

Limnogeology Division Newsletter
Volume 1. Number 1. June 2003.

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Welcome: Welcome to the first newsletter of the newly formed Limnogeology Division of the Geological Society of America (GSA). The purpose of the Division is to promote (1) the research on both ancient and modern lakes around the world, (2) the collaboration of scientists from all disciplines on lake research, (3) the presentation and publication of lake research, and (4) students in performing research or wishing a career in lake studies. Any GSA Member, Fellow, Honorary Fellow, Associate, or Affiliate who is in good standing may affiliate with the Limnogeology Division. To effect such affiliation, an applicant must express his/her desire in writing to either the Secretary of the Division or to the Executive Director of the Society. All Division members, except GSA Affiliates

and Associates, may vote and hold office in the Division. GSA Affiliates and Associates may serve on committees as conferees.

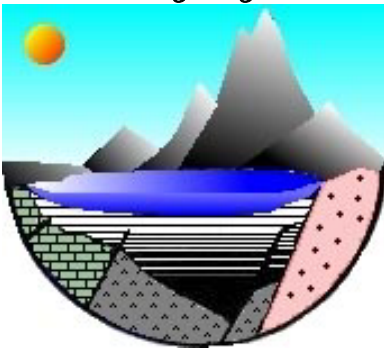
It is initially envisioned that this newsletter will appear on an annual basis around June each year. If there is sufficient interest and people feel the need for more information, it is possible that the newsletter will become semi-annual or quarterly. The Division encourages members and non-members to send us information on meetings, field trips and other limnogeology-related subjects. Short articles about interesting limnogeology topics would also be welcomed. This newsletter is not a formal publishing option, but summaries or other provocative scientific information could be included in the newsletter. The newsletter will be sent out via email to the divisions members and will also be available on the Limnogeology Division website at <http://www.geosociety.org/sectdiv/limnogeology.htm>. Black and white paper copies will be sent to those without GSA e-mail access and by special request.

I took all the photographs in this newsletter unless otherwise noted. I hope you enjoy this first issue. Any comments or questions would be most welcome.

Michael Rosen <mrosen@usgs.gov>
Carson City

Report on the 3rd International Limnogeology Congress (ILIC3), Tucson, Arizona

*International Association of
Limnogeologists*



Photograph by Peter L. Kresan (*used with permission*)

The 3rd International Limnogeology Congress of the International Association of Limnogeology (IAL) was held in Tucson, Arizona (U.S.A.) from March 29 to April 2, 2003. Two hundred and seventy abstracts on lakes and lake deposits of all ages were submitted for presentation from lake workers from 34 countries. The chair of the organizing committee was Andrew Cohen of the University of Arizona. The format of the

meeting was different than the first two ILIC meetings held in Copenhagen, Denmark (ILIC1) and Brest, France (ILIC2). Each morning and afternoon session began with four keynote talks. After discussion, the remaining time was spent at a plethora of posters. Workshops were held later in the day covering topics such as hydrology and its effects on lake sediment diagenesis, scientific drilling opportunities, studies of floods and droughts, Asian paleolimnologic records, and paleolimnology of Meso- to South America.

Sandwiched in among three days of sessions and workshops was a mid-meeting field trip led by Owen Davis through the Plio-Pleistocene deposits of the San Pedro Valley, southeast of Tucson. The congress banquet was held at the Desert Museum among cacti and rocks, with an otherworldly plenary address by Vic Baker (University of Arizona) on paleolacustrine features on Mars. After dinner the W.H. Bradley Medal of the International Association of



Limnogeology for excellence in research and service in limnogeology was presented to Thomas Johnson of the Large Lakes Laboratory of the University of Minnesota, USA (see photos below). A post-meeting field trip to the Grand Canyon and the Mesozoic lakes of the Colorado Plateau was led by Timothy Demko (University of Minnesota), Kathleen Nichol (Oxford University), and Lisa Park (University of Akron).



Topics discussed at ILIC 3 included varve records, flood and drought signals for climate reconstruction, arid lakes and their records, lakes on the edge (extreme environments), Quaternary to Holocene lake signals from seven continents, and climate change and human activity in Meso-America. Other subjects included the use of isotopes in unraveling paleoclimate, paleoweathering, and paleodrainage in lakes, the recognition of seismic events in lake sequences, and ancient

lake deposits from the Phanerozoic. Some new sedimentology research in lake sequences is outlined below; however, this only scratches the surface!

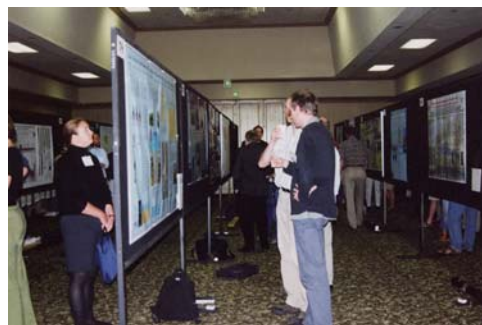
Research on Holocene to Quaternary lakes is focusing on high temporal resolution of sediments to tease out short-term climatic change as well as predict short-term events on a human scale. Paleomagnetism was suggested as a way to extend and verify chronology in lakes and correlate among a suite of lakes. Research also continues in correlating continental records to marine events, such as the Heinrich and Dansgaard-Oeschger events.



The goal of the lake drilling program of the ICDP is to collect climatic records from a series of lakes for assessing the effects of orbital precession vs. ice sheet dynamics in

controlling climate at various latitudes. The Great Salt Lake and Lake Titicaca data are being processed while Lakes Malawi and Bosumtwi in Africa are the next targets. Also, work is underway in Asia and South America to collect and analyze lake signal archives to tie together data in regional syntheses.

The ancient deposits of the Eocene Green River Formation are receiving renewed attention. Detailed basin analyses suggest that the number of varves or rhythmites in the lake basin center is not the same in areas toward the lake margin. This puts into question the exact procedure for determining Milankovitch cycles in ancient lake sequences. In addition, a sedimentary record of tectonic change in the Green River Basin, i.e. a drainage diversion, has been determined through detailed fieldwork. This suggests that the scale of effects in a lake record from tectonic conditions can be separated from sedimentation patterns attributed to climatic change. A new tool in the recognition of provenance changes due to tectonic diversions of drainage is isotopic Sr ratios. Helpful in teasing out



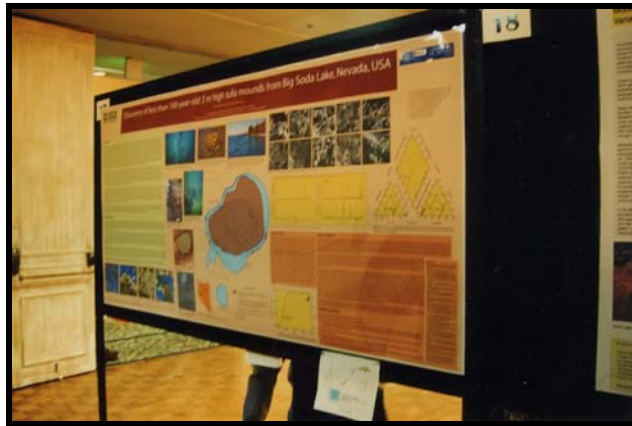
tectonic signals in the Green River Formation, this geochemical tool has also been applied to Quaternary Lake Bonneville deposits and Holocene Lake Victoria and Lake Edward sediments to determine water sources through time. These techniques will be useful as limnogeologists continue to test the lake model proposed by Bohacs, Carroll, and colleagues (balanced fill, overfilled, and underfilled basins) to understand the relative effects of climate and tectonics on ancient lake sequences.

A newer topic in geosciences is the impact of microbial life on sedimentation, especially in relation to extreme conditions. “Lakes on the edge” included highly acidic lakes, Antarctic lakes, highly saline lakes, and hot spring lakes with their associated records of sedimentation and life. In addition, organic matter archives, from hydrocarbons to bacteriochlorophylls to alkanes, were probed in various types of lakes through the use of biomarkers and sulfur, oxygen, and hydrogen isotopes.

ILIC3 was a successful meeting with much discussion on the frontiers of limnogeology; the global camaraderie of the lake scientists was quite apparent. ILIC4 is set for Barcelona in 2007. Hope to see you there!

E.H. Gierlowski-Kordesch
President of IAL
Associate Professor
Ohio University
Athens, OH U.S.A.

Other photos of the IAL meeting:



One of many excellent posters! Can you guess who the author might be?



Mid-conference field trip stop at Plio-Pleistocene deposits of the San Pedro Valley.



Mid-conference field trip stop at lunch break.



Tom Johnson (left) receiving the Bradley Medal from Andy Cohen.
Also in photograph are: Mike Talbot (far left), Beth Gierlowski-Kordesch (clapping),
Alan Carroll (with camera), and Robin Renaut (taking picture).



Tom Johnson (left) receiving the Bradley Medal from Andy Cohen.
(Photo by E. H. Gierlowski-Kordesch)

Upcoming Limnogeology Meetings:

The following meetings include at least some sessions on limnogeology. *The entire meeting may not be focused only on limnogeology.*

October 5-8, 2003. American Association of Stratigraphic Palynologists.

Brock University, St. Catharines, Ontario.

Contact: Dr. Francine McCarthy, Earth Sciences; francine@craton.geol.brocku.ca

Sessions on:

- micropaleontology and palynology of the Atlantic and Gulf coastal plains
- land-sea correlations in the Quaternary/Cenozoic
- Great Lakes palynology, paleoecology, and archeology
- origins and evolution of microfossils
- micropaleontological applications in ecology and paleoecology

There will be a post-meeting field trip to Crawford Lake led by J. H. McAndrews, Royal Ontario Museum, on archeology and paleoecology.

November 2-5, 2003. Geological Society of America Annual Meeting, Seattle, WA.
Call for Papers: **Deadline for abstract submission is July 15, 2003.**
More information about the meeting is available online at:

<http://www.geosociety.org/meetings/2003/>

Please consider submitting a paper to one of the following six Sessions sponsored by the Limnogeology Division at the 2003 GSA Annual Meeting in Seattle:

***Important!* Abstract information and electronic submission for any of the following sessions can be completed online at:**

<http://gsa.confex.com/gsa/2003AM/index.epl>

Session T19 - Biogeochemical and Physical Processes in Mine Pit Lakes.

Session Description: This session will explore variations in biogeochemical & physical processes operating in mine pit lakes found in a variety of geological settings and approaches for modeling their water quality as a function of time. ORAL & POSTER. (Remember to submit your abstract via Topical Session 19 at <http://gsa.confex.com/gsa/2003AM/index.epl>.)

If you have any questions for this topical session please contact:

Laurie Balistrieri, University of Washington/ US Geological Survey, Seattle, WA;
balistri@ocean.washington.edu or balistri@usgs.gov

Gina Tempel, University of Nevada-Reno, Reno, NV; gina@mines.unr.edu

John Crusius, US Geological Survey, Woods Hole, MA; jcrusius@usgs.gov

Session T94 - Bridging the Gap: Ostracodes in the Earth Sciences

Session Description: This session emphasizes new, interdisciplinary advances in ostracode research. Talks will span paleontology, molecular biology, hydrogeology, paleoclimatology, and paleolimnology. Speakers will emphasize applied approaches using this important group, to solve different problems in a broad diversity of disciplines within the earth sciences. ORAL. (Remember to submit your abstract via Topical Session 94 at <http://gsa.confex.com/gsa/2003AM/index.epl>.)

If you have any questions for this topical session please contact:

Gene Hunt, University of Chicago, Chicago, IL; eg-hunt@uchicago.edu

Lisa E. Park, University of Akron, Akron, OH; lepark@uakron.edu email

Session 95 - Organic Carbon in Lake Systems: From Primary Production to Oil Production

Session Description: Lacustrine basins account for about 20% of today's supply of oil and natural gas, yet little dialogue occurs between limnologists who study processes that control carbon production in modern large lakes and geologists who exploit ancient lacustrine systems for oil and gas. This session aims to bring these two groups of scientists together. ORAL. (Remember to submit your abstract via Topical Session 95 at <http://gsa.confex.com/gsa/2003AM/index.epl>.)

If you have any questions for this topical session please contact:

Kevin Bohacs, ExxonMobil Upstream Research Co., Houston, TX;

kmbohac@upstream.xomcorp.com

Thomas C. Johnson, University of Minnesota, Duluth, MN; tcj@d.umn.edu

Session T96 - Lakes and Holocene Environmental Change: The Use of Multiproxy Lake Records for Paleoclimate Reconstructions

Session Description: This session is aimed at demonstrating the strength of multiproxy approaches to Holocene climate reconstruction from lake sediment records. ORAL and POSTER. (Remember to submit your abstract via Topical Session 96 at <http://gsa.confex.com/gsa/2003AM/index.epl>.)

If you have any questions for this topical session please contact:

Mark Abbott, University of Pittsburgh, Pittsburgh, PA

mabbott1+@pitt.edu

Andrea Lini, University of Vermont, Burlington, VT

andrea.lini@uvm.edu

Session T111 - McMurdo Dry Valleys, Antarctica, 1903-2003: A Celebration of a Century of Science

Session Description: The first humans entered the McMurdo Dry Valleys, Antarctica region, in December 1903. Since this time, the dry valleys have yielded important geological and paleoclimatic data as well as provided a terrestrial analog to Mars. ORAL. (Remember to submit your abstract via Topical Session 111 at <http://gsa.confex.com/gsa/2003AM/index.epl>.)

If you have any questions for this topical session please contact:

W. Berry Lyons, Ohio State University, Columbus, OH

lyons.142@osu.edu

Andrew G. Fountain, Portland State University, Portland, OR

andrew@pdx.edu

May 12-14, 2004. Geological Association of Canada.

Brock University, St. Catharines, Ontario.

Contact: Dr. Greg Finn, Earth Sciences; gfinn@craton.geol.brocku.ca

Sessions on:

-paleoecology in the Great Lakes.

Post-meeting field trip to Crawford Lake, led by J. H. McAndrews, Royal Ontario Museum.

May 25-29, 2004. International Association for Great Lakes Research, University of Waterloo, Waterloo, Ontario.

Contact: Dr. Robert Hecky, Biology; rehecky@sciborg.uwaterloo.ca

Sessions organized by Paul Karrow (Earth Sciences) and Mike Lewis (G.S.C. Dartmouth, NS) on:

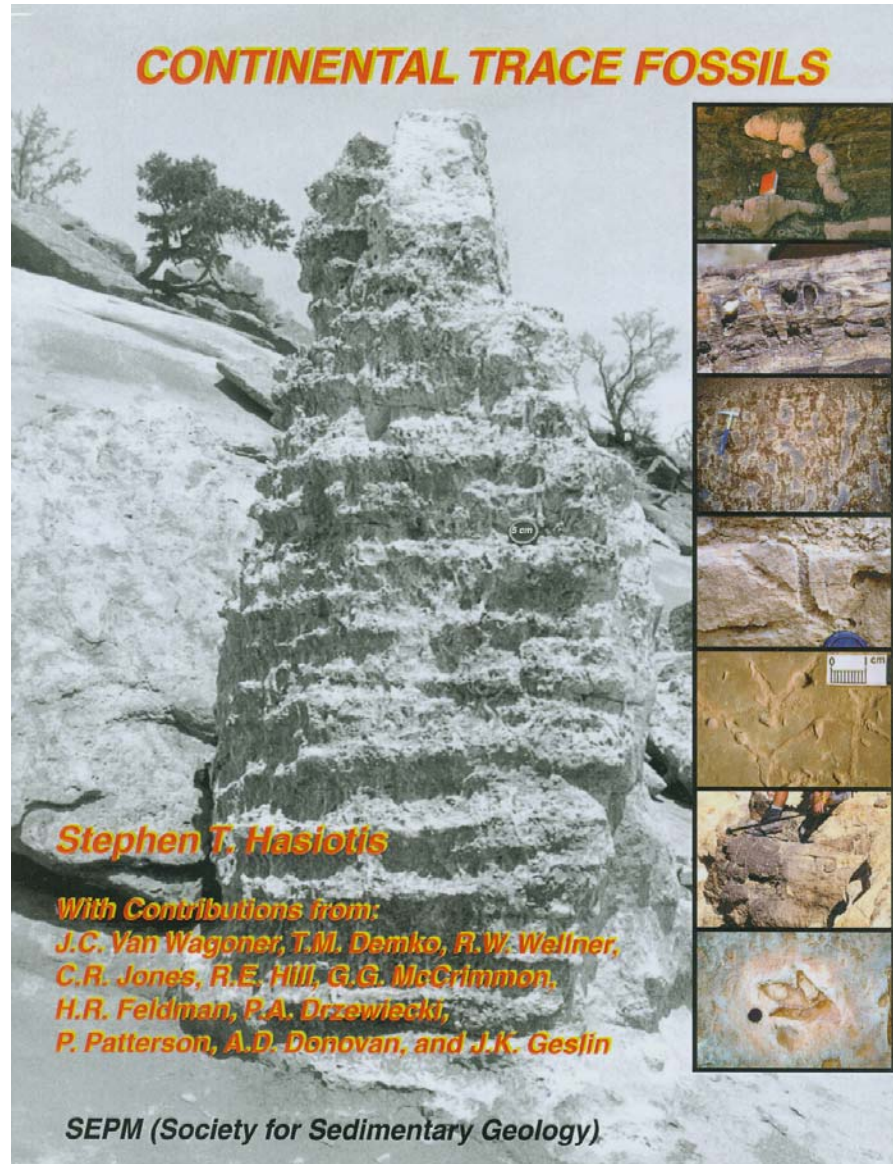
-the Greater and Lesser Great Lakes (definite)

-geochemical history of the Great Lakes (possible)

Paper submissions are invited.

The Limnogeology Division also hopes to post future meetings on its web page; we are presently constructing that as well. Your Limnogeology Division Web Manager is John W. Johnston, jwjohnst@indiana.edu.

New books related to Limnogeology



Hasiotis, S., 2002.
Continental Trace Fossils.
SEPM Short Course Notes No. 51, 130p.

KEY
ISSUES IN
ENVIRONMENTAL
CHANGE



Pollution of Lakes and Rivers

A Paleoenvironmental Perspective

JOHN P. SMOL

Smol, J.P., 2002.
Pollution of Lakes and Rivers: A Paleoenvironmental Perspective.
Arnold Publ., London, 280p.



SEPM Special Publication No. 73

SEDIMENTATION IN CONTINENTAL RIFTS



*Edited by
Robin W. Renault
Gail M. Ashley*

Renaut, R.W. and Ashley, G.M. (Editors), 2002.
Sedimentation in Continental Rifts.
SEPM Special Publication No. 73, 325p.

ADVANCES IN
**ECOLOGICAL
RESEARCH**

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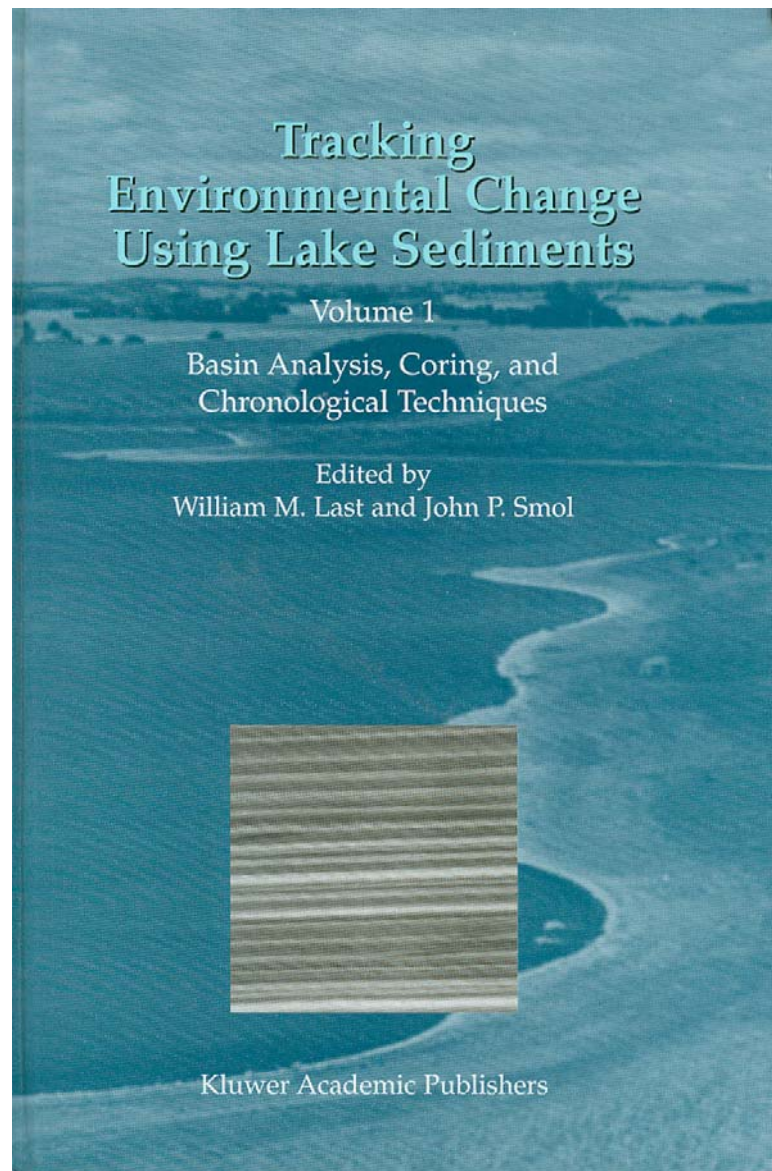
*Ancient Lakes:
Biodiversity, Ecology and Evolution*



EDITED BY
A. ROSSITER H. KAWANABE

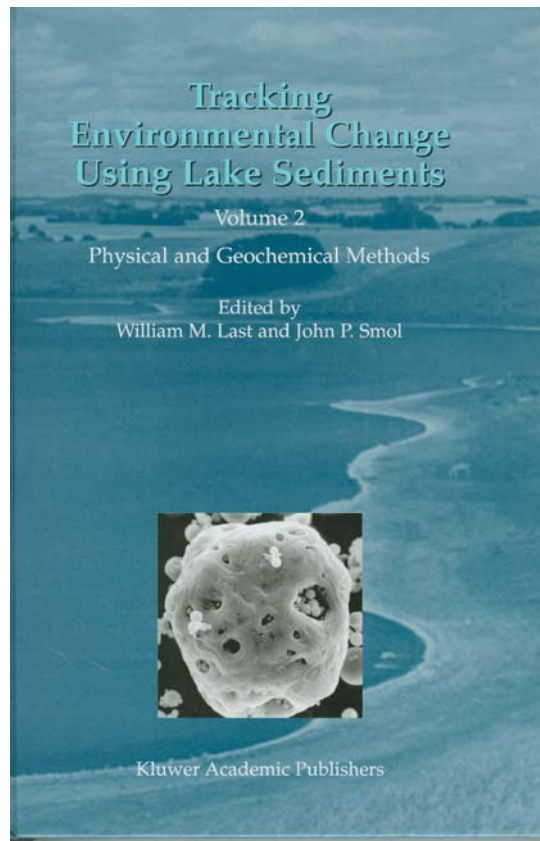


Rossiter, A. and Kawanabe, H. (Editors), 2000.
Ancient Lakes: Biodiversity, Ecology, and Evolution.
Advances in Ecological Research No. 31, Academic Press, London, 624p.



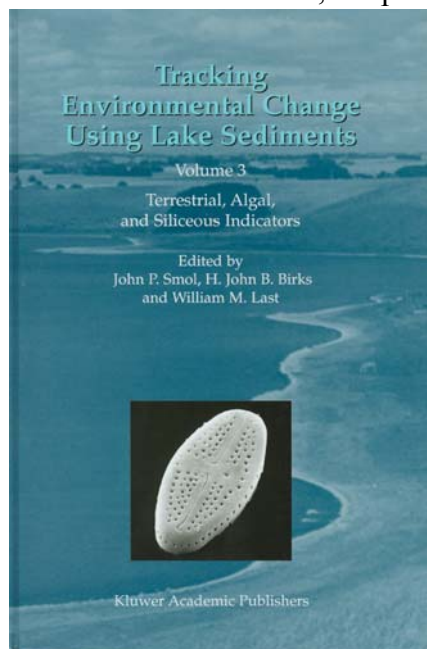
Last, W.M. and Smol, J.P. (Editors), 2001.
Tracking Environmental Change Using Lake Sediments.
Kluwer Academic Publ., Dordrecht.

Volume 1 –
Basin Analysis, Coring, and Chronological Techniques, 548p.

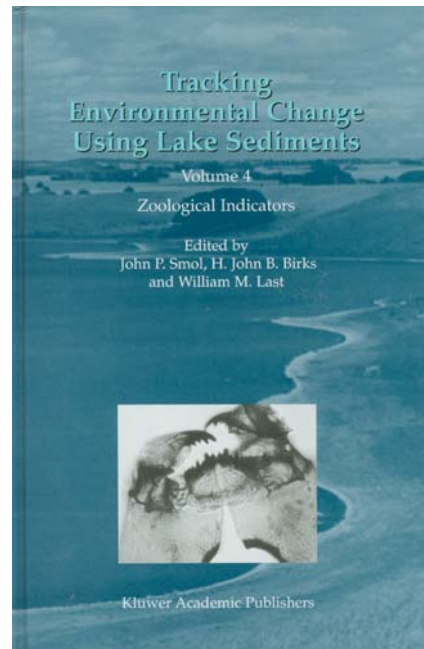


Volume 2 – Physical and Geochemical Methods, 504p.

Volume 3 – Terrestrial, Algal, and Siliceous Indicators, 371p.



Volume 4 – Zoological Indicators, 217p.



Cohen
Paleolimnology

Paleolimnology

The History and Evolution of Lake Systems



OXFORD

Andrew S. Cohen

Cohen, A.S., 2003. Paleolimnology,
the History and Evolution of Lake Systems.
Oxford University Press, Oxford, 500p.