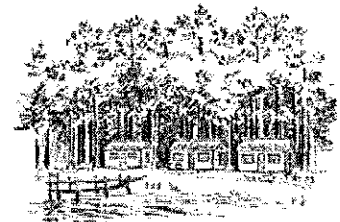


Laboratory of Limnology  
Lake Mendota

# LIMNOLOGY NEWS

University of Wisconsin- Madison  
College of Letters and Science



Trout Lake Station  
circa 1935

Number 12

Summer 2003

## From the Director's Desk, July 2003

Friends:

The year's review of highlights offers another diverse set of news items and progress reports. Our Featured Person this time is Peter Leavitt whose story is presented as a personal letter taking us through remarkable turns in the development of his career. The science centerpieces in this edition are of two kinds. First, we've prepared an assemblage of some undergraduate research projects pursued by students supported through a miscellany of federal and CFL endowment funds. You'll read about a diversity of fascinating projects conducted by bright young students who worked in, on, and around the waters of Wisconsin. A second major feature involves a very different component of science and its application. Liz Levitt and Steve Carpenter describe the use of scenario building as a means for planning the future of the Northern Highlands Lake District. This unique and important approach has tremendous potential and you are encouraged to participate in its evaluation. For more information, look up the link to our website at <http://limnology.wisc.edu/NHLD/>.

We lost two good friends this past year. Lisa Dent, a postdoc with Steve Carpenter, passed away in July 2002. Lisa's enthusiasm and dedication are sorely missed. In July we also saw the passing of a long-time and loyal friend—Nash Williams. Nash and Art Hasler were good friends and worked for many years as colleagues who provided important stewardship for the Madison lakes. We are grateful for Nash's efforts, his accomplishments and his continuing support.

Special recognition appeared in many forms. John Magnuson was recognized by NOAA and by his undergraduate alma mater, the University of Minnesota. As you may have read elsewhere, Gene Likens, one of our distinguished alumni, received the National Medal of Science. I was honored by the American Fisheries Society as a recipient of this year's Award of Excellence. A diversity of other special recognition is detailed in our Noteworthy and Student Awards sections. Graduations, Migrations and Retirements track the phases of career development for our students and alumni.

We are pleased to announce the founding of LAFS—the Limnology and Fisheries Society—which was developed by our current graduate students. This group has a miscellany of purposes that includes promoting the sale of CFL t-shirts. The newest version is modeled by our own Dave Harring.

Like many states, Wisconsin is feeling the effects of budget problems. The UW will experience a substantial reduction in state funding and the CFL will bear a share of that. Although we'll have to tighten our belt, we continue to benefit from the resources of federal granting programs and the important new initiatives we can support through our endowment funds.

I'll close this year's letter by announcing that I will be on sabbatical for the 03-04 academic year and based at the National Center for Ecological Analysis and Synthesis in Santa Barbara, California. Steve Carpenter will serve as Acting Director while I'm gone. Let us hear from you if you have news to share, and we thank you for your interest in our people and programs.

Sincerely,

James F. Kitchell, Director, Center for Limnology



# How Limnology Found Me

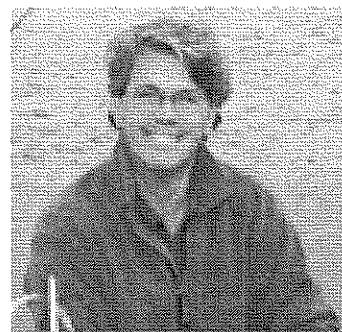
By Peter Leavitt

You know, writing a paper is comparatively easy. I know what voice to use, I know when to be critical, and when I can make jokes, etc., but trying to explain how I got into Limnology is another matter. This piece is written as a letter directed to young students pondering their future. My experiences and advice might prove helpful. Well, at least let me give it a try.

Basic stuff first. Born in Montreal in 1958, BSc and MSc from Queen's University in Kingston, PhD from Notre Dame, then a series of post-docs at the Center for Limnology (1988-89), Experimental Lakes Area (1990), and University of Alberta (1991-1993). I've been at the University in Regina, Saskatchewan since 1993, first as an Assistant Professor, then Associate, and finally full Professor in 2001. Most recently, I was selected as a Tier I Canada Research Chair in Environmental Change and Society.

Unlike most limnologists, I didn't have a burning desire to be a limnologist or even an ecologist. It's not that I didn't like the outdoors - I spent every summer until I was 16 out on a lake swimming, skin diving, or just mucking about - it's just that I didn't see it as a vocation. Nature was something to play in. This makes it all the more ironic that I am paid to do what I've always thought of as a hobby.

My early experience with Canadian lakes introduced me to the concept of a thermocline while pulling myself down the chain anchoring my diving raft. The only real indication that I had some ecologist lodged within me was that I once took a high school aptitude test and found out that I wanted to spend the rest of my life in a forest stuck on a tower, looking for fires. Mr. Dixon, my high school biology teacher, was an inspiration. He listened to Bob Marley, was the only Afro-American at my high school, and was just about the coolest person I had ever met. If biology was good enough for him, maybe I would like it.



University was an eye-opener. I did a lot of soul searching about whether I wanted a career in music, or whether I could actually make something of this biology stuff. It's around this time that most of my friends asked how my band was doing. Having decided that there were easier ways to starve to death, I opted for buckling down at school. It was during my third year that I took Limnology. Again, another point of divergence with most limnologists. The lights didn't come on, the bells didn't ring... it was completely and utterly *Okay*. Regardless, I continued and ended up getting an "A." Serendipity raised her head at the end of my third year. Honors students were required to do a research project, and I had signed up to catalog the wild butterflies of Frontenac County, Ontario. Drive around all summer with my girlfriend and catch butterflies? Count me in! It was then that I got my first taste of how academic funding works. My proposed supervisor had set up my thesis but had neglected to mention that this was all contingent on his grant being funded. Which it wasn't. So there I was unemployed for the first time in 5 years because I had put myself through University mopping McDonalds Restaurants from midnight 'til 8 am. I decided to check out my Limnology grade, and relayed my sad story to my professor, Ted Brown. Unknown to me, Ted, a double-PhD prodigy of G.E. Hutchinson, had decided I had potential and offered me a position for the summer. It was a fascinating project—measuring how fast *Daphnia* faeces sink. The resulting thesis remains my longest ever at 160 pages, and led to Queen's forming new rules about maximum duration and length of Honours projects. Nevertheless, I signed up for an MSc in 1981 and, four years later, emerged after I had learned that *Daphnia* could eat cyanobacteria... sometimes... if they were small. As a bonus, I learned that pigments from these phytoplankton didn't get digested. For some reason, Steve Carpenter thought this was interesting, and offered to take me into a PhD program while he was at Notre Dame.

Meeting Steve was, like much of my life, largely an accident. One of his PhD students, Anne Berquist Shortelle, had attended the ASLO meeting in Vancouver and was the *ONLY* person to read my poster about *Daphnia* faeces. Thrilled, I asked if I could tell her more about it. "No" was her reply, "my supervisor asked me to take notes about this one." Crushed, I asked who this was and thereby started a string of events that led me to the middle of Indiana. Thanks Steve.

While at Notre Dame, I finally became a Limnologist. Or at least, I saw what a real one was. Everyone has inspirational figures, role models, and I was lucky to have two. Steve gave me the organizing

principle for the rest (I think) of my scientific career – Variability as an Ecosystem Property. Instead of trying to eliminate it, I learned that it was better to think of it as an intrinsic part of lakes; something that could be measured, modeled, and ultimately explained. You can hardly have a more flexible paradigm. My second model was Jim Kitchell, who taught me that dead *Cladocera* and fish could be interesting.

Not surprisingly, my dissertation was about how *Daphnia* faeces sink, this time in lakes that had been subject to fisheries and liming manipulations by Art Hasler in the 1950s. Peter, Paul and Tuesday lakes also had striped sediments, which I am sure you will agree, would attract anyone to work on them. So, this became my first venture with paleolimnology. I was also introduced to diverse concepts such as whole-lake experiments, mass-balance budgets, and Rhinelander beer. Fortunately, Steve Carpenter's principle gift is to be able to see simplicity in complex and chaotic phenomena, and my dissertation progressed with few problems. Steve had just accepted an appointment at the Center for Limnology, and offered to take me as a post-doc. I was surrounded by some of the brightest scientists I've ever met, and I soon learned that I can smell ducks in the middle of Lake Mendota at midnight while pinging fish with sonar. Thanks to Lars Rudstam. More importantly, I learned how politics, science and society mixed, a lesson whose value increases with every passing year. Thanks to John Magnuson.

Next came another postdoc working with Dave Schindler at Univ. of Alberta. More paleoecology ensued, some in the Canadian Rockies (fish stocking effects on fishless lakes) and some at ELA (whole lake acidification and eutrophication). During this period I was both inspired by Dave and the power of whole-lake science, and dismayed that I had no clue about how to get hired into a faculty position. Five interviews, no offers. In retrospect, this was part of a very important learning experience – if it doesn't fit, don't force it. That is, getting a job is 33% publication record (that gets you the interview), 33% job seminar (you'll convince the voting members) and 33% personal chemistry (i.e., beyond your control). When the job is right for you, the personal chemistry just *clicks*. That combination led me to the job at University of Regina. My start up at University of Regina was tiny by US standards (\$15,000 Canadian), but included an absolutely critical caveat that would set my career off and running. I was given the *challenge* of getting more start up, if I wrote a successful equipment grant to NSERC (Canada's version of NSF). I did, it was, and I learned yet another important lesson – don't be afraid to take a risk. Jim Kitchell said it best, "Don't be afraid to make mistakes..." with the caveat, "...just don't make a career out of it." As an Assistant Professor, I also learned that a PhD *does not* teach you three essential skills: how to manage people, time, and money. I won't pretend that I have any of these problems solved, but I will say that all are worth learning from "the masters" (CFL colleagues and alumni) while you have the chance. The key, I believe, is to take all the best aspects of what you see others doing, and incorporate those elements that resonate with you – no one model works for everyone.

Regina has treated me unbelievably well. Part of this is because such young institutions realize that they have much to prove and so are *hungry*. Egos are at a minimum and there is a real team spirit. Small schools *want* success, they don't demand it. This makes coming into the lab a complete pleasure every morning, and it reflects in a free-wheeling atmosphere of innovation, enthusiasm and opportunity. You will know the University President on a first name basis, you will be given the chance to compete, and you will be recognized for your work. Since arriving 10 years ago, we have worked on over 500 lakes on 5 continents, conducted whole-lake experiments in an urban center, worked with crop insurance agencies to predict the future (drought risk assessments based on paleoclimate records), built a multi-million dollar stable isotopes lab, and met many, many interesting people. Presently, we are working in Alaska, Sweden, Denmark, Australia, Ireland, Washington, the Antarctic, the Baltic, the Rockies, Florida, and, of course, the Prairies. I tell you this to point out that 'having things go well' is largely under your own control – just take a chance and believe in yourself.

Right, then, time to go. Thanks for listening. Drop me a line if you get a chance.

Best wishes, Peter

*Peter Leavitt is presently President of the Society of Canadian Limnologists, member of the editorial board of Ecology, Director of the Environmental Quality Analysis Laboratory, and Canada Research Chair in Environmental Change and Society. He remains a mediocre musician, but lives vicariously on the radio through others at [www.cjtr.ca](http://www.cjtr.ca). He can be reached at: Department of Biology, University of Regina, Regina, SK, Canada S4S 0A2.*

## Scenarios for the future of the Northern Highlands of Wisconsin

by Liz Levitt and Steve Carpenter

Ecosystems are always changing. People are good at predicting small, incremental changes, but often fail to anticipate large, sweeping transformations. Scenarios have been used to assess the future when massive transitions are plausible. CFL staff are using scenarios to understand change in the Northern Highlands Lake District (NHL), the region around Trout Lake Station.

The NHL has been studied by Wisconsin limnologists since the time of Birge and Juday, and is currently the focus of research by the CFL's Long Term Ecological Research (LTER) and BioComplexity projects. The region is changing fast. Increasing numbers of recreational visitors are creating unprecedented pressures in the region. Property values are at an all-time high. There are more second homes, but few desirable areas left for new lakeshore development. The number and size of lakeshore buildings is expanding. While some people welcome the economic benefits of tourism, others believe it is negatively affecting the Northwoods way of life. Tension concerning land use and shoreline management is evident among different groups. Recreational activities continue to expand, ranging from quiet sports like fishing and canoeing to motor sports such as boating and ATV use. Warmer winters and variable weather conditions are beginning to cause problems for the tourism industry as well as effects on the region's ecosystems. Invasive species and emergent diseases also threaten to degrade fishing and local water quality.

Over the past year and a half, CFL staff members Doug Beard, Elena Bennett, Jeff Cardille, Steve Carpenter, Liz Levitt and Garry Peterson met with residents and visitors to assess the future of the NHL. Participants have included businesspeople, Native Americans, lake shore property owners, politicians, and managers. Two recent workshops were sponsored by the Resilience Alliance, an international consortium for research on transformation in social-ecological systems ([www.resalliance.org](http://www.resalliance.org)). CFL is a founding member of the Resilience Alliance.

Scenario planning is a way of improving decision making in situations where there is a lot of uncertainty about the future. Sets of stories about the future have been employed by decision-makers in the business community and elsewhere for several decades as an alternative to predictions, forecasts, and other single-future strategic planning pro-

cesses. Scenario planning involves thinking about a wide range of plausible futures, including both well-known trends and key uncertainties, and using this information to provide a set of storylines that can guide decision-making.

Four different scenarios were developed for the NHL. Each starts from a common baseline, which summarizes events from 2002 – 2007. Then, each scenario traces a different sequence of events until 2027. In **Anaheim North**, the NHL develops rapidly as tourism expands around theme parks in highly-developed population centers. In **Walleye Commons**, unexpected environmental problems lead to a decline in population followed by gradual reorganization around tribal initiatives. In **Northwoods Quilt**, growth and diversification of the population lead to resource conflicts which are resolved by a system that allocates recreational lands and lakes for certain specified uses. In **Refugee Revolution**, terrorism in Chicago leads to population growth as well as more governmental control of resource use. For detailed descriptions of each of the scenarios, see the URL <http://limnology.wisc.edu/NHL/>.

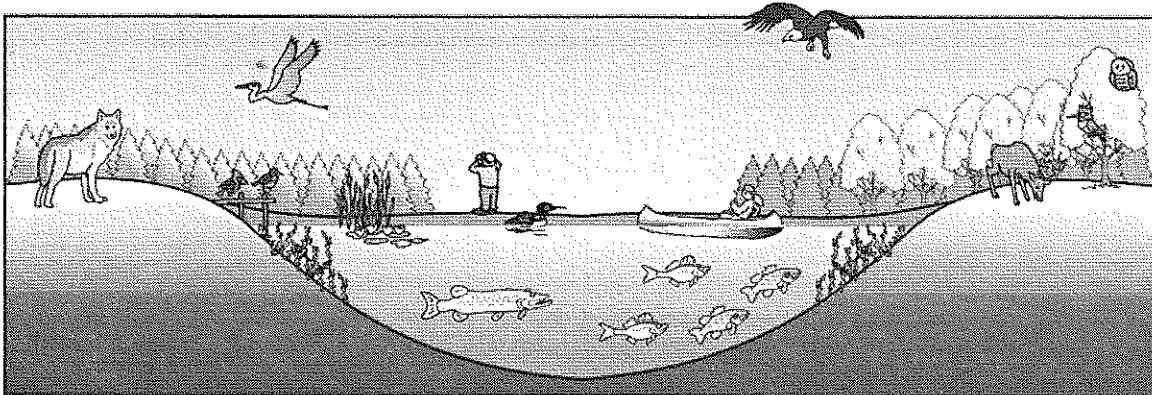
The CFL team unveiled the scenarios at the Vilas County Lake Fair in June 2003. Further public discussions were planned through the summer. A computer simulation model has been developed to quantify the scenarios. The model will be converted to a game which can be used to explore the effects of different policies on the NHL. The scenarios and models will improve LTER research by expanding the set of driving forces and key variables considered by LTER. More importantly, the scenarios and games may help the people of northern Wisconsin steer the NHL away from unwanted futures and toward desirable ones.

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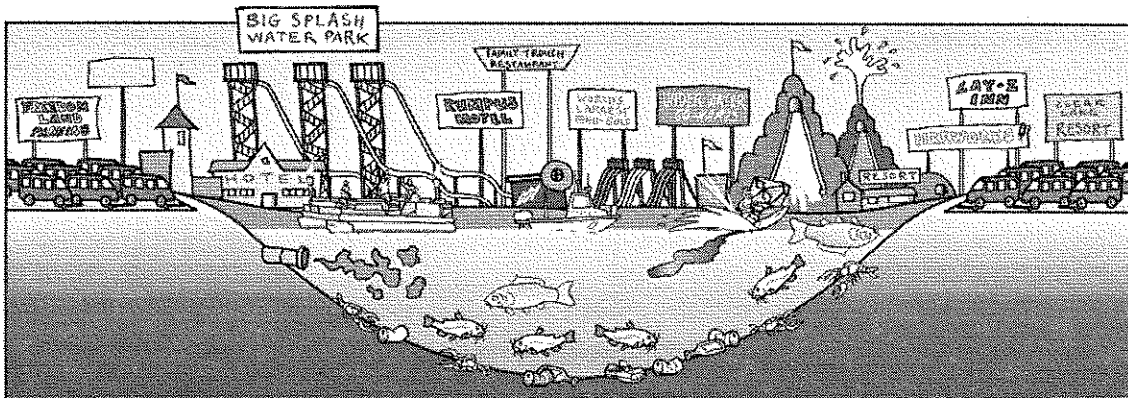
### E for me, please

**Consider e-newsletter ...** If you would prefer to receive this publication electronically in the future, please email Linda Holthaus at [holthaus@wisc.edu](mailto:holthaus@wisc.edu) and simply indicate "e-newsletter please."

The Northern Highlands Lake District is a region in transition. To understand how the NHLD might change in the future, CFL researchers teamed with northern Wisconsin community members and visitors to develop scenarios.



In this baseline scenario, at present, the remote lakes of Wisconsin's Northern Highlands offer plenty of fish, wildlife, and quiet for enjoying nature.



In this Anaheim North scenario, larger lakes near major towns are developed for theme parks, water parks and motorized recreation.

The scenarios are further depicted with sets of illustrations that represent lakes in the region. To view all of the illustrations, visit <http://www.lakefutures.wisc.edu>. Illustrations by William J. Feeny, UW Department of Zoology

#### *Limnology News*

*The University of Wisconsin-Madison Center for Limnology publishes Limnology News for its alumni and friends. Comments on the newsletter and future article ideas are welcome. On the Web at <http://limnology.wisc.edu>. Editors: Jim Kitchell, Lisa Blochwitz, Linda Holthaus and Angela Noel.*

#### *Contact:*

*Limnology News  
Center for Limnology  
680 North Park Street  
Madison, WI 53706*

*Phone: 608-262-3014*

*Fax: 608-265-2340*

*Email: [limnology@mhub.limnology.wisc.edu](mailto:limnology@mhub.limnology.wisc.edu)*

## Undergraduate Research Projects during Summer 2002

Although we regularly acknowledge the sources of sponsorship for undergraduate research projects, we rarely provide much detail about their goals and accomplishments. This section features a more extensive description of the types of projects and their key results from some of the work conducted during the summer of 2002. Our Awards section identifies the new group whose work will continue through this summer.



**Jeremy Chacon**, UW-Madison, received a summer 2002 NSF-REU (Research Experience for Undergraduates) award through the LTER project and worked under the direction of Pieter Johnson and Steve Carpenter. Jeremy studied the effects of two different parasites (*Spirobacillus* and *Larssonina*) on their host species, *Daphnia pulicaria*. He focused on how the parasites affected the host's fecundity, clutch size, host size, diel vertical migration and host abundance. He found that both parasites affected their host, often in different ways than research has previously shown. Jeremy plans to pursue graduate school in the future.

**Crystal Fankhauser**, UW-Madison, was awarded a summer 2002 REU through the Cascade project under the direction of Darren Bade and Steve Carpenter. The purpose of Crystal's REU project was to estimate carbon flow through the insect

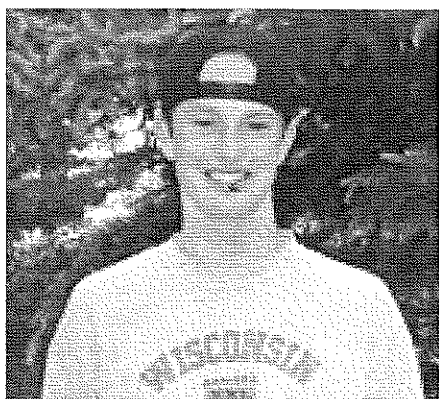


larvae, *Chaoborus*. Data were collected from Paul Lake located on the University of Notre Dame Environmental Research Center property. Crystal used modeling techniques to analyze the data. Her results were presented at the Ecological Society of America meeting in Savannah during August of this year. Crystal would like to pursue graduate school and hopes to find a career in research.

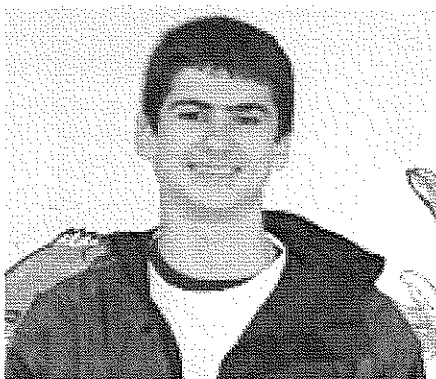


**Patrick Hermann**, UW-Madison, received a REU award for the Biocomplexity project in summer 2002 and worked under the direction of Brian Roth and Jim Kitchell. Patrick investigated the relationship of density-dependence in rusty crayfish (*Orconectes rusticus*) populations across 12 northern Wisconsin lakes. Patrick found that the mortality of Age-0 crayfish throughout the summer is negatively correlated with the springtime density of adult crayfish, indicating that there might be negative density-dependence in crayfish populations. He plans to pursue graduate school in the future.

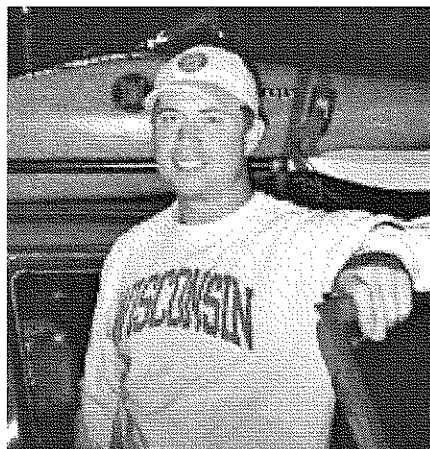




**J.J. Weis**, UW Madison, recieved a summer 2002 REU award for his Biocomplexity project under the direction of Greg Sass and Jim Kitchell. He focused on the influence of coarse woody debris (CWD, now CWH—Coarse Woody Habitat) on largemouth bass (*Micropterus salmoides*) nest-site selection and spawning success in three northern Wisconsin lakes. Analysis of the data revealed a correlation between CWH and nest site selection both within and among lakes. J.J. is considering a future in research, with plans for graduate school.



During the summer of 2002, **Jim Coloso**, UW Madison, was funded by a generous donation from the Juday family. Jim worked on a project studying lake metabolism with Tim Kratz, Paul Hanson, and George Lauster. The project used both automated monitoring (sondes) and bottle measurements of dissolved oxygen to estimate lake metabolism from three different areas in the lake. At each lake he deployed a sonde at the deep hole, at a littoral site with macrophytes, and at a littoral site without macrophytes. The dissolved oxygen results indicated that the more productive lakes showed large differences between the littoral macrophyte site and the other two sites. In some lakes, littoral metabolism is greater than the pelagic metabolism. Jim will continue at CFL during his senior year, working on his honors thesis with Steve Carpenter.

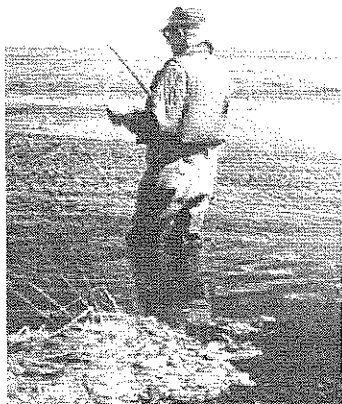


**Noah Lottig**, UW-Superior, studied nutrient dynamics in the Boulder Creek watershed - a small headwater stream system located in the Baraboo Hills an hour north of Madison. He was funded for summer 2002 through the Chase Noland Award and worked under the direction of Emily Stanley. Noah studied how streambed sediment composition might modulate phosphorus concentrations in stream water. A dam at this site was scheduled for removal in late summer of 2003. Noah's work provides important mechanistic information about how dam removals may affect nutrient cycling in streams. He presented the results of his research at the North American Benthological Society's annual meeting and is currently attending graduate school at Virginia Tech.

#### Support the Center

Private support from alumni and friends of the University of Wisconsin-Madison plays a crucial role in helping the University achieve continued excellence in teaching, research, and public service. Gifts to the Center for Limnology provide important support for graduate and undergraduate students, visiting scholars, faculty research and facilities development. If you would like to make a donation to the Center, please contact Linda Holthaus at 608-262-3304, or via e-mail at [holthaus@wisc.edu](mailto:holthaus@wisc.edu). You can also find more information about the Center for Limnology endowment by visiting our website, <http://limnology.wisc.edu>, and clicking on the Friends/Support link.

If you would like information on making a gift of securities or including the Center for Limnology in your estate plans, please contact Christopher Glueck, University of Wisconsin Foundation at 608-265-9952, or via email at: [chris.glueck@uwfoundation.wisc.edu](mailto:chris.glueck@uwfoundation.wisc.edu)



## **Nash Williams – Caring for the Lakes**

*by John Magnuson*

Nash Williams (1906-2002) continues to express his caring for the Madison Lakes through an endowment to the Center for Limnology that will foster limnological research and teaching. This lover of nature, dogs, hunting, fishing, and poetry, passed away in Madison at age 95 on July 27, 2002. Nash was born in Lake Placid, New York, and came to Madison in 1946 after serving in the Navy during World War II. He was a citizen, naturalist, and gentle activist who saw the relation between science and the world he loved.

We came to know Nash through his stewardship activities of the Madison lakes and through his personal friendship with our esteemed colleague, the late Arthur D. Hasler. An attorney by profession, Nash served as secretary and vice president of the General Casualty Insurance Company. Art and Nash had come to know and respect each other through their interactions with decision makers seeking the best ways to reduce nutrient input to the Madison Lakes and deal appropriately with the weed and algal consequences of eutrophication. Nash received two Citizen of the Year awards for his efforts from the Yahara Lakeshore Owners Association, for which he also served as president. Nash and Art were already active well before most of the present day students at the Center for Limnology were born and before the current faculty graduated from college.

Nash recognized that stewardship of the Madison lakes is a long-term proposition and that learning and research are necessary components. His gift recognizes and supports that reality. We thank you, Nash, for your continued caring and for your confidence that we can contribute to a future that you would envision.



## **Lisa Dent: In Memoriam**

*by Steve Carpenter and Elena Bennett*

Dr. Lisa Dent, a postdoc at the Center for Limnology, died in Toronto on 11 July 2002. Her death is a loss to her family and friends, her colleagues at the CFL, and to the field of ecology. Lisa was a lively, engaged member of the lab. She was an excellent listener who was generous in sharing her considerable quantitative skills. Lisa also provided her colleagues with insightful, tough-minded reviews of draft manuscripts. At CFL, she organized the MAPLE research group which gave rise to a current project on the future of the Northern Highlands Lake District. We never figured out just what MAPLE stood for, but surely it had something to do with Canada, Lisa's homeland. Her own research focused on hydrology and biogeochemical change in lakes of the Northern Highlands, continuing themes that she developed during her doctoral work with Professors Stuart Fisher and Nancy Grimm at Arizona State University. Her paper on alternate states in stream and lake ecosystems\* showed how differences in spatial heterogeneity between streams and lakes affect the kinds of regime shifts that occur in these ecosystems. In her spare time, Lisa enjoyed the outdoors, rock climbing and ultimate frisbee. She is sorely missed.

\*Dent, C.L., G.S. Cumming and S.R. Carpenter. 2002. Multiple states in river and lake ecosystems. *Philosophical Transactions of the Royal Society of London Series B* 357:635-645.



## Noteworthy

### Kitchell Receives ASF Award of Excellence

The **American Fisheries Society** recently recognized **Jim Kitchell's** career accomplishments with the Award of Excellence. Presented on 11 August 2003 at the AFS meeting in Quebec City and generally considered to be one of AFS's most prestigious honors, this award is given to outstanding scientists in the fields of fisheries and aquatic biology. Previous recipients include Art Hasler (1977) and John Magnuson (2001). In his acceptance of the award, Kitchell said: "While I'm deeply honored by this award, I think it actually represents a larger acknowledgement of the efforts and accomplishments by my colleagues at Wisconsin—the graduate students, postdocs and faculty at the Center for Limnology."

### Magnuson Recognized by University of Minnesota and NOAA

**John Magnuson** completed his undergraduate and MS degrees working with Lloyd L. Smith Jr. at the University of Minnesota in Fish and Wildlife Management. Summers were spent helping with research on the Ojibwa fishery on walleye, yellow perch and lake whitefish and the fish ecology and limnology of Lower Red Lake in north-central Minnesota. On April 24, 2003 the **University of Minnesota** awarded him an Outstanding Achievement Award as an expression of high esteem, and in recognition of noted professional attainment. John was recognized as a pioneering scientist who led the way in applying oceanic ecological concepts to freshwater lake environments, creating a model for funding long-term ecological research sites nationwide; a collaborative scientist whose work with diverse disciplines advanced research in fisheries ecology, long-term landscape limnology, exotic species and the impact of climate change on aquatic ecosystems; and as an influential teacher and mentor who has inspired scores of students and scientists.



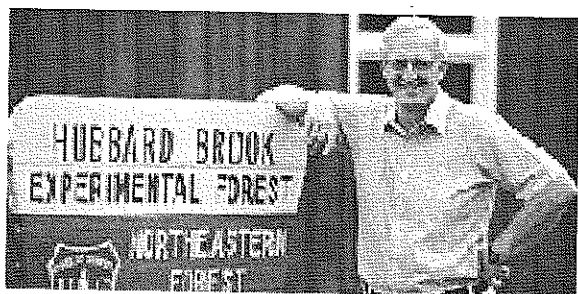
*From left to right: Magnuson; Susan Stafford, Dean of the College of Natural Resources, University of Minnesota; Maureen Reed, University of Minnesota Board of Regents Chair*

In August 2002 **Magnuson** was recognized as "**National Oceanic and Atmospheric Administration Team Member of the Month**" for significant contributions to the agency and demonstration of exceptional and sustained effort toward accomplishing NOAA's mission. He was invited to present a seminar on climate change at the North West Fisheries Center in Seattle. In the 1960's John's first job after obtaining his Ph.D. was in Honolulu studying tuna behavior and physiology with the precursor of NOAA Fisheries. Later as a faculty member at the University of Wisconsin-Madison he continued to help NOAA through a variety of service activities - most recently with Pacific Salmon issues in the Columbia and Pacific Northwest.

### Gene E. Likens Awarded the National Medal of Science

On May 9, 2002, **Gene Likens** was awarded the **National Medal of Science**. Gene completed his Ph.D. with Art Hasler in 1962. This recognition is the nation's highest award for lifetime achievement in fields of scientific research. Likens and his colleagues were the first to document the link between the increasing acidity of precipitation and fossil fuel combustion in North America, and the long-term consequences of this phenomenon – acid rain. The results of his long-term research at the Hubbard Brook Experimental Forest in New Hampshire catalyzed vigorous public

(continued on page 10)



policy dialogue, stimulated new scientific studies, and raised awareness of the connections between human activities and the ecosystems upon which humans are dependent. The attention it commanded led to national legislation addressing the effects of acid rain. His approach is now a guiding paradigm in the science of ecology and in the application of this science to finding solutions for global environmental problems, including deforestation, the greenhouse effect, acid rain, and eutrophication. Gene's work and continuing contribution to science are summarized at [http://www.ecostudies.org/people\\_sci\\_likens.html](http://www.ecostudies.org/people_sci_likens.html)

**Emily Stanley** received a 3-year grant from the **National Science Foundation** to study floodplain dynamics in the Wisconsin River. The grant, entitled "Nitrogen loss and carbon use in a large river floodplain ecosystem" is inspired by two long-term changes occurring in many Midwestern rivers: progressive increases in nutrient concentrations associated with regional agricultural activities, and shifts in species composition of the floodplain forest. Emily and her graduate students will investigate the potential for floodplains to remove nitrogen from river water during flooding, and how nitrogen and carbon cycling in the floodplain is affected by forest composition.

**Garry Peterson** and **Graeme Cumming** are co-winners of **Conservation Ecology's Ralf Yorke Competition**. They will split the \$5000 prize. The Ralf Yorke Prize is given annually for the paper that best "makes the complex simple on the web." Garry and Graeme's papers were recognized for their innovative use of visualization methods. Their papers can be viewed in Volume 6 Issue 1 of *Conservation Ecology*, on the web at [www.consecol.org](http://www.consecol.org).

## Student Awards

The **Anna Grant Birge Award** recipients for 2003 include graduate students **Jeff Jorgensen** (Limnology and Marine Science, Kitchell), **Brian Roth** (Limnology and Marine Science, Kitchell), and **Greg Sass** (Zoology, Kitchell).

Graduate student **Kristy Rogers** (Limnology and Marine Science, Stanley) was awarded a **National Science Foundation** pre-doctoral fellowship for three years starting in 2003.

**Norman Mercado-Silva** (Zoology, Vander Zanden) received grant support for a project in Mexico through UCMEXUS - CONACYT. This is a collaborative grant between the University of California Los Angeles and the Mexican Council for Science and Technology; he also received a TINKER-NAVE grant for research in Mexico through LACIS (Latin American Caribbean and Iberian Studies Institute, UW-Madison).

**Stacy Lischka**, an undergraduate working with Professor John Magnuson, was awarded a **Hilldale Fellowship** for the 2002-03 academic year. The title of her project was "The Removal of the Rainbow Smelt in Sparkling Lake, WI." The smelt removal in Sparkling Lake is taking a three tiered approach by using gill nets to remove pre-reproductive fish during the summer, fyke nets to remove reproductive fish during the spring spawning run and stocking predators to increase predation rates on small smelt. This project has removed approximately 190,000 smelt thus far by all methods. Future plans include continuing the spring removal and predator stocking to continue to reduce numbers and monitoring the population with sonar population estimates.

Undergraduates **Ava Murphy** and **Jerome Weis** received **Juday Awards** for summer 2003. Ava, under the guidance of Professor Jake Vander Zanden, is studying "external and climatological effects on trophic levels." Jerome works with Professor Jim Kitchell and is studying "The Influence of Coarse Woody Habitat and the Effects of a Whole-Lake Manipulation on Largemouth Bass (*Micropterus salmoides*) Nest-Site Selection and Nesting Success."

The following received **National Science Foundation Research Experience for Undergraduates Awards for summer 2003**: **Jeff Watters** (Stanley) studied sediment dynamics in Allequash Creek; **William Fetzer** (Vander Zanden) studied using stable isotopes to characterize food web structure prior to zebra mussel establishment in Lake Mendota and Lake Monona; **Evan Whalen** (Kitchell and the Cascade Research Team at the University of Notre Dame Environmental Research Center) studied predator-prey interactions; **Scott Laeser** (Stanley) studied fish invasions and aquatic-terrestrial relationships in Japan, sponsored by Colorado State University and Yamaguchi Prefectural University, Japan. Laeser also received a College of Agriculture and Life Sciences Undergraduate Research Scholarship and a Garden Club of America Award for Environmental Studies in support of his research on effects of trout stream restoration on nutrient dynamics of Mud Branch.

**Chase Noland Undergraduate Award** recipients for summer 2003 were **Jim Coloso** and **Julia McCarthy**. Jim, working under the guidance of Tim Kratz and Paul Hanson, studied, "The Contribution of Littoral Sediments to Surface Water Metabolism." Julia worked with Professor Jake Vander Zanden to study, "The Effects of Rusty Crayfish on Benthic Invertebrate Communities in Sparkling Lake."

## Graduations

**Bade, Darren** (MS 2002, Carpenter) studied "Predicting Stable Isotope Signatures of Dissolved Inorganic Carbon in Lakes: Models to Aid in the Understanding of Carbon Cycling Across Many Lakes."

**Hanson, Paul** (PhD 2003, Carpenter) Paul's thesis title was "Metabolism in the Surface Waters of North Temperate Lakes."

**Orr, Cailin** (MS 2002, Stanley) studied, "Patterns of Removal and Ecological Responses: A Study of Small Dams in Wisconsin."

**Pollard, Amina** (PhD 2002, Magnuson) Amina's thesis title was "Patterns of Invertebrate Distribution in Integrated Lotic and Lentic Ecosystems."

## Migrations

**Cox, Sean** (post doc, Kitchell) is now Assistant Professor at Simon Fraser University in Burnaby, British Columbia, Canada.

**Martell, Steve** (post doc, Kitchell) has assumed a position as Assistant Professor at University of Maryland's Chesapeake Biological Laboratory in Solomons, Maryland.

**Peterson, Garry** (post doc, Carpenter) moved to a faculty position shared between the Department of Geography and the McGill School of the Environment at McGill University, Montreal, Canada. At McGill, Garry will teach courses in ecological modelling and adaptive management, and build a research program exploring the theoretical basis for ecological management.

**Pollard, Amina** (PhD 2002, Magnuson) accepted a position with the Environmental Protection Agency and is based in the National Office, Washington, D.C.

**Beard, Doug** (PhD 2002, Carpenter) is currently the program manager for the US Geological Survey, National Biological Information Infrastructure's Fisheries and Aquatic Resources program. Doug is also the lead scientist for the USGS Aquatic GAP program. He is currently based at the USGS offices in Reston, Virginia.

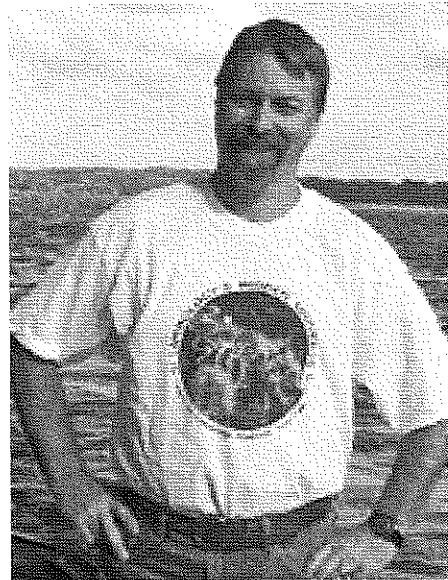
## Retirements

**Andrew Dizon** (PhD 1971, Hasler) and **John Hunter** (PhD 1962, Hasler) recently retired from their careers at the National Marine Fisheries Center of La Jolla, CA.

**The Limnology and Fisheries Society  
New CFL Grad Student Organization**

The Limnology and Fisheries Society (LAFS) was recently formed at the Center for Limnology to "promote the academic and social well being of students interested in water related research and issues." LAFS sponsored a job fair this spring to alert undergraduate students of summer job opportunities with the Center for Limnology. Another LAFS goal is to increase participation that will ensure dominance over the Math Department in the annual tackle football game. The Society is currently funded by money generated through the sale of Center for Limnology t-shirts, so make sure you have one for each day of the week.

Center for Limnology t-shirts are available in sizes S, L and XL and in long (\$15) or short (\$13) sleeves. Prices (which include shipping) have been slashed for immediate sale. Indicate sleeve length, size and quantity (include check made out to LAFS) and mail orders to LAFS, c/o Georgia Wagner, 680 N. Park St., Madison, WI 53706.



*Dave Harring of the Center models CFL T-shirt.  
Main colors in design are blue and green.*

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Center for Limnology  
University of Wisconsin  
680 North Park Street  
Madison, WI 53706-1492

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