 91 pp.
- Ibelings, Bastiaan W.** 1992. Cyanobacterial waterblooms: The role of buoyancy in water columns of varying stability. University of Amsterdam (Netherlands), 171 pp.
- Irlandi, Elizabeth A.** 1993. Landscape ecology and the functions of marine soft-sediment habitats: How seagrass landscapes influence growth and survival of a marine invertebrate. University of North Carolina at Chapel Hill, 138 pp.
- Jack, Jeffrey D.** 1993. Direct and indirect effects on planktonic ciliate assemblages. Dartmouth College, 185 pp.
- Joye, Samantha B.** 1993. Spatial and temporal patterns of nitrogen fixation and denitrification in the intertidal and subtidal sediments of a Mediterranean-type estuary: Tomales Bay, California. University of North Carolina at Chapel Hill, 227 pp.
- Jungmann, Dirk.** 1994. Toxic secondary metabolites from *Microcystis* flos-aque strain PCC7806: Biochemical characterization by natural and laboratory investigations. University of Kiel (Germany), 101 pp.
- Kostka, Joel E.** 1992. Biogeochemical cycling of iron in anoxic environments: The importance of Fe speciation and bacterial Fe reduction. University of Delaware, 243 pp.
- Lindley, Steven T.** 1994. Regulation of the maximum quantum yield of phytoplankton photosynthesis by iron, nitrogen, and light in the eastern equatorial Pacific. Duke University, 136 pp.
- Mayer, Marilyn S.** 1992. Effects of benthic macrofauna on nitrogen cycling and oxygen consumption of estuarine sediments. University of Maryland at College Park, 182 pp.
- Mehner, Thomas.** 1992. Ecological investigations of the age-0 fish community in a shallow brackish water of the southern Baltic. Rostock University (Germany), 139 pp.
- Metaxas, Anna.** 1994. Spatial and temporal dynamics of phytoplankton assemblages in tidepools: Effects of the physical environment, the nutrient regime and the grazer field. Dalhousie University (Canada), 296 pp.
- Miller, Margaret W.** 1994. Ecology of a temperate coral. University of North Carolina at Chapel Hill, 157 pp.
- Miller-Way, Christine A.** 1994. The role of infaunal and epifaunal suspension feeding macrofauna on rates of benthic-pelagic coupling in a southeastern estuary. Louisiana State University, 203 pp.
- Moncreiff, Cynthia A.** 1993. Primary production dynamics and trophic importance of epiphytic algae in Mississippi seagrass beds. Mississippi State University, 272 pp.
- Monger, Bruce C.** 1993. Physical basis of prey capture by heterotrophic marine nanoflagellates. University of Hawaii at Manoa, 178 pp.
- Muelbert, Jose H.** 1994. The relevance of feeding environment to "retention" of Atlantic herring (*Clupea harengus*) larvae. Dalhousie University, (Canada), 152 pp.

- Murray, Alexander G.** 1993. Modelling investigations of marine microplankton ecology. University of Southampton (United Kingdom), 387 pp.
- Nishiguchi, Michele K.** 1994. The role of dimethylsulfoniopropionate (DMSP) in marine macroalgae of the Monterey Bay. University of California at Santa Cruz, 232 pp.
- Oltra, Rafael.** 1993. Study of zooplankton in two Mediterranean coastal lagoons: The Estany of Cullera and the Albufera of Valencia (Spain). University of Valencia (Spain), ?pp.
- O'Riordan, Catherine A.** 1993. The effects of near-bed hydrodynamics on benthic bivalve filtration rates. Stanford University, 279 pp.
- Osgood, Kenric E.** 1993. Mechanisms controlling the relative abundances of three suspension feeding calanoid copepods in Dabob Bay, Washington. University of Washington, 136 pp.
- Oyieke, Helida A.** 1993. A taxonomic, ecological and commercial potential study of the genus *Gracilaria* (Gracilariaceae, Rhodophyta) of the Kenya coast. University of Nairobi (Kenya), 281 pp.
- Painchaud, Jean.** 1994. Distribution, dynamics and controlling processes of planktonic bacteria in the upper St. Lawrence estuary. University of Laval (Canada), 121 pp.
- Palowitch, Andrew W.** 1994. Chlorophyll: A spatial microstructure determination from volumetrically reconstructed optical serial sectioned fluorescence images. University of California at San Diego, 139 pp.
- Pan, Youlian.** 1994. Production of domoic acid, a neurotoxin, by the diatom *Pseudonitzschia pungens* f. multiseriata (Hasle) under phosphate and silicate limitation. Dalhousie University (Canada), 245 pp.
- Pape-Lindstrom, Pamela A.** 1994. A laboratory and field study of sublethal predation on the brittlestar, *Microphiopholis gracillima*, (Stimpson) (Echinodermata: Ophiuroidea), by white shrimp and other macerating predators: An immunochemical approach. University of South Carolina, 136 pp.
- Perez-Fuentetaja, Alicia.** 1993. Effects of fish on planktonic communities and food web response to varying predation pressures and nutrient regimes. State University of New York at Syracuse, 135 pp.
- Pinckney, James L.** 1992. Ecology of intertidal benthic microalgal communities in North Inlet Estuary, South Carolina. University of South Carolina, 276 pp.
- Pineda, Jesús.** 1993. Hydrodynamic forcing on shallow water communities: Some physical effects and ecological consequences of internal tidal bores. University of California at San Diego, 158 pp.
- Pinto, Luis, A.** 1993. The role of sulfur in the preservation of isoprenoid hydrocarbons in sedimentary materials of the Washington Continental Margin. Oregon State University, 220 pp.
- Pollice, Alfieri.** 1994. Experimental validation of a model for biological nutrient removal in activated sludge plants. Politecnico di Milano (Italy), 284 pp.
- Powell, David E.** 1993. Cadmium accumulation in the bottom sediments and fish of seepage lakes in north-central Wisconsin: Relation to lake chemistry. Iowa State University, 126 pp.
- Richter, Claudio.** 1994. Regional and seasonal variability in the vertical distribution of mesozooplankton in the Greenland Sea. University of Kiel (Germany), 101 pp.
- Rood, Brian E.** 1993. Spatial and temporal distribution of mercury and other trace metals in Florida Everglades and Savannas Marsh flooded soils. University of Florida, 180 pp.
- Ruiz, Jose M.** 1993. Metallic pollution in estuaries, with special reference to the effects of tributyltin (TBT) and copper on the early life stages of *Scrobicularia plana* (Mollusca: Bivalvia). University of Plymouth (United Kingdom), 167 pp.
- Sarnelle, Orlando.** 1992. Plant-herbivore interactions in the pelagic zone of lakes. University of California at Santa Barbara, 173 pp.
- Schofield, Oscar M. E.** 1993. The utilization of radiant energy by algae and the linkages to the bio-optical properties of marine phytoplankton. University of California at Santa Barbara, 239 pp.
- Shimeta, Jeff.** 1993. Mechanisms and rates of particle encounter among suspension feeders. University of Washington, 210 pp.
- Smith, David C.** 1994. Bacterial degradation of marine aggregates and its biogeochemical significance. University of California at San Diego, 111 pp.
- Snelgrove, Paul V.R.** 1993. The importance of fine-scale flow processes and food availability in the maintenance of soft-sediment communities. Massachusetts Institute of Technology/Woods Hole Oceanographic Institution, 438 pp.
- Stambler, Noga.** 1992. Harvesting and utilization of light by Hermatypic corals. Bar-Ilan University (Israel), 221 pp.
- Steinberg, Deborah K.** 1993. The use of mesopelagic detritus by zooplankton in Monterey Bay, California. University of California at Santa Cruz, 163 pp.
- Tapley, David W.** 1993. Sulfide-dependent oxidative stress in marine invertebrates, especially thiotrophic symbioses. University of Maine, 160 pp.
- Turner, Michael A.** 1993. The ecological effects of experimental acidification upon littoral algal associations of lakes in the boreal forest. University of Manitoba (Canada), 194 pp.
- Uysal, Zahir.** 1993. A preliminary study on some plankters along the Turkish Black Sea coast: Species composition and spatial distribution. Middle East Technical University (Turkey), 138 pp.
- van de Bund, Wouter J.** 1994. Food web relations of littoral macro- and meiobenthos. University of Amsterdam (Netherlands), 107 pp.
- Verde, E. Alan.** 1993. The effects of temperature, light, season, and body size on the photosynthesis and respiration of zooxanthellae and zoochlorellae symbiotic within *Anthopleura elegantissima* (Brandt). Florida Institute of Technology, 86 pp.
- Wilhelm, Steven W.** 1994. Ecological aspects of iron acquisition in *Synechococcus* spp. (Cyanophyceae). University of Western Ontario (Canada), 196 pp.
- Wiltshire, Karen H.** 1991. Investigations into the influence of microphytobenthos on nutrient exchange between sediments and water in the tidal Elbe. University of Hamburg (Germany), 186 pp.

1994 DIALOG SYMPOSIUM REPORT

C. Susan Weiler, DIALOG Program Chair, weiler@whitman.edu

Sixty-eight of the 80 DIALOG Program applicants requested to be considered for the 5-day symposium (Dec. 13-17, 1994 at the Bermuda Biological Station for Research). The symposium selection committee (Jonathan J. Cole, Larry B. Crowder, Paul J. Harrison, Anthony F. Michaels, Bess B. Ward, C. Susan Weiler (Chair), and Craig E. Williamson) considered the following materials: dissertation abstract; 1-page description of career goals, interdisci-

plinary interests, and ways in which participation would enhance professional growth and contribute to the symposium; 2-page CV; and two letters of recommendation. Each committee member read and evaluated each of the 68 applications. These were discussed and final decisions were made during a 1-day meeting in Washington, DC. Selection was difficult due to the high quality of all applicants and the 41-person limit. Program balance and other criteria were considered, and preference was given to those with a demonstrated interest in interdisciplinary research. The acceptance rate was 63%, including two individuals who were invited

but unable to attend. The 41 symposium participants included:

15 (37%) limnologists 26 (63%) oceanographers
 16 (39%) females 25 (61%) males
 26 (63%) U.S. Citizens 7 (17%) Canadian citizens
 8 (20%) citizens of other countries.

The symposium committee also selected a symposium mentor, based on recommendations of mid-career scientists nominated by the DIALOG '94 applicants. We congratulate and thank Cindy Lee (State University of New York at Stony Brook) for being selected and serving as Mentor for this first program.

The 5-day symposium format included poster and oral presentations by each participant, working-group discussions on topics chosen by the symposium selection committee and participants, and presentations by the sponsoring agency representatives and by the meeting mentor.

Working Group on Graduate Education

Participants divided into working groups to discuss several topics, including successful elements of graduate education. This topic generated much discussion of the question of whether graduate student training should be cut back due to the lack of jobs and research support (only one of the 41 participants had so far secured a permanent position). Participants urged that faculty paint a realistic portrait of job prospects and research funding, and that institutions obtain good statistics on the career paths of their graduates. Given the job prospects, they felt that students should be made more aware of teaching and other options. Many DIALOG participants mentioned that they had been discouraged from teaching by their advisors. This group overwhelmingly wanted to pursue research careers. However, they considered teaching experience valuable, particularly if

many Ph.D.'s are not going to have the opportunity to continue on the research track—and agreed that no one should be discouraged from gaining teaching experience. Other recommendations included:

- Direct more publications at undergraduates, introducing them to aquatic science and describing options. More information is needed on career prospects.
- It might be useful for a society such as ASLO to set up a MOSAIC server of the membership and their institutional programs, which undergraduates could access through their home institutions.
- The graduate program should be open so that students could explore different areas and ideas. Several recommended a “rotation” between labs during the first year of graduate study. Others suggested that courses should be set up so that students are exposed to most or all faculty during their first year.
- European participants felt that the “classic” Ph.D. program, which discourages publication while a student, severely damages the research career potential of the students and should be abolished.
- Thesis committees should include an external member to limit “inbreeding”.
- Institutional organization should support interdisciplinary staffing within departments.
- Proposal writing should be part of the graduate student experience, either as a seminar or a formal course, but funding for graduate students should be secure. Several commented that time spent securing salary could have been better spent on their research, although they did indicate that the time spent writing proposals for funding was a good learning experience.
- Weekly seminars where graduate students report on their

Table I. Results of a survey of the 41 DIALOG Symposium participants. Thirty-six of the 41 participants returned the completed survey form.

	U.S. Males (14 responses)	U.S. Females (12 responses)	Non-U.S. (10 responses)
Median Age at Ph.D.	33.5 years	32.5 years	32 years
# Single	2	2	0
# Married or Permanent Relationship	12	9	10
# Separated or Divorced	0	1	0
0 children	4	7	6
1 child	1	2	0
2 children	6	1	4
3 children	1	0	0
Professional partner	7 (2 Ph.D.)	9 (5 Ph.D.)	9 (4 Ph.D.)
Job Preference (1st choice)			
Academic Research	11	8	7
Government Research	2	2	1
Academic Teaching		2	1
Industry	1		
Consulting			1

research were helpful.

- Funds should be available for student visits to other departments or institutions.
- Support should be directly available to students for travel to meetings. Often a student could only attend a meeting if the advisor allocated his/her grant funds to the student, sending the student instead of, not with, the advisor. The group agreed it would be beneficial to have their advisors accompany them and introduce them to colleagues.

The discussion of job prospects led to an informal survey of participants, results of which are presented in Table I.

Age at Ph.D. The median age of participants at time of Ph.D. was 33.5 years for U.S. males, 32.5 years for U.S. females, and 32 years for Non-U.S. participants, with a range of 25 - 45 years.

Families: Of the 36 who completed the survey, 89% were married, separated or divorced. Married U.S. female participants had fewer children than U.S. males (30% Vs 67%). It is not known whether this reflects a decision not to have children, a decision to defer children, or some other reason. Whatever the cause, their pattern is very different from the U.S. national average and that of their male counterparts.

Among the participants, men and women, U.S. and non-U.S. citizens, were more likely than not to have a partner with a professional career (58% married U.S. males, 90% U.S. females, and 90% non-U.S. had partners with professional careers; and 17% U.S. males, 50% U.S. females, and

40% non-US participants had partners with or working on a Ph.D. degree). It is clear that individuals may be restricted in their job search due to their partner's professional needs—and it is equally clear that institutions may have difficulty recruiting their top candidates if creative options are not available for partners.

Job Preference: Most participants (26) listed their primary job preference as academic, primarily research. Other top choices included Government research (5), academic primarily teaching (3), industry (1) and consulting (1).

Employment Success: Only one of the 41 participants had a permanent job, and only one was temporarily unemployed; the rest were on postdoctoral research positions. It is not known whether individuals with permanent jobs were less likely to apply to the program, but it is certainly possible that those with secure positions felt less need for such a program, or had teaching or other job responsibilities which conflicted with the symposium. While we have no hard statistics, after hearing discussions by the participants, the program officers and scientific staff on site felt that the job situation is worse than during the previous decade.

Conclusions

All-in-all the participants were very satisfied with the symposium goals and format. Based on the success of this first program, the ASLO Board has approved submission of a renewal proposal. Contingent on obtaining external funding, the next symposium is planned for mid October, 1996.

ASLO FORUM

NSF/EPA PARTNERSHIP FOR ENVIRONMENTAL RESEARCH

The NSF has entered into an interagency partnership for environmental research with the Environmental Protection Agency. Although the NSF has a history of collaboration with the EPA, several significant developments underscored the need for a more active partnership: First, EPA's Office of Research and Development, headed by Dr. Robert Huggett, is doubling its extramural grants program in FY 1995, and sought NSF assistance and consultation during this growth and transition phase. Second, the Senate Appropriations Committee FY 1995 Report directs EPA to enter into a partnership with NSF in order to utilize the expertise of the NSF in reviewing fundamental research proposals, and to act as a mentor to EPA on peer review protocol.

The NSF and the EPA believed that the best way to serve the environmental research community and to mentor the EPA in the merit-review process would be to conduct a joint extramural grants research program in areas of mutual programmatic interest. A Memorandum of Understanding to this effect was signed by Dr. Anne Petersen (Deputy Director, NSF) and Dr. Huggett on December 8, 1994, and staff at both agencies have been working in teams to put together an announcement of opportunity. The program emphasizes support and merit review of fundamental, extramural envi-

ronmental research, and invites proposals for research in three areas:

- Water and Watersheds;
- Technology for a Sustainable Environment; and
- Valuation and Environmental Policy.

Planning for the Water and Watersheds competition has emphasized the need for a systems approach to issues of water and watersheds, and interdisciplinary research. At least \$10 million will be designated for Water and Watersheds, with a projected award range from \$75,000 to \$500,000 per award per year, and an approximate duration of 2 to 3 years. Up to \$6.5 million will be designated for Technology for a Sustainable Environment, and \$2.5 million for Valuation and Environmental Policy.

The announcement has been placed on STIS (NSF's Science and Technology Information System), and can be accessed by sending an e-mail message to stisserve@nsf.gov and putting the following in the text: `get nsf9548.txt`. You will then receive instructions for this service. For additional assistance, contact stis@nsf.gov (703-306-0214). The NSF point of contact for the competition is Dr. Penny Firth (pfirth@nsf.gov; Tel: 703-306-1480), and the EPA contact for Water and Watersheds is Dr. Steven F. Hedke (hedtke.steven@epamail.epa.gov; Tel: 218-720-5550).

Proposals in response to this announcement must be received by May 1, 1995.

CYANOBACTERIA IN THE SEA OF GALILEE (LAKE KINNERET)

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Readers of the *ASLO Bulletin* will have been appraised of the unusual bloom of *Aphanizomenon ovalisporum* which was observed last Fall (1994) in Lake Kinneret (Gophen 1994). Unfortunately this account of the event was rather incomplete. Here I give some background data and preliminary ideas proposed by the scientific staff at the Kinneret Limnological Laboratory concerning this occurrence.

Towards the end of August 1994 isolated filaments of a rare *Aphanizomenon* species (*A. ovalisporum*) were observed in L. Kinneret. By mid-September, this organism dominated the phytoplankton. Peak concentrations (~20 mg Chl l⁻¹ throughout the 15-m euphotic zone) were recorded during the first two weeks of October with a marked increase of turbidity. Subsequently the bloom declined and by mid-November no *Aphanizomenon* filaments remained (Fig 1, insert).

This is the first time that a bloom of a nitrogen-fixing, filamentous cyanobacterium has been recorded in this meso-eutrophic, warm lake. Usually during summer and fall, the lake phytoplankton is characterized by a wide diversity of mainly nanoplanktonic chlorophytes, cyanophytes and diatoms. Overall, L. Kinneret has shown relatively high stability of algal biomass, chlorophyll and primary production (Berman et al. 1992 and accepted) over the past 22 years (1972-1993) and therefore the appearance of *A. ovalisporum* has generated much concern. The lake is a major national source of high-quality water, and the prospect of a marked deterioration in water quality is not to be dismissed lightly. (In this instance, the *A. ovalisporum* out-growth caused no evident problems for either local consumers or in the National Water Carrier system but, of course, that does not detract from the potential danger of regular cyanobacterial blooms).

Several conjectures have been proposed to explain the occurrence of *A. ovalisporum* in 1994:

- 1) An exceptionally calm and warm period occurred during August and September providing optimum conditions for the development of the cyanobacteria;

- 2) A possible increase in available phosphorus in the epilimnion during the summer of 1994 due to:

- a) Greater than usual amounts of phosphorus may have been "bequeathed" from the regular winter-spring bloom of *Peridinium gatunense* which began early, in January, and lasted until the beginning of June (Fig. 1). This was the heaviest *Peridinium* bloom on record, with extraordinarily high primary production.

- b) There may have been enhanced flux of epilimnic phosphorus caused by unusually high numbers of *Bosmina longirostris* immediately preceding the cyanobacteria.

- c) Changes in fish (exceptionally large numbers of small (<13 cm) individuals of *Mirogrex terraesanctae*, the Kinneret "sardine") and plankton community structure may also have been responsible for the decreased sedimentation of particulate phosphorus measured in sediment traps.

- d) An increased flux of phosphorus from the sediment water interface was observed in 1994 compared to previous years.

A further prerequisite for the appearance of *A. ovalisporum* may perhaps have been the relatively low summer-fall, epilimnic, TN:TP ratios recorded since 1981 (average values 1981-1994 = 51.9 +/- 6.3 [at:at], excluding "high" values due to extraordinary floods in 1992). From about 1978 to 1981 there was a drop in epilimnic TN:TP ratios (probably because of changes in watershed management which lowered mostly DON inputs) but subsequently

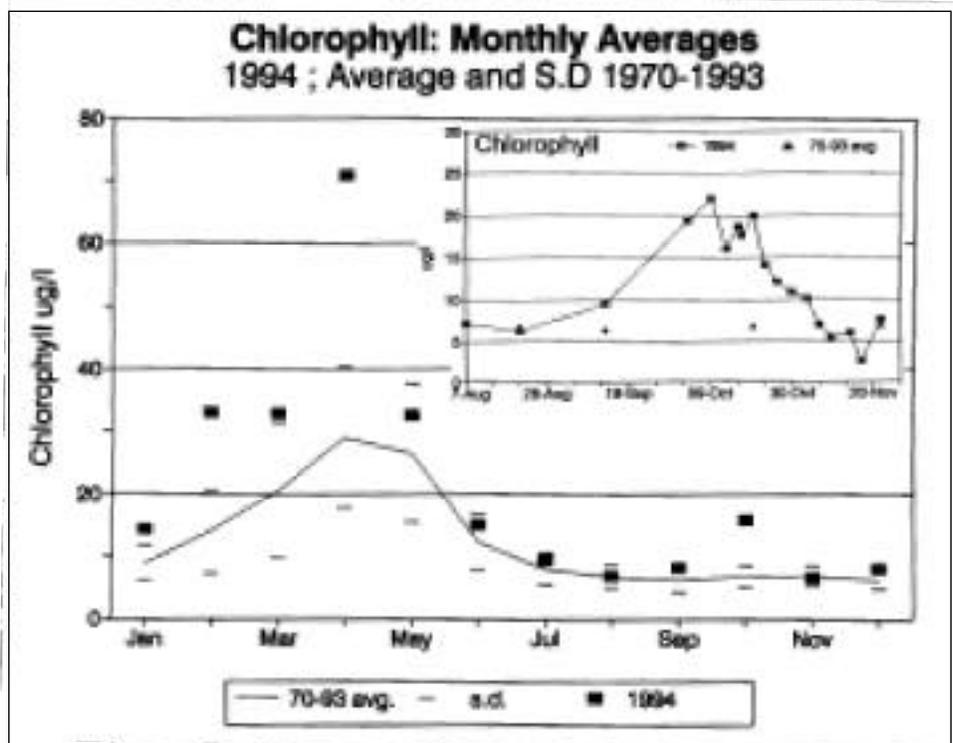


Fig. 1. Monthly chlorophyll concentrations (mg Chl m⁻²), averages and standard deviations from 1970 through 1993, and in 1994. Insert shows detail of chlorophyll concentrations (µg l⁻¹) during August-November 1994; 1993 and 1970-1993 average.

there was no significant decrease (Fig. 2). Note also that during the whole period from 1981 until Fall 1994, there was no sign of cyanobacterial nitrogen fixers. Paradoxically, concentrations of epilimnic ammonia were relatively high during the summer-fall of 1994, especially in August (~40 $\mu\text{gN l}^{-1}$) when *A. ovalisporum* developed. (Incidentally, growth of *Aphanizomenon* blooms in the presence of high N concentrations, 450 $\mu\text{gN l}^{-1}$, has been reported for a Danish lake (Jacobsen and Simonsen, 1993). With the crash of the *A. ovalisporum* bloom we observed a sharp drop from October to November in epilimnic pH (8.7 to 8.1) and a rise in NH_4 (37 $\mu\text{gN l}^{-1}$ to 211 $\mu\text{gN l}^{-1}$), presumably due to the microbial breakdown of the cyanobacterial biomass.

At this stage the important, unanswered questions are:

- Will there now be recurrent outbreaks of nitrogen-fixing cyanobacteria in L. Kinneret?
- Does the unusual pattern of phytoplankton development in 1994 signify a disruption of the long-term stability of the phytoplankton recorded over the past twenty five years and a shift in the eutrophic (winter-spring)/ mesotrophic (summer-fall) status of this lake?

Predicting the answers to these questions for a complex ecosystem such as L. Kinneret will not be easy (c.f., Harris, 1994) but a careful analysis of the 1994 data combined with planned laboratory studies of *A. ovalisporum* should at least point us in the right direction.

Note: I thank B. Azouli, S. Chava, W. Eckert, M. Gophen, O. Hadas, D. Hambright, N. Koren, A. Nishri, I. Ostrovsky, A. Parparov, R. Parparova, U. Pollinger, M. Schlichter, M.

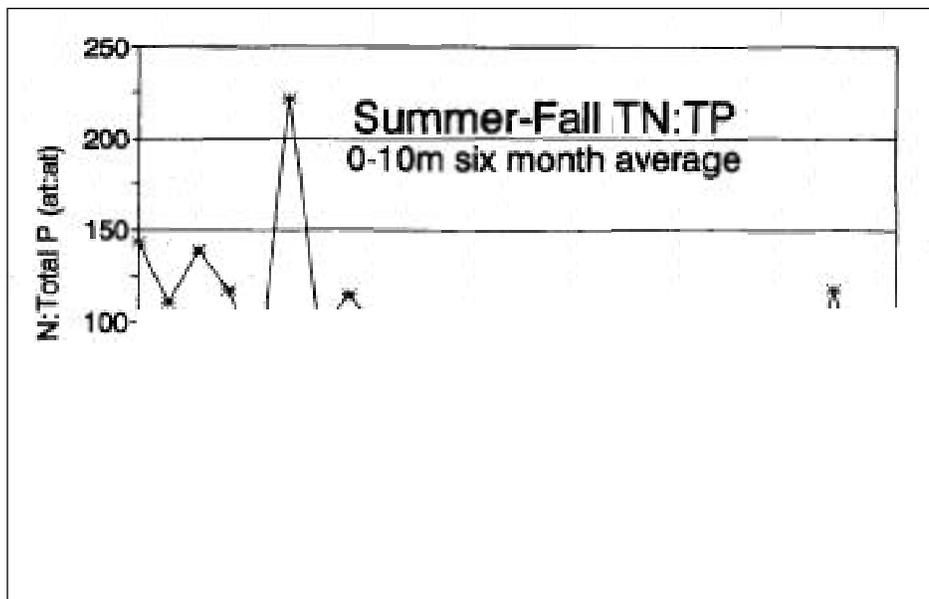


Fig. 2. Total nitrogen: Total phosphorus [at:at] ratios: July-December averages for 0- to 10-m depths from 1969 through 1994.

Sela, Y.Z. Yacobi, P. Walline and T. Zohari for data and ideas. I am grateful to B. Meyer (Max Planck Institute of Limnology, Plön, Germany) for helping to identify the *A. ovalisporum*..

References:

Berman, T., Y.Z. Yacobi and U. Pollinger. 1992. Lake Kinneret phytoplankton: Stability and variability during twenty ears (1970—1989). *Aquatic Sciences* 52:104-127.

Berman, T., L. Stone, Y. Z. Yacobi, A. Nishri, M. Schlichter and U. Pollinger. Accepted. Primary production in Lake Kinneret: a long term record (1972-1993). *Limnol. Oceanogr.*

Jacobsen B. A. and P. Simonsen, 1993. Disturbance events affecting phytoplankton biomass, composition and species diversity in a shallow, eutrophic, temperate lake. *Hydrobiol.* 249:9-14.

Gophen, M. 1994. Blue-green algae and Lake Kinneret. *ASLO Bulletin* 3(3):5.

Harris, G.H., 1994. Pattern, process and prediction in aquatic ecology. A limnological view of some general ecological problems. *Freshwater Biol.* 32:143-160.

ATTENTION MEMBERS

Please send me potential agenda items that you would like the Board to consider for discussion at the Annual Business Meeting in Reno. Send items by phone, fax, regular mail or e-mail by June 1, 1995.

Nancy H. Marcus
 Dept. Oceanography
 Florida State University
 Tallahassee, FL 32306

ATTENTION MEMBERS

Thinking of organizing a special symposium that you would like ASLO to sponsor/co-sponsor? Send your ideas to me by June 1, 1995 for consideration by the ASLO Board at the summer meeting in Reno.

Nancy H. Marcus
 Tel: 904-644-5498
 Fax: 904-644-2581
 marcus@ocean.fsu.edu

THE IRON HYPOTHESIS LIVES, BUT IT MAY BE CHANGING

John Cullen, Bigelow Laboratory and Dalhousie University, Department of Oceanography, Halifax, NS Canada, B3H 4J1 (Tel: 902-494-6667; Fax: 902-494-3877; Internet: John.Cullen@dal.ca)

Participants at ASLO's 1991 "Iron symposium" debated the role of iron as a control of phytoplankton production in nutrient-rich areas of the open ocean, and, among other things, recommended future research involving modestly scaled iron-enrichment experiments and studies of nutrient-rich oceanic areas upstream and downstream of natural iron sources.

IronEx, the open-ocean iron enrichment experiment (Martin et al., 1994) has quashed any doubts that may have existed about the ability of iron to stimulate growth of phytoplankton in high-nutrient waters of the equatorial Pacific. The experiment was a tribute to the vision of John Martin.

Indeed, the biomass and productivity of phytoplankton increased in an enriched patch, but the response was very small compared to the "blooms" that have been observed during incubations in bottles with added iron. During IronEx, changes in near-surface concentrations of CO₂ were minimal (Watson et al. 1994), and macronutrients were not significantly depleted.

It can be argued that macronutrients would have been depleted if the iron enrichment had been sustained: shallow waters near the Galapagos were presented as an example (Martin et al. 1994). However, the relatively restricted, shallow and hydrographically complex region where nitrate depletion was observed (see Chavez and Brusca 1991) might not fully represent the open-ocean ecosystem where IronEx was performed. For example, it is not clear whether the increases of mesozooplankton biomass within the iron-enriched patch, apparently associated with altered vertical migration (Van Scoy and Coale 1994), were or could be a feature of the nitrate-depleted, iron-rich waters of the Galapagos platform. Thus, although we now know that iron can stimulate blooms of phytoplankton in the equatorial Pacific, there has not yet been a conclusive test of the hypothesis that iron limitation is responsible for the persistence of high macronutrient concentrations in the region. Good arguments have been presented on both sides of the issue (Kolber et al. 1994; Martin et al. 1994; Van Scoy and Coale 1994; Watson et al. 1994). No doubt these will be refined in future publications, and tested further in the next field experiment. The debate should be healthy.

Meantime, de Baar et al. (1995) have made significant progress exploring the role of iron in the Southern Ocean, another important high-nutrient, low-chlorophyll (HNLC) region. By relating natural levels of chlorophyll, primary productivity, macronutrients, and CO₂ to distributions of iron in open-ocean Antarctic waters, they make a case for the regulation of diatom blooms by iron. They assert that blooms can occur in the iron-rich jet of the polar front, but not in the iron-poor waters of the Antarctic circumpolar current.

De Baar and colleagues make no claims that iron is solely responsible for high nutrient conditions in the Southern

Ocean. Rather, they argue that iron is biogeochemically important because it permits significant draw-down of surface CO₂ in blooms. The blooms they discuss (chlorophyll a concentrations of about 2 mg m⁻³) come nowhere close to depleting nitrate, phosphate or silicate. As the authors acknowledge, other factors, such as vertical mixing and grazing, prevent complete utilization of nutrients.

The results of IronEx and the study by de Baar et al. may signal an important shift in the iron hypothesis. When discussion reached a peak at the ASLO "iron symposium" a working hypothesis, formulated at a workshop convened by the Board on Biology of the U.S. National Research Council, was that an increase in the rate of supply of iron to the surface layer of HNLC waters would reduce nitrate and phosphate to depletion (see Cullen 1991). This hypothesis has not been conclusively rejected, but it seems that future studies will focus on the degree to which surface concentrations of macronutrients and CO₂ are depleted as a function of iron supply, without the need to demonstrate complete depletion of nutrients. The work will be difficult and complicated, but exciting. Open discussion and international, interdisciplinary collaboration will help.

Here is a suggestion for a future experiment: moor several barges in open, high-nutrient waters of the equatorial Pacific. Attach several thousand kg of metallic iron on each, engineered with plenty of surface area to encourage corrosion (rusting) at a predetermined, environmentally relevant rate. Incorporate an inert tracer, if possible (Watson et al. 1991). Treat the persistent enrichment site as an international scientific resource, and encourage as many groups as possible to study the chemical and ecological changes associated with the iron plume.

Such an open research plan would encourage a broad diversity of approaches and interpretations, leading, one would hope, to rapid progress toward resolving a key issue in modern oceanography. The iron hypothesis might change in the process, but its central message, promoted so well by John Martin, is likely to survive.

References:

- Chavez, F. P. and R. C. Brusca. 1991. The Galapagos Islands and their relation to oceanographic processes in the tropical Pacific, p. 9-33. In M. J. James [ed.], Galapagos Marine Invertebrates. Plenum Press.
- Cullen, J. J. 1991. Hypotheses to explain high-nutrient conditions in the open sea. *Limnol. Oceanogr.* 36:1578-1599.
- de Baar, H. J. W., J. T. M. de Jong, D. C. E. Bakker, B. M. Loscher, C. Veth, U. Bathmann and V. Smetacek. 1995. Importance of iron for plankton blooms and carbon dioxide drawdown in the Southern Ocean. *Nature* 373:412-415.
- Kolber, Z. S., R. T. B. H. Coale, S. E. Fitzwater, R. M. Greene, K. S. Johnson, S. Lindley and P. G. Falkowski. 1994. Iron limitation of phytoplankton photosynthesis in the equatorial Pacific Ocean. *Nature* 371:145-149.
- Martin, J. H. et al. 1994. Testing the iron hypothesis in ecosystems of the equatorial Pacific-Ocean. *Nature* 371:123-129.
- Van Scoy, K. and K. Coale. 1994. Pumping iron in the Pacific. *New Scientist* 3 December: 32-35.
- Watson, A., P. Liss and R. Duce. 1991. Design of a small-scale in situ iron fertilization experiment. *Limnol. Oceanogr.* 36:1960-1965.
- Watson, A. J., C. S. Law, K. A. Van Scoy, F. J. Millero, W. Yao, G. E. Friederich, M. I. Liddicoat, R. H. Wanninkhof, R. T. Barber and K. H. Coale. 1994. Minimal effect of iron fertilization on sea-surface carbon dioxide concentrations. *Nature* 371:143-145.

BIOGRAPHICAL SKETCHES, 1995 ASLO CANDIDATES

ASLO is governed by a Board of Directors consisting of four elected officers and seven Members-at-Large, one for every 500 members of the Society.

This year we will elect a Vice President to succeed Nancy H. Marcus, who completes her second and final year as President in June, 1996, and two new Members-at-Large, to replace Sally MacIntyre and Bess B. Ward, who complete their 3-year terms in June. Continuing Members-at-Large are: JoAnn M. Burkholder, Jonathan J. Cole, Erica J.H. Head, Robert H. Peters, and Sybil P. Seitzinger.

We are grateful to all those who submitted nominations and to this year's Nominations Committee (Benjamin E. Cuker (Chair), John J. Cullen, and Saran Twombly). Selecting among the many outstanding individuals who were nominated was no easy task! Next year we will elect a new Treasurer and two new Members-at-Large. Please send nominations, including self-nominations, to President Marcus (nmarcus@ocean.fsu.edu; Tel: 904-644-5498).

1995 candidate biographies and statements are presented below.

Please vote for your preferred candidates on the enclosed Ballot.

The deadline for receipt of ballots: June 1, 1995.

VICE PRESIDENT

Christopher F. D'Elia A.B. 1968 (*Middlebury College*); Ph.D. 1974 (*University of Georgia*)



Dr. D'Elia is a professor at Chesapeake Biological Laboratory, University of Maryland Center for Environmental and Estuarine Studies and director of the Maryland Sea Grant College. He has served as the director of the Biological Oceanography Program at the National Science Foundation, as the Chair of the Mid-Atlantic

Regional Marine Research Board, and has held appointments at the Academy of Natural Sciences, Woods Hole Oceanographic Institution, the University of Southern California, and the University of California at Los Angeles.

His research and academic interests focus on nutrient cycling in marine and estuarine systems, invertebrate algal symbiosis, and science-policy relationships.

Dr. D'Elia's service activities for ASLO have included: Chair, Special Committee on Newsletter and Job Opportunities (1977); member, Committee on the Future of ASLO (1988); member, Editorial Board for *Limnology and Oceanography* (1983-1986); chair, Public Affairs Committee (1988); and member, Challenges for Limnology Committee (1991-1994). His other service activities have included: President, Estuarine Research Federation (1991-1993); Secretary, Council of Scientific Society Presidents (1993-1995); Co-Chair, Board on Oceans and Atmosphere, National Association of State Universities and Land Grant Colleges (1994-1995); President, Sea Grant Association (1991-1992); and Chair (1990-1991) and Vice Chair (1991-1992), Public Affairs Committee, Ecological Society of America.

Representative Publications

- D'Elia, C.F., J.G. Sanders and W.R. Boynton. 1986. Nutrient enrichment studies in a coastal plain estuary: Phytoplankton growth in large-scale, continuous cultures. *Can. J. Fish. Aquat. Sci.* 43:397-406.
- D'Elia, C.F. and C.B. Cook. 1988. Methylamine uptake by invertebrate/zooxanthellae symbioses: Implications into host nutrition and ammonium environment. *Limnol. Oceanogr.* 33:1153-1165.
- D'Elia, C.F. 1988. The cycling of essential elements in coral reefs, pp. 195-230. In: L.R. Pomeroy and J.J. Alberts [eds.], *Concepts of Ecosystem Ecology*. Springer-Verlag, N.Y.
- D'Elia, C.F., D.G. Capone and J.G. Sanders. 1989. Analytical chemistry in environmental monitoring: A question of confidence. *Environ. Sci. Technol.* 23:768-774.
- D'Elia, C.F., L.W. Harding, Jr., M. Leffler and G.B. Mackiernan. 1992. The role and control of nutrients in Chesapeake Bay. *Water Sci. Tech.* 26:2635-2644.

Candidate Statement

The next decade will see significant changes in public appropriations for science and science education that will result, in my opinion, in tighter competition for research funding, in pressures to decrease opportunities for student education in the environmental sciences, and in potential decreases in the membership and influence of professional societies like ASLO. It is absolutely essential that ASLO be prepared to respond to such changes: (1) by serving as an effective voice for limnology and oceanography in public fora, (2) by promoting education and full access to educational opportunities in limnology and oceanography for the best qualified students, and (3) by retaining existing members and recruiting new members. ASLO must be particularly attentive to internal budgetary matters and to continuing efforts to promote increased interactions between limnologists and oceanographers. As president, I would focus on those issues, while seeking to enhance the interaction of ASLO with the broader national and international scientific communities and developing more public awareness of the value and relevance of research for understanding and solving environmental problems.

VICE PRESIDENT

Diane M. McKnight B.S. 1975, M.S. 1978, Ph.D. 1979 (*Massachusetts Institute of Technology*)



Dr. McKnight is a research hydrologist with the Water Resources Division of the U.S. Geological Survey.

Her research interest is in biogeochemical and ecological processes in lakes, streams and watersheds. She has conducted field studies and laboratory experiments of interactions involving natural organic material, trace metals (iron and aluminum, copper) and phytoplankton or periphyton. Her field research includes sites in the Colorado Rocky Mountains and in the Dry Valleys of Antarctica, with an overall goal of elucidating particular biogeochemical processes in "end-member" environments where these processes are more readily observed.

She was a co-chair of the 1988 Annual ASLO meeting in Boulder, CO and initiated the student poster awards. She served as member-at-large on the ASLO Board from 1991-1994 and chaired the ASLO Ethics Committee which prepared the Code of Ethical Conduct approved by ASLO in 1994. She co-chaired the 1994 ASLO/NABS Symposium on Freshwater Ecosystems and Climate Change in North America. She is a member of the steering committee for the Freshwater Imperative and serves on two National Research Council Committees: the Polar Research Board and the Committee on Inland Aquatic Ecosystems of the Water Science and Technology Board.

Representative Publications

- McKnight, D.M., K.E. Bencala, G.W. Zellweger, G.R. Aiken, G.L. Feder, G.L. and K.A. Thorn. 1992. Sorption of dissolved organic carbon by hydrous aluminum and iron oxides occurring at the confluence of Deer Creek with the Snake River, Summit County, Colorado. *Environ. Sci. and Technol.* 26(7):1388-1396.
- McKnight, D.M., R.L. Smith, R.A. Harnish, C.L. Miller and K.E. Bencala. 1993. Seasonal relationships between planktonic microorganisms and dissolved organic material in a Rocky Mountain stream: *Biogeochem.* 21: 39-59.
- Spaulding, S.A. D.M. McKnight and R.L. Smith. 1993. Phytoplankton population dynamics in perennially ice-covered Lake Fryxell, Antarctica. *J. Plankton Res.* 16(5):527-541.
- Hornberger, G.M., K.E. Bencala and D.M. McKnight. 1994. Hydrological controls on the temporal variation of dissolved organic carbon in the Snake River near Montezuma, Colorado, *Biogeochem.* 25:47-165.
- McKnight, D.M., E.D. Andrews, S.A. Spaulding and G.R. Aiken. 1994. Aquatic fulvic acids in algal-rich antarctic ponds. *Limnol. Oceanogr.* 39(8):1972-1979.

Candidate Statement

Two important activities for the society are publication of a highly respected journal and convening meetings for exchange of new results and ideas among the membership. A priority for the future is to develop new approaches to promote interactions involving marine and freshwater sciences at the annual meeting, and to stabilize the financial and logistical aspects of the annual meeting. Further, I believe that ASLO should serve as a vehicle through which the membership can provide scientific leadership on environmental issues involving aquatic systems. The society should be active in enhancing education with respect to aquatic systems at all levels, i.e. the general public, pre-college students, and undergraduate and graduate students.

MEMBER-AT-LARGE

Russell L. Cuhel B.A. 1975 (*University of California, San Diego*); Ph.D. 1981 (*Massachusetts Institute of Technology and Woods Hole Oceanographic Institution*)



Dr. Cuhel is an Associate Scientist at the Center for Great Lakes Studies and an Adjunct Associate Professor of Biology at the University of Wisconsin-Milwaukee.

His broad research experience in microbial physiology is presently focused on mineral-nutrient assimilation and heterotrophic-autotrophic relationships. Combining analytical chemistry and biological rate measurement techniques, he works to gain a synoptic picture of hydrographic, geochemical, and microbial processes. His research also contributes to both

Research Experience for Undergraduates (site director) and high school to graduate student technical training, for which Lake Michigan is a local study site. Comparative investigations of microbial biogeochemistry are underway in diverse habitats including geothermally active Yellowstone Lake, coastal ocean systems, Great Lakes environs, and culture flasks.

Dr. Cuhel has a strong commitment to education and service in research wherever needed. Examples of his activities at the national level include peer review of manuscripts (*FEMS Microbial Ecology*, *Can. J. Microbiol.*, *Mar. Biol.*) and proposals (several Sea Grants, NSF, NOAA), and panel (NSF Biological/Chemical Oceanography and Special Programs in Oceanography and Coastal Ocean Processes)

activities. He is a recent appointee to the ASLO Education committee and a regular mentor for minority marine science students through CURMLO, McNair, and local summer research internship programs.

Representative Publications

- Cuhel, R.L., H.W. Jannasch, C.D. Taylor and D. R. S. Lean. 1983. Microbial growth and macromolecular synthesis in the northwestern Atlantic Ocean. *Limnol. Oceanogr.* 28:1-18.
- Cuhel, R.L., P.B. Ortner and D.R.S. Lean. 1984. Night synthesis of protein by algae. *Limnol. Oceanogr.* 29:731-744.
- Cuhel, R.L. and D.R.S. Lean. 1987. Influence of light intensity, light quality, temperature, and daylength on uptake and assimilation of carbon dioxide and sulfate by lake plankton. *Can. J. Fish. Aquat. Sci.* 44:2118-2132.
- Lean, D.R.S. and R.L. Cuhel. 1987. Subcellular phosphorus kinetics for Lake Ontario plankton. *Can. J. Fish. Aquat. Sci.* 44:2077-2086.
- Bates, T.S., R.P. Kiene, G.V. Wolfe, P.M. Matrai, F.P. Chavez, K.R. Buck, B.W. Blomquist and R.L. Cuhel. 1994. The cycling of sulfur in surface seawater of the northeast Pacific. *J. Geophys. Res.* 99(C4):7835-7843.

Candidate Statement

ASLO has been a voice for quality in published scientific research through its journal. One of my goals is to help

L&O become one of the first and premier journals in multimedia publication, because so much of our work in behavior, modeling, and some other areas is better seen than read. I would like L&O to produce one or two video and/or CD-ROM issues per year.

ASLO must also be active in promoting quality in research on a broader scale. It is necessary for societies like ASLO to provide leadership to guarantee the reliability of widely used resources such as global-monitoring data bases. I believe the society must encourage skilled analytical as well as conceptual research capabilities, both through early education and later emphasis on mentor-student interaction. Remote sensing and large programs will lead to accumulation of mega data bases in which accuracy cannot be traced. Dissemination of realistic career information, and the responsibilities that attend to careers in aquatic sciences, will aid in recruitment of top-quality students committed to a pursuit of excellence in future global scientific research. Science research education and research itself are interdependent, not independent, aspects of ASLO membership's obligations.

MEMBER-AT-LARGE

Mark E. Hay *B.S. 1974 (University of Kentucky); Ph.D. 1980 (University of California, Irvine)*



Dr. Hay is a Professor of Marine Sciences, Biology, and Ecology at the University of North Carolina at Chapel Hill's Institute of Marine Sciences.

His research focuses on population and community ecology with emphases on plant-herbivore interactions, mechanisms and consequences of chemical defenses

in seaweeds, benthic invertebrates, and marine larvae, and on the general forces structuring temperate versus tropical reefs. Presently funded projects focus on marine chemical ecology, freshwater chemical ecology, complex interactions of physical and biological factors affecting coral-seaweed interactions on tropical reefs, and how pre- and post-recruitment processes interact with habitat characteristics to affect recruitment of fishes to off-shore reefs versus estuaries in the South Atlantic Bight.

Dr. Hay has served on the editorial boards of *Ecology* and *Ecological Monographs*, *Marine Ecology Progress Series*, and *Chemoecology* and has served on panels and advisory boards for the National Science Foundation, National Research Council, National Oceanographic and Atmospheric Association, Max-Planck Society, International Society of Chemical Ecology, and the Charles Lindbergh Fund, Inc.

Representative Publications

- Hay, M. E. 1986. Associational plant defenses and the maintenance of species diversity: Turning competitors into accomplices. *Am. Naturalist* 128:617-641.

- Hay, M. E. and W. Fenical. 1988. Marine plant-herbivore interactions: The ecology of chemical defense. *Ann. Rev. Ecol. and Syst.* 19:111-145.
- Gil-Turnes, M. S., M. E. Hay, and W. Fenical. 1989. Symbiotic marine bacteria chemically defend crustacean embryos from a pathogenic fungus. *Science* 246:116-118.
- Hay, M. E., Q. E. Kappel, and W. Fenical. 1994. Synergisms in plant defenses against herbivores: Interactions of chemistry, calcification, and plant quality. *Ecology* 75:1714-1726.
- Lindquist, N. and M.E. Hay. 1995. Can small rare prey be chemically defended? The case for marine larvae. *Ecology* (in press).

Candidate Statement

ASLO is a dynamic society that produces a prestigious journal, but many sub-disciplines represented by ASLO would benefit from increasing interaction between investigators working on problems that are intellectually overlapping but that focus on different types of systems or communities. For the past several years I have worked to facilitate communication between marine and terrestrial ecologists that work on intellectually similar questions. These efforts have increased instances of cross citation in the literature, and marine investigators are now commonly invited to give presentations at what had traditionally been terrestrial meetings. Although this is gratifying, I now realize that many benthic investigators (both marine and freshwater) are communicating less with the broader oceanographic and limnological community than with terrestrial investigators. I see no substantial intellectual reason for this, and feel that ASLO, its journal, and its meetings could play a more direct role in improving interaction, communication, and appreciation among the various sub-disciplines represented within ASLO.

MEMBER-AT-LARGE

Catherine M. Pringle *B.S. 1976, M.S. 1979, Ph.D. 1986 (University of Michigan)*



Dr. Pringle is an Assistant Professor at the Institute of Ecology, University of Georgia.

Her research interests include scalar effects of nutrient spatial heterogeneity on algal periphyton growth and community structure and linkages between hydrogeological processes and the community ecology of surface

waters. Her research on nutrient cycling and community ecology of lowland tropical streams in Costa Rica has been funded by the National Science Foundation over the last eight years.

Pringle serves as a member of the Editorial Board of *Freshwater Biology* and the *European Journal of Phycology*. As Co-Chair of the Conservation and Environmental Affairs Committee of the North American Benthological Society (NABS), Pringle has been actively involved in increasing the dialog between scientists and nongovernmental organizations involved in freshwater conservation and restoration. She is actively involved with the Organization for Tropical Studies, as a member of the Board of Directors and the La Selva Biological Station Advisory Committee, and she also holds an adjunct position with the University of Costa Rica's Center for Marine and Limnological Studies. She is currently serving on the National Academy of Sciences Review Panel for Collaborative Research and Sectoral Policy in Central Europe and Eurasia and she just finished serving as a member of the National Academy of Sciences Advisory Committee on East European Affairs (1992-1994) during which she supported the Academy's focus on environmental issues in Central and Eastern Europe.

Representative Publications

- Pringle, C. M. 1990. Nutrient spatial heterogeneity: Effects on the community structure, diversity and physiognomy of lotic algal communities. *Ecology* 71:905-920.
- Pringle, C. M. and F. J. Triska. 1991. Effects of geothermal waters on nutrient dynamics of a lowland Costa Rican stream. *Ecology* 72:951-965.
- Pringle, C. M., G. L. Rowe, F. J. Triska, J. F. Fernandez and J. West. 1993. Landscape linkages between geothermal activity, solute composition and ecological response in streams draining Costa Rica's Atlantic Slope. *Limnol. Oceanogr.* 38:753-774.
- Pringle, C. M., G. Vellidis, F. Heliotis, D. Bandacu and S. Cristofor. 1993. Environmental problems in the Danube Delta. *Am. Scientist* 81:350-361.
- Pringle, C. M. and G. A. Blake. 1994. Quantitative effects of atyid shrimp (Decapoda: Atyidae) on the depositional environment in a tropical stream: Use of electricity for experimental exclusion. *Can. J. Fish. Aquat. Sci.* 51:1443-1450.

Candidate Statement

I view ASLO as a leading scientific society in freshwater biology that is becoming a significant force in bridging the science-conservation gap - without compromising its scientific integrity. I believe that ASLO can play an increasingly important role by serving as a major source of information on environmental issues related to aquatic systems. This can be fostered by enhanced communication between the Society and governmental and nongovernmental organizations, and industry through special symposia, establishment of conservation resource databases and coordination of 'state of the science' papers that can be used by managers. I would like to see ASLO continue to build on its strengths which include scientific excellence and promotion of interdisciplinary research through special symposia and other programs (e.g. global warming symposium, applications of GIS to the study of aquatic systems). I also strongly support ASLO's continued efforts to increase the participation of under-represented groups in the aquatic sciences through its Minorities Program.

MEMBER-AT-LARGE

Henry N. Williams *B.S. 1965 (North Carolina A&T State University); M.S. 1972, Ph.D. 1979 (University of Maryland at Baltimore)*



Dr. Williams is an Associate Professor in the Microbiology Department, University of Maryland at Baltimore, and the Assistant Vice President for Research, University of Maryland Graduate School, Baltimore. He also has an affiliate appointment at the University of Maryland Center for

Estuarine and Environmental Studies.

His primary research interest is the study of the ecology

of the unique bacteria, *Bdellovibrio* spp. - one of few known genera of intracellular, obligately parasitic predators of other bacteria - in the aquatic environment. Other research interests include microbial biofilms and studies on bacterial contamination in water distribution systems. Other areas which Dr. Williams has been involved includes science policy issues, an interest which he developed while serving a year as a Congressional Science Fellow, and in issues on responsible conduct in research.

As a member of the American Society for Microbiology, he served on a number of committees at the national and

local level including President of the Maryland Branch of the Society. For the past several years, he has been an active participant in ASLO. He has served as a mentor in the ASLO-NSF-Hampton University Minority Program and as a member of the ASLO By-Laws Committee.

Representative Publications

- Schoeffield, A. J. and H. N. Williams. 1990. Efficiencies of recovery of bdellovibrios from brackish-water environments by using various bacterial species as prey. *Appl. Environ. Microbiol.* 56:230-236.
- Schoeffield, A. J., W. A. Falkler, Jr., D. Desai and H. N. Williams. 1991. Serogrouping of halophilic bdellovibrios from Chesapeake Bay and environs by immunodiffusion and immunoelectrophoresis. *Appl. Environ. Microbiol.* 57:3470-3475.
- Kelley, J. and H. N. Williams. 1992. Bdellovibrios in *Callinectes sapidus*, the blue crab. *Appl. Environ. Microbiol.* 58(4):1408.
- Williams, H. N., H. Quinby and E. Romberg. 1994. Evaluation and use of a low nutrient medium and reduced incubation temperature to study bacterial contamination in the water supply of dental units. *Can. J. Microbiol.* 40:127-131.
- Williams, H. N., A. Schoeffield, D. Guether, J. Kelley, D. Desai and W. A. Falkler, Jr. 1995. Recovery of bdellovibrios from submerged surfaces and other aquatic habitats. *Microbial Ecol.* 29:39-48.

Candidate Statement

I believe ASLO has faced many challenges in the past few years regarding membership and updating its by-laws and organizational structure. Although these issues are being addressed, there will continue to be a need to follow their course and to perhaps make some mid-course adjustments. I would like to see ASLO continue to become a stronger organization by maintaining a broad appeal to professionals and students in the aquatic sciences, by continuing to seek ways to operate more efficiently and to encourage even greater student participation. I would like to see the Society become more active in interacting with and educating the public about the significance of the scientific research with which its members are involved.

ARTICLES OF INCORPORATION AND BYLAWS REVISIONS

Please read, consider, and cast your vote to accept or reject the restated Articles of Incorporation and revised Bylaws for the Society. The current documents and proposed changes are presented in the pamphlet accompanying this bulletin.

Deadline for receipt of ballots:

June 1, 1995

THE ECOLOGICAL CONDITION OF LAKES

Boris V. Kurzo Ylasov, Institute for Problems of Natural Resources Use & Ecology, Academy of Sciences of Belarus, 10 Staroborisovsky Trakt, Minsk 220114, Republic of Belarus (Tel: 7-64-26-31; Fax: 7-64-24-13; Internet: ipipre%bas18.basnet.minsk.by@demos.su).

This letter is written in order to widen scientific and technical relations in the sphere of study and estimation of the present ecological condition of lakes.

I am a member of a group working on the genesis and estimation of peat and sapropel resources, which was organized in 1989 through the Belarussian Academy of Sciences, at the Institute for Problems of Natural Resource Use and Ecology's laboratory of Landscape Biogeochemistry. Our group is particularly interested in identification and evaluation of works on sapropel in lakes, determination of the direction of utilization of sapropel deposits, and etc. The principal scientific directions are: study of the regularities of formation and estimation of the Holocene organic deposits, ecological and economical substantiation of the development of organogenic deposits, and regeneration of the degraded ponds.

So far the main achievements of the group have been: compilation of the register of sapropel deposits in belarussian lakes, estimation of natural factors determining the genesis and properties of sapropels, and determination of polluting components in bottom sediments. We are very interested in hearing from individuals with similar interests. If our group is of interest to you, please contact me at the address above. Our Republic has great scientific potential regarding investigations of lakes. Other laboratories conducting limnological research in Belarus include: Laboratory of Lakes Research of the Belarus State University (Dr. Boris P. Viasov, head; Tel: 172-26-46-32; and Laboratory of Hydrobiology of the Belarus State University (Prof. Alexander P. Ostapenya, chair; Tel: 172-26-85-22).

ELECTRONIC JOB HUNTING

The Internet provides a user-friendly way to announce job openings and search for jobs. In keeping with the times ASLO's new Home Page includes a Jobs board. If you want to post a job listing, e-mail a 1-line title and a 1-paragraph description to weiler@whitman.edu. To access the ASLO Home Page, use

<http://www.ngdc.noaa.gov/paleo/aslo/aslo.html>.

There are at least as many electronic listings out there as there are Institutional and Societal Home Pages, and some are interactive enough to allow electronic submission of applications with a the touch of a "reply" button. Finn (1995) provides a very useful introduction to electronic job searching and electronic resources. The following list is an excerpt of on-line resources for job searchers provided by Finn; these have been entered on the ASLO Home Page for easy access:

A Biologist's Guide to Internet Resources

- In Usenet, look in the sci.bio or sci.answers newsgroups, where the guide is updated about once a month.

- Connect via anonymous ftp to [sunsite.unc.edu](ftp://sunsite.unc.edu) where the guide is stored as [pub/academic/biology/ecology+evolution/bioguide/bioguide.faq](ftp://pub/academic/biology/ecology+evolution/bioguide/bioguide.faq)
- Send e-mail to mail-server@rtfm.mit.edu with the message: `send usenet/news.answers/biology/guide/*`

Academe This Week (Chronicle of Higher Education)

- Point your Web browser to <http://chronicle.merit.edu> or gopher to [chronicle.merit.edu](gopher://chronicle.merit.edu)

Academic Position Network

- Gopher to [rodent.cis.umn.edu](gopher://rodent.cis.umn.edu) 11111

Employment Opportunities and Job Resources on the Internet

- Gopher to [una.hh.lib.umich.edu](gopher://una.hh.lib.umich.edu) and look under the menu heading "inetdirs", which is the University of Michigan's Clearinghouse of Subject-Oriented Internet Resource Guides

FedWorld (federal government information, including job openings)

- Point your Web browser to <http://www.fedworld.gov> or telnet to 192.239.93.3

geosci-jobs

- e-mail listserv@netcom.com with the following message: `subscribe geosci-jobs`

World Wide Web Meta-Lists

- Point your Web browser to <http://rescomp.stanford.edu/jobs.html>

Young Scientists' Network

- Point your web browser to <http://snorri.chem.washington.edu/ysnarchive/index.html> or send e-mail to ysnadm@crow-robot.stanford.edu

For those interested in looking beyond the first job, a recent issue of *Science* (1994) describes the various stages along the Ph.D. career path, from early to late career, and provides hints on "playing to win".

References

- Finn, R. 1995. Career-building sites on the Internet: Hunting for jobs electronically, *The Scientist.*, January 23, 1995, pp. 22-23).
Science. 1994. Science careers: Playing to win. *Science* 265:1905-1939.

NATIONAL BIOLOGICAL SURVEY SERVICE

Based on January 6, 1995 Department of the Interior News Release

The National Biological Survey became operational on November 11, 1993 with a mission to work with others to provide the scientific understanding and technologies needed to support the sound management and conservation of the Nation's biological resources. Its primary role is to meet the biological research needs of other organizations within the Department of the Interior, other Federal agencies, States, local entities, Tribes, and private and non-profit users. It was organized for the following purposes:

1) Establish an independent scientific agency that would insulate scientific research from those who draft government regulations. Many critics have complained that the very decision makers at Fish and Wildlife Service who make decisions under the Endangered Species Act also supervise the scientists who develop the science on which those decisions are based. They argue this "conflict of interest" could provoke the manipulation of science.

2) Consolidate the biological research functions of many Interior bureaus, including the National Park Service, the Fish and Wildlife Service, and the Bureau of Land Management. In addition to saving money, this consolidation allows for an easier exchange of information among land managers in various agencies.

In addition, the NBS opens Interior's expertise to assist an array of partners, including state and locale governments, colleges and universities, non-profit organizations, private corporations and landowners. According to the NBS Director H. Ronald Pulliam, "We will not make the decisions, but we can provide analysis of the possible effects of decision options faced by everyone from private owners to government agencies at all levels..... The NBS goal is to provide a service—access to the most current and complete biological science information available for all those who make or care about decisions that affect America's natural resources."

But the mission and goals have been controversial, and even confusing to some. For example, on January 6, 1995, the National Biological Survey became the National Biological Service. Why change the name? Pulliam answers, "We've all heard the question 'what's in a name?' Well, I can tell you the answer is a lot of confusion. Particularly if it's a misleading name." According to Interior Secretary Bruce Babbitt, "The fact is, the old name was misleading. For many people, it implied there was some kind of a count going on. A lot of people thought the survey was something that would move across the country, from east to west, counting everything in between. They thought it was something that would start and finish."

The name has not been the only source of contention. There has also been much confusion on the use of private property. In addition to the name change, Babbitt also issued a Secretarial Order placing significant restrictions on the agency's activities, particularly those on public property. NBS employees must gain permission from the land owner

before undertaking any work on private land, and use of volunteers will have strict parameters. The Order also reiterated a requirement for independent scientific peer review of NBS study projects.

The NBS presently has 1,950 employees, 4 Regional Offices (Denver, CO; Lafayette, LA; Seattle, WA; and Leestown, WV), 15 Science Centers, 60 Cooperative Research Units, and 88 field stations. Already projects have been initiated that involve Federal, State, and local agencies in the development of ecosystem-oriented science programs that greatly expand the access and exchange of biological information. Thousands of hours are contributed annually to the NBS by supervised volunteer students, professors, professional society members, and retired professionals. The FY 1995 budget is \$166.8 million, and will support ecosystem studies, biological research partnerships, and information technology transfer.

.... At least, that's the plan unless the NBS is eliminated as part of the Federal deficit reduction plan. For more information about the Survey Service, contact the NBS Public Affairs Office (Tel. 202-482-3048).

ATTENTION MEMBERS!

Please send Nancy Marcus potential agenda items that you would like the Board to consider for discussion at the June 11 Annual Business Meeting in Reno.

and...

If you are thinking of organizing a special symposium that you would like ASLO to sponsor or co-sponsor, send your ideas to Nancy for consideration by the ASLO Board at its June 10 meeting in Reno.

Please submit agenda items and symposium ideas before June 1, 1995

Nancy H. Marcus, ASLO President
Department of Oceanography
Florida State University
Tallahassee, FL 32306
Tel: 904-644-5498
Fax: 904-644-2581
marcus@ocean.fsu.edu

1991 AQUATIC SCIENCE PAPERS ARE CITATION LEADERS

The Institute for Scientific Information (ISI) publishes the Science Citation Index and conducts analyses of their citation record in various fields, including ecology and environmental sciences. Citation leaders come from a wide array of disciplines including plant science, oceanography, bioremediation and pollution ecology, conservation biology, statistics and animal behavior. In their analysis of papers published in 1991, 5 of the 10 most-cited papers were from the field of biological oceanography, and another 3 represented other fields of aquatic science (Moore, 1994). The 10 most frequently cited papers are shown below, in the order of the most citations through 1992, with an update of citations for from January, 1993 through September, 1994. The two publications listed as 1990 did not enter the ISI data base until 1991.

Time is the real test of a paper, but it is clear that these papers are already making an impact. To put the number of citations in perspective, the ISI "world average" for citations in the life sciences was 8.2 citations over the 12-year period from 1981-1992 (Garfield, 1993), and in most fields it takes 400 citations to earn the distinction of a "Science Citation Classic".

PAPER	# CITATIONS	
	1991-92	1/93-9/94
Holm-Hansen, O. and B.G. Mitchell. 1991. Spatial and temporal distribution of phytoplankton and primary production in the western Bransfield Strait region. <i>Deep-Sea Research</i> 38:961-980.	26	16
Peng, T.-H. and W.S. Broecker. 1991. Dynamic limitations on the Antarctic iron fertilization strategy. <i>Nature</i> 349:227-229.	21	9
Wheeler, P.A. and S.A. Kokkinakis, 1990. Ammonium recycling limits nitrate use in the oceanic subarctic Pacific. <i>Limnology and Oceanography</i> 35:1267-1278.	21	19
Thomas, R.B. and B.R. Strain. 1991. Root restriction as a factor in photosynthetic acclimation of cotton seedlings grown in elevated carbon dioxide. <i>Plant Physiology</i> 96:627-634.	20	45
Hutchins, S.D.R., G.W. Sewell, D.A. Kovacs and G.A. Smith. 1991. Biodegradation of aromatic hydrocarbons by aquifer microorganisms under denitrifying conditions. <i>Environmental Science & Technology</i> 25:68-76.	20	19
Sunda, W.G., D.G. Swift and S.A. Huntsman. 1991. Low iron requirement for growth in oceanic phytoplankton. <i>Nature</i> 351:55-57.	19	13
Huntley, M., D.M. Karl, P. Niiler and O. Holm-Hansen. 1991. Research on Antarctic Coastal Ecosystem Rates (RACER): An interdisciplinary field experiment. <i>Deep-Sea Research</i> 38:911-41.	17	1
Raymond, M., A. Callaghan, P. Fort and N. Pasteur. 1991. Worldwide migration of amplified insecticide resistance genes in mosquitoes. <i>Nature</i> 350:151-153.	17	29
Evans, P.J., D.T. Mang and L.Y. Young. 1991. Degradation of toluene and m-xylene and transformation of o-xylene by denitrifying enrichment cultures. <i>Applied and Environmental Microbiology</i> 57:450-454.	17	10
Smith, L.M., T.R. Schwartz, K. Feltz and T.J. Kubiak. 1990. Determination and occurrence of AHH-active polychlorinated biphenyls, 1,3,7,8-tetrachlorodibenzofuran in Lake Michigan sediment and biota: The question of their relative toxicological significance. <i>Chemosphere</i> 21:1063-1085.	17	42

Source: ISI's Science Indicators Database, 1991-1994, as presented in Moore, 1994.

References

- Garfield, E. 1993. The role of undergraduate colleges in research. Part 2. Highest impact institutions and most -cited papers, 1981-1992. *Current Contents* 25:3-9.
- Moore, P.D. 1994. Oceanic plants are at the root of ecology's most-cited studies. *The Scientist*, November 28, 1994, p. 15.

ASLO MEETINGS

1995 AND 1996 ASLO MEETINGS

Polly A. Penhale, ASLO Secretary (Tel: 703-306-1033; Fax: 703-306-0139; Internet: ppenhale@nsf.gov)

ASLO SUMMER MEETING, JUNE 11-15, 1995, RENO, NEVADA

By now, planning is well underway for the 1995 summer meeting, to be held at the University of Nevada, Reno. Co-sponsors include the Desert Research Institute; the Center for Environmental Science and Engineering and the Division of Continuing Education, University of Nevada, Reno; and the Tahoe Research Group, University of California, Davis.

Program Chairs Robert A. Wharton, Jr., Desert Research Institute, and David L. Garrison, University of California, Santa Cruz have organized a program which features the theme of "Extreme Environments" in its broadest sense. Pre-conference and conference workshops focus on Geographic Information System (GIS) technologies, on the Analysis of Community Data, on alternate careers, and on the use of emerging technologies in undergraduate aquatic science education. Field trips to Mono and Pyramid Lakes and Lake Tahoe are planned.

Judging from the abstracts already received, this promises to be an exciting meeting, so mark your calendars and plan to attend!

OCEAN SCIENCES MEETING, FEBRUARY 12-16, 1996, SAN DIEGO, CALIFORNIA

ASLO and the American Geophysical Union will co-host the 1996 Ocean Sciences Meeting at the Town and Country Hotel in San Diego, California. Suzette Kimball, National Park Service, and I will co-chair the Program Committee.

The first of three Call for Papers will be issued in early March and will provide general information and a request for suggested special session topics. By late spring, the list of special sessions titles will be finalized and a second Call for Papers will be issued. A final Call for Papers will be issued in late summer with a fall Abstract Deadline.

The 1994 Ocean Sciences Meeting provided an exciting program and an opportunity for scientists from many countries to exchange information and to make plans for future collaborations. The meeting proved much more successful than we expected in terms of attendance. A number of sessions featured marine/freshwater comparisons; these sessions generated quite a bit of interest and will hopefully increase in 1996.

A number of concerns were noted regarding the meeting venue for the 1994 Ocean Sciences Meeting; these included overcrowding in the meeting rooms, facility location, and hotel services management. These concerns generated a considerable amount of discussion within the AGU and ASLO Boards and an exploration of options. The outcome was a decision to return to the Town and Country Hotel for the 1996 meeting under conditions that will address the 1994 concerns. The overcrowding of meeting rooms has been addressed by booking more meeting space than in 1994. The Town and Country Hotel has promised more and better services than in 1994; these will be detailed in the upcoming meetings announcements. After the 1996 meeting, options will again be reviewed.

ASLO SUMMER MEETING, JUNE 16-20, 1996, MILWAUKEE, WISCONSIN

The University of Wisconsin, Milwaukee will host the 1996 summer meeting, with Arthur S. Brooks as Program Chair. Although the planning is in the early stages, activities in development include a focus on educational ties with local area schools and institutions. The Milwaukee Program Committee will present detailed plans for the Board to review in Reno; expect further details in the fall of 1995. If you have ideas for special session topics, please contact Arthur Brooks (Center for Great Lakes Studies, University of Wisconsin-Milwaukee, Milwaukee, WI 53201 (Tel: 414-382-1704; Fax: 414-382-1705; Internet: abrooks@csd4.csd.uwm.edu).

JOBS

Director of Texas A&M Sea Grant College Program: Applications are invited for the position of Director of the Texas A&M Sea Grant College Program to begin September 1, 1995, or later. Headquartered in College Station, and including 10 coastal Marine Advisory Service offices, the TAMU Sea Grant College program employs a staff of 30 with a total budget of approximately \$2.1 million. Applicants must have a Ph.D. or equivalent experience, and at least eight (8) years of experience in administration or management of marine programs. Consideration of applications will begin April 15, 1995, and will continue until the position is filled. Send applications, including curriculum vitae and three references, to Dr. Robert D. Brown, Sea Grant Search Committee Chairman, Department of Wildlife and Fisheries Sciences, 210 Nagle Hall, Texas A&M University, College Station, Texas 77843-2258, phone (409) 845-1261. Texas A&M University is an affirmative action/equal opportunity employer and welcomes applications from qualified women and minority candidates.

Jobs -- Announce and search for them on the ASLO Home Page
<http://www.ngdc.noaa.gov/paleo/aslo/aslo.html> or weiler@whitman.edu

CALENDAR OF EVENTS, 1994-1995

6th International Workshop on Aquatic Microbial Ecology

Dates: April 17 - 22, 1995

Location: Konstanz, Germany

Contact: Dr. Meinhard Simon, Limnological Institute, University of Constance, P.O. Box 5560, D-78434 Konstanz, Germany (Fax: 49-7531-883533).

4th Scientific Meeting, The Oceanography Society

Dates: April 18 - 21, 1995

Location: Newport, Rhode Island

Topics: Education in ocean sciences; Long time-series and ocean variability; Coastal ocean research; and Marine Biodiversity.

Contact: E.H. Pechan and Associates, Inc., Attn: TOS Meeting, 5537 Hempstead Way, Springfield, VA 22151 (Tel: 703-642-1120 x158; Fax: 703-642-1258).

ASLO Members may register at the TOS membership rate.

Symposium, Will Plants Have a Role in Bioremediation?

Dates: April 19 - 22, 1995

Location: University of Missouri-Columbia

Topics: Organized by the Interdisciplinary Plant Biochemistry, Physiology and Molecular Biology Group at the University of Missouri, topics include: Heavy metals: accumulators, tolerance & exclusion mechanisms; plant-assisted decontamination; plant-assisted degradation of organics; and environmental considerations of plant-based remediation.

Contact: IPG Symposium, University of Missouri, 117 Schweitzer Hall, Columbia, MO 65211 (Tel: 314-882-7796; Fax: 314-882-5635).

Workshop, Trends in Land-Use, Water Quality and Fisheries: A Comparison of the Northern Adriatic Sea and the Chesapeake Bay

Dates: May 15 - 19, 1995

Location: Piran, Slovenia and Rovinj, Croatia

Topics: Relationships between changes in land use in coastal drainage basins and eutrophication and fisheries of adjacent coastal seas. The workshop will provide a forum in which leading scientists will explore relationships between terrestrial nutrient inputs, water quality and fisheries as mediated by changes in trophic structure, and patterns of nutrient cycling. In addition, the workshop is intended to catalyze the development of cooperative research programs and the transfer of information and technology.

Contact: Thomas C. Malone, Horn Point Environmental Lab., P.O. Box 775, Cambridge, MD 21613, USA (Tel: 410-228-8200; Fax: 410-476-5473; Internet: malone@hpel.umd.edu).

Summer Courses, Baruch Marine Field Laboratory

Dates: May 29 - June 23, 1995, Introduction to the Meiofauna (3 credit hours)

July 10 - August 4, 1994, Estuarine Fish Ecology (3 credit hours)

Location: Baruch Marine Field Laboratory, Georgetown, South Carolina

Topics: Meiofauna: Comprehensive overview of meiofaunal biology and ecology, taught by Bruce C. Coull and Robert P. Higgins. Estuarine Fish Ecology: A field course with emphasis on research practices, taught by John Mark Dean and Marcel Reichert.

Contact: Kitty Harper, Marine Science Program, University of South Carolina, Columbia, SC 29208 (Tel: 803-777-2692).

North American Benthological Society Annual Meeting

Dates: May 30 - June 2, 1995

Location: Keystone, Colorado

Topics: Program features four days of invited, contributed and poster sessions and workshops on benthic communities and their role in aquatic ecosystems. The plenary session will focus on "Landscape Influences on Watersheds". There will be workshops on "The Use of Benthic Ecology in Assessing Sediment Contamination" and "Bridging the Gap: Benthos in Instream Flow Assessment".

Contact: Cathy M. Tate, Program Chair, U.S. Geological Survey WRD, Box 25046 MS 415, Denver Federal Center, Denver, CO 80225 (Tel: 303-236-4882 x 287) or Steve Canton, Local Arrangements, Chadwick & Assoc., 5575 S. Sycamore St. Suite 101, Littleton, CO 80120 (Tel: 303-794-5530).

First International Symposium on DMSP and Related Sulfonium Compounds

Dates: June 4 - 8, 1995

Location: Mobile, Alabama

Topics: Naturally occurring sulfonium compounds are precursors of climatically active sulfur gases, but also play key roles in the physiology and ecology of certain plants and microorganisms. The symposium will bring together microbiologists, plant physiologists, molecular ecologists, oceanographers, climate modelers and biogeochemists to present and discuss current research on the biological and environmental chemistry of dimethylsulfoniopropionate (DMSP) and related sulfonium compounds. The symposium will include plenary talks and contributed papers.

Contact: Dr. Ron Kiene, Department of Marine Sciences, University of South Alabama, LSCB 25, Mobile, AL 36688 (Tel: 205-460-7136; Fax: 205-460-7357; Internet: rkiene@jaguar1.usouthal.edu).

ASLO '95 ANNUAL MEETING

Dates: June 11 - 15, 1995

Location: Reno, Nevada

Topics: The meeting is planned around the theme of "extreme environments", taken in its broadest sense. In addition to these special sessions and the usual variety of ASLO sessions, there will be workshops on geographic information system technologies, statistical analysis of community data, use of emerging computer technologies in undergraduate education, and alternative careers in aquatic science.

Contact: Bob Wharton, ASLO '95 Meeting Chair, Desert Research Institute, P.O. Box 60220, Reno, NV 89506 (Tel: 702-673-7492; Fax: 702-673-7397; Internet: wharton@maxey.unr.edu).

2d International Conference on Pelagic Biography

Dates: July 10 - 14, 1995

Location: Amsterdam, The Netherlands

Contact: S. Van der Spoel, Institute of Taxonomic Zoology, P.O. Box 4766, 1009AT Amsterdam, The Netherlands (Fax: +31-20-5255402).

7th International Conference on Toxic Marine Phytoplankton

Dates: July 12 - 16, 1995

Location: Sendai, Japan

Topics: Biology, ecology, physiology, biochemistry, chemistry, toxicology, environmental science associated with and consequences of toxic, harmful and nuisance blooms of phytoplankton.

Contact: T. Yasumoto, Conference Convenor, 7th International Conference on Toxic Marine Phytoplankton, Dept. Applied Biological Chemistry, Faculty of Agriculture, Tohoku University, Tsutsumidori-Amamiya, Aoba-ku, Sendai 981, Japan (Tel: 81-22-275-3603 or 81-22-272-1870; Fax: 81-22-272-4321).

Interdisciplinary Conference on Animal Waste and the Land-Water Interface

Dates: July 16 - 19, 1995

Location: Fayetteville, Arkansas

Abstract Deadline: February 15, 1995

Contact: Patti Snodgrass, Arkansas Water Resources Center, University of Arkansas, 113 Ozark Hall, Fayetteville, AR 72701 (Fax: 501-575-3846).

6th International Conference on Coelenterate Biology

Dates: July 17 - 21, 1995

Location: Amsterdam, The Netherlands

Contact: S. Van der Spoel, Institute of Taxonomic Zoology, P.O. Box 4766, 1009AT Amsterdam, The Netherlands (Fax: +31-20-5255402).

2d European Congress of Protistology and Eighth European Conference on Ciliate Biology

Dates: July 21 - 27, 1995

Location: Clermont-Ferrand, France

Contact: C.A. Groliere or G. Brugerolle, Laboratoire de Biologie des Protistes, Universite Blaise Pascal de Clermont-Ferrand, 63177 AUBIERE Cedex, France (Tel: 33-73-40-74-54 or -70; Fax: 33-73-40-76-70).

XXVI Congress, International Association of Theoretical and Applied Limnology

Dates: July 23 - 29, 1995

Location: Sao Paulo, Brazil

Topics: Theme will be "Water as a limiting resource: conservation and management". The Congress will include plenary sessions, thematic oral and poster sessions, symposia, workshops, and pre-congress short courses.

Contact: R. Henry, General Secretary, University of Sao Paulo State - UNESP, Depto. Zoology-Institute of Biosciences, C.P. 502, CEP 18618-000-Botucatu-SP, Brazil.

Second World Fisheries Congress

Dates: July 28 - August 2, 1995

Location: Brisbane, Australia

Topics: The congress theme is Developing and Sustaining the World Fisheries Resources: The State of the Science and Management. Sub-themes will focus on international policy, research, and scientific issues. The congress is hosted by the Australian Society for Fish Biology.

Contact: Second World Fisheries Congress, P.O. Box 1280, Milton QLD 4064, Australia (Tel: 617-369-0477; Fax: 617-369-1512).

1st International Congress on Toxic Cyanobacteria

Dates: August 20 - 24, 1995

Location: Rønne, Denmark

Topics: Ecology, physiology, factors affecting toxin production, management, health hazards and general aspects of toxic cyanobacteria.

Contact: Ø. Moestrup or P. Henriksen, Dept. Phycology, Botanical Inst., University of Copenhagen, Øster Farimagsgade 2D, DK-1353 Copenhagen K, Denmark (Tel: 45-35-32-22-90; Fax: 45-35-32-23-21; Internet: moestrup@vm.uni-c.dk) or H. Kaas, Natl. Environ. Research Inst., Roskilde, Denmark (Fax: 45-46-30-11-14; Internet: hmhka@wpgate.dmu.min.dk).

Large Marine Ecosystem (LME) Symposium

Dates: August 23 - 25, 1995

Location: St. Petersburg, Florida

Topics: This invited paper symposium will have sessions on: Gulf of Mexico Descriptive Oceanography, Living Aquatic Resources, Environmental and Ecological Perturbations, Functions and Processes, Ecosystem Management Regimes, Approaches to Health of the Ecosystem, and Southern Gulf of Mexico.

Contacts: Herb Kumpf, NOAA/NMFS (904-234-6541); Fred Kopfler, EPA/Gulf Program (601-688-2712) and Karen Steidinger, Florida Dept. Env. Protection (813-896-8626).

XII International Symposium on Environmental Biogeochemistry: *Biosphere and Atmospheric Changes*

Dates: September 4 - 8, 1995

Location: Rio de Janeiro, Brazil

Topics: Biosphere's influence on past and present atmospheric conditions and climate; influence of climatic changes on plant and microbial communities; role of the atmosphere in the cycling of bioassociated elements; ocean-atmosphere interactions; oceanic new primary production and the biological pump; controlling atmospheric CO₂ increases by use of alternative energy sources and increased standing biomass; effects of anthropogenic activities on biogeochemical cycles.

Contact: XII ISEB Secretariat, Prof. Luis H. Melges Figueredo, Instituto de Geociencias - UERJ, R. Sao Francisco Xavier, 524, sala 4019 B, 20550-013 Rio de Janeiro/RJ, Brazil (Fax: 55-21-220-2305; Internet: iseb@vmesa.br.uerj).

Workshop on Reed Bed - A Plant Community in Ecology and Technology

Dates: September 5 - 9, 1995

Location: Iffeldorf, Germany

Topics: The general ecology and the conspicuous decline of the reed bed plants observed in many countries will be discussed, along with the use of different reed bed plants for wastewater treatment.

Contact: S. Grosser, E. Veit, A. Melzer, Limnological Station of the TU Munich, Hofmark 3, D-82393 Iffeldorf, Germany (Fax: 49-8856-81040).

ICES 1995 Statutory Meeting: Special Theme Session on Intermediate-Scale Physical Processes and their Influence on the Transport and Food Environment of Fish

Dates: September 21 - 29, 1995

Location: Alborg, Denmark

Abstract Deadline: March 15, 1995 (250-word max; short version (3-5 p) of paper expected for distr. at meeting).

Contacts: Brian R. MacKenzie, Danish Institute for Fisheries and Marine Research, Charlottenlund Castle, DK-2920 Charlottenlund, Denmark (Tel: 45-3396-3403; Fax: 45-3396-3434; Internet: brm@fimdfh.fim.dk) and Francisco E. Werner, Marine Sciences Program, 12-7 Venable Hall, CB#3300, University of North Carolina, Chapel Hill, NC 27599-3300, USA (Tel: 919-962-0269; Fax: 919-962-1254; Internet: cisco@hydra.chem.unc.edu).

Great Plains Limnology Association Meeting

Dates: September 29 - 30, 1995

Location: Chadron, Nebraska

Topics: TPLA is an informal group sharing interests in various limnological topics. Our purpose is to learn from and help each other advance our field. This is an excellent setting for both larval and mature limnologists to develop dialogues and get acquainted. This is a meeting in which people can present and get input on ideas and studies while they are still being developed.

Contact: Jim Gibson, Department of Biology, Chadron State College, Chadron, NE 69337 (Internet: jgibson@csc1.csc.edu).

VI Latin-American Congress on Marine Sciences

Dates: October 23 - 27, 1995

Location: Mar del Plata City, Argentina

Topics: Sponsored by the Latin-American Society on Marine Sciences (COLACMAR), the conference will cover: 1) Antarctica: politics and scientific research; 2) Global change and its influences on marine ecosystems; 3) Marine biogeography: criteria and new perspectives; 4) Coastal ecosystems; 5) Marine mammals; 6) Red tides; 7) Aquaculture and environment: intensive systems; 8) Fisheries resources: present and future within the ecosystem; 9) Physical oceanography; and 10) Marine pollution.

Contacts: Casilla de Correo 1305 ó, Facultad Ciencias Exactas y Naturales, Dpto Cs. Marinas, Funes 3250 (7600) Mar del Plata, Argentina (Tel: 54-23-72-3831; Fax: 54-23-75-3150; Internet: colacmar@unmdp.edu.ar).

AGU/ASLO 1996 Ocean Sciences Meeting

Dates: February 12 - 16, 1996

Location: San Diego, California

Abstract Deadline: October 2, 1995 **Pre-Registration Deadline:** January 12, 1996

Contact: Polly A. Penhale (Tel: 703-306-1033; Fax: 703-306-0139; Internet: ppenhale@nsf.gov).

Plankton Ecology Group Workshop: Trophic interactions of age-0 fish and zooplankton in temperate waters

Dates: February 5 - 8, 1996

Location: Dresden Germany

Contact: Thomas Mehner, Institute of Hydrobiology, University of Technology, D-01062 Dresden, Germany (Internet: mehner@rmhs2.urz.tu-dresden.de).

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