August 2018
Volume 6, Issue 1

FB environmental

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FB ENVIRONMENTAL E-NEWS

Cover photo: Sagamore Creek, Portsmouth, NH

E-NEWS CONTENT

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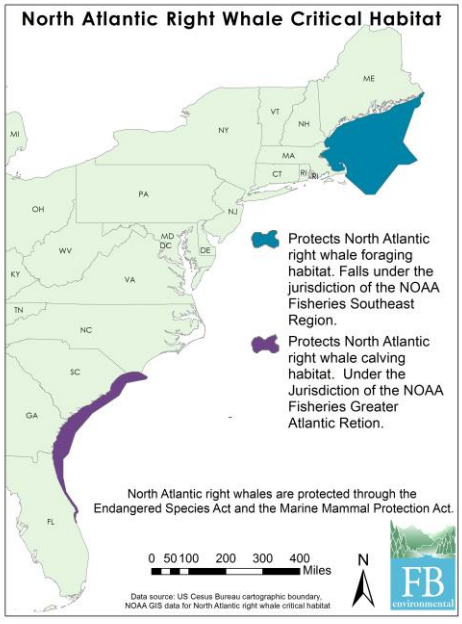
FEATURED PROJECT: FBE to work with New England lobstermen to help protect endangered right whale

The North Atlantic right whale, *Eubalaena glacialis,* is one of the world's most endangered whale species. Right whales inhabit coastal waters from their feeding grounds in New England, the Bay of Fundy, the Scotian Shelf, and the Gulf of Saint Lawrence in Canada to their calving grounds off the coast of Georgia and Florida. The global population of North Atlantic right whales has been declining since 2010, and the most recent Stock Assessment Report from 2017 showed that the population has fallen to only 440 individuals. This recent population decline has been attributed to an increase in deaths from anthropogenic causes, such as ship strikes and fishing gear entanglements, and a decrease in both the number and frequency of births.

North Atlantic right whale. Photos by Erin Summers, Maine DMR, taken under permit.

To help protect North Atlantic right whales, the Maine Department of Marine Resources (DMR) was awarded a NOAA grant, which will fund work to improve and update the data upon which proposed future regulations may be based. FB Environmental (FBE), represented by Forrest Bell as a co-investigator, and marine biologist Caitlin Cleaver (see her bio on page 3), have teamed up with the DMR, the Maine Lobstermen's Association, and the University of Maine's School of Marine Sciences, to implement the project.



Track the whales through Cornell University: http://www.listenforwhales.org/page.aspx?pid=467

FBE will lead the project's outreach component, working face-to-face with stakeholders to gather local knowledge and develop a database of vertical line use for modeling purposes. Data will be gathered from harvesters regarding their rope type and diameter, depth and distance from the shore, and type of surface system and trap configuration used. According to Erin Summers, project lead and Director of DMR's Division of Biological Monitoring, "good information from industry will increase the likelihood of targeted, effective regulations." FBE will also assist in an analysis of the functional breaking strength of vertical lines currently in use throughout the Gulf of Maine region. This study will help determine whether reducing vertical line strength can decrease the number of extreme right whale entanglem--ents, while allowing harvesters to work safely and efficiently under different hauling conditions. These data will be used to develop a modeling tool to assess current industry vertical line usage and needs, as well as to predict the impacts, outcomes, and conservation benefits of proposed regulatory measures prior to implementation through the Atlantic Large Whale Take Reduction Plan.

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Parsons Creek tributary sampling in Rye, NH

A continuous monitoring buoy deployed in 2018 at Kezar Lake, ME

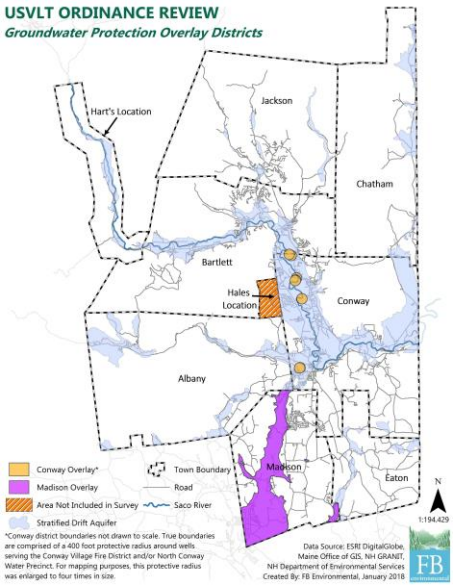
A hand-crafted bridge board allows FBE to conduct flow monitoring in non-wadeable rivers

Christine collecting a sample from the Salmon Falls River

RECENT & ONGOING PROJECTS

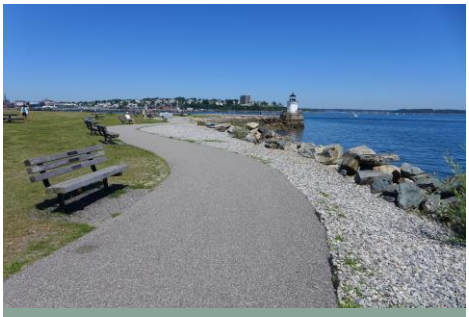
The Upper Saco River Aquifer Protection Project

The Upper Saco Valley Land Trust (USVLT) adopted an ecosystem approach to protect its water resources and assess threats to drinking water for the headwaters of the Saco River, the Ellis River, and an underlying 65-square-mile stratified drift aquifer in New Hampshire. In collaboration with the USVLT, FBE conducted an ordinance review and survey of potential contamination threats to the Upper Saco Valley Stratified Drift Aquifer. We also researched aquifer protection regulations in eight of the New Hampshire towns overlaying the aquifer and provided recommendations for improving groundwater protection.



South Portland Open Space Plan

FBE is leading a project (assisted by Terrence J. DeWan & Associates) to create an open space plan for the City of South Portland, ME. An Open Space Plan provides communities with a strong foundation for more informed decision-making by identifying and describing open spaces in a local setting. An Open Space Plan enables communities to direct growth to those areas capable of supporting it and at the same time identifies and prioritizes areas worthy of conservation. It also encourages public participation in identifying and protecting areas important to the community, and provides information that will support careful land use planning, voluntary land conservation, and improved resource protection measures.



Bug Light Park, part of the South Portland Open Space Plan

Vernal Pool Survey and Herpetological Inventory

FBE's Ecological Services Division is involved in three large solar projects in Connecticut. FBE's Kevin Ryan is leading herpetological assessments of the project areas. The work involves general herpetological inventories (developing reptile and amphibian species lists for the sites), vernal pool surveys, and targeted surveys to detect the presence of box turtles *(Terrapene Carolina)*, wood turtles (*Glyptemys insculpta)*, blue-spotted salamanders (*Ambystoma laterale)*, and eastern spadefoot toads (*Scaphiopus holbrookii).*

Rich holding a spotted salamander during a herpetological inventory in Brooklyn, CT

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FBE WELCOMES NEW STAFF

Caitlin Cleaver joined FB Environmental as the Marine Science Lead in 2018. She has a bachelor's degree in Environmental Studies from Colby College, a master's in Public Administration in Environmental Science and Policy from Columbia University, and dual masters' degrees in Marine Biology and Marine Policy from the University of Maine where she is currently pursuing her Ph.D. in Ecology and Environmental Science, focusing on the potential for integrating aquaculture and commercial fishing. Cait has over five years of experience working with coastal communities and in marine resources. Through her work, she has identified tools to preserve working waterfronts, facilitated community participation in the regional ocean planning process, and designed and implemented cooperative fisheries and aquaculture research. Much of her marine research has utilized scientific diving methods, as well as social science approaches, including surveys and interviews.

Amanda Gavin joined FB Environmental as a Project Scientist II in 2018. She has a bachelor's degree in Plant Biology from the University of Vermont and a master's degree in Ecology and Environmental Science from the University of Maine at Orono. Her research focused on surface water chemistry changes in Maine's high elevation lakes in response to climate change and recovery from acidification and the controls on cold-water refugia in lakes. Before completing her master's degree, Amanda spent five years in the Intermountain West, where she worked for a fish habitat monitoring project with the US Forest Service. She also worked as a botanist in Montana's Bitterroot Valley and taught environmental education on Orcas Island in Washington.

Christine Bunyon joined FB Environmental as a Project Scientist I in 2018, after completing her bachelor's degree in Environmental Conservation and Sustainability from the University of New Hampshire. Christine assists project managers with the completion of various project tasks, including water quality sampling, data organization and analyses, GIS mapping, land-use modeling, and technical writing. As an undergraduate student, Christine worked as a lab technician in a soil microbial ecology lab, interned in a water microbiology toxicology lab, and studied abroad to New Zealand with the EcoQuest immersive ecology program.

Elizabeth Perry is our 2018 summer intern! Elizabeth completed her bachelor's degree in Geology from Hamilton College, where her research focused on water quality monitoring of both surface and groundwater. This fall, Elizabeth will be starting a master's program in Climate and Society at Columbia University, where she hopes to gain research experience at the Lamont Doherty Earth Observatory.

Kezar Lake, June 2018

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Connor Bell on Baxter Academy Graduation day with his brother Aidan and sister Julia

Kevin's daughter Lily with a spotted salamander egg mass

Rich celebrating his Ph.D. graduation alongside his wife Morgan, son Clay (age 4), and father Jack

Deb's newest grandchild, Carter!

RECENT PRESENTATIONS

New Hampshire Watershed Planning Presentations

- Principal Scientist Forrest Bell gave presentations to five communities in central NH featuring the final details and recommendations of the Ossipee Lake and Moultonborough Bay Inlet watershed management plans.

Maine Rural Water Association Annual Meeting

- Principal Scientist Forrest Bell presented information on bacteria pollutant source tracking on in Bangor, ME.

New England Association of Environmental Biologists Conference (NEAEB)

- Project Manager Laura Diemer and fisheries biologist Jake Riley (Stantec Consulting) presented information on surface water chemistry suitability for cold-water fisheries in tributaries of Kezar lake, ME, in Devens, MA.

Maine Lake Monitoring Summit

- Project Manager Margaret Burns presented on paired lake and stream monitoring data on two ME lakes at the Maine Lake Monitoring Summit in Augusta, ME.

New Hampshire Water and Watershed Conference

- Project Manager Laura Diemer presented information regarding the successes and challenges of using co-indicators along with traditional source tracking methods to better pinpoint human sources of fecal contamination through a case study from North Hampton, NH. The conference was held in Plymouth, NH.

Upper Saco Valley Aquifer Protection Presentations

- As part of a 2017 drinking water source protection grant from NHDES, in collaboration with the Upper Saco Valley Land Trust, Project Managers Margaret Burns and Dr. Rich Brereton presented a review of local ordinances at town meetings in Hart's Location and Albany, NH.

STAFF UPDATES

- **Forrest Bell**'s son Connor Bell recently graduated from the Baxter School for Science, Technology, Engineering, and Mathematics and has enrolled as a marine biology major at Salem State University.
- **Kevin Ryan**'s daughter Lily will be turning three in August and is already a field biologist in training. This May she explored vernal pools with her dad near their home in Pownal, ME. Lily also loves arts and crafts, dump trucks, flamingoes, and listening to music with her parents.
- **Rich Brereton** graduated with a Ph.D. in Earth and Environmental Science from the University of New Hampshire!
- **Deb Mayo** and her husband Scott celebrated the birth of their newest grandson Carter Sanna Mayo on January 8, 2018. He weighed 8 lbs. 9 oz. and was 20 inches long.
- **Laura Diemer** built a new house in Lebanon, ME on 29 acres and moved in with her family on Christmas Eve!
- **Margaret Burns** and her fiancé Christian traveled to North Carolina to visit one of her former Hubbard Brook colleagues and hydrologist JP Gannon, who is now an Assistant Professor at Western Carolina University.

Laura's new house!

Margaret and friends mountain biking on Fire Mountain in Cherokee, NC

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