

Bates-Morse Mountain Conservation Area

Annual Report, 2017-2018 Prepared by Laura Sewall, Director Spring, 2018



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Letter from the Director



Phil Dostie, geology lab technician; Isobel Curtis, BMMCA Assistant; Slade Moore, Maine's Coastal Program; Laura Sewall, BMMCA Director; Bev Johnson, geology professor

One of my favorite days in the past year was in late August, on the Sprague River salt marsh. Professor Bev Johnson and lab tech Phil Dostie were collecting Sediment Elevation Table data while Isobel Curtis and I laid out long lines across the marsh—from the channel to the upland—to systematically identify plants and measure densities. Slade Moore, from Maine's Coastal Program, helped with plant identification, learned methods from Bev and Phil, and kept us all laughing. Doing science that day was full of sunshine, numerous discoveries, and a sense of shared purpose; all of us were doing what we can to keep track of how a new climate is changing the coast.

The most apparent change in the marshes, tidal rivers and beaches that make up the Popham-Seawall Beach complex is the disappearance of salt marsh and recreational beach areas with sea level rise. At a recent conference of the New England Estuarine Research Society (NEERS), estimates of salt marsh loss ranged from 4.5% per year to as much as 65% (in Massachusetts) since the 1930's. One presenter asked the audience how we could have lost as much as 20% of New England salt marshes before any of us took notice. All speakers noted that the rate of loss is accelerating, and that multiple signs are visible.

With respect to beaches in the vicinity of BMMCA, large volumes of sand were swept from Seawall and Little beaches during exceptionally high tides and winter storms this year, leaving bedrock or tall, scarped edges between the high tide line and the dune front.

A future publication documenting these (and more) observations of coastal change at BMMCA is in the works. The manuscript is intended to be a collection of science stories and essays written by Bates College faculty, including three geologists, an ornithologist, a forest ecologist, and an historian. Two recent graduates will also contribute, providing a cultural perspective and a description of climaterelated invasive species. Although the over arching theme of the book is coastal change in relation to climate, an emphasis on place-based observation is also a central theme.

In the interest of protecting BMMCA as a unique and protected "natural lab" for documenting

change, and for research and education, we—those that steward BMMCA—should be aware of the recent ruling on public access to Goose Rocks Beach in southern Maine. In early April, after eight years of legal debate, the York County Superior Court settled in favor of public access for recreational purposes. This contradicts traditional property rights in Maine, which specify the intertidal zone as privately owned with public access for "fishing, fowling, and navigation" purposes only. Plaintiffs and lawyers believe that the Goose Rocks case will set a precedent that could challenge private ownership rights to beaches across the entire state.

If we are at all concerned about future legal challenges that might radically change public access and use of BMMCA and Seawall Beach, the BMMCA Corporation's conservation mission, and the college's emphasis on research and education, should be highlighted and amplified now. In my opinion, collaboration with the Northeastern Coastal Stations Alliance (NeCSA) offers the best opportunity to leverage our scientific observations by contributing to a longitudinal and large-scale understanding of change in the Gulf of Maine.

As is always the case, I am especially thankful for the BMMCA team—for the willing efforts and abilities of Jim Joseph, Don Bruce, Frank Wezner, and Isobel Curtis. They each generously contribute to improving operations and insuring good stewardship in every instance. Isobel's contributions this year focused on highlighting BMMCA research, and on creating opportunities for new student research—and her deep appreciation for the Morse Mountain forest was uplifting all year long.

With gratitude, Laura

Education and Research

Education

Total number of students visiting BMMCA during the gate-keeping season: 1,229*

Bates College courses: 10

- ES 417: Community-Engaged Research for Environmental Studies
- FYS 445: The Nature of Spirituality
- FYS 476: Coastal Hazards
- GEO 210: Sedimentary Processes and Environments
- GEO s31: Limnology and Paleolimnology of Maine Lakes
- GEO 103: Earth Surface Environments and Environmental Change
- GEO s20: Lost Beaches of Maine
- BIO s31: Avian Biology
- BIES 246: Conservation Biology
- A Practitioner Short term course: Brand Culture Building

Community-based Course Projects: 2

- Climate Survey (see below, "Social Science at BMMCA")
- Draft Hemlock Management Plan (see below)

Colleges: at least 21 visits

- Students: at least 377
- Bates: 9 visits
- Bowdoin: 6 visits
- Colby: 2
- Maine College of Art: 1
- University of Maine, Darling Marine Center: 1
- Harvard Medical School: 1 (36 visitors)
- Harvard Business School: 1 (64 visitors

High Schools: 14 visits

- Students: at least 318
- School visits include Morse, Lewiston, Brunswick, Falmouth, Wiscasset and Noble high schools; and Chewonki, Mt Ararat, Coastal Studies for Girls, and the White Mountain School.

Primary and Middle Schools: 12

- Students: at least 534
- Phippsburg Elementary School: 120 students visited on September 13th
- Lewiston Middle School: 2 visits, 97 students
- Other visits include Mid-coast Waldorf School, Chewonki, and Mt Ararat
- * All student numbers are conservative due to the fact that gate keepers are often not on duty during the shoulder season, when school groups visit most.

Research and Monitoring

- Sediment Elevation Tables: Annual monitoring completed in August by Geology professor, Bev Johnson and lab technician, Phil Dostie. Data held by Bev Johnson. Three additional SETs were installed in the Morse River marsh by Slade Moore, of Maine's Coastal Program, in the fall, 2017.
- Seawall Beach Profiles: Completed in June, July and August by Sam Rickerich '18 and Gabe McGinn '19, under the supervision of Geology professor, Mike Retelle.
- Intertidal Transects: Surveys of plant species at four permanent sites were conducted in late August. The sites were chosen randomly within 200 feet, on either side, of Sediment Elevation Tables. The purpose is to track "marsh migration" in response to sea level rise. Surveys will be completed annually.
- Forest Survey Plots: Over the course of the fall, Isobel Curtis '17 established seven survey sites for future monitoring and potential research on coastal forests. The sites are included in Maine's Ecological Reserve Program. (See appendix for full description.)
- NeCSA (Northeastern Coastal Stations Alliance) monitoring: Temperature data sets were collected from two sites in September, in coordination with NeCSA stations. Data were uploaded to a NeCSA data repository at the University of New Hampshire.

- On-line Research Map: Developed by Isobel Curtis '17, this is an interactive record of BMMCA research to date. Mapped locations may be clicked to reveal research project titles, dates and discipline. The map will be made accessible to the public through the BMMCA website. Only studies with completed abstracts are included on the map, representing just over 50% of the total studies completed.
- Pitch Pine Assessment: Isobel Curtis '17 designed and implemented a study assessing the pitch pine dune forest for stand regeneration and long term viability. Findings, presented at the North East Natural History annual conference in Burlington, VT, show that roughly a third of total stems have died since 1998, though almost exclusively saplings (DBH <10 cm). Only one live sapling remains in the survey area. Results indicate that the stand is unlikely to persist without human or natural disturbance due to lack of recruitment. Historic 1998 data was sourced from the honors thesis of Melanie McGarry ('98) with her permission. She is currently a high school Biology teacher in Andover, MA and the poster created for the conference will be shared with her students, broadening the impact and reach of the study.
- Social Science at BMMCA: Three students—Avery Wolfe '18, Michaella Heffernan '18, and Nicole Friedman '19—developed a Climate Survey as an Environmental Studies capstone project in fall, 2017. The project included a pilot study in which 12 visitors to BMMCA were surveyed with respect to climate change knowledge and attitudes, and in the context of differing communication styles on the part of the interviewer. The excellent report made recommendations for further study. Environmental Studies Professor Francis Eanes and Laura Sewall applied for summer Fellowship funds to continue the research, but funds were not awarded.
- Upland Vegetation Mapped: Isobel Curtis '17, mapped vegetation in the fall 2017, with the assistance of Don Cameron from Maine's Natural Areas Program. The effort included an update of pitch pine and spruce fir forest maps. (See appendices.)







Conservation and Wildlife

Piping Plovers

Monitored by Maine Audubon

- Seawall Beach: Seven pairs nested, producing 16 fledglings. Of the 9 nest attempts, one nest was overwashed and one was predated.
- **Popham Beach:** Six pairs made eleven nesting attempts. Five nests hatched, but no chicks survived to fledge. All nests were predated.
- Statewide: Sixty-four pairs of plovers nested at 17 Maine beaches, producing 102 fledglings—the thirdlargest number of chicks fledged off of Maine's beaches. The number of nesting pairs decreased 3% from 2016 to 2017, from 66 pairs to 64 pairs, representing the first decrease since 2008.

Least Terns

- Seawall Beach: There were no nesting attempts, although Least Terns were seen foraging. Least terns have not nested on Seawall beach since 2005.
- Statewide: "Maine's Least Tern population appears to be generally increasing, though there is considerable variability year to year. Average Least Tern productivity

during the last 25 years (from 1993-2017) was calculated at 0.52 fledglings per pair, but productivity estimates are conservative due to the field methods used. Changes in available nesting habitat and increased predation rates, particularly by "smart predators," have affected distribution of Least Terns throughout the state" (Maine Audubon Annual Report, 2017).

Hemlock Management

Conservation Biology students (BIES 246) worked to develop a draft Hemlock Management Plan in the context of significant die-off due to Hemlock Woolly Adelgid infestation. Management scenarios included 1) no action; 2) staggered harvesting and removal; and 3) salvage harvesting. The project report did not include well-researched recommendations but did provide initial scaffolding for further plan specification. Since then, Nancy Olmstead, the invasive species specialist at the Maine Natural Areas Program, has advised leaving the infected hemlocks in place for two reasons: 1) snags and fallen trees provide wildlife habitat and 2) there is a chance that infected trees will pass on resistance genes. Specifics of a plan for managing trees that pose a safety risk are to be determined.

Saltmarsh nesting birds

Since 2013, Bates has hosted researchers from SHARP (Saltmarsh Habitat and Avian Research Program) by providing summer housing at the Shortridge Coastal Center. The SHARP program is an extensive multi-year and multi-state study of salt marsh nesting birds in the context of "rapid" coastal change, and specifically, sea level rise. Results for the state of Maine to date can be found at: http://www.tidalmarshbirds.org/wp-content/uploads/ downloads/2016/02/Maine-SHARP-summary.pdf

Marine Mammals of Maine

For the fourth consecutive year, Bates College has hosted, at the Shortridge Coastal Center, summer interns working for Marine Mammals of Maine. Although their work does not directly pertain to BMMCA, the presence of MMM interns at Shortridge is a welcome component of the summer residency and thus complements student research at BMMCA.

Conservation education

Under the auspices of the Lincoln Institute of Land Policy, ALPINE (Academics for Land Protection in New England) is a network of academic institutions interested in advancing land conservation in New England. The long-term goal of the organization is to highlight colleges and universities that have conserved lands and offer case studies to guide and inspire other institutions. An initial meeting between Laura Sewall and Marianne Jorgenson, ALPINE coordinator, suggests future collaboration highlighting BMMCA as a case study.



Long Range Planning

During a long range planning process, in fall 2017, it became evident that near-term faculty hiring will most directly determine future research and educational activity at BMMCA. With a new Dean of Faculty beginning in July 2018, decisions regarding tenure-track hiring priorities are essentially on hold. As a result, a ten-year plan became largely reduced to three years. Nonetheless, the follow excerpts reflect the long range intentions of the BMMCA Director and the BMMCA Faculty Advisory Committee with respect to the college's stewardship and academic use of BMMCA.

A 2028 Vision for Bates College Coastal Studies

The Bates College coastal field site consists of a large block of protected salt marshes, barrier beach dunes, upland forests, and the Shortridge Coastal Center. Together they serve as home base for a range of activities that contribute to climate and coastal studies; provide opportunities for community engagement; and model sustainable practice.

Students receive training in natural sciences and field methods, conduct annual environmental monitoring, and contribute to a regional database coordinated by the Northeastern Coastal Stations Alliance (NeCSA). The college's affiliation with NeCSA offers the opportunity to collaborate with other institutions and coastal sites, and to anticipate ecosystem-scale change in the Gulf of Maine. NeCSA's ten-year Strategic Plan is progressively implemented with leadership from Bates College, and the college's alignment with NeCSA—and its interdisciplinary opportunities focused on Maine's extraordinary coast—is compelling to faculty and students.

Program Goals

The overarching goal of this plan is to maximize the value of BMMCA and Shortridge to the college community. More specifically, goals for the envisioned Bates Coastal Studies Program are:

- To educate students in field methods, coastal, marine, and climate studies
- To enhance meaningful research and educational opportunities at BMMCA
- To leverage current student and faculty coastal research through collaboration and partnerships
- To contribute to a regional database of longitudinal coastal observations
- To offer opportunities for relevant community engagement and citizen science
- To offer opportunities for artistic inquiry and pursuit
- To publish "the story" of the college's 40-year history of place-based coastal research
- To coordinate monitoring with NeCSA and assist in implementing NeCSA's Strategic Plan





News, Events and Noteworthy

Student Fellowship Awards

Matt Jadud, Faculty and Chair of Computational and Digital Studies, and Laura Sewall were awarded funds for six student fellowships to develop standardized and cost effective sensors for NeCSA sites; a data input form for all NeCSA stations; and to collect drone imagery from 3 or 4 NeCSA intertidal survey sites. Student fellows will reside at Shortridge during the summer, 2018.

Public education

 A brochure on sea level rise was developed for BMMCA visitors by students of ES 417, a senior capstone course. This project was part of the social science/climate survey described above.

Social Media

 Instagram account (account name: batesmorsemtn) created and populated by "Fieldwork Friday" posts emphasizing students, research and the benefits of conservation.

BMMCA Book

Five faculty, two alums and the BMMCA Director are currently authoring a book on Morse Mountain research and history, and on the value of place-based observation. The book will be a collection of science stories and essays written by three geologists, an ornithologist, a dendrologist, and an historian. Overall, the theme of the book will be coastal change. Cornell University Press has shown preliminary interest in the manuscript.



Publication about BMMCA

Rising: Dispatches from the New American Shore (2018) features stories from several US coastal sites influenced by sea level rise. Bev Johnson's research at BMMCA and an interview with Laura Sewall are featured. Author Elizabeth Rush was a visiting professor at Bates College from 2015-2017 and will be the college's Otis speaker in the fall, 2018. She currently teaches at Brown University.

Seawall Beach Clean-up

 April 7th, 21 volunteers participated in removing an estimated 100 lobster traps from the beach. Casella Waste Management Services disposed of traps with the help of Curtis Doughty and his excavator.

Environmental Award

Jeff Sturgis '69 received the BMMCA Environmental Stewardship award for 2018. The award was given for his generous support for the annual beach clean-up over the last five years.

Sustainability

Last year, Bates Sustainability Director Tom Twist expanded our view of BMMCA as a resource by estimating the total carbon sequestered in the forest annually. This approximation was based on acreage, rough stand age, and dominant habitat type. A more accurate calculation of carbon sequestration requires multiplying the average volume of woody mass added each year by the carbon density of wood. Isobel Curtis '17 and Biology professor Brett Huggett used tree cores to measure average annual growth for each species in each habitat. This provides a more accurate estimate as growth rate is heavily dependent on habitat and carbon density per volume of wood varies greatly among species. An updated estimate is that the total BMMCA forest sequesters and stores 474.3 metric tons of carbon each year.

Finance

Iron Ranger contributions, Fiscal 2018: \$5,954.45

Signage

New signs in process are: 1) a new entrance sign with mission, rules and a map, 2) an "exceptionally" high tide warning sign, and 3) a high tide directive: "Wade or Wait."



Director's professional activity

Publications:

Sewall, L. (2017). *New Words, Lost Words and Terms of Endearment*, in Fleischner, Thomas (Editor), <u>Nature, Love, Medicine: Essays on Wildness and Wellness.</u> Torrey House Press: Salt Lake City.

Sewall, L. and Fleischner, T. (in submission). *Why Ecopsychology needs Natural History*. Journal of Ecopsychology.

 Community and Professional Presentations: *Paying Attention: A Natural History Way of Seeing*, Stanton Bird Club. May, 2018

What's Ecopsychology in Phippsburg?, The Phippsburg Land Trust Annual Meeting. August, 2017

NeCSA: Lessons Learned for Collaboration. Organization of Biological Field Stations, Annual Meeting. September, 2017

Ecopsychology: Past and Future-Present, College of the Atlantic. February, 2017

 Professional Service: National Science Foundation review panel, Field Stations and Marine Labs. Washington D.C., March, 2018

NeCSA leadership; helped to organize and facilitate two professional meetings at Bigelow Labs for Ocean Sciences (May, 2018), and the Schoodic Institute (November, 2017). Attendance at Professional meetings: Ecological Society of America, August, 2017 Organization of Biological Field Stations,

September, 2017

New England Estuarine Society, May, 2018

Director's Report

The BMMCA Director now reports directly to the Dean of Faculty's Office, not to the Harward Center Director. This change in reporting structure was recommended by the internal and external reviewers of the BMMCA and Shortridge programs in spring, 2017.



The Gatekeeper's Log (February 19th – November 25th, 2017)

Public visitation: 22,507

- Gate-keeping days: 173
- Average per day of gate keeping: 130 (In 2016: 122)
- Number of first-timers: 3,950
- Percent first timers: 17.55%
- **Lot full:** 69 times (in 2010: 33 times)
- Vehicles turned away: 74 on Easter Sunday, 2017

Social Media Impacts:

- July 28th: Face Book post celebrating BMMCA
- July 29th: Lot full at 9:43 am; 55 vehicles turned away
- July 30th: Lot Full at 9:32 am: 117 vehicles turned away
- July 31st: Lot full 10:40 am; 59 vehicles turned away
- August 3rd: Loop road constructed. Continued high numbers of cars to turn away, but pressure and congestion in the parking lot were relieved.

Camps and clubs

24 visits; at least 293 visitors

Organizations

21 visits, estimated

- Maine Audubon, visiting almost once per week for the Piping Plover season
- The Nature Conservancy, for easement monitoring
- Maine's Coastal Program, for Sediment Elevation Table monitoring, siting and establishment of 3 SETs in the Morse River Marsh
- The Maine Natural Areas Program, for mapping forest community types

Parking Lot Management Changes

- Gate keeping: A staggered schedule for gatekeepers (8 AM-4 PM and 10 AM -6 PM) was tested to provide additional coverage each day. The arrangement was successful and will be implemented fully in 2018.
- In early August, a new "loop road" was constructed to handle traffic when the parking lot is full. Curtis Doughty constructed the new loop.

Appendices

Public visitation

Visits 2006–2017



Days 2006-2017

Annual Totals



Per Day Average 2006–2017



Year	Visits	Days	Per Day Average
2006	13,049	167	78
2007	13,477	182	74
2008	13,671	189	72
2009	13,589	206	66
2010	16,182	168	96
2011	16,361	174	94
2012	17,286	190	91
2013	18,802	181	104
2014	19,147	171	112
2015	21,390	182	118
2016	22,691	187	122
2017	22,507	173	130

*Note: For the first time, gate-keeping occured in February for one day. 70 visitors were recorded, and 4 dog turn-arounds.

— 2006 **—** 2007 **—** 2008 **—** 2009 **—** 2010 **—** 2011 **—** 2012 **—** 2013 **—** 2014 **—** 2015 **—** 2016 **—** 2017

Town of Phippsburg Annual Report

Bates-Morse Mountain Conservation Area, 2017

People come to Bates-Morse Mountain Conservation Area (BMMCA) from all over the northeast. They come as single hikers, as friends and families, school groups, camps and clubs. Maine Audubon monitors endangered plovers, college professors teach ecology and field methods, researchers study the response of salt marshes to sea level rise, and kids run wild.

Nearly 18% of these outdoorspeople are newcomers to Morse Mountain—meaning that 82% are repeat visitors. The statistics suggest more people getting outdoors and hiking, but the higher percentage clearly suggests that once you come, you come again. All told, the numbers add up to a great deal of popularity.

Morse Mountain is appreciated by thousands of hikers each year, numbering nearly 23,000 during the 2017 gate-keeping season. But the popularity of Morse Mountain occasionally challenges the natural serenity offered by a walk through the forest to Seawall Beach. On July 30th, two days after a glowing Face Book post about Morse Mountain was widely shared, the parking lot was packed by 9:30 AM, and anything but serene. That morning, more than 117 cars had to be turned around and sent away. The abrupt uptick in visitation and pressure on the parking lot continued for days—leading to the construction of a turn-around for cars that are unable to park when the lot is full.

During the 2017 summer season, the parking lot was packed on 68 occasions. The turn-around has proven to

be a good solution to the unsafe congestion of cars, kids, and hikers overlapping at the gatehouse. For those now coming to Morse Mountain and finding the "Parking Lot Full" sign near the entrance to Morse Mountain Road, we request that you use the new turnaround, return to Route 216, and come back later. (Thank you for your understanding, and thanks to Curtis Doughty for construction of a perfect loop road when it was most needed.)

A large number of students came to BMMCA this year, too. Across primary and secondary grades, at least 845 students visited Morse Mountain in 2017. All of the Phippsburg Elementary School students were there in September, and students also came from Bath, Freeport,



Lewiston, Portland and Pennsylvania. College students were from Bates, Colby, Bowdoin, Maine College of Art, and the University of Maine.

One Bates College project, for a conservation biology course, was to develop a management plan for the stand of Hemlocks infested by Hemlock Wooly Adelgid (HWA). The stand is mostly on the south side of the mountain road, just past the causeway and bridge, and is already showing significant signs of decline. The trees will continue their die-off as there is no "cure" or preventive measure against the invasive insect. Hemlocks along the road will be taken down for safety reasons as needed. The infestation of the insect is a likely result of climate change impacts.

The causeway across the marsh is also flooding more frequently as sea levels rise. Please be aware that tides over 9.5 feet will flood the road. Smaller tides may also cause flooding if there is a storm surge. Those of us who work at Morse Mountain wish to thank all those who visit and appreciate the wildness that still lives there—and that pick up trash, value the quiet, and let the experience inform their lives. I also wish to thank my team at BMMCA: Don Bruce, Jim Joseph and Frank Wezner—and the support of the Town of Phippsburg and the Small Point community. At BMMCA, it takes a village!

Respectfully submitted, Laura Sewall, BMMCA Director





Forest Survey Plots

In the fall of 2017, seven permanent vegetative survey plots were established in the upland, forested regions of BMMCA adhering to the Maine Natural Area Program's Ecological Reserve monitoring protocol. The Ecological Reserve Program (http://www.maine.gov/dacf/mnap/ reservesys/index.htm) protects and monitors conserved lands all over Maine in order to document baseline conditions in natural ecosystems from which trends in growth and health in response to climate change can be detected. The Ecological Reserves are protected as research sites, and coastal forests are underrepresented in the reserve system-thus BMMCA is an important addition. This will effectively designate BMMCA as an Ecological Reserve with the prerequisite that plots are surveyed every decade. Bates students may survey the area more frequently if desired, as it is the hope that data will be incorporated into

projects and theses investigating changes wrought by climate change and other associated influences. For example, one plot is located in the hemlock grove now infested with invasive insect Hemlock Woolly Adelgid (HWA). Warmer winters increase HWA survival and are thus associated with more rapid population growth and hemlock decline. Looking forward, it will be interesting and informative to track changes in forest dynamics in this particular habitat.

The plots break the forest into various strata (bryophytes/ lichens, herbs, shrubs, saplings & mature trees) and assess each based on total plant cover, species composition, and, for mature trees, individual size and health. Plots are tiered in circles of various sizes: 1) a 17.95m radius for trees over 51cm in diameter, 2) a 7.31 m radius for trees under 51cm in diameter, herbs and bryophytes/lichens, and 3) a 2.07m radius for seedlings and saplings. All major and "of interest" habitats are represented in the BMMCA plots in an attempt to capture the full diversity present. Previously, little work had been done to categorize and characterize the forest as a whole at BMMCA. Together with the habitat map constructed in the spring of 2017, this represents a significant step forward in our understanding of the rich terrestrial flora. Initial monitoring for all seven sites was conducted in the fall, 2017 and spring, 2018. Data for all strata excluding herbs have been entered into the statewide data repository with the help of Dan Grenier at The Nature Conservancy. Herb plot data will be added when time permits. Two to three tree cores were also taken from each plot in fall, 2017 in order to determine stand age and to establish a portfolio of annual growth rates for each species in each habitat.

These measurements provide a baseline against which future changes in annual growth rate can be compared. Additionally, average annual growth rates were used to provide an updated and improved estimate of total annual carbon sequestration by the BMMCA forest.

The establishment of permanent survey plots is part of an ongoing effort to: 1) increase student research by expanding field work opportunities and broadening knowledge of existing land features and characteristics, 2) correct the research bias towards marsh and dune studies by bolstering activity in the forested region that covers roughly 75% of the property, and 3) establish baseline data through which to track the response of coastal systems to climate change.



BMMCA Forest, Updated Features





Bates-Morse Mountain Conservation Area

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