



# FB Environmental E-NEWS

**FB**  
environmental

97A Exchange St.  
Suite 305  
Portland, ME  
04101 and

170 West Road  
Suite 6  
Portsmouth, NH  
03801

**The Portsmouth  
office expanded!**  
We are now located  
at:  
*170 West Road  
Suite 6  
Portsmouth, NH*

**For more on Climate  
Change research  
in Maine:**

[http://climatechange.  
umaine.edu/](http://climatechange.umaine.edu/)

*Be sure to try out the  
climate re-analyzer  
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## *E-news in review*

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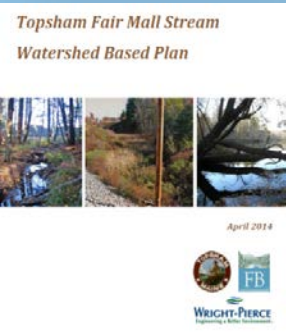
## FBE ASSOCIATES LEADING LOCAL CLIMATE CHANGE MONITORING AND ADAPATION EFFORTS

**Lovell, ME** - FB Environmental senior managers Forrest Bell and Jennifer Jespersen are wrapping up the first year of a multi-year effort to identify and address climate change issues at the local level. The project, funded by a grant awarded to the Kezar Lake Watershed Association in partnership with the Greater Lovell Land Trust, is thought to be the first effort in Maine where a local watershed group and land trust are leading local monitoring and outreach efforts relating to climate change. The first year of the project included helping develop a local Climate Change Observatory. FBE facilitated discussions with key stakeholders, including the University of Maine Climate Change Institute, to address the impacts of climate change in Maine and the Kezar Lake region. Targeted tributary monitoring is already underway throughout the watershed, with additional monitoring variables to be determined following a facilitated "community values forum" in July on the shores of Kezar Lake. The forum is designed to guide long-term monitoring, assessment, and climate change adaptation efforts, by better understanding which resources are most valued by the community and then taking steps to protect them.

## FEATURED PROJECT- TOPSHAM FAIR MALL STREAM

**Topsham, ME** - FB Environmental recently completed a Watershed-Based Plan for the Topsham Fair Mall Stream- a 1.4 mile stream with headwaters in the Topsham Fair Mall area adjacent to Exit 31 off I-295, which continues through a series of culverts to its confluence with the Androscoggin River. This two-year effort was strongly supported by the Town of Topsham, local landowners, and the Maine DEP. FBE also received support from Wright-Pierce Engineering and Field Geology on some of the key project components. The project included a detailed analysis of conductivity readings in the stream, and delineation of more than 20 subcatchments. The conductivity loggers documented elevated levels of chloride in the stream; a critical issue that likely affects the aquatic habitat of this urban impaired stream. FBE worked with the town to develop a five-year action plan to begin restoring the stream. The watershed action plan includes recommendations for both structural retrofits and non-structural actions that could have an immediate positive impact on the stream. The town will be applying for funding this year to start implanting the Plan in 2015.

**Online:** [http://www.fbenvironmental.com/Project\\_TopshamFairMallStream.html](http://www.fbenvironmental.com/Project_TopshamFairMallStream.html)



*The plan addresses  
high chloride levels in  
the stream.*

## FBE WELCOMES NEW STAFF & PARTNERS



*Scott Reynolds*  
*Stormwater Specialist*



*Laura Diemer*  
*Project Scientist II*



*Sabrina Vivian*  
*Summer Intern*

**Scott Reynolds** joined FB Environmental in April 2014 as a Stormwater Specialist. Scott has nine years experience in the water resource field and a BS in Environmental Studies and Applications from Michigan State. He has been conducting Illicit Discharge Detection and Elimination (IDDE) investigations for the last six years with his sidekick K9 Sable with Environmental Canine Services (ECS). FBE is partnering with ECS, and will market our combined services, knowledge and capacity to clients, providing them access to a full continuum of capabilities at the local, state and national level.

*"This partnership is exciting. Having the opportunity to join with FBE's experienced staff as a Stormwater Specialist and bring ECS's unique approach to human source bacteria detection with scent trained canines to the table is a win-win for everyone."*

**Laura Diemer** is rejoining our team of scientists in 2014 after starting with FBE in 2011 and leaving a year later to complete an M.S. in Soil and Water Resource Management from UNH. Her research at UNH focused on understanding biogeochemical cycling of carbon and nutrients in fire-impacted, boreal streams of Central Siberia. She received a B.A. in Ecology and Environmental Science from the University of Maine in 2010 and gained valuable research and writing experience by assisting with resource management practices at Wind Cave National Park for the Student Conservation Association, writing a feasibility report for an aerobic digester and processing soil samples at New England Organics, conducting salt marsh water quality and vegetation monitoring at Wells National Estuarine Research Reserve, and developing conservation initiatives at The Nature Conservancy. Laura is eager to expand FBE's involvement in lake and river water quality monitoring and assessment, wetland delineation, GIS mapping, nutrient loading modeling, and climate change adaptability outreach.

**Sabrina Vivian** is joining FBE as our 2014 summer intern and will be providing extensive support for our wetland delineation and monitoring projects. Sabrina is a rising senior at the University of Maine at Orono, and is originally from Blue Hill, Maine. She is currently pursuing a B.S. in Ecology & Environmental Science with a minor in Biology. Her particular interests include energy, sustainability, and science communication. She has spent her past semesters and summers working within the social aspects of environmental science, and is now eager to spend some time in the field. In her spare time she loves to travel and participate in almost any outdoor activity.

## RECENT & ONGOING PROJECTS

**FB Environmental** and **Environmental Canine Services** will be hosting a series of free pollution source tracking workshops and canine scent tracking demonstrations throughout New England over the next few months. These workshops are designed for municipal staff, watershed association members, and residents who are interested in learning about innovative methods for locating sources of pollution to storm drain systems and waterbodies. **The first workshop was held on May 6, 2014 at Willard Beach in South Portland, Maine.** Canine scent tracking is being used to identify illicit discharges to the storm drain system near the beach, and to assist the City in its water quality protection efforts.

### FBE & ECS 2014 Free Workshop Dates:

Bristol, RI - May 22  
Millbury, MA - May 23  
Connecticut - TBD  
New Jersey - TBD



**RECENT & ONGOING PROJECTS** *continued*



*Lake Warren in Alstead, NH*

**Lake Warren Watershed Management Plan**

**Alstead, NH** – FBE Project Manager Emily DiFranco has been working with the Town of Alstead, New Hampshire and the Southwest Region Planning Commission to complete a watershed-based management plan for Lake Warren. The Town of Alstead received Clean Water Act funds in 2013 to complete the plan, and hired FBE to conduct a comprehensive water quality data overview, land use and in-lake modeling, and stormwater and septic system surveys of public and private lands in the watershed. Once these tasks are completed, FBE will assist the town in developing a detailed action plan to address phosphorus loading issues from the watershed. The ultimate goal of this project is to continue to protect the water quality of Lake Warren.



*Volunteers assist FBE during the Ossipee Lake shoreline survey on Berry Bay.*

**Phosphorus Modeling in the Ossipee Lake Region**

FB Environmental is working with the Green Mountain Conservation Group on a watershed-based plan for a series of lakes in the towns of **Ossipee, Freedom and Effingham, NH**. The Danforth Ponds and the Lower Bays of Ossipee Lake have generally good water quality, but phosphorus concentrations have been on the rise in recent years. FBE is evaluating phosphorus loading from the watershed and internal nutrient cycling with the use of the Lake Loading Response Model, or LLRM. The model results will identify the leading sources of phosphorus in the watershed, and establish the critical concentrations of phosphorus these lakes can tolerate to prevent the probability of nuisance algal blooms. Information from modeling efforts will be combined with data from a future build-out analysis, which helps predict water quality trends using different watershed development scenarios.



*FBE's large scale resource maps were used to engage Bar Harbor residents in the planning process.*

**The Bar Harbor Open Space Plan Comes to Fruition**

**BAR HARBOR, ME** – For the past year, FB Environmental has been assisting the Town of Bar Harbor Conservation Commission and its partners with development of an Open Space Plan. The plan defines open space, provides an inventory and summary of open space lands already protected, identifies open spaces desired by the citizens of Bar Harbor, and outlines strategies for how to address open space needs. The open space plan was presented to citizens at a community forum on April 17<sup>th</sup>. The forum included facilitated discussions to help prioritize goals and strategies using colorful and informative GIS maps displaying the many types of open space described in the plan. Citizen input is being used to help finalize the plan and refine strategies for protecting the highest priority areas for open space conservation. The plan will serve as a toolkit to help individuals, groups, and the town protect Bar Harbor's most important open space resources.

## WETLAND NEWS

### FBE Wetland Scientist Kevin Ryan successfully defends his Ph.D. dissertation at the University of Maine

In early May, FBE wetland scientist and herpetologist Kevin Ryan completed his PH.D. in Wildlife Ecology at the University of Maine at Orono, under Dr. Aram Calhoun. His research focused on the movement patterns, habitat use, and conservation of New England's two rarest amphibians: the Eastern Spadefoot Toad (*Scaphiopus holbrookii*) and the genetically-pure Blue-Spotted Salamander (*Ambystoma laterale*). Kevin's research has resulted in three scientific journal articles which can be used to inform management decisions and prioritize land protection efforts for these species.



*Dr. Kevin Ryan*

### "The Big Night"

As of the publication of this newsletter, amphibian aficionados throughout most of New England have taken to the roads and woods for "Big Night." This perhaps euphemistically named event is when vernal pool breeding amphibians - notably wood frogs, spotted salamanders, and blue-spotted salamanders - migrate to their breeding pools, where they spend several weeks courting one another and laying eggs. "Big Night" occurs on a rainy night when the ground has thawed, the wind is calm, and air temperatures are in the 40's. The amorous amphibians only remain in breeding pools for a few weeks, as they spend most of their lives in terrestrial habitat surrounding the pools. However, they leave conspicuous egg masses which can be identified and quantified to determine species composition and abundance of a particular breeding pool. FB Environmental staff will be out collecting this information at several project sites in the upcoming weeks.



*Wood frogs are one of several species that migrate to vernal pools to breed during the "Big Night".*

## CONFERENCES & WORKSHOPS

### ❖ New Hampshire Waters and Watershed Conference ~ March 21

*FBE's Jen Jespersen and Linda Schier of the Acton Wakefield Watersheds Alliance presented on Engaging Province Lake Citizens in Watershed Restoration Planning.*

### ❖ New England Association of Environmental Biologists Conference ~ March 25

*FBE's Jeremy Deeds presented on Canine Scent Tracking Success Stories in New England*

### ❖ NEIWPCC Annual Nonpoint Source Conference - Newport, RI ~ April 29

*Forrest Bell and Scott Reynolds presented on Canine Scent Tracking Success Stories in New England and led a demonstration project in the Town of Bristol, RI.*

### ❖ Whitten Brook BMP Demonstration Area- Ribbon Cutting Ceremony ~ May 31

Join Jen Jespersen, along with the Somerset County Master Gardener's and project partners to install a rain garden and porous parking area in Skowhegan.

### ❖ Maine Lakes Society, Maine Lakes Conference - Colby College, ME ~ June 28

Forrest Bell and Scott Reynolds will be presenting on using canine's for detecting septic issues in lake watersheds. With a live doggie demo at lunch!



*FBE's Forrest Bell and Scott Reynolds at the 2014 Maine Waters and Sustainability Conference in Augusta, ME*