FB ENVIRONMENTAL

20th ANNIVERSARY NEWSLETTER

May 2021 • Volume 9 Issue 1

www.fbenvironmental.com

Twenty years ago, it all started with the sudden sound of a flip-phone ring tone in a quiet classroom. It's the spring of 2001. I'm a graduate student at the University of New Hampshire, dutifully paying attention in Dr. Mimi Becker's International Environmental Policy class alongside dozens of classmates. Suddenly my trusty Nokia rings loudly, stopping the entire class in its tracks. I can't ignore this call from a colleague that I know has an irresistible offer: he wants me to join a study of six phosphorus-impaired lakes in Maine. So, embarrassed, I take a walk out into the hallway to take the call. My colleague makes the anticipated offer, and I say "of course!" immediately, not really knowing what I'm getting myself into. All I know is that I can finally realize my dream to start a company that focuses on assessing, protecting, and restoring natural resources.

(Dr. Becker would later laughingly chide me, saying "NEVER before has one of those portable phone-things interrupted one of my classes!" I'm pretty sure it happened a few more times over her splendid career as an educator and leader in building ecological and social resilience.)

Twenty years later it is such an honor to be able to write this letter celebrating our achievements and our ongoing commitment to the same values – assessing, protecting, and restoring our region's natural resources. This most recent edition of our newsletter testifies to the fantastic projects we have been grateful to work on and the wonderful clients we've served. We've evolved so much as a company and as professionals over time, and we continue to get better with each passing year. I'm certain that the success of FB Environmental is about people: people that trusted in our work and abilities to hire us to help them solve often complex environmental issues; people that have worked for our firm and provided such passionate and thoughtful consulting to the communities and citizens in New England; people that we've worked alongside – colleagues, public servants, environmental stewards, educators. The partnerships we've formed with so many of you (and you know who you are) make this work so enjoyable and enlightening. So, let me take this opportunity to thank you all so much. Here's to another 20 years!

Stay tuned for information on a 20th year celebration this fall.

With gratitude,
Forrest Bell, Owner and CEO

Top: Forrest outside the new FBE Dover, NH office in 2021.
Middle: Forrest in the early years taking water samples in Kennebunkport in 2004.
Bottom: Forrest speaking at a press conference to announce an EPA grant award for the Presumpscot River in 2006.

FB Environmental Associates
97A Exchange Street • Suite 305 • Portland, ME 04101 • (207) 221-6699
383 Central Ave • Suite 267 • Dover, NH 03820 • (603) 828-1456
www.fbenvironmental.com

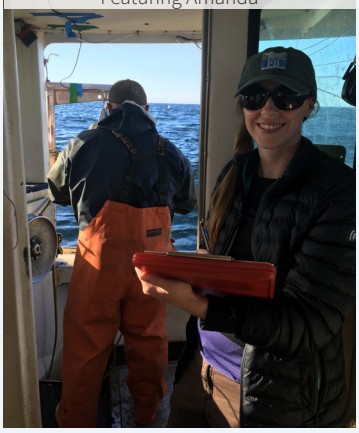
FB ENVIRONMENTAL NEWSLETTER

Watchic Lake, Standish, ME

Pleasant Hill Natural Resource Inventory, Scarborough, ME

Wetland Delineation, ME, Featuring Kevin

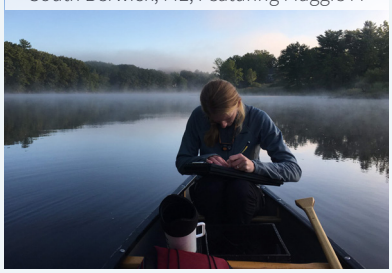
Vertical Line Study, Gulf of Maine, Featuring Amanda



Stream Crossing Assessment, Hart's Location, NH, Featuring Rich

Medomak River Estuary, ME (credit: Melissa Smith)

Water Quality Monitoring, Salmon Falls River, South Berwick, ME, Featuring Maggie M



Stream Crossing Assessment, Hart's Location, NH

Wetland Delineation, ME, Featuring Kevin

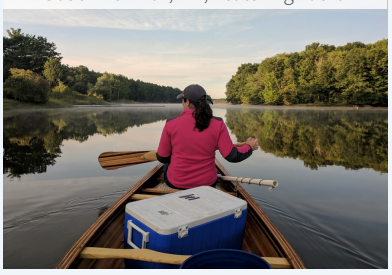
Wetland Delineations for the NH DOT in Salem, NH

NH Stream Crossing Assessments in Presque Isle, ME, Featuring Forrest

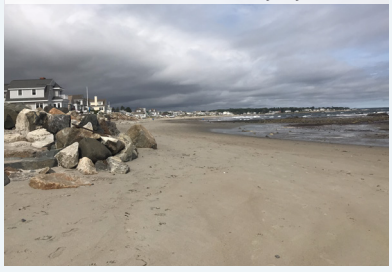
Water Quality Monitoring, Sagamore Creek, NH, Featuring Christine

Little Falls Brook in the Pemaquid River Watershed, Bristol, ME

Water Quality Monitoring, Salmon Falls River, South Berwick, ME, Featuring Laura

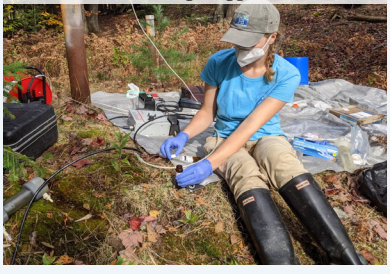


Water Quality Monitoring and Natural Resource Inventory, Rye, NH



Kezar Lake Climate Change Study, Lovell, ME

Groundwater Sampling, Corinna, ME, Featuring Maggie K



Wetland Delineation for Solar Development, CT

Water Quality Sampling in Tributaries to Kezar Lake, ME, Featuring Maggie M

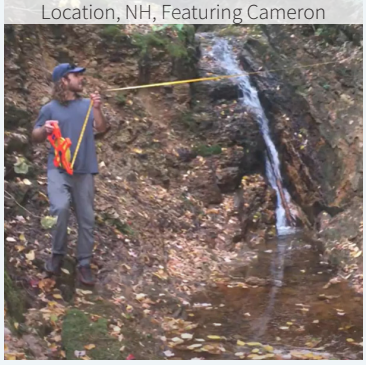
May 2021 • Volume 9 Issue 1
www.fbenvironmental.com

Groundwater Monitoring, North Hampton, NH, Featuring Laura

South Portland Open Space Plan, ME

Salmon Falls River, Rollinsford, NH, Featuring Maggie K

Stream Crossing Assessment, Hart's Location, NH, Featuring Cameron



Merrymeeting River, New Durham/Alton, NH

Vernal Pool Survey, ME, Featuring Kevin

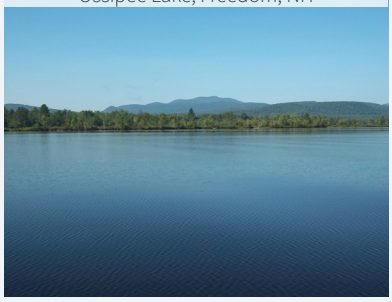
Stream Flow Monitoring, Lovell, ME, Featuring Christine

Water Quality Monitoring, Lovell, ME, Featuring Cayce

Fort Foster, Kittery, ME

Watershed Survey in Bridgton, ME, Featuring Forrest

Ossipee Lake, Freedom, NH



Ogunquit River Estuary, Ogunquit, ME

Vernal Pool Assessment, CT, Featuring Rich

North Atlantic Right Whale. Photo by Erin Summers, Maine DMR, taken under permit.

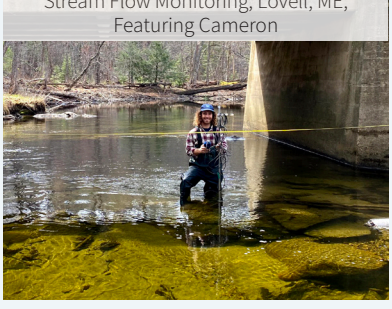
Water Quality Monitoring, Trout Pond, Lovell, ME, Featuring Amanda

Salmon Falls River, South Berwick, ME, Featuring Maggie M

Spruce Creek Buffer Planting, Kittery, ME

Stormwater Retrofits, Ogunquit, ME

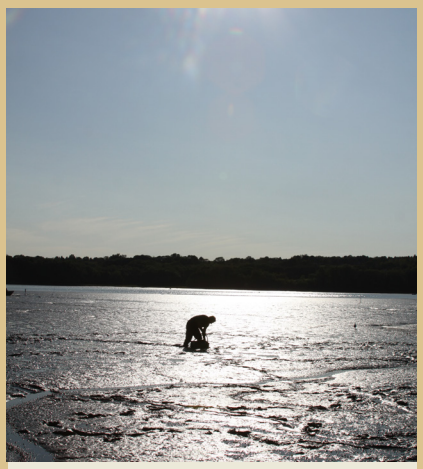
Stream Flow Monitoring, Lovell, ME, Featuring Cameron



FB ENVIRONMENTAL NEWSLETTER

Laura Diemer and Christine Bunyon conducted investigatory sampling of storm drains in the Sagamore Creek Watershed, Portsmouth, NH

Amanda Gavin conducting watershed and shoreline surveys in Bremen, ME



Shellfishing in the Medomak River Estuary, Waldoboro, ME. © Julie Keizer

PROJECT ANNOUNCEMENTS & UPDATES:

CLIMATE CHANGE & RESILIENCY ORDINANCES

The Gulf of Maine is warming at a faster rate than most of the world's oceans and Maine's coastal communities are at the forefront of these climate change effects. To address coastal hazards and enhance municipalities' resilience, FBE has partnered with the Southern Maine Planning and Development Commission (SMPDC), the towns of Vinalhaven, Kittery, Wells, Tremont, and the City of South Portland to develop a model coastal resilience ordinance that enhances resilience and adaptation planning of Maine's coastal communities. The model ordinance will be designed to include options for municipalities to implement based on their individual coastal hazards, vulnerabilities, existing infrastructure, natural resources, and community values.

As an ongoing project, FBE and SMPDC have reviewed the municipal partners' existing plans, policies, and regulations that pertain to coastal resiliency in order to find common themes as well as unique hazards facing the municipalities. The findings were reported back to the municipalities in a report that also included comparison of ordinances, plans, policy measures, and land use provisions employed elsewhere in the country. FBE and SMPDC met with municipal partners in a series of workshops to develop the model ordinance in the spring of 2021. This work is funded by Maine Coastal Program's Coastal Communities Grant (CCG).

WATER QUALITY PROTECTION FOR SHELLFISH FLATS IN MIDCOAST MAINE

FBE has been working with several coastal Maine communities to protect shellfish flats in Muscongus Bay and the Pemaquid River estuary. These shellfish flats represent the most productive flats in the State of Maine but are threatened due to water quality pollution entering the estuaries from upstream freshwater rivers. Flats in this region have been experiencing seasonal or rain-conditional closures over the past several years, which restricts access to clamming due to pollution entering the estuary from the surrounding landscape. Shellfish flat closures drastically reduce the amount of time clammers can harvest throughout the year. Over the past few years, FBE has worked collaboratively with the Shellfish Commissions in the towns of Waldoboro and Bristol to conduct water quality monitoring and bacteria source tracking in the Medomak and Pemaquid Rivers, to identify and remediate these upstream sources of pollution. This summer, FBE will start water quality monitoring in Broad Cove as a follow up to a recent project with the Town of Bremen and local Shellfish Commission to assess nonpoint source pollution risks in Broad Cove and develop mitigation strategies.

Building from these efforts, FBE has launched a new initiative in the region to catalog local septic systems to assess the risk of system malfunction that could lead to fecal contamination in surrounding tributaries, waterbodies, and estuaries before the waste is fully treated. Ultimately, the assessment provides the town and shellfishing community with a tool to understand possible septic system pollution entering their estuary and work towards improving the water quality that affects their shellfishing flats. In the Town of Waldoboro, this project is part of an ongoing Coastal Communities Grant which is bringing together project partners from State agencies, local municipalities, and regional watershed protection groups. The outcome will include a comprehensive guidance document for other coastal communities throughout the state to perform septic vulnerability assessments.

May 2021 • Volume 9 Issue 1
www.fbenvironmental.com

SOLAR DEVELOPMENT ASSISTANCE UPDATE

FBE's Ecological Services Division has been busy ensuring natural resources are adequately considered when planning the physical location of solar arrays for clients in Maine, New Hampshire, and Connecticut. FBE's wetland scientists, ecologists, and technical field staff have been conducting numerous wetland delineations, vernal pool surveys, and herpetological inventories. Data resulting from these surveys are used to formulate how to best preserve natural resources in a way that is individually tailored to each project location. During these site assessments, FBE detected the presence of development-sensitive species such as the wood turtle (*Glyptemys insculpta*), ribbon snake (*Thamnophis sauritus*), and eastern spadefoot (*Scaphiopus holbrookii*). At these sites, FBE is helping to guide development in a fashion that does not significantly disrupt the existing ecology. This is accomplished by avoiding areas used by development-sensitive species to ensure that enough habitat is conserved to enable that species to carry out its life cycle unimpeded by solar infrastructure.

OGUNQUIT RIVER WATERSHED MONITORING AND PHASE III ACTIVITIES

FBE continues to work with the Town of Ogunquit to monitor water quality in the Ogunquit River, its estuary, and its tributaries. Water quality monitoring takes place each year at consistent sampling locations along the Ogunquit River and smaller tributaries. Staff collect samples between June and October during wet and dry weather conditions. The monitoring is targeted at documenting changes in bacteria levels within the estuary to evaluate ongoing remediation efforts and help direct future management actions. As in prior years, we see high levels of bacteria in some locations, especially after significant rainfall events – a situation Ogunquit, FBE, the State of Maine, and other partners are working hard to address. Monitoring is only one component of the larger Ogunquit River Watershed Restoration Project, which is now in its third phase. Other components of the project include installation of a stormwater retrofit in the Main Beach parking lot, a key infrastructure upgrade that will allow for enhanced filtration of runoff from the parking lot surface. The project will also continue to engage the public with outreach and educational activities to improve the awareness around sources of bacteria in the estuary, and what everyone can do to help.

Looking northeast at the Ogunquit River as it flows under the Beach Street bridge.

Kevin Ryan holding a green snake which was found during a wetland delineation and herpetological inventory in Maine.

Maggie Kelly collecting groundwater measurements in the Capisic Brook watershed.

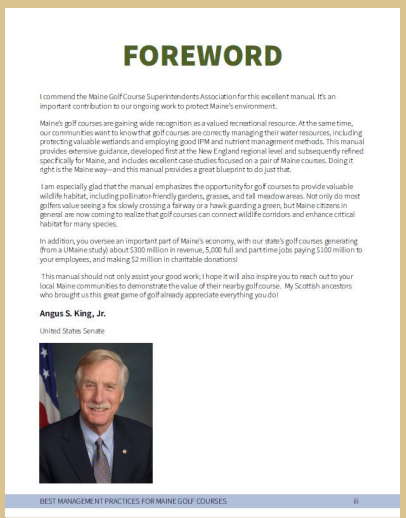
FBE's Summer Project Assistants

FBE would like to welcome Emily Pinchott and Elliott Boardman to FBE for the summer of 2021! Emily is a rising senior at Georgetown University studying Environmental Biology and Psychology. She will be assisting Project Manager Maggie Mills and Project Scientist Maggie Kelly. Elliott graduated from the University of New England this May where he studied Environmental Science. Elliott will be assisting all FBE Staff with fieldwork this summer.

May 2021 • Volume 9 Issue 1
www.fbenvironmental.com

PUBLICATIONS

FBE recently completed Best Management Practices Manuals for Golf Courses in both Maine and New Hampshire! These manuals represent the culmination of a years-long review process with local stakeholders and experts to identify practices to improve sustainability on golf courses. Both projects are part of a larger initiative spearheaded by the Golf Course Superintendents Association of America (GCSAA) to integrate sustainability into golf course planning, design, and management. These manuals are a result of fantastic leadership from both the Maine and New Hampshire Superintendents Associations, and FBE is honored to have been part of their roll-out. The full manuals are available here at the GCSAA webpage under "Maine" and "New Hampshire". We are proud to have the Maine manual endorsed by Senator Angus King.


FOREWORD

I commend the Maine Golf Course Superintendents Association for this excellent manual. It's an important contribution to our ongoing work to protect Maine's environment.

Maine's golf courses are gaining wide recognition as a valued recreational resource. At the same time, our communities want to know that golf courses are correctly managing their water resources, including protecting valuable wetlands and employing good IPM and nutrient management methods. This manual provides extensive guidance, developed first at the New England regional level and subsequently refined specifically for Maine, and includes excellent case studies focused on a pair of Maine courses. Doing it right is the Maine way—and this manual provides a great blueprint to do just that.

I am especially glad that the manual emphasizes the opportunity for golf courses to provide valuable wildlife habitat, including pollinator-friendly gardens, grasses, and tall meadow areas. Not only do most golfers value seeing a fox slowly crossing a fairway or a hawk guarding a green, but Maine citizens in general are now coming to realize that golf courses can connect wildlife corridors and enhance critical habitat for many species.

In addition, you oversee an important part of Maine's economy, with our state's golf courses generating (from a UMaine study) about $300 million in revenue, 5,000 full and part time jobs paying $100 million to your employees, and making $2 million in charitable donations!

This manual should not only assist your good work; I hope it will also inspire you to reach out to your local Maine communities to demonstrate the value of their nearby golf course. My Scottish ancestors who brought us this great game of golf already appreciate everything you do!

Angus S. King, Jr.

United States Senate

BEST MANAGEMENT PRACTICES FOR MAINE GOLF COURSES ii

Letter from Angus S. King, Jr. of the United States Senate commending the Maine Golf Course Superintendents on the Maine Golf Course Manual

VIRTUAL CONFERENCES & PRESENTATIONS

Project Manager and Hydrologist **Maggie Mills** and Project Manager **Amanda Gavin** virtually facilitated a session on Lakes in Maine at the Maine Sustainability & Water Conference on the 31st of March.

STAFF UPDATES

FBE's Project Scientist and Engineer-In-Training, **Cameron Twombly,** passed his Fundamentals of Engineering exam to become an Engineer-in-Training - a required stepping stone towards becoming a Licensed Professional Engineer or P.E. In addition, Cameron is working to earn a Stormwater Management Certification through the University of New Hampshire. FBE would also like to congratulate Cameron on publishing two papers on his graduate degree research, *The effects of soil aeration prior to dairy manure application on edge-of-field hydrology and nutrient fluxes in cold climate hayland agroecosystems* in the Journal of Soil and Water Conservation in January of 2021, found here, and *Identification of phosphorus index improvements through model comparisons across topographic regions in a small agricultral watershed in Vermont, U.S.* in the Soil Science Society of America Journal in April of 2021, found here. Well done Cameron!


Cameron recording water quality measurements in Lovell, ME

FBE's Project Scientist, **Christine Bunyon**, will be attending the University of New Hampshire beginning this fall to pursue a graduate degree in Natural Resources and the Environment with a specialization in monitoring water quality, aquatic vegetation, and algae using remote sensing technology.

FBE's Owner and Principal Scientist, **Forrest Bell**, has adopted a new border collie puppy into his family. Meet Frisco, named after the great town of Frisco, Colorado.


Forrest's new puppy Frisco!

FB Environmental Associates
97A Exchange Street • Suite 305 • Portland, ME 04101 • (207) 221-6699
383 Central Ave • Suite 267 • Dover, NH 03820 • (603) 828-1456
www.fbenvironmental.com