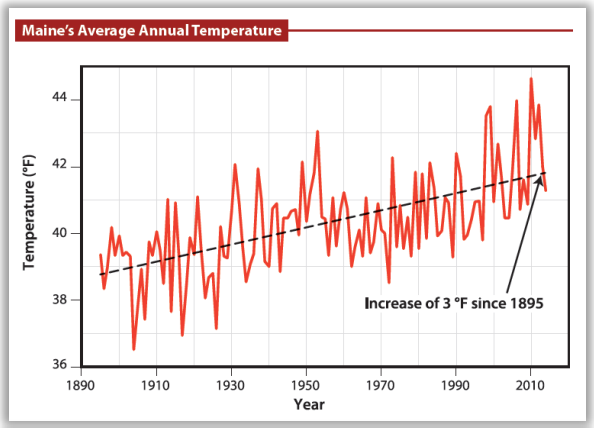
FEATURED ANNOUNCEMENT: Climate Change Division Kick-Off

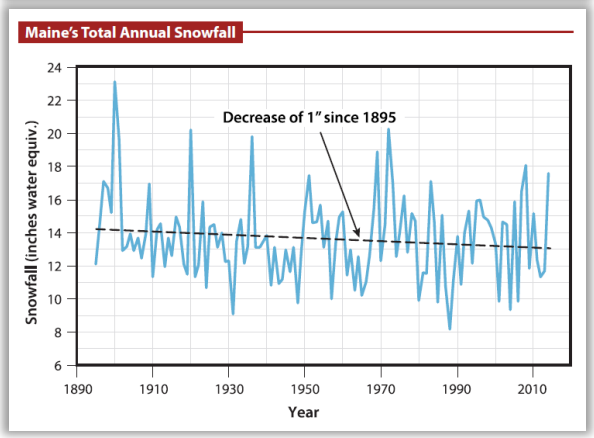
Climate change is a universal issue that is affecting communities and natural resources across the United States. Locally, the Gulf of Maine is warming faster than 99 percent of the world's oceans, with its average surface temperature increasing 0.41°F since 2004. On land, winter is warming at a faster rate than summer as Maine's total annual snowfall decreases by an average of 1 inch water equivalent. The average annual temperature across Maine rose 3°F between 1895 and 2014, and projections indicate that it will rise another 3-5°F by 2050. Sea level rise is occurring faster than at any time in the past 5,000 years.

Many local leaders, governments, companies, and organizations have taken important steps to begin addressing climate change impacts, but many others are looking for support in these efforts. To help these groups mitigate the effects of climate change, FBE recently launched its Climate Change Division which will be led by Antonia Sohns and Forrest Bell.

The Climate Change Division's projects include municipal resiliency planning, climate science communication, climate resilient infrastructure planning support, flood hazard mapping, stakeholder engagement, and climate adaptation strategizing.

Over the years, FBE has worked with diverse partners to protect water quality, manage watersheds, and build local capacity to monitor change. The Climate Change Division develops on this work by partnering with municipalities, businesses, water utilities, and non-profit organizations to prepare for the local impacts of climate change.





Taken from Maine's Climate Future (2015)

FBE WELCOMES NEW STAFF

Antonia Sohns joined FBE in 2019 as a project manager and the Climate Change Division co-lead. She is currently a Ph.D. Candidate in the Geography Department at McGill University in Montreal. Her research uses qualitative and quantitative methods to examine what factors influence drinking water access and security in Arctic Alaskan households. Before starting her doctoral degree, Antonia was a water and energy analyst/consultant at the World Bank in Washington, D.C. and an intern at the White House under President Obama. She has an M.S. in Water Science, Policy and Management from the University of Oxford where she studied how energy companies recycle produced water in hydraulic fracturing operations on the Pinedale Anticline in Wyoming, and a B.S. in Earth Systems, Oceans Track from Stanford University where she researched cancer clusters along the Mississippi River in Louisiana, as well as phytoplankton populations aboard the Robert C. Seamans in the Pacific Ocean. Her work and research have focused on climate change impacts, community resiliency and adaptation, and stakeholder engagement.

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

FEATURED PROJECT: SOLAR ENERGY

FBE Completes Numerous Ecological Assessments Needed for Solar Array Installation

Conventional methods of energy generation depend on non-renewable resources such as coal, uranium, and natural gas. While these fossil fuels remain the largest source of energy for electricity generation in the U.S., the contribution of renewable energy sources such as solar, wind, and geothermal has been growing. The amount of solar energy that the earth receives each year dwarfs all other renewable energy sources. In fact, every minute enough solar energy falls on the earth's surface to meet world energy demand for an entire year.

FBE has been busy conducting ecological assessments and assisting with permitting for industrial solar projects or 'utility-scale solar farms' in New England, particularly in Maine and Connecticut. We have been providing critical early-stage ecological assessments of properties and have been assisting clients all the way through the final stages of permit acquisition. This ultimately results in the installation of large solar arrays capable of providing power to thousands of homes, with minimal disturbance to natural resources such as wetlands, water quality, and development-sensitive wildlife. We are pleased to be able to assist with this important transformation to renewable energy that will help combat climate change.

The site of a future solar farm in Enfield, CT. FBE assisted with the ecological assessment required as part of the permitting process.

A completed solar array in Massachusetts. © Clean Energy Collective via NBC News

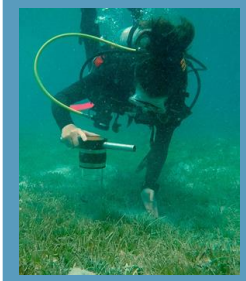
FBE's Summer Intern, Sarah. Thanks for her great work this year!

Amanda preparing continuous data loggers for deployment in Kezar Lake, Lovell, ME.

EXCITING NEWS!

The Open Space Plan that FBE and Terrence J. DeWan & Associates created for the City of South Portland has been approved! This Plan acknowledges the role of open space in South Portland, explores open space in the City across all geographies, and outlines steps to ensure the community protects and builds upon its existing assets. You can find the Plan on the following website: https://www.southportland.org/our-city/board-and-committees/open-space-committee/

FBE WELCOMES NEW STAFF



Amelie Jensen recently joined FBE. She has a B.S. in Biology from Saint Michael's College, Vermont and a M.S. in Marine and Environmental Science from the University of the Virgin Islands, St. Thomas where she studied carbon storage in the sediment of seagrass habitats. Amelie has scientific SCUBA diving experience collecting sediment cores, performing seagrass habitat surveys, conducting fish and coral reef identification work, and installing monitoring equipment. Previously, Amelie worked as a Biologist for the U.S. Geological Survey studying water quality trends in the San Francisco Bay estuary. She has also worked as a Research Assistant at the Wells National Estuarine Research Reserve on a variety of research projects in marine, estuarine, and upland coastal Maine habitats. At FBE, Amelie assists with all aspects of fieldwork for water quality monitoring projects, literature reviews, and technical writing.

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PROJECT ANNOUNCEMENTS & UPDATES

Time Tension Line Cutter Analysis

FBE is excited to announce we will be working with the Maine Department of Marine Resources and Blue Water Concepts to assess the feasibility of Time Tension Line Cutter (TTLC) use in fixed gear fisheries as a gear modification to reduce entanglement risk for the endangered North Atlantic Right Whale. TTLCs are designed to sever vertical lines from fixed gear if prolonged stress is put on the rope such as from an entangled whale. Fifty units will be distributed to volunteer fishermen to collect data on device performance, the results of which help to refine the prototype. The goal is to safely and efficiently integrate gear modifications to fixed gear fisheries that require more than 1,700 pounds of strength in hauling lines.

Saco Headwaters Alliance

FBE has been part of the founding of a new volunteer organization dedicated to water resource protection and conservation in the upper Saco River watershed, roughly defined as upstream of the confluence of the Saco River and its major tributary the Ossipee River. This exciting new group known as the Saco Headwaters Alliance (SHA) is developing partnerships with federal, state, municipal, and non-profit groups to carry out key water initiatives such as expanding watershed-wide water quality monitoring efforts, updating floodplain maps, analyzing water quality trends, and engaging with local leaders on water sustainability in the 21st century. We will keep you updated as SHA builds momentum.

Rustlewood Farm Buffer Plantings

In late May through a DEP 319 grant, the Town of Kittery and FBE, assisted by 40 local volunteers, gathered at Rustlewood Farm to plant 600 native trees along the riparian buffer of Spruce Creek. A riparian buffer is a vegetated area along a stream that reduces erosion and flooding, provides shade, and minimizes the amount of pollutants entering the stream by absorbing and filtering animal waste, sediments, nutrients, and pesticides from nearby lands. Over the course of two days, volunteers of all ages collectively donated 140 hours to complete the planting. The planting was part of a larger, ongoing effort in the Town of Kittery to improve the water quality of Spruce Creek.

Maggie K. collecting a water sample from the Pemaquid River, ME.

Maggie M. taking a core measurement from the Salmon Falls River, ME.

Christine working alongside NHDES staff to undertake a fish survey of Sagamore Creek, NH.

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FB Environmental E-NEWS

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ATTENTION: NEW STATE REGS MAY AFFECT YOUR FACILITY OPERATIONS

Per- and poly-fluoroalkyl substances (PFAS) have emerged as new contaminants of concern in surface and groundwater nationwide. The State of New Hampshire has set strict drinking water limits on a subset of PFAS chemicals. These new regulations will impact public water supplies, landfills, and wastewater treatment plants across the state. Our team has several decades of industrial and environmental compliance monitoring experience. **We have the expertise needed to assist you with meeting these new PFAS sampling requirements. and we would be happy to provide sampling assistance!** Please contact us at our Portsmouth office at (603) 828-1456.

Christine taking water quality measurements in Sagamore Creek, NH.

Kevin conducting a vernal pool survey.

RECENT PRESENTATIONS

Maine Sustainability and Water Conference and The Maine DEP Lake Summit (March 2019)

- Project Manager Margaret Mills presented with Project Manager Amanda Gavin on observations made from physical parameters logged through continuous monitoring of surface waters.

The NH Water & Watershed Conference (March 2019)

- Project Manager Margaret Mills and Project Scientist Christine Bunyon presented on the use of GIS technology to improve watershed management planning and implementation tracking of surface waters.
- Project Manager Amanda Gavin presented an alternate approach to watershed management for two NH lakes with unique water quality stressors and responses.

The 2019 Beaches Conference (June 2019)

- Project Manager Margaret Mills and Waldoboro Town Manager, Julie Keizer, presented on the success of remediating fecal pollution using a collaborative task force, while Project Manager Laura Diemer participated on the steering committee and moderated two conference sessions.

STAFF UPDATES

- **Rich Brereton** and his wife Morgan welcomed their second child, Silas, in February 2019.
- **Maggie Mills** got married to her husband Chris on a beautiful Saturday in September 2019.
- **Laura Diemer** and her family brought home an adorable Chesapeake Bay Retriever puppy in September 2019.

Rich's new son Silas smiling up at his older brother Clay.

Maggie and husband Chris on their wedding day.

Laura's new family puppy, Belle.

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