



LIMNOLOGY AND OCEANOGRAPHY BULLETIN

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BOOK REVIEWS

BURDIGE, DAVID J. 2006. **Geochemistry of Marine Sediments**. Princeton University Press. ISBN 978-0-691-09506-6 (cloth). xviii + 609 p. US \$85.

Reviewed by Carol Arnosti, Department of Marine Sciences, CB #3300, 451 Chapman Hall, University of North Carolina, Chapel Hill, North Carolina 27599-3300; arnosti@email.unc.edu

Geochemists who spend time mucking in marine sediments may occasionally wonder why they didn't focus instead on the water column, where the medium is better mixed, more easily filtered, and in general less of a mess to handle. Those who persevere (as well as those who wonder why some of us are drawn to the muck) will greatly benefit from David Burdige's book, *Geochemistry of Marine Sediments*. Despite the complexity of the medium and the processes occurring in it, Burdige has written a comprehensive, well-organized, thoroughly referenced, and highly readable text. Marine sediments are important as habitats for life, in geochemical cycling of the elements, and as an essential record of the past. These themes are seamlessly integrated in the book, which should find a place on the shelves of anyone working in these areas.

The book's approach is a mixture of summaries and commentaries on recent literature relevant to each specific topic area, supplemented with plenty of well-designed and thoroughly explained figures and tables. In the preface, Burdige reflects that Robert Berner's text, *Early Diagenesis: A Theoretical Approach* (Berner, 1980), served as an inspiration for quantitative investigation of geochemical processes in sediments, and he follows in Berner's footsteps with ample use and discussion of mathematical models of geochemical processes. A particular strength of the new book is the manner in which most chapters carefully highlight open questions, assumptions, and methodological issues (e.g., different approaches to model bioturbation; use of C/N ratios and isotopic signatures to distinguish terrestrial from marine organic matter) and discuss possible alternative explanations for specific data sets. Figures and tables are used to go beyond the primary literature in discussing the implications of particular models or conditions (e.g., the effects of diffusive boundary-layer thickness on sediment oxygen uptake.) Burdige integrates material from a variety of references, carefully cited so that a search for the original literature is simplified. The book could easily be used for a graduate class, and also serves as an overview and

comprehensive introduction to topic areas with which individual scientists may not be thoroughly familiar.

The one weakness of the book in this respect, in fact, is the discussion (principally in Chapter 7) of prokaryotes that catalyze many geochemical transformations. Here the overall context (and reference to recent literature reviews) that characterizes other topics and other chapters is somewhat lacking. The fundamental changes in the means by which organisms and processes can be identified and investigated in marine systems, particularly since the early 1990's, first with polymerase chain-reaction amplification of ribosomal DNA, and more recently with genomic investigations of (uncultured) microbial communities, go unmentioned. Although Burdige correctly points out a major limitation on our knowledge of microbial processes is that in many cases, the actors involved have yet to be isolated in culture, the reader is not left with any sense of why this might be the case. Some of the microbiological information was not quite up to date at the time of writing; for example, organisms involved in the anammox reaction—anaerobically oxidizing ammonium with nitrite to N₂—had in fact been captured and studied (Strous et al. 1999) and their contributions had been assessed in the field (Dalsgaard et al. 2003; Kuypers et al. 2003). Furthermore, during the inevitable time lag between completion of the book and its publication, important additions to geochemical perspectives have been made, for example, the accumulation of polyphosphate by *Thiomargarita namibiensis* and its likely link to formation of carbonate fluorapatite-rich sediments in upwelling areas (Schultz and Schultz 2005). Overall, however, the text does a fine job providing reference to recent reviews for more in-depth coverage of most topics and is notable for its careful discussion of the means of measurement of processes, as well as means of modeling.

The first six chapters provide a general overview of the geochemistry of marine sediments, setting the stage for later material, and providing a cohesive and readable introduction to sediment components and physical properties, a brief overview of isotopic fractionation and use of stable and radioactive isotopes, a general overview of transport processes in sediments, and basic

The Limnology and Oceanography Bulletin

The American Society of Limnology and Oceanography is a membership-driven scientific society (501(c)(3)) that promotes the interests of limnology (the study of inland waters), oceanography and related aquatic science disciplines by fostering the exchange of information and furthering investigations through research and education. ASLO also strives to link knowledge in the aquatic sciences to the identification and solution of problems generated by human interactions with the environment.

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The *L&O Bulletin* publishes brief, peer-reviewed articles of broad interest to the ASLO membership, Letters to the *Bulletin* (typically responses to articles), as well as ASLO News on a quarterly basis. Information on the preparation and submission of articles and letters can be found on the ASLO web site (www.aslo.org). It is recommended that you contact the editor before preparing an article or letter.

orientation to modeling sedimentary diagenesis. With the caveats mentioned above, Chapter 7 introduces biogeochemical processes and discusses biogeochemical zonation in sediments as exemplified by the work of Froelich and colleagues (1979), briefly covering different modes of microbial respiration, depth trends of respiration processes, and an overview of organic-matter decomposition. Chapter 8 discusses means of modeling diagenetic processes, using data from Cape Lookout Bight to demonstrate different approaches to developing sediment carbon and nutrient budgets. The basic organic geochemistry of marine and terrestrial organic matter (amino acids, carbohydrates, lipids, lignin) is introduced in Chapter 9, with an overview of perspectives on the origin of humic materials and the sources and identity of uncharacterized organic matter.

The composition and diagenetic modeling of dissolved organic matter in sediments are dealt with in a brief chapter (Chapter 10), an excellent introduction to a more lengthy and in-depth treatment of the connections between organic geochemistry and sediment diagenesis (Chapter 11). In these and following chapters, Burdige does an outstanding job weaving his material together, drawing threads set out earlier into a tapestry of exploration and explanation. Measurement and particularly modeling of processes at the sediment-water interface are discussed in Chapter 12, and the diagenetic cycling of organic matter, silica, and calcium carbonate, as well as manganese redox cycling in the deep sea, are the focal points of Chapter 13.

In Chapter 14, Burdige in essence “pulls the brakes”, and provides a thoughtful and important discussion of the realities of (and problems presented by) nonsteady-state processes in sediments, as exemplified by seasonality, diagenetic processes in turbidites, and paleoceanographic observations of manganese peaks. Chapter 15 focuses on organic-carbon preservation in marine sediments, including the fate of terrestrial organic matter, interactions between organic matter and minerals, the role of macrofauna, and current ideas about connections between oxygen-exposure time and organic-carbon preservation. Chapters 16 and 17 examine biogeochemical cycling in continental-margin sediments, with a focus on carbonate chemistry and pH effects, and the sediment cycles of nitrogen, phosphorus, and sulfur. Methanogenesis and anaerobic oxidation of methane (with an emphasis on geochemical observations, rather than recent work in microbial ecology) and a discussion of trace-metal cycling close out Chapter 17. A brief and thoughtful overview of reverse weathering and authigenic-mineral formation rounds out the text.

The book is nicely produced, with easily read fonts, well-organized tables, and clear figures. The cover illustration, a reproduction of a painting of sediment cores by Stanley Meltzoff, is a treat.

Geochemistry of Marine Sediments is the product of exhaustive research and painstaking efforts to present an integrated perspective on very complex and variable environments. By carefully linking chapters via reference to a small number of field sites, all of which are described in more detail in the Appendix, thoroughly cross-referencing the chapters, and providing a brief introduction to each chapter and outlining its direction and purpose, Burdige guides the readers through a clear and fascinating tour of geochemical processes, accomplishing the difficult feat of retaining the fascination and reducing the frustration of dealing with the complexity that characterizes marine sediments. *Geochemistry of Marine Sediments* sets a new standard as a comprehensive and highly readable examination of the field.

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FRY, BRIAN. 2006. **Stable Isotope Ecology**. Springer Science+Business Media, LLC. ISBN 978-0-387-30513-4 (hardcover). xii + 308 p. US \$70.

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Peruse the tables of contents of your preferred journals and you are likely to find multiple articles describing the use of stable isotopes to address the research topic of choice. The range of applications for light stable isotopes (H, C, N, O, S) seems limitless, from traditional hydrological investigations, studying past climates, and identifying the ecological value of seagrass beds, to issues of fish production and tracing photochemical incorporation of oxygen into dissolved organic matter. Books dedicated to stable isotopes are not as diverse; they fall into two categories, either edited volumes on the application of a subset of isotopes to specific research objectives, or textbooks focusing on the distribution of the various isotopes, the technical details of their analysis, and case studies. The book that has been missing is one targeting interpretation and modeling of isotopic data to gain insight into the sources and processes being studied. As the son of isotope scientists—a second-generation isotope scientist, as the publisher puts it—Brian Fry is uniquely qualified to author a text filling this void. Fry's humor and obvious affection for the material makes his new book, *Stable Isotope Ecology*, a delightful foray into understanding the hidden order of stable isotopes with an eye toward ecological applications.

Overall, this introductory text describes the fundamentals of isotopes, and then focuses on mixing and fractionation, the processes which alter isotopic distributions. While examples are given for the light stable isotopes, the concepts are discussed generally and are equally applicable to all stable isotopes. The content is organized as 8 chapters. Chapters 1 and 2 introduce stable isotopes and the delta notation used to express them. Chapter 3 reviews light stable isotopes' distributions and cycles, and gives ecological examples of insights discerned through their use. Chapter 4 introduces the Isotope Chi model used to calculate isotopic mixing and fractionation over time; this model is further refined throughout the remainder of the book. Chapters 5 and 7 are meaty ones covering mixing and fractionation, respectively. Chapter 6 touches on experimental designs using isotopic enrichments. Finally, Chapter 8 speculates about future instrumentation capabilities and offers concluding remarks. Mathematical details are compiled in an appendix, which is referenced throughout the book. In addition to the printed book, the accompanying CD provides extensive material, including problems with solutions, Isotope Chi worksheets, figures, and technical supplements.

Fry's case studies range from hydrogen isotopes used to determine avian migration paths to fractionation across sulfur reservoirs over geologic time. More importantly though, along with these isotope "success stories", he relates some ecological studies in which isotopic analyses fail to elucidate sources. He delivers the very true message that isotopes are but one in a suite of tools to be used in research. Along the way, he argues the use of multiple stable isotopes may help to deconvolute sources.

An apparent goal of the author was to simplify the required calculations; to that end, many mathematical details are included

in optional sections or removed to the appendix and CD supplements. Fry chooses to center the calculations around delta notation (e.g., $\delta^{13}\text{C}$) rather than the underlying isotopic ratios (e.g., $^{13}\text{C}/^{12}\text{C}$) and returns to the ratios only in specific instances, such as discussing the fractionation factor of an equilibrium isotope effect. Fry goes on to simplify fractionation factors to differences of delta values, with caveats about the need to use the actual isotopic ratios for hydrogen isotopes and systems with isotopic enrichments. Isotope purists may find this simplification troublesome, but over the natural-abundance ranges studied in most ecological research, the approximation is valid. The risk remains, however, that without a firm understanding of assumptions associated with this approximation, data may be erroneously interpreted.

The intended target audience is the isotope "user", rather than an isotope-ratio mass-spectrometer scientist or technician. Through most of the text, the reader is treated as a novice, with simplified calculations and more advanced topics covered in optional sections. For example, discussion of the instrumentation and necessary standardization is very basic, but sufficient for users who are preparing samples for analysis and interpretation; additional instrument details are provided on the CD. In a few instances, however, such as the discussion of fractionation associated with sulfur cycling, Fry writes with much more scientific detail. The occasional shift in treatment is awkward.

The generally casual style and numerous examples make the text appropriate for graduate or upper-level undergraduate students, particularly for, but not limited to, those in ecological studies. For maximum benefit, the reader should be prepared to sit by the computer, book in hand, and work with the Isotope Chi spreadsheets while reading the text. All the tools are presented to provide a solid understanding of stable isotopes' applications, and Fry challenges readers to consider how they might incorporate isotope work into their own research.

Finally, Fry's writing is entertaining; his humor permeates the book, from the wise Mr. Polychaete, whose lectures include the "sourcery" of isotopic mixing, to the Benevolent Chocolate God, who replenishes an open system of chocolates. And what does it say about isotope scientists in general that our examples tend to be food-related?

BIANCHI, THOMAS S. 2007. **Biogeochemistry of Estuaries**. Oxford University Press. ISBN 978-0-19-5160826 (hardcover). xiv + 606 p. US \$125.

Reviewed by **H. Rodger Harvey**, University of Maryland Center for Environmental Studies, Chesapeake Biological Laboratory, P.O. Box 38, Solomons, Maryland 20688 USA; harvey@cbl.umces.edu

Situated at the interface between land and ocean, estuaries around the globe are under assault from growing human populations that long to live within their watersheds and use them for transportation, recreation, and commercial harvests. These highly productive and dynamic systems have a long history of study, and corraling what we know about the diversity of processes and interactions into a single text is daunting. In his book *Biogeochemistry of Estuaries*, Professor Bianchi tackles this demanding task with relish, and succeeds in providing a comprehensive introduction to estuaries and their critical role in ecosystems at multiple scales.

With a writing style that is straightforward and approachable, the author takes an integrative approach to successfully describe the interplay of physical, chemical, and biological interactions that are the hallmark of these ever-changing systems.

The book consists of 16 chapters distributed among 5 sections. While several of the later chapters are traditionally organized by elemental cycles, the book begins with physical dynamics followed by basic chemical properties, both of which serve to provide the setting and constraints for the cycling of materials discussed in later chapters. Throughout the book, chapters end with a summary listing of essential points that will be especially useful to those hoping for distillation of the many areas covered. A strong addition to the text is the inclusion of an extensive bibliography (153 pages), which culls the classics and very recent literature to provide reviews and starting points for more detailed study. These references also provide crucial support to the text, which even at 505 pages cannot provide the depth needed to capture the many subtleties of estuarine biogeochemistry. A glossary is also included, which will be valuable for anyone unfamiliar with the range of terms.

The first section of the book, on the physical dynamics of estuaries, gives the geological setting of estuarine types and geomorphology. A nice addition is an overview of the hydrologic cycle, which helps to illustrate the intimate connection of estuarine transport and circulation with freshwater flows. Equations are used to illustrate the important metrics for measurement, but are not discussed at length. They are used on occasion throughout the book as an effective linkage to other fields and important measures.

The second section of the book provides the chemical basics of estuarine waters, including chapters covering physical properties of water, dissolved gases, and salts. Thermodynamic properties and their uses in equilibrium models are briefly introduced, followed by useful examples of important ligands in a range of systems. Several expansive tables summarize the major ions and chemical composition of important rivers and are certain to be used frequently as desktop references by many. Chapter 5 on "Dissolved Gases in Water" makes an effective and often overlooked connection between these shallow systems and atmospheric exchange. While several of these topics will be familiar to students who have struggled through aquatic chemistry with Stumm and Morgan (1996), the text does not treat them in detail. Rather, Bianchi provides a reminder of these important properties lest we forget that chemical speciation underlies many of the processes discussed in later chapters.

In the third section, Bianchi delves into sediments, with chapters on "Sources and Distribution of Sediments" followed by "Isotope Geochemistry". The first does not focus on biological processes, but principally the chemical and physical setting with an introduction to weathering, transport, and sedimentation. The second focuses on the fundamental descriptions that allow both radiogenic and stable isotopes to be an extremely useful measure in estuarine biogeochemistry. The chapter takes largely a traditional approach of using isotopes as tracers of materials rather than the more recent work on ecological processes, but does provide examples of tracing processes important in estuaries and their sediments.

The heart and real strength of this book lie in section IV, which includes chapters 8 and 9 on "Organic Matter Cycling"

and "Characterization of Organic Matter". The production and destruction of organic matter are covered with enthusiasm, starting with the stoichiometry behind the familiar Redfield ratio and its nuances, to the processes responsible for carbon destruction. Chapter 9 provides an important introduction to molecular-level studies and biochemical changes during degradation. There are a few apparent flashbacks, such as the inclusion here of isotopic measures and mixing models rather than in chapters concerned with isotope geochemistry, but to those of us who teach the subject, this makes sense. These two chapters should be required reading for every student working in estuaries. Although lacking the exquisite details given page limitations, it is as comprehensive a summary of organic matter cycling in estuaries as I have seen anywhere and an excellent starting point for more detailed reading.

The book's Section V encompasses nutrient and trace-metal cycling and provides solid summaries to the cycling of major elements. Chapter 10 has a focus on nitrogen, Chapter 11 on phosphorus and silica, and Chapter 12 on sulfur. The carbon cycle is covered in Chapter 13 with an emphasis on large-scale cycles of inorganic pools, small molecules, and gases. An oddity of this chapter is the inclusion of a section dealing with transformations and cycling of dissolved and particulate organic carbon, a topic arguably more closely associated with Chapter 8. Readers having a trace-element background may be disappointed with Chapter 14, in which trace metals get brief treatment compared to the comprehensive coverage of topics elsewhere. Basic background information and references are introduced, but there is only brief discussion of trace-element cycling in water column and sediments. This treatment is at odds with the extensive literature on trace-element transport and dynamics in estuaries and a gap in the book's otherwise broad coverage on other topics.

Section VI is dedicated to a chapter on anthropogenic stressors, introducing the reader to examples of organic, trace-element, and nutrient impacts from increasing human proximity and abundance.

In Section VII of the book, the traditional concept of estuaries and their linkages with the coastal ocean is broadened to include river-dominated margins. In many regions, such margins are zones where residence times are short and mixing is rapid. Ranging from the Arctic to the Equator, these areas are known to play an important role in the global cycle and Bianchi provides multiple points for further investigation. Given the book's focus on biogeochemistry, this part has understandable omissions, including consideration of higher trophic interactions and discussion of the critical habitats that estuaries provide for many fisheries.

The strong suit of this book is that it provides a comprehensive introduction over the range of important estuarine processes, particularly those related to organic-matter cycling. On more than one occasion, I found myself asking, "What about ...?", only to find a descriptive section and references to my query on the next page. While the fine details are not extensively discussed, there are few topics excluded and references are liberally used for good effect. The book is promoted as a text for intermediate to advanced students, but it will also serve as a resource to a much wider audience, including specialists who might be interested in the connections to their own interests. Whether used by initiates

to these complex systems or as a reminder of forgotten linkages, there is something in this text for anyone interested in the myriad of important processes in estuaries and their study.

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EDITOR'S BOOKSHELF

A practicing bibliophile's "quick-look report" on some of the books, scientific and otherwise, received by the *Bulletin*.

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MACKAY, ROSEMARY J. 2005. **Beneath the Surface: A History of the North American Benthological Society 1953 to 2003**. Allen Press. ISBN #1-891276-47-6 (paperback) vii + 206 p.

I have a strong sense of reunion, and so was attracted to this book from the outset. Written by a past President of the Society, it is an extensive and comprehensive retrospective of the organization following its semicentennial. NABS is a sibling society to ASLO, but with a smaller membership, a more specific focus, and arguably, an even more arcane name. Often writing from her personal experience, Mackay links the past to the present across 206 pages, including an index and 25 appendices listing officers, meeting venues and sponsors, awards, and more. I have never attended a NABS Meeting, but reading about them evoked my mid-1970s memories of Benthic Ecology Meetings and New England Estuarine Research Society meetings—small and fun! There is a sense of order in knowing where a society has been, a sense that may well help to chart its future.

MCKNIGHT, DIANE, with illustrations by DOROTHY EMERLING. 2006. **The Lost Seal**. Moonlight Publishing. ISBN 978-0-9723422-7-8 (hardcover). 34 p. US \$20.

This children's book explains why and how McKnight, a limnologist, and her colleagues travel to Antarctica's Dry Valleys to pursue their science. In December 1990, however, it wasn't all stream-flow measurements and benthic algae; they encountered a remarkably off-course Weddell seal that had wandered away from McMurdo Sound. In the midst of the scientific expedition, the story of the seal's fate is a special one, clearly with fond memories for the author. This book is one in a "Schoolyard Series" published in cooperation with the Long-Term Ecological Research Network, funded by the National Science Foundation, and includes text and illustrations contributed by elementary-school students from Australia, England, New Zealand, and the United States.

MANN, K.H., AND J.R.N. LAZIER. 2006. **Dynamics of Marine Ecosystems, 3rd edition**. Blackwell Publishing. ISBN 978-1-4051-1118-8 (paperback). xii + 496 p. US \$77.

Mann and Lazier are now emeritus scientists, and it has been a decade since they published the second edition of their text. In

this third edition, the table of contents is unaltered from the second, save for its typeface, so they again have partitioned oceanic processes according to scales: less than a kilometer, 1 to 1000 kilometers, or thousands of kilometers. The specific material, of course, is updated to reflect new discoveries and thoughts. One of the new emphases in this edition is the community's increased understanding of decadal changes in oceanic ecosystems, with focus (of course) on biological repercussions of physical processes. Furthermore, in this edition the authors amend Steele's fundamental assumption of biological oceanography, i.e., physical forcing determines most dynamics of marine populations. While this tenet served as theme for previous editions, Mann and Lazier now argue organisms themselves, and communities more generally, can modify the outcome of biological-physical interactions. Buy it—you can't be a serious biological oceanographer or a marine ecologist without this book on your desk.

LETTERS TO THE BULLETIN

MOVING ON



In 2001, when I assumed the editorial duties of this publication, I had a goal to make the *Bulletin* much more than a newsletter, but a hybrid journal with peer-reviewed articles for all readers, specific ASLO news, and communications about workshops and programs that were not necessarily ASLO-specific. It's up to you, the readers, to judge whether I was successful, but the *Bulletin* has certainly evolved over the last 6 years to include things like the book reviews that I had never thought would be part of it. Recently my professional life has taken on the additional task of coordinating the international GEOTRACES Intercalibration program (www.geotraces.org), and I simply cannot devote enough time to do justice to both. Therefore, I am stepping down as the Editor this year, but I'm going to miss my interactions with the ASLO Board and the ASLO members who've contributed to and commented on the *Bulletin* (but, I'll still be an ASLO member and participant).

So, here's my challenge: the *Bulletin* needs a new champion to not only continue its steady evolution, but also perhaps to take it in new directions – it needs YOU! If your creative side needs an outlet, and your professional face needs service uplift (give back to your community), then please contact Sybil Seitzinger (president@aslo.org).

Gregory A. Cutter, Editor, *Limnology and Oceanography Bulletin*

ASLO NEWS

MESSAGE FROM THE PRESIDENT

Sybil P. Seitzinger, Rutgers University, Institute of Marine and Coastal Sciences, Rutgers/NOAA CMER Program, 71 Dudley Rd, New Brunswick, NJ, USA, 08901; president@aslo.org



WATER DOES ROCK!

My condolences to anyone who didn't attend the ASLO Aquatic Sciences meeting in Santa Fe last month. It will undoubtedly be one of the most memorable meetings in ASLO history. Thanks to everyone for participating with their latest and greatest research results. The organizing committee

also planned a great menu of social activities (the salsa dance with a live band was my favorite) throughout the week that made it easy to meet new colleagues. There were many professional development activities specifically organized by and for the students, and increased integration of multicultural students throughout the entire meeting. On top of all this, there were plankton art sessions, exhibits, talks and movies. I continue to hear from many people how struck they were by what great "outreach" these public aspects were, and how effective that mode of communication was to the general public. This was Peter Williams' brainchild; he did a TREMENDOUS job. Thank you Peter (and everyone else involved in these outreach activities) for your creativity and the many, many hours and resources you devoted to this project. The new charge to the ASLO Meetings Committee will include developing ideas on how to continue to have effective and creative outreach to local communities at future meetings. As one ASLO member recently commented "Just think what the impact would be if we had a public event like that in every town in which ASLO meets!"

My thanks to the meeting Co-Chairs, Debbie Bronk and Jim Elser, and the entire Organizing Committee for proving that Water Does Rock!

PETE JUMARS ELECTED AS CHAIRMAN OF CSSP

ASLO has an active and effective policy program that is based on a combination of very targeted efforts of its own and active participation in two disciplinary umbrella organizations, the American Institute of Biological Sciences and the American Geological Institute, plus the transdisciplinary Council of Scientific Society Presidents. The Council of Scientific Society Presidents (CSSP) is an organization of presidents, presidents-elect, and recent past presidents of about sixty scientific federations and societies whose combined membership numbers well over 1.4 million scientists and science educators.

The CSSP organizes leadership training for society presidents and connects them directly with policy makers during intensive

semi-annual meetings in May and December that conclude with visits to members of the U.S. Congress. The CSSP emphasizes networking among societies, and ASLO in recent years has used CSSP meetings as opportunities to coordinate its activities with those of sister societies, such as the North American Benthological Association. The CSSP also produces one-page position papers on matters of science policy that are used in member visits to the US Congress and more generally to give a unified voice on matters of science policy. It is our experience that CSSP members take environmental issues very seriously. (As Pete Jumars says, "Even rocket scientists understand that the environment is important.") A majority of CSSP position papers have been in the area of environmental policy, notably on the looming crisis in supplies of fresh water, on sustainability, and on energy.

I am pleased to announce that Pete Jumars (ASLO President 2002-2004) was elected to serve as Chair-Elect of the CSSP in 2007, stepping up to its chairmanship in 2008. In addition to continuing CSSP efforts on environmental policy, Pete anticipates a concerted effort to clarify positions of scientific societies on rapidly evolving issues of open access publication.

L&O SPECIAL ISSUE CLIMBS TO NEW HEIGHTS - ALPS

The ASLO Board recently approved a new proposal for a Special Issue (SI) of *Limnology and Oceanography*. Papers in this SI will focus on the scientific advances resulting from the use of Autonomous and Lagrangian Platforms and Sensors (ALPS). The SI organizers are Mark Moline and Mary Jane Perry and the guest editors are Tommy Dickey and Eric C. Itsweire. The new observational capabilities from profiling floats, drifters, and autonomous underwater vehicles (AUVs) including gliders, are providing an unprecedented level of spatial and temporal data that is resulting in exciting advances in understanding many physical, chemical, and biological processes. Submission of papers from all disciplines in the aquatic sciences are encouraged, including topics such as current structures, heat/salt flux, ocean-atmosphere interaction, shelf exchange, geophysics, biogeochemistry, particle flux, nutrient distribution, eutrophication, productivity, deep sea geochemistry, biological dynamics, plankton structure and interaction, harmful algae, bio-acoustics, animal migration, and deep sea biota. Please refer to the "open" call on the ASLO website (<http://aslo.org/lo/alps.html>) for submission of papers for inclusion in this SI of L&O.

EARLY CAREER SCIENTISTS

In previous President's Messages I have noted my commitment to enhancing professional growth opportunities for our Early Career members (those who received their Ph.D. within the last ~7-10 years). In Santa Fe, the ASLO Board voted to establish an ad hoc Early Career Committee. This committee will begin by investigating the need for programs and initiatives targeted to benefit early career members and, if needed, to recommend appropriate options for implementing such programs. The committee will also be looking at existing ASLO initiatives for synergies and to avoid duplication of effort. Carla Caceres (Member-at-Large) is the chair of this important committee. If you have ideas of how ASLO can better serve our Early Career members, please contact her.

STRATEGIC PLANNING

Having recently completed 2 full days of ASLO Board meetings in Santa Fe, I'm glad to report that ASLO is in great shape. Our meetings are excellent and well attended, our publications continue to have the highest impact ratings, and our finances are strong. Having said that, things continue to change, and the Board is developing plans for ASLO operations to morph with and benefit from those changes. Electronic access of journals is one important driver behind those changes. This has contributed to the decline in the number of subscriptions that libraries purchase. For example, one institutional electronic subscription provides access to everyone in multiple campuses and libraries of that institution, whereas in the past an institution often purchased multiple subscriptions in order to have a printed copy in several of their libraries. In the not so distant future (possibly within the next 18 months), all papers published from studies funded by most US government agencies (including NSF, NOAA, ONR) will have to be openly and freely available (Open Access) within a few months of publication. Already many institutions and countries in Europe are bound to publish in Open Access. We don't know exactly how full Open Access will impact the purchasing of subscriptions to our journals by institutions or individuals, but it likely won't increase the number of subscriptions. It costs money to produce our journals, and in addition, money generated from institutional subscriptions has been an important source of revenue that supports many ASLO activities. Lynda Shapiro has written an excellent article in this issue of the Bulletin on Open Access and its implications; please read it.

What is clear is that ASLO must develop a new business model to plan for Open Access. Our journals must stay strong and financially self supporting. Other sources of funding, not institutional journal subscriptions, will be required to support many of ASLO's activities, both in the near-term and for the long-term. Your ASLO Board is devoting considerable effort over the next year to the development of a strategic plan consistent with these needs. I will keep you informed of progress in future Bulletin issues. Your involvement will be needed to implement this plan.



Sybil Seitzinger, ASLO President

MESSAGE FROM THE BUSINESS OFFICE

Helen Schneider Lemay, ASLO Business Office, 5400 Bosque Blvd., Suite 680, Waco, TX 76710-4446; Tel.: 254-399-9635 or 800-929-2756, Fax: 254-776-3767; business@aslo.org

Dear ASLO Member:

For those of you who attended the ASLO 2007 Aquatic Sciences Meeting - WATER DOES ROCK!! It was a great meeting and wonderful to see ASLO members again.

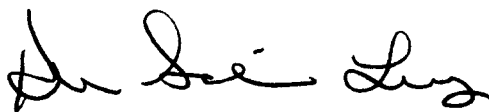


Congratulations to Jim Elser & Debbie Bronk, co-chairs, and the planning committee for a great job. For those not able to attend, we missed you. Attendance at the meeting was great - over 1200 registrations, 39% of which were students. We also had many international members attending from 36 countries. We hope to see you at a future ASLO meeting! Next up is the Ocean Sciences Meeting with AGU & TOS in February 2008 in Orlando, Florida, and the 2008 ASLO Summer Meeting in St. Johns, Newfoundland, Canada.

The renewal cycle for 2007 is nearing completion-of course, we welcome your renewal anytime, but if you have not yet renewed, please do so soon. Membership in ASLO continues to be strong, with 3169 members already renewed for 2007.

The ASLO Business Meeting was also held in Santa Fe during the meeting with lots of discussion on open access and other challenges that face scientific societies.

Please contact us with you have any questions about your membership, ASLO business, or upcoming meetings.



Helen Schneider Lemay, Business Manager

ASLO PUBLIC AFFAIRS OFFICE: LINKING AQUATIC SCIENTISTS AND POLICYMAKERS

Adrienne Sponberg, ASLO Director of Public Affairs, PO Box 8785, Silver Spring, Maryland 20907 USA; asponberg@aslo.org



As part of ASLO's focus on member benefits, I wanted to take this opportunity to provide you - the members of ASLO - with an overview of the ASLO Public Affairs Office. ASLO's Washington, DC Office has grown substantially in scope and impact since its inaugural year in 2000. It has gone from a "good idea" to an active

arm of ASLO. Public Affairs have spread into almost every aspect of ASLO's operation: meetings, website, Bulletin, committees, student opportunities...and continues to grow. The ASLO Board and Public Affairs Director have worked hard to expand the services without increasing the cost: the Public Affairs budget for 2007 is approximately one-half of the budget for 2000.

So what precisely does the ASLO Public Affairs Office do? As the title of this column states, the office's goal is to link aquatic scientists and policymakers. That goal is achieved primarily in the following ways:

- **Informing policy makers about aquatic science.**

ASLO's Public Affairs Director serves as ASLO's eyes and ears in Washington D.C., working with key policy-makers

and scientific organizations to further the aquatic sciences and their use in policy-making. Recent activities include submitting a brief to the US Supreme Court and organizing a wetlands science course for congressional staff.

- **Informing ASLO members of policy activities relevant to aquatic science.** Through regular distribution of the ASLO Aquatic Science Policy Reports and action alerts, as well as in-depth coverage of key policy issues in *L&O Bulletin*, the ASLO Public Affairs Office provides timely updates on issues of importance to aquatic scientists.
- **Facilitating ASLO member participation in policy.** Affecting policy is a team effort, which is why the ASLO Public Affairs Director works to actively engage the ASLO Board of Directors, Public Policy Committee, and general membership (particularly students) in policy activities. These opportunities include: policy training workshops at conferences and at marine labs, face-to-face meetings with policy-makers, ASLO member participation on relevant policy-making bodies, and an informative “how to get involved” section of the ASLO website.

ASLO PUBLIC AFFAIRS OFFICE: A BENEFIT OF ASLO MEMBERSHIP

Like the other operations of ASLO, it works best when ASLO members are active participants. In 2006, twelve ASLO members came to Washington, D.C. to participate in science advocacy events. Several other ASLO members helped draft and review the joint *amicus curae* brief submitted to the Supreme Court. ASLO members serve on the National Water Quality Monitoring Council on behalf of the society (see article “Citation Here” in this issue). Nearly 1000 of you stay informed about policy events around the world by subscribing to the ASLO Policy Action Network. Many of you respond to ASLO Action Alerts, educating your members of Congress about the value of scientific research. There are a lot of ways for ASLO members to participate in the activities of the Public Affairs Office. It’s been rewarding to see increased participation by ASLO members in the past few years.

At the same time, ASLO has become a more active voice in science policy circles, increasing visibility of both the society and the disciplines of limnology and oceanography. ASLO’s regular participation in advocacy events for science funding, such as the congressional visits events and the Council for Scientific Society Presidents meetings, has increased the society’s profile among other scientific organizations and policymakers. For example, in April 2006, Rep. Rush Holt (D-NJ) referenced limnology as a critical area of science in an address. While it is a small victory, it is an indication that ASLO’s activities in the policy arena are

helping to spread the word about aquatic sciences – a key focus of ASLO’s mission.

THE CHALLENGE OF SERVING AN INTERNATIONAL SOCIETY

While the office has made good progress in the United States, the challenge remains of serving the roughly one-third of ASLO members who work and reside outside of the U.S. The Public Affairs Office has already taken some active steps, such as increasing coverage of policy issues outside of the U.S. In 2006, one-third of the stories in the ASLO Aquatic Science Policy Reports focused on issues outside of the U.S. Similarly, at least one-third of the subscribers to the ASLO Policy Action Network are from outside the U.S. ASLO is proud to be one of the only Washington, D.C. policy offices that routinely tracks policy in other countries.

We’re heading in the right direction and have made significant progress in “internationalizing” ASLO’s policy efforts. However, ASLO wants to do more. The membership of the Public Policy Committee has also been structured to reflect the geographic breakdown of ASLO in the hopes that the Committee can provide some recommendations to the ASLO Board regarding how the society can better serve its members outside the U.S. In particular, ASLO is interested in going beyond reporting policy. However, a few key questions need to be answered first. Most importantly, do non-U.S. ASLO members want the society to participate in advocacy events similar to those in the U.S.? And if so, what are the ways ASLO can get involved or facilitate participation in policy outside the U.S.?

If you are a member of ASLO from outside the U.S., ASLO would like to hear your thoughts about how the Public Affairs Office can serve you. In addition to the questions just listed, the Public Affairs Office is also looking for feedback on leads for relevant non-US policy stories for policy reports. Any other feedback regarding how ASLO Public Affairs Office can better serve you is welcomed. You can email me, or if you prefer to remain anonymous, you can send your thoughts via hardcopy to the address above.

HUNGRY FOR MORE POLICY NEWS?

Visit www.aslo.org to read about:

How the 2006 US elections will impact aquatic science policy

The UNEP State of the Oceans Report

The European Science Foundation’s priorities for ocean science

PLANNING A VISIT TO WASHINGTON, D.C.?

Did you know the ASLO Public Affairs Director can assist you in arranging and preparing for meetings with policymakers? Email Adrienne Sponberg (sponberg@aslo.org) for more information.

STUDENT REPRESENTATIVES REPORT

Lynn Abramson, Student Representative 2006-2009, Marine Sciences Research Center, Stony Brook University, Stony Brook, NY 11794-5000; labramso@ic.sunysb.edu; and **Alexandre Poulain**, Student Representative 2005-2008, Department de Sciences Biologiques, Université de Montréal, Canada H3C 3J7; alexandre.poulain@umontreal.ca



Approximately 400 students attended the Aquatic Sciences Meeting in Santa Fe on Feb. 4-9, 2007. For those of you who were unable to attend, here is a brief summary of student initiatives we discussed at the meeting:

WHO ARE THE STUDENT REPRESENTATIVES?

We are full, elected Board members that vote on all ASLO decisions, and are also responsible for organizing student events online and at meetings. We have three-year staggered terms so that at least one experienced representative is in office at all times. Alex will be finishing his term in 2008, so the election

process for the next student representative will begin next summer. If you are interested in running for this position and require more information, please see the article by Letise Houser in the *L&O Bulletin* at http://aslo.org/bulletin/issues/06_v15_i2.pdf or email us at studentreps@aslo.org.

EVENTS AT THE AQUATIC SCIENCES AND FUTURE MEETINGS:

- **Student meeting and mixer:**

On the first day of Santa Fe conference, we had a student meeting to discuss our initiatives for students and other ASLO business. Nearly 300 students attended. We also had an informal social mixer on Wednesday evening, and about 100 students attended. Thank you for your enthusiastic participation!

- **Student forums and workshops:**

At every ASLO meeting, we will be organizing forums and career development workshops with senior scientists. At the Aquatic Sciences Meeting in Santa Fe, we had three of these forums. Dr. John Smol, Professor at Queens University and recipient of ASLO's Hutchinson Award for 2006, spoke about strategies for a successful career in science. Dr. Paula Keener-Chavis, Director of NOAA's Ocean Exploration Program, discussed interactions between scientists and educators and strategies for effective educational outreach. Finally, Dr. Robert Chen, Professor at University of Massachusetts, Boston, led a workshop on communicating effectively with non-scientists.

Thanks to Dr. Smol, Dr. Keener-Chavis, and Dr. Chen for leading these excellent workshops. 60-120 students attended each of these activities, and we received great feedback and suggestions for future workshops. Please contact us if you have suggestions for topics to cover at future meetings.

- **Travel awards:**

Travel awards totalling \$15,000 were given out to 45 of the students attending the meeting. Recipients received \$250-1000 to partly defray their registration and/or travel costs to the meeting. ASLO, as one of the co-sponsors of the upcoming conference of the International Association

of Theoretical and Applied Limnology (SIL), will provide some travel awards to ASLO student members attending this meeting. More information will be provided shortly.

- **Poster and talk awards:**

Fifteen volunteer judges graciously gave their time to evaluate the 156 student posters presented at the Santa Fe meeting. From these evaluations, 15 posters (representing the top 10%) were selected to receive awards. ASLO Board members then evaluated the winners and selected the top three to receive monetary awards, which were supported by the Southern Association of Marine Laboratories. The awardees were:

1st Place (\$250): **Andrew Tucker**, "Seasonal and Spatial Variation of Ultraviolet Radiation in Lake Tahoe, USA: Implications for Zooplankton and Fish Communities"

2nd Place (\$150): **Ina Benner**, "Organic Nutrient Assimilation and Their Effects on Calcification in the Coccolithophore *Coccolithus Pelagicus* (Haptophyceae)"

3rd Place (\$100): **Jessica Muhlin**, "Reproductive Timing in the Intertidal: Developing a Regional Model of Reproduction for Fucoid Algae"

Honorable Mention: **Rebecca Briggs, Jessica Czubakowski, Melanie Engstrom, Deborah Goodwin, Li-Qing Jiang, Laurel Larsen, Francisco Nascimento, Gina Ryan, Christopher Smith, Elizabeth Stoner & Benjamin Schupack, Brett Walker, and Erika Weisz**

Congratulations to our award winners, as well as to all students who contributed at the meeting- the quality of these presentations was phenomenal! At future meetings (beginning at the 2008 Ocean Sciences Meeting in Orlando), we also plan to begin offering oral presentation awards.

OTHER INITIATIVES:

- **Student column in the *Bulletin*:**

We would like to begin offering a regular student column in the *Bulletin*, in which ASLO student members from around the world will share their perspectives or report on scientific issues in their home countries. If you would be interested in contributing an article to this column, please contact us for more information.

- **Online chats for career development:**

This initiative is meant to help our student members as they progress through the various stages of their careers. Experts share their perspectives and answer questions on a range of topics relevant to students. The first chat last summer focused on the differences between obtaining a M.S. and Ph.D., and the second chat this winter focused on balancing one's career and personal life. Panelists' responses to this topic will be posted shortly. Ideas for future chats include non-academic career options, grant writing, getting published, landing a post-doc or job, and issues particular to women or minorities. Additional suggestions

are welcome. Visit <http://www.aslo.org/students/chats.html> for more details and to read past chats.

• **Online dynamic discussion forum:**

We are currently developing an online forum where students can post and respond to questions, ideas, or thoughts on a variety of topics and network with other ASLO members in their area. Check the ASLO website regularly, as we hope to have this forum running shortly.

• **Student Committee and Early Career Professional Committee:**

As we continue to expand our student initiatives, we would like to compile a small committee of students to help organize future activities. If you would be interested in serving on this committee, please email us for more information. In addition, the Board has approved the formation of an ad hoc committee of Early Career Professionals to discuss how ASLO can better serve the needs of members who have recently (within ~10 years) obtained their graduate degrees and are making the transition to professional life. We expect to work very closely with this committee to serve the needs of young professionals.

We appreciate your feedback on these initiatives for students as well as ASLO activities in general. For more information or to contribute your suggestions, please contact us at studentreps@aslo.org.

MESSAGE FROM THE TREASURER

Lynda Shapiro, Oregon Institute of Marine Biology,
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USA; ls Shapiro@uoregon.edu

OPEN ACCESS PUBLISHING WILL HELP US REACH A WIDER AUDIENCE BUT WILL CHALLENGE OUR FINANCIAL BASE

ASLO's financial situation is currently quite comfortable. We have been in the black for the past twelve or so years, and have built up a reserve that could cover about 70% of one year's operating expenses in the absence of any new income. The standard reserve for non-profit organizations is a full year's operating

expenses, and the Board has agreed that this is prudent, desirable, and entirely possible.

Then why am I nervous?

Like most scientific societies that produce a journal, we are beginning to prepare for the likely arrival of open-access publishing. Open access, by allowing anyone to read our journals at no charge to the reader, will help ASLO to communicate information, and this is a significant part of our mission. It will

also aid the finances of our home institutions by providing them with savings on subscriptions. It will, however, result in some major financial challenges for ASLO and for all the professional societies that produce journals. And there are some unintended consequences that societies, universities and their faculties will face.

For the past century or so, universities have subsidized their faculties' professional societies through journal subscriptions priced in excess of the actual cost of producing those journals. Societies weren't greedy, but there was a journal subsidy and an unwritten acknowledgment of that subsidy by our university libraries. ASLO used that subsidy to underwrite our programs, as did most other professional societies. About 50 years ago, the commercial journals emerged as major players in producing scientific journals. Their primary mission relates not to communication but to providing profit to their stockholders. They began charging rates far in excess of the cost of publishing, and those rates kept increasing. ASLO publishes *Limnology and Oceanography*, the premier journal in aquatic sciences, the newer

Limnology and Oceanography Methods, and our *Bulletin*. The university library subscription cost is ~\$825/year for the three-journal set. In comparison, our closest commercial competitor, *Marine Ecology Progress series*, is published commercially at an annual cost of ~\$7,000/year for the single journal.

As subscription rates for commercial journals increased, an uproar ensued here and in Europe, and the resulting revolution has been termed the open-access publication movement. The issue is based on the fact that governments have already paid for the cost of the research, and therefore, that citizens of those governments should have free access to the results. Open access has come to mean free journals.

EDITOR POSITION: LIMNOLOGY AND OCEANOGRAPHY BULLETIN

Greg Cutter is stepping down as Editor of *Limnology and Oceanography Bulletin* in 2007 and a replacement is needed. The *Bulletin* is a vehicle for ASLO communications to members. It also publishes short, peer-reviewed papers on emerging issues in aquatic sciences including new directions or methods and new findings on, or interpretations of a major topic as well as political and educational issues/approaches and book reviews. Thus, it is much more than a simple newsletter. ASLO is seeking someone to take over the operation of this quarterly journal (Greg spends an average of 2-4 hours per week on the *Bulletin*) and to guide its future direction, content, and format (i.e., the *Bulletin* is still evolving to meet needs of ASLO and the aquatic sciences). The *Bulletin* Editor maintains a non-voting position on the ASLO Board and attends all Board meetings to represent the journal's interests and needs (travel and lodging covered by ASLO).

If you'd like to give back to the aquatic sciences community and have a new outlet for your creativity, then please email your CV and statement of interest/vision for the future of ASLO's *L&O Bulletin* to Sybil Seitzinger, president@aslo.org, by 1 July 2007

There is, of course, a huge difference between bare results and a well-reviewed published paper. While governments have paid for the costs of the research, they have not paid for the full cost of reviewing, editing and publishing those results. Our libraries have paid that cost (and a little more). I often hear that electronic publishing is the solution, as if it were free, but the electronic format really doesn't alter cost much. The majority of cost is incurred well before printing and include maintaining an editorial office, overseeing the review process, copy editing, proof reading and typesetting. Quality peer-reviewed journals will continue to have costs associated with their production. In the absence of income from library subscriptions, 1) societies such as ASLO will charge authors the full cost of publishing, and 2) the societies will receive less income to run their programs.

Over the last few years, ASLO and other similar societies cooperating through the Council of Scientific Society Presidents (<http://www.cssp.us>), have worked hard to inform Congress of the consequences of open access, and of the differences between society-based and commercial publishers. We haven't made any real progress and, although the effort continues, we now expect that within the next few years, open access publishing will become the law in the United States, as it already has in many European countries.

I see a number of consequences to ASLO members:

- 1) We will continue to publish our journals, but will be forced to shift the cost of publication from libraries to authors. The actual cost of publishing in our journals is about \$200 per page or about \$2,000 for the typical 10-page article. The granting agencies are aware of the open access debate and its potential effect, and are prepared to see requests for such increased publication costs. In the current economic climate, however, total grant monies will not likely increase, forcing cuts in other areas. This will have the greatest impact on new faculty and others with smaller grants. As scientists seek places to cut their budgets, graduate student support will probably suffer.
- 2) Faculty and possibly graduate students will be made aware of and asked to pay the real cost of membership in professional societies. As explained earlier, for many years income from journal subscriptions have subsidized our programs, allowing members to subscribe to journals at below cost, allowing students both membership and meeting registration at below cost, allowing ASLO to become active in public policy and education outreach, and making possible programs such as student travel grants. ASLO has only begun the process of changing to a no-journal-profit structure and the details of how we will meet the challenge have not yet been worked out in detail. But surely membership fees and meeting registration fees will increase. Our generous subsidies to graduate students for membership, meeting fees and travel may need re-examination although we will endeavor to maintain them.
- 3) We have been subsidizing the cost of journal subscriptions to libraries in developing nations. With open access, as journal publication costs move from libraries to authors, it

is unlikely that the authors in developing nations will be able to pay such charges. No doubt there will also be authors in developed nations who are unable to pay. We will have to consider whether we can subsidize these authors. As you think ahead to this new era, ask yourself whether you will be willing to pay publication costs in excess of the actual cost in order to subsidize authors who cannot pay.

What else can you do; what should each of us be doing?

- 1) Build actual publication costs into your grant proposal budgets.
- 2) Expect to see moderate increases in membership fees and meeting registration fees.
- 3) Expect to hear from us as we as we work to build a program of fundraising to help us continue our current programs. Think about how much ASLO has meant to your professional development and consider making a gift or writing a bequest to ASLO into your will.
- 4) Make sure that your universities are aware of the full consequences of open access publication. Ask that they set aside some portion of the library windfall from subscription savings to help support publication fees for their faculty. In fact, don't just ask; insist that funds be set aside, at least for the use of young faculty.

Our challenge is to take advantage of wider readership while restructuring ASLO's finances to continue supporting the society. We'll do our best to keep you informed of the open access movement and its double-edged effects as the movement progresses.

THE NEW, STILL FAMILIAR ASLO.ORG

Paul F. Kemp, Web Editor, Center for Microbial Oceanography: Research and Education, School of Ocean and Earth Science, University of Hawaii, Honolulu, Hawaii 96822 USA; webeditor@aslo.org

If you stopped by the ASLO website (www.aslo.org) recently, you probably noticed that some of the graphic decorations have changed, but you might have overlooked the "Member Login" in the upper right corner of the page. What is that all about?

The ASLO website receives millions of hits per year (over 8,000,000 in 2006). Most of the visitors are seeking information about the aquatic sciences, for which the ASLO website is among the best-known and most-used resources on the web today. The website currently contains about 50,000 files in hundreds of categories. One of the interesting creative challenges in maintaining the website is to devise ways to make so much content accessible within a few clicks of a stranger's arrival at www.aslo.org, very often from Google or another search engine.

The ASLO website also provides and supports many society functions and services. For example, ASLO members are entitled to a number of services that are not available to non-members. The website also supports a number of critical func-

tions that are usually invisible. These include virtual meetings of the ASLO Board of Directors to resolve pressing issues, online meetings of committees preparing for future conferences (years in advance!), “help-desk” assistance to our institutional and individual subscribers, and many others. The public, member-only and “invisible” services provided through the web grow more complex each year, and so do the many roles individuals can play in the society. Today, an individual can easily be a member of the public, an ASLO member, a subscriber to the ASLO journals, a student representative to the Board of Directors, and a member of several of ASLO’s more than 20 standing and ad hoc committees. In fact, an individual can play more than 40 different roles in the society, and each of these roles might require access to a different web-based resource.

And so, we have replaced the ASLO web server (for the fourth time!) with a new kind of server, one that can recognize the identity of individuals and provide access to functions as appropriate for their role(s) in the society. When you log into the ASLO web server, the server recognizes your roles in the society and will provide access to the services and functions you need.

The next time you visit the ASLO website, log in! The Members-Only page will give you a brief overview of features that only members can access, and we are committed to adding even more services for members. If you haven’t already set up access, please go to www.aslo.org/forms/login_setup.html to get started. And if you have any problems with logging in, please don’t hesitate to contact the ASLO Web Office (webeditor@aslo.org) to request assistance. See you online!

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ELECTIONS

2007 ASLO ELECTIONS – THE CANDIDATES

The terms of the ASLO Board of Directors are staggered to ensure that experienced Board Members are always present. Elections are conducted by electronic ballot each Spring (instructions to be sent via email and on the web site), but a written ballot can be sent upon request from the ASLO Business Office (business@aslo.org). In Spring 2007, voting will be for two **Members-at-Large** (2007-2010), and for a **by-law change**.

For the election of Members-at-Large, you will be selecting two from a pool of six and based on requests from some ASLO members we would like to try a slightly different version of voting than we have used in the past. Previously, you would have been asked to pick 2 of the six and vote for them. We would like to try Condorcet which allows you to express a graded response. This type of vote is used widely in other societies for elections, for various functions of other Boards, and quite commonly in tenure decisions or selecting graduate students into a program.

Under this voting system, you will use the letter “A” for your first choice, “B” for your second, and so on to “F” for your least favorite. You should put a letter next to each candidate, but if you leave a blank we will score it as an “F”. If you feel that two candidates are indistinguishable, you may put the same letter for more than one candidate. So, you may have two A’s, one B and 3 F’s if you choose – six candidates, six letters, some of which can be the same letter. We will compute the overall ranking of candidates using the Condorcet procedure (see: http://en.wikipedia.org/wiki/Condorcet_method). The candidates with the two highest scores will be the winners of the election. The reason we are asking for alphabetic voting is to avoid the confusion that even with good instructions, some people will want to assign a 1 to their top choice, others to their last choice.

MEMBER-AT-LARGE



Beatrix Beisner

B.Sc. 1992 (Biology, University of Guelph, Canada)
M.Sc. 1995 (Ecology, University of Calgary, Canada)
Ph.D. 2000 (Zoology/Ecology, University of British Columbia, Canada)

Professional History. After completing her Ph.D. studying plankton food web dynamics in pulsed environments, Beisner was a postdoctoral fellow with Steve Carpenter at the Center for Limnology, University of Wisconsin-Madison. Here, she learned a great deal about long term data processing and modeling. As a postdoc, she was lucky enough to participate in DIALOG IV in Bermuda. She subsequently obtained a faculty position in Limnology at the University of Guelph in 2002. From here she moved to a provincially funded chair position in Aquatic Biodiversity at the University of Quebec at Montreal (UQAM), unable

to refuse the opportunity to work within a larger Limnology research group (the provincially funded Groupe de Recherche Interuniversitaire en Limnology or the GRIL). The research group she has had locally at UQAM and within the GRIL has made the time spent as a newer faculty member in Montreal a fabulous experience.

Research Interests. Beisner's research focuses on the community ecology of lake plankton. During her Ph.D. she became interested in the role of periodic mixing events in lakes and how these might play out in terms of altered competition and predation rates in plankton food webs. This is a question that still drives a great deal of her current research program and she is now well equipped to address these questions at the whole-lake scale by linking physical processes with biological ones. In general, Beisner's research focus generally is on food web questions including: the role of anthropogenic changes (e.g. climate, eutrophication) on food web dynamics, factors influencing functional and taxonomic biodiversity and the role of dispersal in food web dynamics and structure. As someone interested in community processes in aquatic systems, Beisner has used exotic species invasions in lakes as an opportunity to study food web perturbations. From a more theoretical perspective, Beisner has also written on the role of nonlinear dynamics in ecology and implications of these for alternative stable state formation. Practically, such processes can lead to interesting food web dynamics and a tendency for algal dominated states in lakes, which she has explored in models of food webs from phytoplankton to fish and which are supported by long term data. Beisner explores research questions in these areas using a variety of approaches from observational studies at large scales (cross lake, whole lake) to experimental (laboratory microcosms, field mesocosms) to mathematical models.

Community Service. Beisner has been a member of ASLO since her graduate student days when she attended her first ASLO meeting in Santa Fe. She co-organized a special session on aquatic invasive species for the 2005 meeting in Santiago de Compostela, Spain. Beisner has been an active reviewer for *L&O* and *L&O Methods* as well as many other journals and several funding agencies. She is currently on the local organizing committee for the SIL meeting which will take place in Montreal in the summer of 2007 (which she hopes many ASLO members will attend!). She is also a council member for the newly formed Canadian Society of Ecology and Evolution and was on the local organizing committee for their inaugural annual general meeting in Montreal in spring, 2006. She has been an active member of the Society for Canadian Limnology (the Canadian arm of SIL) since her postdoc and this year has been invited to participate on a panel to discuss how to succeed in the aquatic sciences. Beisner has also been an active member of the Ecological Society of America and is in her final year as secretary of the ESA's Canada Chapter. On the research side of things, Beisner is a member of the NSERC-funded Canadian Aquatic Invasive Species Network and has collaborated on several other group funding proposals in the past few years.

Representative Publications.

- Beisner, B.E., P.R. Peres-Neto, E. Lindström, A. Barnett, and M.L. Longhi. 2006. The role of environmental and spatial processes in structuring lake communities from bacteria to fish. *Ecology*, In press.
- Hovius, J.T., B.E. Beisner, and K. McCann. 2006. Epilimnetic rotifer community responses to *Bythotrephes longimanus* invasion in Canadian Shield lakes. *Limnol. Oceanogr.* 51:1004-1012.
- Beisner, B.E., C.L. Dent and S.R. Carpenter. 2003. Variability of lakes on the landscape: Roles of phosphorus, food webs and dissolved organic carbon. *Ecology* 84:1563-1575.

Candidate Statement. I believe that the health of our scientific societies is a reflection of the health of our science. ASLO plays a special role internationally as it is the only society that brings together freshwater and marine scientists. It is stating the obvious to say that such linkages are important and that we still have much to learn from each other. This was the huge benefit I saw in participating in DIALOG in 2001 – it brought together young scientists from various scientific as well as national backgrounds. I value ASLO meetings as places where I can go to get re-connected (both scientifically and socially) with other scientists who are also dealing with the challenges and joys of working in aquatic environments. There are so many exciting questions still to be asked, but increasingly, these are interdisciplinary questions or at least ones that require various group efforts. ASLO meetings and publications play a crucial role in this respect. There is an ever increasing need to maintain and enhance the profile of basic sciences such as ours in the eyes of our various funding agencies and I think scientific societies play an essential role here as well. More and more, water issues are of concern to many countries and ASLO scientists have much to contribute to addressing these concerns. Our society can help us bridge that link between active researchers and general societal concerns. ASLO is a healthy society with an increasingly international flavor. In light of these points of view, I hope I will be given an opportunity to contribute over the next few years to the growth and development of ASLO on this international stage.



K. David (Dave) Hambright

B.S. 1982 (Biology, University of North Carolina-Charlotte, USA)
M.S. 1985 (Biology, Texas Christian University, USA)
Ph.D. 1991 (Ecology and Evolutionary Biology, Cornell University, USA)

Professional History. After completing his graduate studies, Hambright served briefly as a postdoctoral associate in Cornell's Ecosystems Research Center (1991), before moving on to the Kinneret Limnological Laboratory, Tiberias, Israel (KLL; 1991-93), as a Binational Agricultural Research and Development Fund Postdoctoral Fellow. He subsequently

joined KLL, first as a Research Scientist (1993–95), then as a Senior Research Scientist (1996–2000). Hambright returned to the U.S. in 2001, joining the University of Oklahoma (Biological Station and Department of Zoology), where he is currently an Associate Professor.

Research Interests. Ecological interactions between freshwater consumer and prey species are the primary focus of Hambright's research. His studies have covered a wide range of organisms, including piscivorous and planktivorous fishes, metazoan and protistan zooplankton, phytoplankton, and bacteria. He is particularly interested in understanding how consumers affect community- and ecosystem-level dynamics through direct and indirect effects on both prey and non-prey species via mechanisms such as selective consumption, alteration of competitive forces, and changes in nutrient cycling dynamics. Most recently, he and his students have been focusing on food web dynamics of mercury bioaccumulation in Caddo Lake, TX, eco-toxicology of invasive golden algae in Lake Texoma, OK–TX, comparative ecology of microbial and crustacean grazers in fresh waters, and paleolimnology and fish-zooplankton interactions in Lake Kinneret, Israel.

Community Service. Since joining ASLO in 1985, Hambright has regularly attended the annual meetings, published in and served as reviewer for *L&O*, and served on the Education Resources Web Page Sub-committee of ASLO's Education and Human Resources Committee (2002–2005). Through the University of Oklahoma's Center for Peace Studies, sponsored in part by the U.S. State Department, Hambright has convened, chaired, and participated in numerous meetings of U.S. and Middle East regional scientists, engineers, and governmental dignitaries, with the aim of using water resources as a social and political common denominator to foster trust and cooperation among nations, including nations at war. Building on regional and national networks of communication and collaboration, and in an effort to broaden student involvement in professional activities, Hambright founded the Oklahoma-Texas Aquatic Research Group (OTARG), and served as organizer and host of three-day meetings with the Great Plains Limnology Conference (OTARG-GPLC; 2002) and the Texas River and Reservoir Management Society (OTARG-TRRMS; 2005). He is currently planning a joint OTARG-GPLC meeting for 2008.

Representative Publications.

- Hambright, K.D. and T. Zohary. 2000. Phytoplankton species diversity control through competitive exclusion and physical disturbances. *Limnol. Oceanogr.* 45:110–122.
- Hambright, K.D., W. Eckert, P. R. Leavitt, and C.L. Schelske. 2004. Effects of historical lake level and land use on sediment and phosphorus accumulation rates in Lake Kinneret. *Environ. Sci. Tech.* 38: 6460–6467.
- Hambright, K.D., T. Zohary, and H. Güde. *in press*. Microzooplankton dominate carbon flow and nutrient cycling in a warm subtropical freshwater lake. *Limnol. Oceanogr.*

Candidate Statement. In the 22 years since I joined ASLO, I've witnessed our society grow in numerous positive ways, such as increased membership and participation, particularly by student and non-North American researchers. Additionally, our publications have grown in number and volume, providing the highest quality venues possible for the communication of new knowledge. Further, our voice and relevance in policy formulation has greatly expanded with the establishment of ASLO's Office of Public Affairs in Washington and the new and continued efforts by our international members to help shape Canadian and European policy.

My primary reason for wishing to serve on the ASLO Board is to be able to help continue this positive growth and proactive development of our society. Personally, I feel strongly that an important element in the nature and function of representatives of the scientific and academic community is embodied in the active, committed participation in societies such as ours, particularly given the significant impact such groups can have in a larger social sphere. Our voice in discussions of contemporary challenges now facing society worldwide can be instrumental in the expansion of public awareness on such critical questions as climate change, species loss and invasions, and the protection of natural resources. More specifically, I believe that specialists in the fields of limnology and oceanography hold a uniquely relevant role in the consideration of global issues, since our work addresses directly the dynamics of the use, protection, and conservation of aquatic resources. It is in this context that I feel I can bring a useful perspective to our society, based in large part on my experience of having spent more than a decade of my professional career working in a foreign institution with a government mandate to protect the primary freshwater resource of an entire nation.

With further experience gained through my university's International Programs Center and Center for Peace Studies, I have a broad, international perspective on limnology as a science, a strong appreciation for the contributions of aquatic scientists from both inside and outside North America, and a genuine desire to promote aquatic science education and awareness.



Andreas Lorke

Diploma 1995 (Physics, Humboldt University at Berlin, Germany)
Ph.D. 1998 (Applied Mechanics, Technical University Darmstadt, Germany)

Professional History. Lorke was introduced to physical limnology at the Institute of Freshwater Ecology and Inland Fisheries at Berlin where he carried out his diploma and doctorate study on turbulent mixing and transport as relevant for primary production. In 1998 he was a postdoctoral fellow in the lake research unit at the Centre for Environmental Research in Magdeburg, working on a remediation project for acidic mining lakes. From 1999 to 2003 he was a post-doctoral fellow at the Swiss Federal Institute for Environmental Science and Technology (EAWAG/ETH). Lorke currently is an Assistant Professor, at the Limnological Institute in Konstanz.

Research Interests. Lorke has a strong background in the broad field of aquatic physics and, in particular, in the characterization of small-scale turbulence and mixing processes. Major contributions to this field could be made with the establishment of a universal scaling relation for the length scales of turbulence in natural waters as well as with studies focusing on bottom-boundary layer turbulence. He is particularly interested in interdisciplinary problems in aquatic sciences such as the impact of turbulence and mixing processes on plankton dynamics, the use of physical characteristics of the water column for the study of ecological interactions as well as investigations on the impact of bottom-boundary layer turbulence on sediment-water exchange processes. These interdisciplinary approaches also encompass collaboration with engineers and geophysicists in safety assessments for natural gas hazards in African lakes (Lake Nyos, Lake Kivu). Besides his research in lakes, he has also worked on the Black Sea studying methane emissions and has a current research project in the Baltic Sea. Recent research activities focus on the use of acoustic methods for the observation of zooplankton distributions and on the study of the characteristics and ecological impacts of high-frequency internal waves.

Community Service. Lorke is an active reviewer for ASLO and other journals as well as for national and international funding agencies such as the International Foundation of Science (IFS). Currently he is a section editor for the Encyclopedia of Inland Waters, which is due to be published in 2008. Further he was involved in teaching summer courses and advised graduate students within the framework of the IHE Water Education Program and he served as an OCHA (United Nations Office for the Coordination of Humanitarian Affairs) consultant for a safety assessment of Lake Kivu after the Nyiragongo volcano eruption.

Representative Publications.

- Lorke, A., D. F. McGinnis, P. Spaak and A. Wüest. 2004. Acoustic observations of zooplankton in lakes using a Doppler current profiler. *Freshw. Biol.* 49: 1280-1292.
- Lorke, A., A. Wüest, B. Müller and M. Märki. 2003. Breathing sediments: The control of diffusive transport across the sediment-water interface by periodic boundary-layer turbulence. *Limnol. Oceanogr.* 48(6): 2077-2085.
- Wüest A. and A. Lorke. 2003. Small-Scale Hydrodynamics in Lakes. *Ann. Rev. Fluid Mech.* 35: 373-412.

Candidate Statement. While working as a physicist at various limnological institutes, I have experienced the demanding need for interdisciplinary research, its great potential, but also the difficulty of conducting it. ASLO, with its publications and meetings is an excellent platform for interdisciplinary studies. It provides a medium for communication of results and within meetings the opportunities for scientists of different backgrounds to meet. With its greater international representation, it now has a growing commitment to bring in this expertise in the solution of water problems on a global scale. To be an active part of the ASLO community, to learn how it works behind the scenes and what it takes to maintain it, and, of course, to be

involved in its advancement are my major reasons for standing for election for the ASLO board. I offer the unspoiled eagerness of a scientist now increasingly interested in serving the scientific community beyond my actual research activities.



Oscar Schofield

B.A. 1989 (Biology, University of California, Santa Barbara, USA)
Ph.D. 1993 (Biology, University of California, Santa Barbara, USA)

Professional History. Upon completion of my Ph.D., I remained at the University

of California at Santa Barbara at the Institute of Computational Earth System Science to join an expedition lead by Barbara Prezelin and Raymond Smith to study the impact of the Antarctic ozone hole on Southern ocean primary productivity in 1993. After that, I joined the team of Dr. David Millie in 1994 at the Agricultural Research Service, United States Department of Agriculture in New Orleans in a postdoctoral position focused on harmful algal blooms and aquaculture. From David Millie's lab, I joined the faculty at Rutgers University's Institute of Marine and Coastal Sciences in 1995. Since then I have been an Assistant and Associate Professor with tenure. At Rutgers, Scott Glenn and I formed the Coastal Ocean Observation Lab (COOL) which is an integrated ocean observatory combining remote sensing, regional shore-based radar networks, electro-optic seafloor cables, multiple classes of underwater autonomous vehicles and data assimilative models.

Research Interests. I am interested in the biogeochemical implications of human activity on aquatic systems. My research focus has been on the coastal oceans which are undergoing changes due to the pressures associated with increasing human populations along coastlines. These changes can alter microbial diversity and metabolism, which in turn can lead to long-term changes in the oxidation state of continental shelves. Understanding the potential changes and corresponding impacts is currently inadequate due to our inability to sustain observations in the oceans, an incomplete understanding of marine microbial ecology and the role of microbial community's impact on biogeochemical cycles. Therefore my research efforts have focused on developing the ability to synoptically study the bio-optical properties on continental shelves and using these techniques to study ocean productivity and phytoplankton community ecology. This research focus has grown out of my long term research on phytoplankton physiological ecology and the corresponding impact on biogeochemical cycles in the aquatic systems. These interests have resulted in major research efforts with a great set of collaborators spanning from the Great Lakes, Mid-Atlantic Bight, Gulf of Mexico and Antarctica.

Community Service. In collaboration with my partners, we have focused on demonstrating the scientific capabilities of the ocean observing capabilities. This was demonstrated by hosting a series of large interdisciplinary multi-university

experiments. Some of these efforts were some of the largest coastal oceanographic experiments of the last decade (for example, the ONR sponsored HyCODE/COMOP, consisted of >300 scientists, 3 aircraft, and 13 ships & boats). I provided community service to the wider academic community which included five years of service on the Coastal Ocean Program steering committee. I currently serve on the ORION (Ocean Research Interactive Observatory Networks) steering committee. I serve on two other major steering committees (Ocean Optics, Coastal North American Carbon Program Symposium), have been a coauthor on six national science reports, and was a Chair for seven sessions at professional society meetings. I was co-chair for two international meetings, one in Puerto Rico for the National Science Foundation and the other in Paris for UNESCO and the Oceanography Society. Additionally, I have been guest editor on two special issues produced by the Journal of Phycology and the Journal of Geophysical Research. Currently I am an associate editor for the Journal of Geophysical Research and Continental Shelf Research. I participated as a Science Representative for State of New Jersey Department of Personnel's program for "Creating the Workforce of the Future" in underprivileged urban middle schools. We have deployed gliders at the request of the foreign scientists, offshore Australia, Germany, England, and France. To facilitate and enable these international collaborations, the International Consortium of Ocean Observing Labs (ICOOL) was formed in Paris in 2005 and currently includes labs from Australia, Canada, England, France, Germany, Norway, and the United States. COOL, California Polytechnic State University and Dalhousie University were the founding members of ICOOL.

Representative Publications.

- Schofield, O., T. Bergmann, M. Oliver, A. Irwin, G. Kirkpatrick, W. P. Bissett, C. Orrico, and M. A. Moline. 2004. Inverting inherent optical signatures in the nearshore coastal waters at the Long Term Ecosystem Observatory. *J. Geophys. Res.* 109, C12S04, DOI:10.1029/2003JC002071.
- Falkowski, P. G., M. Katz, A. Knoll, J. Raven, O. Schofield, and M. Taylor, M. 2004. The consequences of the evolution of eukaryotic phytoplankton. *Science*. 305: 354-360.
- Schofield, O., J. Kerfoot, K. Mahoney, M. Moline, M. Oliver, S. Lohrenz, and G. Kirkpatrick 2006. Vertical migration of the toxic dinoflagellate *Karenia brevis* and the impact on ocean optical properties. *J. Geophys. Res.* 111, C06009, doi:10.1029/2005JC003115

Candidate Statement. Since I entered the field ASLO has always promoted and enabled the people in the aquatic sciences. This community was evident to me early in my career when I attended my first ASLO meeting as an undergraduate in 1988. At that meeting at an ASLO social event, I luckily ended up sitting next to the giant intellect of John Martin who proceeded to tell me stories of his current ideas and some of his sea stories. I was hooked. After receiving my Ph.D. at UCSB, I attended the Dialog meeting, which ASLO helped sponsor, which to this day remains one of the most important meetings of my career providing me a network of friends and collabora-

tors that remain over a decade later. ASLO through its journal, newsletter, and meetings remains a vital part of our aquatic science community and that I hope to continue and strengthen as we enter a new exciting period of the aquatic sciences. As a community, we are in the midst of a technical revolution. Data from around the world from remote sensors provides data to our desk-top through the rapidly evolving global cyberinfrastructure. Satellites provide a synoptic view of the ocean hydrography and biology. Ensembles of ecosystem models allow us to access the limits of predictability in the aquatic systems. Fleets of robots now routinely patrol the oceans and the ARGOs network continues to expand. We can now collect data all over the world without going to sea together. We can collect data that will end up in the manuscript submitted without acknowledgement by authors we have never met (note in my view this is a positive step forward the community enabling exploration). We as a community are no longer consigned to operate in an "under-sampled" environment. This is important as many ocean ecosystems appear to be changing and understanding these shifts is the clarion call for our community. This distributed community also presents a new grand challenge for us to maintain a sense of community and purpose. I believe ASLO is critically important by continuing its leadership by supporting the community and especially the young scientists entering the aquatic sciences. ASLO remains the voice of the community and is the portal for jobs, meetings, and great peer-reviewed journal articles, it is now poised to become a portal to distributed network of data, models, and people. I hope that, if asked to serve, I will help enable ASLO fulfill its potential in this exciting time allowing the community to share data, debate ideas, and together help improve environmental literacy world wide. While daunting challenges face us, I believe more than ever that this is the best time ever to be a limnologist and oceanographer!



Wayne Wurtsbaugh

B.S. 1970 (Zoology and Fisheries & Wildlife, Univ. of California, Davis, USA)
M.S. 1973 (Fisheries & Wildlife, Oregon State University, USA)
Ph.D. 1983 (Ecology, Univ. of California, Davis, USA)

Professional History. Wayne Wurtsbaugh is currently a professor at Utah State University. He began his career as a limnologist as an undergraduate doing research at a field station in Northern California. His Ph.D. research at the University of California, Davis, detailed diel horizontal migrations of fish and zooplankton in a large lake. This was followed by a research position at an algal research station (UC Berkeley) studying iron limitation of nitrogen fixation in cyanobacteria. His pre-post-doctoral work (UC Davis, 1981-83) involved studying the seasonality of plankton production processes in Lake Titicaca, Peru, where he'd done similar research in the Peace Corps several years earlier. In 1983 he began as an assistant professor at Utah State University, where he has remained until now. His sabbatical leaves included a Visiting Professor position at the

Limnology Center (U. Wisconsin, 1990), Visiting Scientist at the Max Planck Institute für Limnologie (Germany, 1991), a Fulbright Senior Research Scholar position at the Universidad de Valencia (1998–99), and a Gastprofessur position at the ETH University and EAWAG in Switzerland (2005–06).

Research Interests. Wurtsbaugh's interdisciplinary interests range from the physiological ecology of algae, fish and zooplankton, to watershed-level biogeochemical processes. His early work focused on the physiological and behavioral ecology of fishes, including work on thermal pollution and salmonids, and the importance of diel vertical migration of larval fish as a thermoregulatory strategy. He has a long-term interest in factors limiting nitrogen fixation in cyanobacteria, and the consequent nitrogen limitation in a variety of systems including eutrophic lakes, Lake Titicaca, and most recently in alpine streams and saline lakes. In the 1980s, he began ecosystem-level projects studying food web dynamics of endangered sockeye salmon lakes in the Western United States. This led to analyses of the mechanisms for the formation and the importance of deep chlorophyll layers in these oligotrophic systems. He is also the director of a large collaborative project focused on how landscape-scale patterns of lakes and streams influence nutrient transport through watersheds and the variability of production processes. He is currently working on eutrophication problems in the Great Salt Lake (USA) including analyses of cyanotoxins and their impacts on invertebrates and birds. He has participated in a variety of international studies in Peru, Spain, Germany and Switzerland.

Community Service. Wurtsbaugh has been an active participant in ASLO since 1980. He publishes and reviews papers in *L&O* and the *Bulletin*, and has convened numerous special sessions at meetings. He was chair of the ASLO Education and Human Resources Committee from 2002–2004, and he remains active with that effort. He was co-chair of the US National Science Foundation/ASLO Workshop, Emerging Research Questions for Limnology: The Study of Inland Waters (2002) and edited the publication from that meeting. He was ASLO's representative to NSF's Integrated Earth Surface Systems Sciences Summit meeting (2004). He was a member of ASLO's National Meeting Planning Team for the 2006 meeting in Victoria. He is a National Representative to the International Society of Limnology and is on the Board of the International Society for Salt Lake Research. He was a team member of the NSF-EPA Initiative on Regional Assessment of Freshwater Ecosystems and Climate Change in North America (1995–1996). He is active in local conservation organizations and serves on the Advisory Board of the Friends of Great Salt Lake. He has served on the Governor's Acid-Rain Task Force (Utah) and the State's Board of Water Pollution Control. He has participated with various site review teams for NSF, the Salton Sea Integrated Water Management Plan, and the Center for Aquatic Biology and Aquaculture. He has provided manuscript and proposal reviews for more than 40 journals and organizations and he has served as an associate editor for the *Transactions of the American Fisheries Society* and is cur-

rently an associate editor for the Iberian Limnological Society's journal, *Limnologica*.

Representative Publications.

- Wurtsbaugh, W.A., H.P. Gross, P. Budy and C. Luecke. 2001. Effects of epilimnetic versus metalimnetic fertilization on the phytoplankton and periphyton of a mountain lake with a deep chlorophyll maxima. *Can. J. Fish. Aquatic. Sci.* 58: 2156–2166.
- Pilati, A. and W.A. Wurtsbaugh. 2003. Importance of zooplankton for the persistence of a deep chlorophyll layer: A limnocorral experiment. *Limnol. Oceanogr.* 48: 249–260.
- Marcarelli, A.M. and W.A. Wurtsbaugh. 2006. Temperature and nutrient supply interact to control nitrogen fixation in oligotrophic streams: an experimental examination. *Limnol. Oceanogr.* 51: 2278–2289.

Candidate Statement. My overriding objective as a board member would be to build ASLO to an even larger and more inclusive group of aquatic scientists. Over the past three decades there has been tremendous growth in the number of scientists studying marine and inland waters, but much of this increase has gone into other organizations. Our society was founded on the premise that the similarities between marine and freshwater systems are greater than the differences, and that concept can be extended by fostering participation of a greater number of individuals studying estuarine, wetland and stream ecosystems. Additional joint meetings with other societies can help in this regard. Additionally, we need to increase the relevance of ASLO by fostering more participation by managers and scientists involved with developing legislation and protecting our aquatic resources while at the same time maintaining our preeminent position as the leading scientific society studying aquatic systems. In the US, we need to push to have "limnologist" listed as a federal job title to complement the extant "oceanographer" position in the system.

ASLO can also increase our influence and help protect aquatic resources by increasing our public outreach efforts. Our Public Policy office can be strengthened to influence legislation not only in the U.S., but internationally. The Education and Human Resources Committee can do more to provide resources to educators working at all age levels and to make our society recognized worldwide as the go-to organization for information on aquatic resources. ASLO's Image Library now attracts thousands of queries each year and it should be enlarged further to help educators and to provide visibility for our society. Articles on limnology and oceanography should be written frequently for education magazines such as *Science & Children*, and *Science Teacher*. Children should be exposed to the fields of both limnology and oceanography.

I would be honored to represent you on the Board, and if elected I would work to obtain as much input from ASLO members as possible to help in making critical decisions for the society. I believe that my interdisciplinary background and international experience can help ASLO face both the scientific challenges and threats to our marine and inland water resources.



Jing Zhang

B.Sc. 1989 (Chemical and Mineral Engineering, Northeastern University of China, China)

M.Sc. 1992 (Analytical Chemistry, University of Tokyo, Japan)

Ph.D. 1995 (Marine Chemistry/Chemical Oceanography, Ocean Research Institute, University of Tokyo, Japan)

Professional History. After completing her master's degree focused on the water geochemistry of desert limnology, Jing became interested in marine geochemistry and started her oceanographic research in 1992, studying with Prof. Yoshiyuki Nozaki at the Ocean Research Institute, University of Tokyo. Her Ph.D. research described the behavior of yttrium and other rare earth elements in sea water, and this resulted in attending the XIII DISCO in Hawaii. During her postgraduate work at the National Institute of Radiological Sciences, she studied the material supply of trace metals and nutrients by atmospheric precipitation and rivers to the marginal seas. She became a lecturer in the Department of Environmental Biology and Chemistry, Graduate School of Science and Engineering, University of Toyama, in 1998, and was promoted to Associate Professor two years later. Since then, Jing has devoted all her time to teaching, research and outreach. She has participated in 30 cruises with over 18 months at sea, about 10 cruises as Chief Scientist, used submersibles and ROVs more than 30 times; was author or co-author of 28 refereed papers and 30 other works covering a wide range of topics; and served as graduate advisor for three Ph.D. and ten M.Sc. students. Jing was key editor for a special issue on The Geosciences of Submarine Groundwater Discharge (SGD) in the Journal of the Geochemistry Society of Japan; this was instrumental in expanding SGD research activities in Asia. She widened her international activity with appointments as concurrent professor at the Geochemistry Research Institute of the Chinese Academy of Sciences (2000), and the College of Atmospheric Sciences of Lanzhou University in China (2004).

Research Interests. Jing's research has always been focused on the major and urgent issues of the global environment, clarifying the origins of materials, their distributions, circulation and transport mechanisms, and the links with global environment change, by using trace element concentrations and isotopic composition:

- 1) Geochemistry of submarine groundwater discharge and its impact on the coastal marine environment;
- 2) Oceanic circulation and variation related to global climate changes, e.g. water mass structure, the abyssal circulation and fluctuation of the marginal seas; and riverine fresh water fluxes from the high latitude continents into the Arctic Ocean;
- 3) The formation mechanisms of seafloor chemical synthesis communities, such as bacterial-mats and methane fluxes in cold seep areas; and investigating the origin of methane and its release mechanisms from the seafloor (where

methane hydrates exist in the ocean sediment) and its behavior and seasonal variation in the water column.

- 4) The phytoplankton distribution and its variation linked with marine environment changes, e.g., the *Emiliania huxleyi* bloom mechanism in the southeastern Bering Sea, and phytoplankton distributions in the North Pacific sub-arctic region and their seasonal variation; and
- 5) The origins and long term transformation of anthropogenic material, and its impact on the marginal seas and North Pacific ecosystem, e.g. aerosol chemistry and supply of continental origin dust and nutrients into the North Pacific Ocean, and sequential observation of air pollution material and transport in East Asia and their environmental impact assessment.

Community Service. Jing is always keen to develop and expand activities related to her teaching and research both in the national and international arenas. Since 2005, Jing serves as a council board member of the Geochemical Society of Japan, and is actively helping to strengthen and broaden cooperation and ties between the Geochemical Societies of Japan and China, e.g. inviting the presidents to the annual meetings for general presentations about the status of their respective Societies. After became board member of IAPSO-IAHS Joint Commission on Groundwater-Seawater Interactions in 2003, Jing made a major effort to expand joint and collaborative SGD research in Asia, and was a key editor for a special issue on "The Geosciences of Submarine Groundwater Discharge (SGD)". Jing contributed as a guest review board member for the marine science section of the National Science Foundation of China in 2006. Since 2004, she has been a member of the planning group for the international GEOTRACES program and is now a member of the International Scientific Steering Committee. From early in this process, she has been promoting GEOTRACES science activities in Asia, e.g., helping to organize the Asian GEOTRACES Workshop held in August 2005 in Xiamen, China, and the GEOTRACES session at the WPGM in July 2006. She has just started to edit an Asian GEOTRACES special issue in the Journal of Oceanography (the English journal of the Oceanographic Society of Japan). With already more than thirty papers from Japan, China, Korea, Taiwan, Russia, India, and other countries already on the submission list, this special issue will be a major step for GEOTRACES in Asia. Lastly, Jing presents many public lectures, bringing environmental science and the urgency to address climate change to the general population.

Representative Publications.

Hatta, M. and J. Zhang. 2006. Possible Source of Advected Water Mass and Residence Times in the Multi-structured Sea of Japan using Rare Earth Elements. *Geophys. Res. Lett.*, 33: L16606, doi:10.1029/2006GL026537.

Yuan, W. and J. Zhang. 2006. High correlations between Asian dust events and biological productivity in the western North Pacific. *Geophys. Res. Lett.*, 33: L07603, doi:10.1029/2005GL025174.

Zhang, J. and H. Satake 2003. The chemical characteristics of submarine groundwater seepage in Toyama Bay, Central Japan. M. Taniguchi et al., Eds., *Land and marine hydrogeology*. Elsevier. 45–60.

Candidate Statement. I was attracted to ASLO many years ago because I sensed its ability to serve its members both broadly and in-depth. This fits with the way I work, with broad research interests, usually interdisciplinary. Because the first part of my education was in China and I have lived the last two decades in Japan, I have very strong academic and research ties with colleagues and their institutions both in Japan and China, as well as in surrounding Asian countries such as Korea, Russia, Taiwan, and India. My long history of collaborating with colleagues in these Asian countries on biogeochemical research in the marginal seas and coastal regions leads directly to what I see as my main task representing the members of ASLO. As a member-at-large, I would attempt to promote ASLO into more international activity in both science and outreach, especially in the Asian region (e.g. hold the ASLO annual meeting in Asia, work to recruit Asian students to ASLO disciplines), and to strengthen ties between members in Asian countries and countries in the rest of the world, in all ASLO disciplines.

2007 ASLO ELECTIONS BY-LAW CHANGE: SECTION IX. COMMITTEES

RATIONALE

ASLO's Nomination Committee is responsible for coming up with slates of candidates for election to the Board. This job entails: 1) soliciting and prioritizing suggestions from members for potential nominees; 2) determining the willingness of those selected to stand for election; and, 3) collecting the necessary information and materials from candidates to post for the elections. With the exception of the Nominations Committee, ASLO members of standing committees have three-year terms; members of the Nominations Committee serve just one year. There are advantages and disadvantages to the present system. The main advantage is that each year, we get brand new perspectives into the process and prevent a few individuals from controlling the process for any more than a year. The two main disadvantages are: first, the committee is always new and therefore does not know the ropes, and second, it is hard to populate this committee every year. The Board suggests two changes that would provide a good compromise solution. First, the Past-President (who serves a two year term on the Board) would serve as the non-voting chair of this committee. Having the Past-President chair the Nominations Committee is a very common practice in other societies because it ensures that deadlines are adhered to. Second, the members of the committee would be able to serve two-year, staggered terms. The Board asks you to vote on this as a proposed change to the by-laws.

PREVIOUS WORDING

SECTION IX. Committees

By a system of rotation to provide continuity of service, the President shall nominate and the Board shall approve three (3) or more members to standing committees. Nominating Committee members shall serve one-year terms, and other committee members shall serve three (3) years and be eligible for reappointment. Chairs shall be appointed annually by the President and shall be eligible for reappointment.

PROPOSED NEW WORDING (*IN ITALICS*)

SECTION IX. Committees

By a system of rotation to provide continuity of service, the President shall nominate and the Board shall approve three (3) or more members to standing committees. *With the exception of the Nominating Committee (below), Chairs shall be appointed annually by the President and shall be eligible for reappointment; members shall serve three-year staggered terms.*

Members of the Nominating Committee shall serve two-year terms and may not serve consecutive terms. The Chair of the Nominating Committee shall be, ex officio, the Past-President who will be non-voting.

MEETING HIGHLIGHTS

ASLO 2009: NICE, ITS HILLS AND THE SEA

The Co-Chairs of ASLO 2009: **Jean-Pierre Gattuso**, CNRS-University of Paris VI, Laboratoire d'Océanographie, BP 28, 06234 Villefranche-sur-mer, Cedex, France; gattuso@obs-vm.fr; **Markus Weinbauer**, CNRS-University of Paris VI, Laboratoire d'Océanographie, BP 28, 06234 Villefranche-sur-mer, Cedex, France; wein@obs-vm.fr; **Peter Bossard**, Department of Limnology, EAWAG, Limnological Research Center, CH-6047 Kastanienbaum, Switzerland, peter.bossard@eawag.ch

[Forward: The 2009 ASLO meeting will take place in Nice, France, 25–30 January 2009. We are going to publish a short piece on the area and the meeting in each issue of the *L&O*



Photo credit: Patrick Murris (<http://www.alpix.com/nice/>)

Bulletin until the meeting. Today's piece aims to provide a brief account of the history of the city.]

Prehistoric man already had the right idea and found the perfect place to set up camp: the site known as *Terra Amata* (meaning "beloved earth"), at the foot of the Mont Boron, one of the hills surrounding the city of Nice. A short while (400,000 years) later, it still attracted visitors! During the 4th century B.C., the Greeks arrived by sea and settled on the *Colline du Chateau*, yet another hill in the present-day city, intending to make *Nikaia* (meaning: the Victorious) a strategic trading center. Few cities in France can boast 25 centuries of existence. Then, 100 years B.C., the Romans arrived with their architectural skills and built a complete town on the hill of *Cimiez* (*Cemenelum* in Latin), with all amenities (arenas, spas, shops...).

The town's expansion raised a lot of envy: over the next six centuries, Barbarian and Saracen invasions reduced the place to almost nothing. The counts of Provence then took over the site first created by the Greeks. In the 14th century, the people of Nice (Nissa in the local language) grew tired of the continual political squabbling, and asked to be placed under the sovereignty of the House of Savoy. That situation prevailed until 1860 with only two interruptions: from 1691 to 1731, when the County of Nice belonged to Louis XIV, and from 1792 to 1814, when it became part of the French Republic after the Revolution and then part of the Empire under Napoleon I. In 1860, the city population welcomed a treaty

signed by Napoleon III and the King of Sardinia, permanently returning Nice to France. From then on the little township was launched on the road to rapid development and became a fashionable holiday center. First the English arrived, hence the name *Promenade des Anglais* for a part of the water front, then

the Russians, leaving their mark for example on the Russian Orthodox Cathedral as well as a Russian directors for more than 70 years of the *Station Zoologique*, one of the institution co-organizing the ASLO 2009 meeting.

Such a diverse and long history left an imprint on many aspects of the city and its lifestyle. One can get a feeling of the prehistoric site of *Terra Amata* by visiting a fine museum. The roman ruins of Cimiez comprise a well preserved amphitheater and a bath complex. Down the hill, nearer to the sea, the old town is the most picturesque and one of the busiest areas of Nice. In an environment of exceptional baroque architecture, one can discover the colors and light of *Cours Saleya* with its famous Flower Market, the *place Rossetti* with its Italian atmosphere, the *place du Palais*, with its recently renovated law courts, but also the narrow streets, the *trompe-l'oeil* façades and the terraces in the

shade of parasols, the numerous churches and the steps which lead up to the magnificent park of the *chateau*. Walking up the steps allows several panoramic views of the city and the seafront along the *Promenade des Anglais*.

The good news (there is no bad news as yet!) is that the Acropolis convention center, site of the ASLO meeting, is located at a mere 5 min walk from the old town. On the way one crosses the *place Garibaldi*, named after Guiseppe Garibaldi the main driving force which lead to the formation of a unified Italy and who was a son of the city of Nice. There will therefore be plenty of opportunities to visit the old town at a slow pace through its narrow streets, admire the architecture, some of which date back over 400 years, and visit the daily markets, including the fish market where the smell of the sea permeates the small square in the heart of the old town. We assume that the old town will become the favorite *rendez vous* (headquarters) of many ASLO delegates, second only to the convention center, and a pleasant place to break for a coffee or sample the traditional *Niçois* dishes at one of the many restaurants and snack bars.

Subsequent short pieces will examine the imprint of history on the surrounding cities and villages, gastronomy and art.

DID YOU KNOW?

That Nice was the home town of Henry Cavendish (Born in 1731 in Nice, died in 1810 in London), the discoverer of hydrogen in 1766. He found out that water is not an element and that hydrogen oxidizes to water. Henry Cavendish was an English physicist and chemist who conducted experiments in diverse fields, discovering such phenomena as the composition of air, the nature and properties of hydrogen, the specific heat of certain substances, the composition of water, and various properties of electricity. He also measured the density and mass of the Earth by a method now known as the Cavendish experiment. Cavendish performed numerous electrical experiments, however did not publish the results.



Photo credit: Office du Tourisme et des Congrès de Nice / Nice & You

L&O FEATURED ARTICLE

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Beginning with the May 1999 issue of *Limnology and Oceanography*, selected articles have been made freely available for reading or download on the L&O Website a few weeks in advance of when the printed issue is mailed. Featured Articles receive no special attention in the printed issue. A paper may be featured for different reasons (e.g., to draw attention to an exceptional piece of research or to promote an area of research that the Associate Editor feels L&O readers should be more aware of). Each Featured Article is announced in the *Bulletin*, as well as to the LO-Feature Mailing List, and is accompanied by an introduction to the article by the Associate Editor who handled the paper discussing its significance.

The featured article in Issue 1 of L&O Volume 52 is:

Morel, André, Bernard Gentili, Hervé Claustre, Marcel Babin, Annick Bricaud, Joséphine Ras, and Fanny Tièche. 2007. Optical properties of the “clearest” natural waters. *Limnol. Oceanogr.* 52: 217–229.

Introductory comments by Heidi Sosik (L&O Associate Editor)

Just over 25 years ago, Smith and Baker (1981) published a seminal paper on the optical properties of the clearest natural waters. The premise that they had indeed observed the clearest natural waters stood nearly uncontested until now. Morel and co-workers report on measurements in the South Pacific gyre that, in the words of one reviewer, are “amazing—literally of another planet.” The optical measurements presented in this paper not only show these waters to be exceptionally clear, but also refute widely-used laboratory-based standards for “pure water” absorption coefficients. These observations bear on the ecology and biogeochemistry of a vast region of the South Pacific and have fundamental implications for physical optics, photochemistry, and photobiology in aquatic systems.

At first glance, this paper may seem principally about optical methods and the challenges of making observations when signals are exceedingly small. There are much broader implications, however. First, the results provide characterization of a poorly known, but vast region of the open ocean that proves to be hyper-oligotrophic, with chlorophyll concentrations typically less than 0.03 mg m^{-3} and euphotic zone depths greater than 150 m. The optical clarity is rivaled only by a permanently ice-covered polar lake studied by Vincent et al. (1998). These in situ observations confirm results from ocean color satellite missions that routinely show the South Pacific gyre to have the lowest surface chlorophyll concentrations on the globe. They are also consistent with nitraclines as deep as 200 m in the area. The full interplay of ecological, biogeochemical, and physical factors contributing to these conditions remains to be explored.

As mentioned above, Morel et al.’s results have a second major implication that involves fundamental knowledge of the optical properties of pure water. Surprisingly, these natural ocean waters seem to more “clean” (or free of non-water

materials) than has been possible to generate reliably in the laboratory to date. The evidence for this is that the ocean waters have lower absorption at certain ultraviolet wavelengths than “pure” water measured in noteworthy laboratory studies. The consequences of this finding extend well beyond abstract interest in pure water properties. The direct implication for all natural aquatic systems is that more ultraviolet radiation than previously thought is absorbed by organisms and other materials such as dissolved organic compounds subject to photochemical transformation. This knowledge will undoubtedly motivate renewed efforts to characterize pure water optical properties as well as reassessments of the effects of ultraviolet radiation in natural waters bodies.

In this work, Morel et al. acknowledge inspiration by borrowing the title of Smith and Baker’s 1981 influential paper. They make only one change for this new classic: “clearest” is now in quotation marks, prudently awaiting another revelation.

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THE ETHICS FORUM: MULTIPLE AUTHORS AND INTELLECTUAL PROPERTY RIGHTS

Professional Ethics Committee, Eric Weissberger, Committee Chair, U.S. Environmental Protection Agency, Atlantic Ecology Division, 27 Tarzwell Dr., Narragansett, RI 02882 USA; weissberger.eric@epa.gov

An ASLO member recently contacted the Professional Ethics Committee with the following scenario. A principal investigator and several other colleagues write a proposal together. The proposal is not funded and is put away. Later the PI finds out that one of the other authors has handed the proposal to a graduate student to pursue as a dissertation topic. This co-author did not inform the PI or any of the other authors of this action. Did this author act illegally, unethically, or merely discourteously?

This issue falls clearly into the realm of intellectual property rights. Three subsets of intellectual property law are relevant: copyright law, patent law, and trade secret law. These laws vary by country, and members are advised to consult their national copyright and patent offices for guidance.

First let us deal with copyright law. What are the rights of an individual author regarding a document that has multiple authors? In the United States, copyright protection is created automatically upon the creation of any work of original authorship fixed in a tangible form of expression (U.S. Copyright Office 2006). It is no longer necessary to register a work with the U.S. Copyright Office, although registration is advisable if

legal challenges are anticipated. If a work has multiple authors, all authors share jointly in the copyright, regardless of each individual's level of contribution (Academic Senate of the California State University 2003). Each author shares equally in the ownership and control of the work unless otherwise agreed. One of the specific rights granted to copyright holders is the right to make derivative works that borrow substantially from the original copyrighted work (Academic Senate of the California State University 2003). Furthermore, the ideas expressed in a copyrighted work are not protected, although specific descriptions or illustrations of the ideas are protected (U.S. Copyright Office 2006). In the absence of a copyright agreement stating otherwise, the author who passed on the proposal to the student had full rights to the work and was legally entitled to do so.

Next let us deal with patent laws. Do these laws protect the ideas themselves as opposed to specific descriptions of those ideas? The answer is no. According to the U.S. Patent and Trademark Office (2006), "A patent cannot be obtained upon a mere idea..." If the proposal in question contained descriptions of "any new and useful process, machine, manufacture, or composition of matter", then these things may be patented. In the absence of a patent, however, the machines or processes described in the grant are not protected, and the author had the right to pass them on to the student.

The third applicable area of law concerns trade secrets. A trade secret may be a confidential formula, pattern, or other method or device used in doing business that has the potential to provide financial gain for its owner (Wang, Hartmann, and Gibbs 2006). Assuming that the proposal in question was of academic interest only, then trade secret law does not apply and the author had the legal right to pass it on. If the proposal did contain information from which the authors stood to profit financially, then it must be determined whether this information constituted a trade secret. There is no clear test to determine whether information constitutes a trade secret, although one criterion used is the extent to which the holder of the trade secret seeks to protect the information's secrecy (Wang, Hartmann, and Gibbs 2006). The fact that the proposal was already submitted to a funding agency suggests that it contained no trade secrets, and therefore would not be protected under trade secret law.

In passing the proposal on to the student, the author clearly acted legally, but did this person act ethically? The ASLO Code of Professional Conduct states that members have the responsibility to "discuss and follow guidelines for the ownership of data, responsible authorship, and acknowledgment of contributions by others". According to the code, the authors should have discussed copyright issues before embarking on a joint project. Failure to do so resulted in confusion over ownership of the copyrighted material. Discussion of ownership rights should not be limited to the initial phases of the project, however. The author who passed on the proposal should have discussed his/her intentions with the other authors, giving them a chance to discuss their plans for the work.

What is the take-home lesson? Clarify intellectual property rights issues *prior* to beginning a multiple researcher endeavor. It will save all authors trouble in the long run. In this case, it ap-

pears that ethical and collegial behavior would have included a discussion of the intended use of the multi-authored work with the other authors.

Do you have a question for ASLO Ethicist? Contact the Professional Ethics Committee at ethicscom@aslo.org.

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ASLO AND THE NATIONAL WATER QUALITY MONITORING COUNCIL

Jane M. Caffrey, ASLO Representative, Center for Environmental Diagnostics and Bioremediation, University of West Florida, Pensacola, Florida 32514 USA; jcaffrey@uwf.edu; and *Rachel Noble*, ASLO alternate representative, Institute of Marine Sciences, University of North Carolina-Chapel Hill, Beaufort, North Carolina 28516-9624 USA; rt noble@email.unc.edu

One of ASLO's missions is to communicate knowledge regarding aquatic sciences. So when ASLO discovered that the National Water Quality Monitoring Council (<http://acwi.gov/monitoring/>) had an opening for an academic/non-profit member, ASLO began talks with Council staff to fill the vacancy. In November 2004, Rachel Noble and I volunteered to become ASLO's representatives on the Council. Over that time, we have learned a lot about the federal and state water quality monitoring efforts, as well as a whole new set of acronyms. The Council is a federal advisory committee that includes members from federal agencies, such as EPA, NOAA, NPS, and USGS. State representatives are drawn from each of the 10 EPA regions. Other representatives include Tribes, local government, interstate (TVA), watershed and environmental groups, the volunteer monitoring community, universities and the private sector (e.g. ASLO, Association of American State Geologists, Water Environment Federation, and North American Lake Management Society).

The Council works to improve collaboration, reduce redundancy, and provide guidelines to promote methods and data comparability among the water quality monitoring community. Council members work together and participate in working groups to address these goals. One work group, the

Collaboration and Outreach, takes the lead in organizing the biennial National Monitoring Conference, which the Council sponsors. This conference brings together participants from various parts of the water quality monitoring community. The Methods and Data Comparability Board is another working group that explores, evaluates and promotes methods. One of their major products is a web based searchable database, the National Environmental Methods Index or NEMI (<http://acwi.gov/methods/nemi/index.html>). The Watershed Information Strategies working group focuses on strategies for sample planning, data collection, data compilation and management, data assessment and interpretation, and information reporting.

The most recent product of the Council is the report, "A National Water Quality Monitoring Network for U.S. Coastal Waters and their Tributaries" (referred to as the "Network" <http://acwi.gov/monitoring/network/design/>). In February 2005, the Council was asked to design a national water quality monitoring network for coastal waters. This was in response to the 2004 Ocean Commission Report, the most recent report highlighting the need for an integrated U.S. national monitoring program. About 80 individuals, including some ASLO members, helped to design the Network.

The proposed Network shares many attributes with ongoing monitoring efforts but is unique in that it uses a multidisciplinary approach and addresses a broad range of resource components, from upland watersheds to offshore waters and does so using an integrated approach. Specifically, the proposed Network has several key design features:

1. Clear objectives linked to important management questions
 - a. What is the condition of the Nation's surface, ground, estuarine, and coastal waters?
 - b. Where, how, and why are water quality conditions changing over time
 - c. Where/What are the problems related to water quality?
 - d. What are causing the problems?
 - e. Are programs to prevent or remediate problems working effectively?
 - f. What research activities are needed to support these important resources and ensure they are understood and sustainable?
2. Linkage with the Integrated Ocean Observing System (IOOS), which is an integrated system of observations and data management that routinely provides information about coastal waters and coastal ecosystems for eleven U.S. IOOS Regions.
3. A multi-resource and multidisciplinary approach that integrates water resource components from uplands to the coast and integrating physical, chemical, and biological characteristics of water resources.
4. Flexibility in design over time. After interpreting data, some locations or constituents may drop from the Network, whereas other locations or constituents may fill critical gaps. Improvements in technology over time may also result in design changes.

5. The Network stresses the importance of metadata, quality assurance procedures, comparable methodology, and data management that allows readily accessible data storage and retrieval.

The proposed Network, which will primarily provide critical information about the quality of coastal waters and their tributaries at regional and national scales, is not intended to fully incorporate or replace all currently ongoing water quality monitoring efforts. The goal is to harmonize existing monitoring programs, eliminate redundancy, and get monitoring interests involved and to participate in the network. Other benefits of participation will be standardized approaches for monitoring, data management and sharing, promoting the future use of data for informed management and policy decisions. While no new money is currently available to support the network at this time, having a network design in place makes it easier develop new programs and initiatives to support the network and elimination of redundancy will permit more appropriate allocation of resources. The next step in implementing the Network is to select one or two regional pilots (within IOOS Regions) to test the Network Design.

We will use the ASLO webpage to keep members informed about the progress of the Network and other Council activities, such as requests for assistance by Council working groups.

OBITUARIES

JEFFREY D. JACK, 1963–2007

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With great sadness we report that our friend and colleague Jeff Jack died tragically in an automobile accident on New Years Day. Jeff's career began in 1981 when he enrolled as a biology major at Presbyterian College in South Carolina. Following his Bachelor's degree, he entered the graduate program at Wake Forest University. His Masters thesis research on the behavior of water mites yielded his first publications (Jack & Dimock 1987; 1988). Jeff's fondness for aquatic invertebrates subsequently led him to join the laboratory of John Gilbert at Dartmouth College in the Fall of 1988. Working in the field and in the laboratory, Jeff investigated the effects of cladocerans on the population dynamics of rotifers and ciliates. In two widely cited papers, he reported that both cladocerans and rotifers can impose high mortality rates on ciliates and shift the size structure of their assemblages towards larger and less susceptible species (Jack & Gilbert 1993; Gilbert & Jack 1993). His Ph.D. work would ultimately lead to five publications on the interactions between micro- and macro- zooplankton - a testament to Jeff's strong work ethic. After completing his Ph.D., Jeff joined the laboratory of Jim Thorp as a Post-doctoral Fellow at the University of Louisville.

Here his attentions were turned toward large rivers as he set out to investigate the role of predation in structuring zooplankton communities of the Ohio River. Undaunted by the logistical difficulties of working in flowing waters he performed a series of novel experiments using “potamocorrals”. These were the first *in situ* studies of zooplankton in a large river and demonstrated that fish and zebra mussel predation as well as physical factors influence zooplankton abundance and community structure (Jack & Thorp 2000; 2002). Floating down the river with the corrals required equal measures of good humor and perseverance – qualities much in abundance in our friend. [Indeed, he once worked all afternoon on the corrals with a leg wound that later required a dozen stitches !] After a short stay as a post-doc, Jeff attained a faculty position in the Biology Department at Western Kentucky University. Jeff returned to Louisville as faculty member in the Fall of 1998 and was subsequently promoted to Associate Professor and awarded tenure. In 2006, he was named the Wallace Chair in Conservation Biology in recognition of his efforts in stream restoration. Jeff was actively involved in the restoration science teaming with environmental engineer Art Parola in designing and assessing stream restoration projects throughout the state. His recent years were also marked by continued interest in riverine zooplankton. A productive collaboration with his post-doc Kumud Acharya, led to a series of papers describing dietary limitation of zooplankton growth rates and provided further evidence for the importance of biotic factors in structuring riverine food webs (Acharya et al. 2005; 2006). Jeff was actively



involved with a group that is developing plankton-based metrics for rivers as part of the EPA EMAP study characterizing the Ohio, upper Mississippi and Missouri Rivers. Jeff's most recent publication reported the occurrence of vertical migration by zooplankton in rivers (Jack et al. 2006).

Jeff's lasting legacy is his sense of optimism in the face of challenging issues in ecology and environmental science. He strove to find solutions where others saw obstacles. His positive outlook and concern for practical problems attracted large numbers of graduate and undergraduate students to his lab. In his eleven years as a faculty

member he supervised 4 high school students, 21 undergraduate research projects, and 22 Masters and Ph.D. students. These traits also made him a valued colleague who had a genuine concern for all with whom he collaborated.

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FROM THE EDITOR'S IN-BOX

AGU CHAPMAN CONFERENCE: LONG TIME-SERIES OBSERVATIONS IN COASTAL ECOSYSTEMS: COMPARATIVE ANALYSES OF PHYTOPLANKTON DYNAMICS ON REGIONAL TO GLOBAL SCALES

This Chapman Conference will be held in Rovinj, Croatia, 8-12 October 2007. It will compare phytoplankton dynamics in coastal marine ecosystems where perturbations from terrestrial, atmospheric, oceanic sources and human activities converge to cause changes that ramify across local and global scales. The objective is to assemble and synthesize multi-decade observations toward quantitative and descriptive depictions of phytoplankton variability as an indicator of environmental change across the full diversity of coastal ecosystem types. The visions are a global phenology of phytoplankton at the land-sea margin and a conceptual model from which coastal ocean observing systems can be built. Detailed information, including instructions for abstract submission (Deadline 7 May 2007), is available at <http://www.agu.org/meetings/chapman/2007/bcall/>



www.aslo.org/stjohns2008

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SAVE THE DATE

ESA/SER Joint Annual Meeting

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Ecological restoration in a changing world

How do we set goals for ecological restoration, and how can we address its success? Insights from paleoecology, long-term studies, and ecological modeling all show ecological systems to be fundamentally dynamic, with trajectories of change that may not be easily predictable. Even without considering human effects on ecosystems, there is no simple, definable baseline; the “natural state” is a moving target. The picture is complicated further by the persistent and increasing effects of anthropogenic climate change and the long history of human land use. New scientific insights call for more sophisticated consideration of the goals and standards of restoration and, perhaps, of conservation of natural systems generally. What ecosystem attributes are to be restored, conserved, or preserved? How should these priorities be informed by ecological research? How can we assess the effectiveness of restoration?

A variety of scientific field trips in the San José region
are being arranged by the local host chair,
Rachel O'Malley, and the local host committee.

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RESOURCES

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SYMPOSIA

In years to come, familiarity with distant specialties and connection to the top young scientists in diverse fields will positively impact professional success and expand research frontiers

DIALOG and DISCCRS symposia provide an international forum where recent doctoral recipients can expand their scientific and professional outlook and forge lifelong, interdisciplinary collegial relationships with their peers.

- Participants present their research in plenary oral and poster sessions;
- Communication skills are honed in the context of interchange across disciplines and beyond academia;
- Representatives of government agencies describe funding issues; and
- Established professionals share insights and advice on establishing successful collaborative research projects and building interdisciplinary careers.

Graduates from doctoral programs throughout the world and spanning the full spectrum of disciplines are eligible to apply. Selection will favor research excellence and plans to engage in interdisciplinary research careers. A committee will select 36 participants based on the submitted application materials.



"I am positive that my perspective of science was changed by this meeting. It has already proven to be a milestone in my career."

Support for travel and on-site expenses is available.

DISCCRS symposia are funded for 2007 and 2008.

DIALOG symposia are contingent on new funding.

2007 SYMPOSIA

DISCCRS III

Sept. 10 - 17, 2007
Hawai'i Island

Eligibility

Ph.D. completed
April 1, 2004 - March 31, 2007
Application Deadline
April 30, 2007

DIALOG VIII

2007 or 2008
Date, Location TBA
Contingent on new funding

How to Participate

Abstract Registration Forms
Symposium Application Instructions
Ph.D. Dissertation Registry

<http://disccrs.org>

Questions

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