



# Granite State Geologist

The Newsletter of the Geological Society of New Hampshire, formerly NH Geological Society

Winter 2003/2004 Issue No. 43

[www.gsnhonline.org](http://www.gsnhonline.org)

## GSNH

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Gilmanton, New Hampshire

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### **President's Message**

Mike Robinette

Dear Members,

In my years of being part of this organization I have met many fine people who have contributed in small and large ways to it's the stability, vitality and growth. Our departing President, Lee Wilder, is certainly one whose time and effort has played a decisive role in our organization's health and advancement. Lee's energy and leadership has served us all well and his moving on has left some pretty large footsteps [not quite fossilized yet] to fill. Lee has earned a 'well done' or 'good show old boy' from all of us and a definite 'Hey, let me get you beer,' at all our future dinner meetings. So, thanks Lee, the first one is on me Lee. The rest of you should form a line.

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### **Past-President's Message**

Lee Wilder

Your GSNH continues to grow in membership and activities. We had a very successful Fall 2003 Dinner Meeting during Earth Science Week. Dave Wunsch (and the Red Sox) entertained us. Dave's talk on the Old Man of the Mountain was interesting, timely and informative. Hopefully other GSNH members will offer to share their particular expertise with us. Plan now to attend the GSNH Winter 2004 Dinner Meeting in January. See the Dinner Reservation form elsewhere in this newsletter for details.

Work is beginning on the GSNH Summer 2004 Summer Field Trip. If you have ideas or suggestions, contact a GSNH Board member.

Please welcome Mike Robinette as the GSNH's next President. Mike has served with the Board for several years as Member-at-large. It is the end of my term as President. I will serve on the Board for one more year as Immediate Past President and look forward to working with Mike. Thank you. It was fun. And a sincere thanks to a great Board of Directors!

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### **For Your Information**

If you are looking for an interesting read on the Geology of New Hampshire, you might try the first three chapters of a recent book by Michael J. Caduto, "A Time Before New Hampshire".



## Mineral Box and Scholarships

Need mineral "props" to give a talk to a local school class, scout group or organization? As a current GSNH Member, you may sign up and borrow the "GSNH MINERAL TALK BOX". It contains everything you need to give a "hands-on-talk" on minerals, their identification and uses. Designed with NH specimens, this will make your presentation an interesting and educational event. To make arrangements to borrow the Mineral Talk Box, contact Lee Wilder at: [geology@des.state.nh.us](mailto:geology@des.state.nh.us) .

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## The Status of Groundwater Levels in New Hampshire 2003

Tim Wilson, NHGS

The November round of groundwater level measurements was completed Monday, November 24th – Wednesday, November 26th. On average, water levels increased 0.68 feet when compared to last month. Water levels in most central and southern wells fluctuated only marginally where as the wells from the western loop showed stronger increases over last month. Overall in comparison to November 2003, water levels were up an average of 2.56 feet.

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## 2003 Annual Meeting

A capacity crowd filled the Cat 'n Fiddle Restaurant in Concord for the 2003 Annual Meeting of the Geological Society of New Hampshire (GSNH). This year's business meeting ran very smoothly and included election of new officers for GSNH (see sidebar on front page for the lucky winners). Thanks go to Dave Wyman for organizing another impressive buffet. Thanks to Dr. David Wunsch, our state geologist, for his presentation on the demise of the Old Man of the Mountain. David also introduced the recipient of a Christa McAuliffe Grant, Dan Reidy. Dan teaches 6<sup>th</sup> grade in Moultonborough, NH; you can learn more about his project on the NHGS website. Thanks also to Greg Kirby for organizing the mineral raffles.

The winners of the various raffles were as follows:

Winners of the Earth Science Week Raffle of NH Bedrock (Geo-1) Maps:

- Tim Stone's Dad
- Curt Weeden

Mineral Raffle Winners:

- Malachite – Garrett Graaskamp,
  - Calcite – Josh Shenker
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## USGS Report Shows High Arsenic in Some Southeast New Hampshire Private Wells

USGS, NH/VT District

A recently released study led by the U.S. Geological Survey shows that an estimated 41,000 people in three southeast New Hampshire counties are using private wells that contain arsenic in concentrations that exceed federal safety standards for public water supplies. Officials made the announcement at a press conference today in Pembroke.

"We were surprised at the results, especially for Hillsborough and Strafford counties," USGS hydrologist Joseph Ayotte said. "We knew from previous studies that arsenic was a problem regionally in eastern New Hampshire. What this study has done is allow us to better identify the extent of arsenic problems at a local level and provide useful information to citizens and state health authorities."

## **USGS Report Shows High Arsenic in Some Southeast New Hampshire Private Wells Continued**

The study, conducted in conjunction with the U.S. Environmental Protection Agency, the New Hampshire Department of Health and Human Services and Department of Environmental Services, and the New Hampshire Estuaries Project, concluded that 20 percent of the homes across Hillsborough, Rockingham and Strafford counties are using private wells with arsenic concentrations above 10 micrograms per liter, which will be the state and federal standard in January 2004. In some parts of the counties, the incidence is more than 30 percent of homes. Results also show that 90 percent of those who participated in the study use their wells for drinking water.

“Today’s event is all about putting important information in the hands of citizens so that they can make informed decisions about how to manage and test their drinking water wells, and ultimately protect their families,” said Robert Varney, Regional Administrator for EPA New England. “As they say, ‘knowledge is power.’”

According to Ayotte, recent studies suggest that the arsenic is predominantly naturally occurring and related to the geology of the area. However, he said that human sources may also have contributed to the problem, but that no studies have been done to determine just how much.

Private wells are a major supply of drinking water in New England and are not regulated by state and federal agencies. Officials recommend that all private well users test their wells for arsenic.

“The state recognizes the importance of educating citizens about having private well water tested and the health risks associated with arsenic contamination,” said Tony Giunta, Administrator of the Water Supply Engineering Bureau at the New Hampshire Department of Environmental Services.

“Studies conducted mostly in other countries indicate that health effects of long-term exposure to arsenic include increased risks of cancer of the bladder, lung and skin, cardiovascular disease, diabetes, and high blood pressure,” said Dennis Pinski, Supervisor, Health Risk Assessment Section, New Hampshire Department of Health and Human Services. A Health Information Summary on arsenic can be found on the NH Department of Health and Human Services web site at:

<http://www.dhhs.state.nh.us/DHHS/HLTHRISKASSESS/LIBRARY/Fact+Sheet/contaminants.htm>.

Private well owners can find information and guidance on testing and water treatment options on the New Hampshire Department of Environmental Services web site at <http://www.des.state.nh.us/ws.htm>.

The complete findings, released as USGS Fact Sheet 051-03, are available at <http://water.usgs.gov/pubs/fs/fs-051-03/>

The USGS serves the nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

To receive USGS news releases go to [www.usgs.gov/public/list\\_server.html](http://www.usgs.gov/public/list_server.html)

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## **Continuing Education Opportunities**

Did you know that the lecture portion of the monthly meeting of the New England Section of the Association of Engineering Geologists (AEG) counts for one (1) hour of continuing education for New Hampshire Professional Geologists? The next meeting will be Thursday December 18, 2003 at the Officer’s Club, Hanscom Air Force Base, Lexington, MA. Go to the New England Section’s website (<http://aegnewengland.velociraptor.net>) for more information about upcoming meetings.

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## Recently Published Reports

USGS, NH/VT District

The following reports were recently published by the U.S. Geological Survey, New Hampshire-Vermont District and are available in paper and(or) on-line at

[http://nh.water.usgs.gov/Publications/online\\_publications.htm](http://nh.water.usgs.gov/Publications/online_publications.htm)

To obtain a copy of any of these reports, please contact Debra Foster, USGS Outreach Coordinator, at (603) 226-7837 or [dhfoster@usgs.gov](mailto:dhfoster@usgs.gov).

### Paper or On-Line Reports:

New England Coastal Basins National Water-Quality Assessment Program

Water Quality Trends in New England Rivers During the 20th Century, by K.W. Robinson, J.P. Campbell, and N.A. Jaworski, Water-Resources Investigations Report 03-4012

Trace Elements and Organic Compounds in Streambed Sediment and Fish Tissue of Coastal New England Streams, 1998-99, by Ann Chalmers, Water-Resources Investigations Report 02-4179

Nutrient and Chlorophyll Relations in Selected Streams of the New England Coastal Basins in Massachusetts and New Hampshire, June-September 2001 by M.L. Riskin, J.R. Deacon, M.L. Liebman, and K.W. Robinson, Water-Resources Investigations Report 03-4191.

Arsenic in Groundwater in Eastern New England: Occurrence, Controls, and Human Health Implications, by J.D. Ayotte, D.L. Montgomery, S.M. Flanagan, and K.W. Robinson; Environmental Science and Technology, 2003, v. 37, p. 2075-2083.

Approximate Potentiometric Surface of the Bedrock Aquifer at Great Bay, Southeastern New Hampshire, 2001, by R.M. Roseen, J.R. Degnan, L.K. Brannaka, T.P. Bellestero, and T.J. Mack. Open-File Report 03-278

Arsenic Concentrations in Private Bedrock Wells in Southeastern New Hampshire, by D.L. Montgomery, J.D. Ayotte, P.R. Carroll, and Patricia Hamlin, USGS Fact Sheet 051-03

Development of Regression Equations to Estimate Flow Durations and Low-Flow-Frequency Statistics in New Hampshire Streams, by R.H. Flynn, Water-Resources Investigations Report 02-4298

New Hampshire's Stream-gaging Network: Status and Future Needs, by S.A. Olson, USGS Fact Sheet 050-03.

### On-line Only Reports:

Effectiveness of the New Hampshire Stream-gaging Network in Providing Regional Streamflow Information, by S.A. Olson, Water-Resources Investigations Report 03-4041 at <http://pubs.water.usgs.gov/wrir03-4041>

A Stream-gaging Network Analysis for the 7-Day, 10-Year Annual Low Flow in New Hampshire Streams by R.H. Flynn, Water-Resources Investigations Report 03-4023 at <http://pubs.water.usgs.gov/wrir03-4023>

A Geographic Information System Tool to Solve Regression Equations and Estimate Flow-Frequency Characteristics of Vermont Streams by S.A. Olson, G.D. Tasker, and C.M. Johnston, Open-File Report 02-494, at <http://pubs.water.usgs.gov/ofr02494>

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## **Mineral Raffle for Winter 2004 Dinner Meeting**

Greg Kirby

### *First Prize*

First prize for this meeting's mineral raffle is quite a rarity. Fresh from the type locality of Searles Lake, San Bernardino County in California is a spectacular cabinet specimen of the Sodium Potassium Sulfate Carbonate Chloride mineral - Hanksite ( $\text{Na}_{22}\text{K}(\text{SO}_4)_9(\text{CO}_3)_2\text{Cl}$ ). Hanksite can be classified as either a sulfate or carbonate. This sample is in its classic hexagonal dipyramidal form with two of its main characteristics, salty taste and fluorescence. Value of this specimen is \$40.00

### *Second Prize*

Second prize is a fine small cabinet specimen of siderite ( $\text{FeCO}_3$ ) and hematite ( $\text{Fe}_2\text{O}_3$ ) from the Kalahari manganese fields of South Africa. This is a classic mineral combination that shows several siderite crystals replaced by hematite. Valued at \$50.00 this will make a fine addition to someone's carbonate or oxide mineral collection.

Proceeds from the mineral raffle go toward the student/teachers scholarship fund. Costs for the raffle are \$1.00/chance and 3 chances for \$2.00. For those wishing to contribute a specimen of their own, please feel free to contact Greg Kirby at 603-271-3624 or at [gkirby@des.state.nh.us](mailto:gkirby@des.state.nh.us). Donations are tax deductible as a business expense.

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## **Membership Update**

Steve Shope, Membership Committee

Our membership is consistent and growing. We have a total of 290 members, which is up from 275 this past summer. Of this total, 83 members are current through December 2004, with 139 members current as of December 2003. The balance are folks who signed up in 2002 but have not renewed since.

Year 2004 renewal forms were sent out this past fall with the newsletter, and the database is updated as they come in. If there are questions about your membership status at any point, please feel free to e-mail me at [sshope@rcn.com](mailto:sshope@rcn.com).

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## **Geologist Licensing Q & A**

Timothy Stone PG, LSP, and Vice-President-PG GSNH

Over the past few months several questions have been received regarding geologist license renewal requirements and the practice of geology. As a regular feature of the GSNH Newsletter, we will present the questions and answers in this column. It should be noted that the interpretation of certain aspects of the licensing law will likely evolve over time as questions and scenarios arise. Therefore, it is possible that the answers and opinions presented below may be updated or expanded upon in future columns. Comments and questions can be sent to [tstone@stonehillenvironmental.com](mailto:tstone@stonehillenvironmental.com). Additionally, if you have contacted the Joint Board with a question and feel the response you received would be worth sharing with others, please email it for publication in a future newsletter. It should be noted that with respect to questions that arise regarding the practice of geology, the NH Joint Board has indicated that they will only provide responses to actual situations and not hypothetical scenarios.

## Geologist Licensing Q & A

Continued

Q-1: My question is...are continuing educational credits for PG's due upon renewal of our license or at the end of each calendar year?

A-1: Reply from the NH Joint Board Office - You report your continuing education with your license renewal. You will receive a renewal form from us [the Joint Board] 60 days prior to the due date. You can renew either by hard copy or on-line at [www.nhlicenses.com](http://www.nhlicenses.com). Questions can be directed to Louise Lavertu, Executive Director, NH Joint Board at 603-271-2219 or [llavertu@nhsa.state.nh.us](mailto:llavertu@nhsa.state.nh.us).

Q-2: I am bidding on a municipal water supply project and one of the competitors is an engineering firm. I have indicated to the municipality that the engineering firm is not qualified to bid on the project since it primarily involves the practice of geology and the engineering firm doesn't have a NH licensed geologist on staff. Is this true?

A-2: No, the engineering firm does not need a NH Licensed Geologist on staff to bid on the project as reflected in the NH geologist licensing law which specifically indicates that a professional engineer cannot be precluded from performing work "within the practice of the profession of geology, nor by a requirement that such work be performed by a professional geologist"(310-A:139 Exemptions). However, assuming the work required does indeed include the practice of geology, for the engineering firm to perform the work required, the professional engineer performing the work must be properly qualified to practice geology through geologic education and experience. Since it is that professional engineer's license which is the vehicle which exempts him/her from needing a professional geologist license to practice geology, if the professional engineer is not adequately qualified to practice geology, the professional engineer would be violating the requirements of his/her license by practicing outside his/her area of expertise. It should also be noted that the same qualifications standard applies to a licensed geologist who must be properly qualified to practice in a particular discipline of geology.

The following excerpt from the Geologist Licensing Law pertains to exemptions from licensing:

310-A:139 Exemptions; Practice of Professional Engineering.

I. Nothing in this subdivision shall be construed to prevent or affect:

(a) The practice of officers and employees of the government of the United States or the state while engaged within this state in the practice of geology for the federal government or the state.

(b) Work customarily performed by archeologists, chemists, geographers, or oceanographers, providing such work does not include the design and execution of geological investigation, being in responsible charge of geological work, or the drawing of geological conclusions and recommendations.

(c) The practice of engineering by a licensed engineer, the practice of architecture by a licensed architect, the practice of forestry by a licensed forester, the practice of land surveying by a licensed land surveyor, the practice of soil science by a certified soil scientist, or the practice of wetland science by a certified wetland scientist.

(d) The practice of geology by any person under the direct supervision and control of a professional geologist, provided such work does not include being in responsible charge of final geological reports or decisions.

(e) The practice of geology by any person in the employ of academic or research institutions, agencies of federal or state government, and not-for-profit research institutions.

II. Professional engineers, when engaged in the lawful practice of professional engineering under RSA 310-A, shall not be precluded from performing work which is defined in this subdivision as within the practice of the profession of geology, nor by a requirement that such work be performed by a professional geologist.

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# Geological Society of New Hampshire

2004 Winter Dinner Meeting

**Speaker: Prof. James Gardner**  
**Center for Coastal & Ocean Mapping**  
**Joint Hydrographic Center, UNH, Durham**

**Topic "Deep Water Reefs in the Northern Gulf of Mexico"**

**When: Thursday, January 8, 2004**

**Where: Cat 'n Fiddle Restaurant**

Manchester Street, Concord, NH

6:00 pm Social Hour

7:00 pm Dinner

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**GSNH Winter Dinner Meeting, Thursday January 8, 2004**

Dinner will be a buffet.

Reservations: \_\_\_\_\_ members @ \$18.00 \_\_\_\_\_ non-members @ \$20.00 (in advance)

*Half-price for students (must show student ID card)*

*Reservations will be taken until Monday afternoon, January 5, 2004*

*\*\*There will be a \$2.00 surcharge for those paying at the door without reservations\*\**

Make checks payable to: Geological Society of New Hampshire

Mail to: Dave Wyman, Buoy Technologies, Inc., 31 Columbus Ave., Concord, NH 03301

phone: 603-224-9031 or [davew@buoytec.com](mailto:davew@buoytec.com) for information

Name: \_\_\_\_\_



Address: \_\_\_\_\_

Phone and/or Email: \_\_\_\_\_

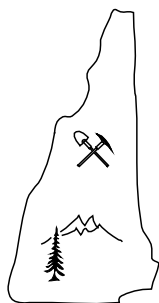
Half the cost of the dinner may be tax-deductible as a business expense.

**The lecture part of the program counts as 1.5 hours of CEU contact hour credit.**

## Dates to Remember!

- BOD Meeting December 11, 2003, 6 PM at DES, Concord, NH
  - Winter Dinner Meeting Thursday, January 8, 2004  
6PM Cat n'Fiddle Restaurant, Manchester St., Concord, NH.  
Speaker: Prof. James Gardner, Center for Coastal & Ocean Mapping  
Joint Hydrographic Center, UNH, Durham  
Topic "Deep Water Reefs in the Northern Gulf of Mexico"
  - Next Newsletter Deadline, Friday February 27, 2004
    - BOD Meeting March 11, 2004, 6 PM  
USGS NH/VT District Office, Pembroke, NH.
  - Spring Dinner Meeting Thursday, April 8, 2004, 6PM  
Cat n'Fiddle Restaurant, Manchester St., Concord, NH.

**Geological Society of NH  
PMB 133, 26 South Main Street  
Concord, NH 03301**



### **2004 Memberships are due now!**

Your membership status is listed on the mailing label.