



FB
environmental

FB ENVIRONMENTAL E-NEWS

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

170 West Rd.
Suite 6
Portsmouth, NH
03801

E-NEWS CONTENT

Featured Project: Kennedy Brook p. 1

New FBE Staff p. 1

Recent & Ongoing Projects p. 2-3

Staff Presentations & Updates p. 4

FEATURED PROJECT: KENNEDY BROOK WATERSHED MANAGEMENT PLAN

FB Environmental Associates (FBE) is excited to be working on a watershed management plan and stream restoration project for Kennedy Brook, a Class B impaired stream located in Presque Isle, ME. Kennedy Brook flows southwesterly through agricultural land and dense urban development, which are likely causing the observed elevated pollutant levels in the stream. Given that Kennedy Brook meets Class C standards and is a valuable trout fishery in the area, stream restoration of Kennedy Brook to Class B standards for aquatic life is an achievable goal. FBE completed a stream survey in July and will continue to work with the City of Presque Isle and the Maine DEP to develop the watershed plan. We are also facilitating collaboration with faculty at the University of Maine at Presque Isle (UMPI), a large portion of which is located within the watershed. Our first public meeting in July was attended by more than thirty landowners that live on or near the stream. The plan will be completed at the end of this year.



Forrest Bell, Maggie Burns, and Jen Jespersen surveyed Kennedy Brook, Presque Isle, ME, in July 2017.

FBE WELCOMES NEW STAFF



Dr. Rich Brereton on a hike with his son, Clay.

Rich Brereton, Ph.D. joined FBE this spring after defending his doctoral dissertation at the University of New Hampshire. He worked extensively in a tropical rainforest in Puerto Rico, using nutrient pulse additions to study how streams and riparian zones respond to high inputs of nitrogen. Rich has been an avid rock climber since his teens, and still explores the region's cliffs and boulders whenever he can find time. He will contribute his water quality expertise to a number of FBE projects throughout New England.



Jacqueline Boudreau during a fish survey of Great Brook, Lovell, ME.

Jacqueline Boudreau joined FBE this spring and is working from both FBE offices in Portland and Portsmouth. She brings aquatic, marine, and fisheries biology experience to FBE after immersing herself in water quality and fisheries projects across the U.S. (backcountry Colorado, Gulf of Mexico, southern Alaska, and Hawaii). In her free time here in Maine, Jacqueline can often be found in or on the water or teaching yoga to athletes in southern Maine.

FB Environmental Associates

97A Exchange Street ♦ Suite 305 ♦ Portland, ME 04101 ♦ (207) 221-6699

170 West Road ♦ Suite 6 ♦ Portsmouth, NH 03801 ♦ (603) 828-1456

www.fbenvironmental.com



FB Environmental E-NEWS

August 2017
Volume 5, Issue 1

RECENT & ONGOING PROJECTS

Upper Saco River Aquifer Protection

FBE is working with the Upper Saco Valley Land Trust (USVLT) to facilitate the completion of the Upper Saco River Drinking Water Grant funded by the New Hampshire Department of Environmental Services (NHDES). The goal of this project is to provide a preliminary assessment of potential contaminant sources to the Upper Saco Valley Aquifer. This assessment will build on the robust, public database from NHDES. The information gained from the threat analysis will be used to inform ordinance recommendations made for nine towns in the White Mountain Region. FBE and the USVLT will work together for the next few years to provide specific groundwater-protection recommendations to municipalities. This project will also focus on engaging with and providing outreach to local stakeholders and citizens.

Water Quality Monitoring at Kezar Lake using Data Loggers

FBE is working with the Kezar Lake Watershed Association, with financial support from a foundation grant, to deploy two water quality monitoring buoy systems in Kezar Lake - one at the upper bay (depth~163 ft.) and one at the lower bay (depth~12 ft.). Attached to these buoys are Onset HOB0[®] dissolved oxygen loggers and temperature/light pendants, placed at specific depths that equate to critical layers in the water column. These layers become thermally stratified during the peak summer season (i.e., the water column separates into the epilimnion (warm, surface layer), thermocline (markedly cooler, more dynamic middle layer), and hypolimnion (cold, bottom layer). The detailed information that these loggers are providing allow us to track thermal stratification, pinpoint spring and fall turnover, and determine the extent and duration of anoxia (depleted oxygen) at the bottom of the lake. Tracking changes in the timing of these events is imperative given that climate change is threatening the balance of ecological systems across the globe, especially lakes. Compared to more advanced (wireless, solar-powered) water quality monitoring buoy systems in the region, the setup in Kezar Lake offers a minimally-intrusive alternative with the same level of detail, but at a price-point that is within reach for many lake associations.



Project Manager, Laura Diemer, ground-truthing land cover in Boothbay, ME.



MS4 outfall sampling at Captain Pond in Salem, NH this spring.



Project Manager, Maggie Burns, monitoring one of Kezar Lake's spectacular ponds.



Project Manager, Laura Diemer, deploying a buoy at Kezar Lake.



© FBE, Lower Bay of Kezar Lake, Lovell, ME

FB Environmental Associates
97A Exchange Street ♦ Suite 305 ♦ Portland, ME 04101 ♦ (207) 221-6699
170 West Road ♦ Suite 6 ♦ Portsmouth, NH 03801 ♦ (603) 828-1456
www.fbenvironmental.com



FB Environmental E-NEWS

August 2017
Volume 5, Issue 1

RECENT & ONGOING PROJECTS

Railway Brook & I-93 with NHDOT

FBE was selected through a competitive bid process from 2013-2015 and again from 2016-2018 as one of three firms to provide on-call wetland services to the New Hampshire Department of Transportation (NHDOT). FBE is currently conducting two projects for NHDOT. The first involves restoration monitoring for a half-mile section of Railway Brook (right) and associated riparian wetlands in the Town of Newington. The second is a wetland and stream delineation and wetland functional assessment project along a 1-mile stretch of I-93 in the Town of Salem in support of a road improvement project.



Sampling & Analysis Plan for Sagamore Creek

The City of Portsmouth recently hired FBE to develop a five-year sampling and analysis plan to help characterize and model pollutant sources to Sagamore Creek, a coastal waterbody impaired for aquatic life, fish consumption, and shellfishing due to elevated levels of various contaminants and/or poor estuarine bioassessments. In collaboration with a technical advisory committee composed of representatives from the University of NH (UNH), the NH Department of Environmental Services (NHDES), the Conservation Law Foundation (CLF), and the Piscataqua Region Estuaries Partnership (PREP), the City of Portsmouth and FBE will work to identify sampling locations, types of samples (surface water, groundwater, sediments) and data to be collected, and frequency and duration of collection, while also considering seasonality and weather variances (to include both baseflow and stormflow conditions). The SAP will target water quality data gaps and needs for strategic monitoring of potential pollutant source areas, determining total annual pollutant loading to Sagamore Creek for better model parameterization, and providing a broader understanding of the overall water quality of the Creek. The City of Portsmouth is committed to achieving healthy waters for environmental, social, and economic values. The work accomplished for this project will help achieve Great Bay 2020 vision goals by promoting collaboration among the scientific community to identify and address major sources of water pollution to the Creek.



Volunteers David Bradbury and his grandson, Chase, helping FBE gather water quality data in winter at Watchic Lake in Standish, ME.



Scenery at Eel Pond in Rye, NH taken by Jacqueline Boudreau during spring sampling.



Richard May, Stormwater Utility Technician for the City of Bangor, assisting FBE with stream data logger deployment and maintenance.



FB Environmental E-NEWS

August 2017
Volume 5, Issue 1

PRESENTATIONS

Bangor City Council

- ❖ FBE Principal Forrest Bell and Project Manager Laura Diemer presented on **Bangor Streams Monitoring** in Bangor, ME on February 28, 2017

First Annual Lake Monitoring Summit

- ❖ Project Manager Laura Diemer presented on an **alternative and affordable approach to buoy monitoring systems in lakes** in Augusta, ME on March 23, 2017

Maine Land Trust Conference

- ❖ FBE Principal Forrest Bell and Greater Lovell Land Trust Executive Director Tom Henderson presented on the **Town of Lovell, Maine Build-out Analysis** in Topsham, ME on April 22, 2017

Kennedy Brook Public Forum

- ❖ FBE Principal Forrest Bell and Project Manager Maggie Burns presented on the **Kennedy Brook restoration project** in Presque Isle, ME on July 11, 2017

2017 Beaches Conference

- ❖ Project Manager Laura Diemer presented on **using co-indicators with bacteria source tracking to identify human fecal contamination** in Wells, ME on July 14, 2017

STAFF UPDATES

• If you've ever enjoyed trying to solve a Rubik's Cube, then you'll enjoy learning that **Forrest's** 14 year-old son, Aidan Bell, competed in the New England Rubik's Cube competition on August 5th. He finished 10th out of 100 contestants with an average completion time of an amazing 11 seconds!

• **Laura** and her husband, Tom, celebrated their son George's first birthday on August 3rd.

• **Deb** and her husband, Scott, welcomed their first granddaughter on February 3rd. Harper Knight Mayo weighed in at 8 lbs. 3 oz. They also excitedly await the arrival of their second grandchild this January.

• **Kevin** participated in three mountain bike endurance events this year. He traveled to Austin, TX in April to participate in the 100k Austin Rattler, a race in which Lance Armstrong also participated. In June, he completed a six-hour race at the Bond Brook Treadfest, coming in second in his age class. In July, he raced in his third 100k at the Carrabassett Backcountry Cycle Challenge. Outside of biking, Kevin and his wife, Amanda, celebrated their daughter Lily's 2nd birthday in August!



One of Fisheries Scientist Jacqueline Boudreau's favorite hobbies - yoga.



Forrest's son, Aidan (left), at a Rubik's Cube competition in Sharon, Massachusetts.



How Ecological Services Lead, Kevin Ryan, spends his weekends.



Deb's first grandchild, Harper!



Kevin's daughter, Lily, turned 2!



Laura with husband Tom and baby George.