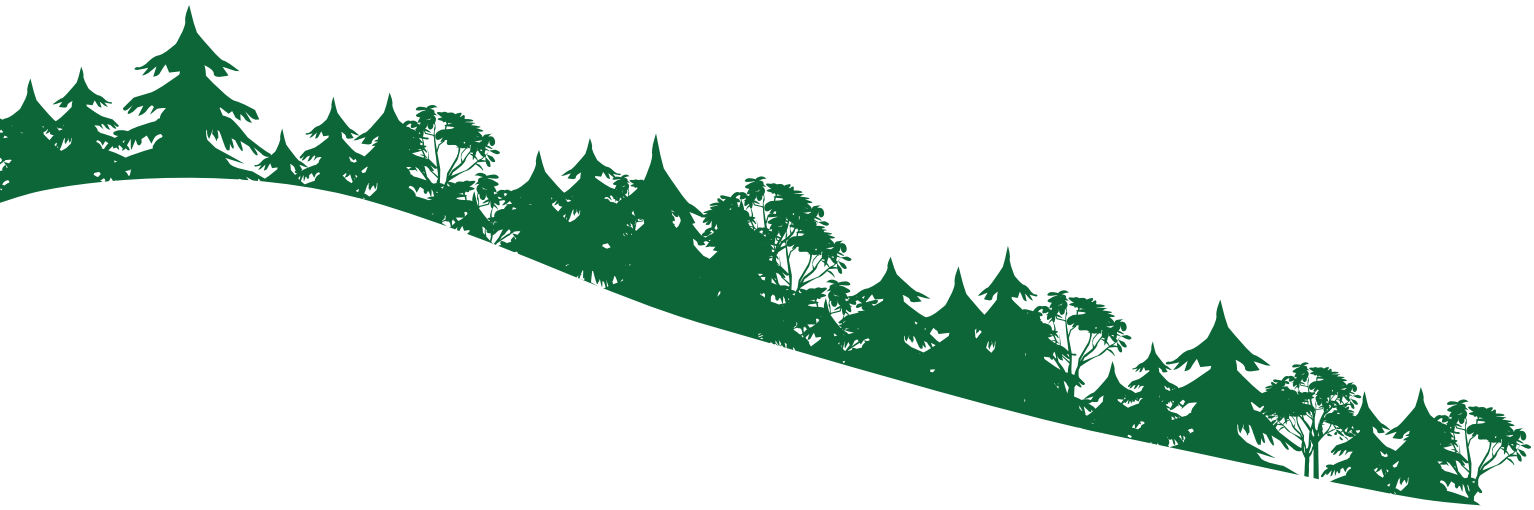
Bates-Morse Mountain Conservation Area



Annual Report
2015–2016

Bates-Morse Mountain Conservation Area Annual Report, 2015–2016

2 Andrews Rd, Lewiston, ME 04240

Photos on page 2 and 3: Joshua Kuckens, Bates College

Cailene Gunn ’16 taking a break. Her senior thesis research on methane emissions from salt marshes, completed in 2016, has been presented regionally, nationally, and internationally.

Contents

Dana Cohen-Kaplan ’16 measuring sediment elevations on Sprague Marsh.

Letter from the Director

This was a big year for activities beyond the usual scope of my work. Bates College was awarded a National Science Foundation FSML (Field Stations and Marine Labs) Planning Grant on July 31st. My co-PI, Caitlin Cleaver, Hurricane Island Center for Science and Leadership, and I were off and running that day.

The grant, for Strategic Planning and Collaboration for Monitoring Change in Coastal Systems, Gulf of Maine, has provided support to strengthen a new network of FSMLs for the purpose of coordinating coastal research, student training, and community-based outreach.

Caitlin and I have nearly completed the project's primary goals. Beyond the scope of the planning grant, a pilot project to 1) monitor water temperature across our stations, 2) coordinate intertidal surveys, and 3) share a data platform is in the initial stages of implementation. Additionally, an NSF Research Coordination Network grant proposal, in collaboration with the Northeastern Regional Association of Coastal Observing Systems, will soon be underway.

This work has been tremendously gratifying. I've learned a great deal about climate change science, and I have had the pleasure of working in collaboration. For the future of Bates College, this work represents the potential to meaningfully contribute to regional data sets relevant to coastal communities. I hope it will also mean shared training programs designed to prepare students to integrate and apply findings to pressing coastal and climate change issues. With respect to BMMCA, the success of the Northeastern Coastal Stations Alliance (NeCSA) will spotlight the educational and research opportunities uniquely encouraged and offered by Bates College and Bates-Morse Mountain itself.

Laura Sewall, Director

Education & Research

Bates College Courses

Sedimentary Processes and Environments

Conservation Biology

Journalism in an Age of Media Explosion

Climate Change and the Stories We Tell

The Nature of Spirituality

The New Nature Writing

Total students served: 116

Bates Thesis Research

Methane emissions along a salinity gradient of a restored salt marsh in Casco Bay, Maine, Cailene Gunn (2016)

Methane Emissions from a Hydrologically altered Region of the Sprague Marsh, Phippsburg, Maine, Dana Cohen-Kaplan (2016)

Recent changes to the dynamic sandy beach system at the mouth of the Kennebec River, mid-coast Maine, Nicole Cueli (2016)

Conservation & Wildlife

Piping Plovers

Six pairs of Piping plovers fledged 14 chicks on Seawall Beach in 2015. Statewide, the number of nesting pairs increased by 24% over the previous year. Seawall Beach was one of the highest producers.

Shorebirds

Forty-two shorebirds on Seawall and Popham beaches were nano-tagged by US Fish & Wildlife Services in collaboration with the University of Maine. Monitoring suggests that adults stay an average of at least 17 days before migration.

Native Plants

Seeds from four species of native plants were collected by the New England Wildflower Society in September. Collected seeds are used for restoration projects and the Society's seed bank.

Gatekeeper's Log

(March 29th–November 29th, 2015)

Schools 25 visits, serving 664 students, including Morse, Brunswick and Lewiston High Schools

Phippsburg Elementary School: 2 field trips;
108 visitors on September 17th

Colleges 31 total visits

Bates: 13 visits *(courses, teams, and student groups)*

Bowdoin: 14 visits

Colby: 2 visits

Maine College of Art: 1 visit

University of Maine: 1 visit

Camps & Clubs 18 visits, including 5 from Chewonki

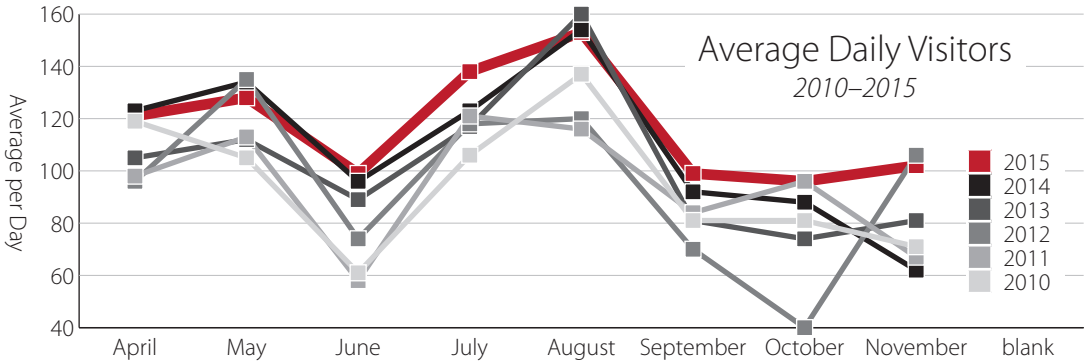
Organizations 4 visits including Maine Audubon, The Nature Conservancy, Maine Department of Inland Fisheries and Wildlife

Visitors 21,390 total visitors: over 182 days

124 average per day of gatekeeping

3,093 first-time visitors (+39 in December)

Lot full 61 times (including Christmas day)



Dog Turn Around Incidences 90 times over 182 days during regular gatekeeping season

12 times over 5 days in December, 2015

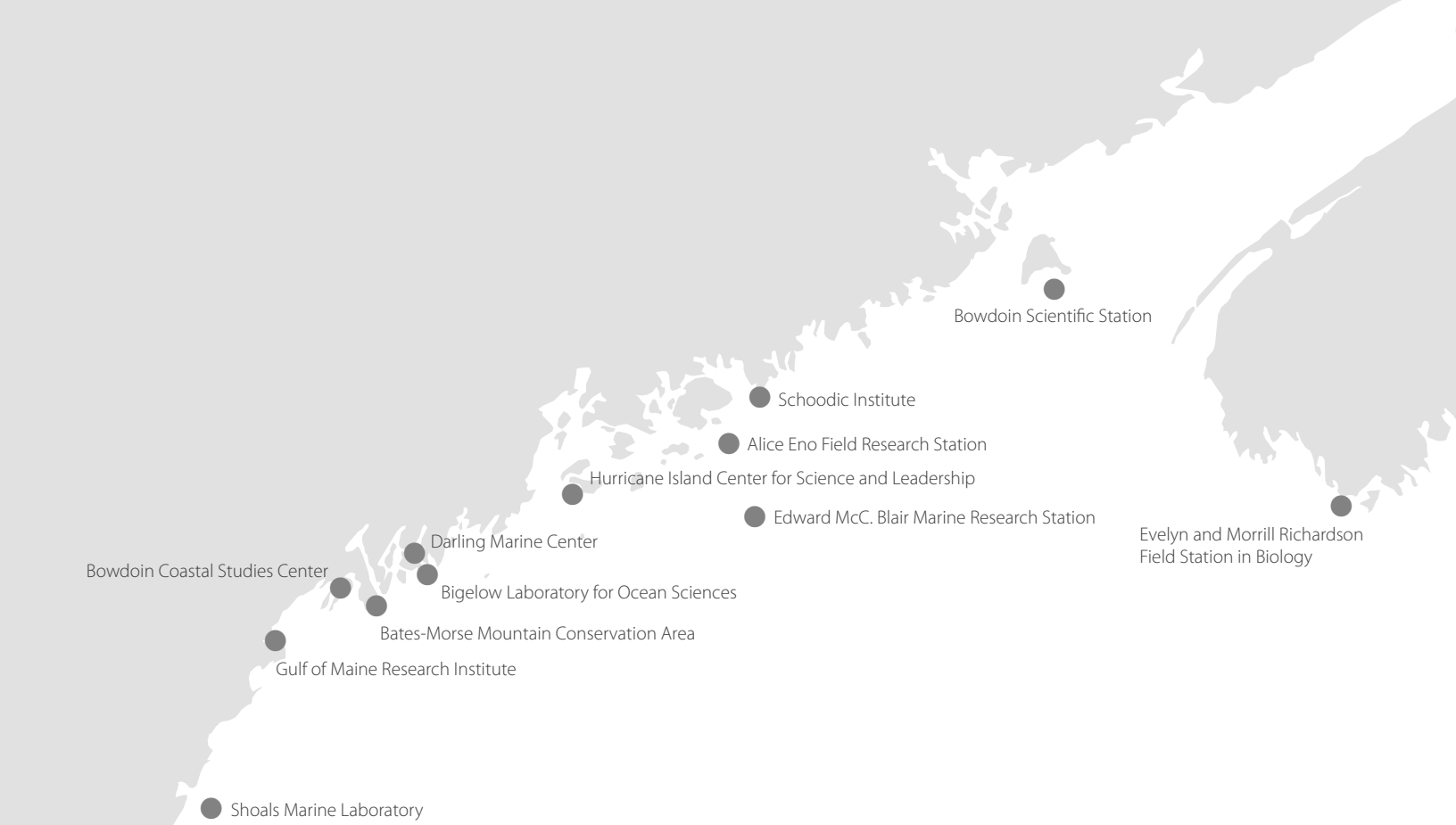
BMMCA and the Northeastern Coastal Stations Alliance

Both extreme warming within the Gulf of Maine and rapid environmental change in coastal zones worldwide situate BMMCA to offer compelling research opportunities. Bev Johnson's Sprague Marsh research on blue carbon, marsh restoration and methane emissions, for example, is relevant to climate change understanding, community adaptation, and the importance of coastal conservation. These applications of science for the public good are consistent with the values reflected in the BMMCA mission. Professor Johnson also mentors 1-2 thesis students each year, training future geologists and further serving the educational mission of BMMCA.

The Northeastern Coastal Stations Alliance (NeCSA) was formed to enhance and leverage these opportunities. The alliance consists of scientists and directors from field stations and marine labs (FSMLs) conducting research and training in the Gulf of Maine. Institutional members include Bates and Bowdoin Colleges, the College of the Atlantic, the universities of New Hampshire and Maine (Shoals Marine Lab and the Darling Marine Center), The Gulf of Maine Research Institute, and Schoodic Institute. Our coordinated efforts offer the analytic power of place-based data and longitudinal observations integrated across a large spatial scale, providing regional assessments of near-shore coastal change. We value field-based educational opportunities and recognize our unique access to communities deeply invested in understanding coastal change.

Progress to date: National Science Foundation funding received to support planning activities; three 2-day meetings, each with 15–25 participants; NeCSA's 10 year Strategic Plan near completion; funding secured to implement pilot monitoring project; planned collaboration with the Northeastern Regional Association of Coastal and Ocean Observing System (NERACOOS) on future funding, staffing and implementation of strategic goals.

First NeCSA meeting on Hurricane Island, September 2015



NeCSA Strategic Plan Goals

Vision Research, innovation, and discovery enhanced by collaboration across the Gulf of Maine.

Mission To interpret nearshore environmental change and foster transformative understanding of the Gulf of Maine.

Goal 1 Coordinated monitoring and research to document and discover patterns of environmental change in the Gulf of Maine.

Goal 2 Innovative and field-based approaches to coastal studies, community engagement and climate change communications.

Goal 3 Shared funding, fiscal sustainability and network longevity.

News, Events, and Noteworthy

Upgrades	Iron Ranger installed July, 2015. Contributions through May 21, 2016: $2,989.77
Conservation Planning	Shortridge Conservation Plan: Developed by Dan Levitis' Conservation Biology course in collaboration with the Phippsburg Conservation Commission and the Phippsburg Land Trust.
Events & Retreats	Annual Reunion walk: 30 participants Shortridge retreats, AY 2015–2016: 30 Students and staff served: 416. Summer Residents: 12
Director's Professional Activities	NSF FSML planning grant award ($25,000), serving as Principal Investigator Development of Strategic and Data management plans for NeCSA Presentations at New England Estuarine Research Society annual meeting (on NeCSA) and at Maine Beaches Conference (on sea level rise attitudes survey; collaboration with student, Victoria Pendleton) Poster presentation at annual Organization of Biological Field Stations annual meeting Served on NSF Review panel for funding awards Publications: submitted book manuscript and essay

Bates-Morse Mountain Conservation Area

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