Bates-Morse Mountain Conservation Area



Annual Report, 2022-2023 Prepared by Caitlin Cleaver, Director May 2023

2022–2023 BMMCA Annual Report

Contents

- 2 Letter from the Director
- 4 Acknowledgements & Welcome
- 5 News, Events, and Noteworthy
- 6 Director's Professional Activities
- 8 Research & Monitoring
- 10 Conservation and Wildlife
- 11 Management Activities
- 12 Education & Public Visitation
- 14 Looking Forward
- 15 Appendix A: Report to the Town of Phippsburg, 2022-2023



Students in the 2023 BMMCA short-term hear from Isobel Curtis, '17 about ecological zonation. Photo credit: Caitlin Cleaver

Letter from the Director

I am closing out my final month as Director of the Bates-Morse Mountain Conservation Area.

Since August of 2019, I have thoroughly enjoyed managing the Conservation Area and getting to know this incredible place. BMMCA, Popham Beach State Park and other local conservation efforts make this area unique while the combination of long-term research and the region's ecological significance



Photo credit: Dot Kelly

make it an important place to study the response

of natural systems to climate change. It's clear that the community commitment to conservation plays a critical role in preserving what we see when we visit Morse Mountain.

Much of my time as director was during the COVID-19 pandemic which certainly influenced operations and activities taking place at the Conservation Area and the Shortridge Coastal Center. Despite these disruptions, we were still able to initiate a number of projects and continue forward progress on other important efforts. In partnership with Bates visiting professor, Katie Dobkowski and her students, we expanded data collection and monitoring of the rocky intertidal community as part of the Northeastern Coastal Stations Alliance (NeCSA). Professor Dobkowski, Bates, Bowdoin, Schoodic Institute, the Hurricane Island Center for Science and Leadership, College of the Atlantic and a graduate student from Duke University currently have funding to support compiling data collected by the network and are hoping to publish major findings within the next year.

Alongside a number of Bates students and short-term courses, we worked with the Phippsburg Conservation and Shellfish Commissions, the Maine Oyster Company, and Manomet to pilot building an oyster reef in the Basin in Phippsburg. We are in the fourth year of that project and along the way, have secured funding from The Nature Conservancy, Maine Sea Grant and the Davis Conservation Foundation as well as through the Town of Phippsburg and donations to explore how to do this and test the ecological effects. I believe that the collaboration can help facilitate community conversations around the growing aquaculture industry while also testing if shellfish reefs are a potential living shoreline option to protect coastal communities from sea level rise, erosion and storm surge in Maine.

Bev Johnson, Bates professor of Earth and Climate Sciences and I secured funding from the Maine Community Foundation to train a team of practitioners and researchers in Midcoast Maine to facilitate salt marsh restoration. We are hoping that this project will lead to more efforts to increase the resilience of salt marshes and improve their ability to sequester carbon. This project complements Bev's other efforts to support the Maine Climate Action plan and enhance our understanding of blue carbon systems.

The BMMCA board initiated two working groups to delve into managing for sea level rise at the Conservation Area and to learn more about the history of Wabanaki people in Maine and the ways in which land trusts and conservation groups can support Wabanaki presence. Both of these discussions are incredibly important and the work is just beginning. I hope the board will prioritize these issues and continue these discussions beyond my tenure. In addition, I hope that the relationship between Bates College and Morse Mountain remains strong and that students, faculty and staff continue to connect with the area through research, art and gathering in place. I believe that Bates-Morse Mountain Conservation Area and the research happening in the Phippsburg area can inform our understanding of the impacts of a rapidly changing Gulf of Maine and the adaptation necessary to thrive. I look forward to continuing research in the area in my new role as an Assistant Professor in Environmental Studies at Colby College.

As always, I am deeply grateful for the community of people who care and support Morse Mountain and the Shortridge Coastal Center, including Jim Joseph and Don Bruce as well as our newest stewards, Robert Long and Amanda Ives. The St John family, The Nature Conservancy, the BMMCA Corporation board, the Town of Phippsburg, the Small Point Association, and Bates College administration, faculty and students – thank you for your support over these last four years.



- Cait Cleaver, Director

Students in BMMCA short-term course sample oysters during a farm tour in Small Point Harbor. Photo credit: Caitlin Cleaver

Acknowledgements and Welcome

Don Bruce ended an 18-year career working as the lead steward for the Bates-Morse Mountain Conservation Area. Don has been an incredible asset to Morse Mountain, showing dedication and commitment to the conservation values of BMMCA. He was always welcoming and kind to the 20,000+ visitors who hiked each season. He will be greatly missed, but we are excited for his next chapter that involves a move to Downeast Maine!



Don Bruce and Cait Cleaver at a celebration of Don's BMMCA career. Photo credit: Jim Joseph

In the summer of 2022, we had three fantastic Bates students as research assistants and BMMCA stewards - Sam Gamber, '25, Levi Mindlin, '24, and Alysse Cleasby, '23. They did an excellent job welcoming the public and sharing information about the types of research and conservation efforts underway. They were supported by our long-time steward, Don Bruce and our 2022 steward, Leah Crommie. Sam, Levi and Alysse also supported ongoing research happening in the area including conducting annual salt marsh vegetation monitoring and protocols related to the Basin Oyster Project. These positions were generously supported by the Small Point community. In addition, Pete Dunbar, '23 worked with the Basin Oyster Project throughout the year including doing in-class activities and a field trip with the Phippsburg Elementary 4th graders. He conducted his geology thesis research assessing sediment dynamics at our two experimental sites in the Basin.

This year, we are welcoming two new stewards:

Robert Long is a 1979 graduate of Bates College, whose long and winding career path now takes him to the Bates-Morse Mountain Conservation Area. Prior to becoming a steward at BMMCA, he worked for a little more than three years as communications director for the Maine Center for Disease Control and Prevention. Before that, he worked for roughly 22 years as an editor for various Maine newspapers, including seven years as political editor for the Bangor Daily News. He first visited Morse Mountain in 1977, and looks forward to learning more about the property, local wildlife, and conservation as a steward.



Robert Long, 2023 BMMCA steward. Photo Credit: Robert Long

Amanda Ives is a recent graduate of the University of Maine with a bachelor's in wildlife ecology with a concentration in conservation biology. She is particularly interested in shorebirds, amphibians, and land management. In her free time, she enjoys hiking, cooking, and visiting new places. We are excited to have her as part of the team!

News, Events, and Noteworthy

- Bates Alum Service Day: In April 2022, 13 Bates alumni joined BMMCA staff to do service work which included repairing dune fencing, picking up trash from the beach, and cleaning signs. The effort was greatly appreciated and helped us prepare for the busy summer season!
- Reunion Walk: In June 2022, approximately 60 Bates alumni participated in the Annual BMMCA Reunion Hike led by Caitlin Cleaver and student workers: Samantha Gamber, '25, Levi Mindlin, '24, and Alysse Cleasby, '22. The group learned more about the value of the Conservation Area and the long-term research underway.
- Fulbright Maine Chapter: In October 2022, approximately 15 members of the Fulbright Association Maine Chapter visited the Shortridge Coastal Center and the Bates-Morse Mountain Conservation Area where they learned about how the Conservation Area operates, the community collaborations and student and faculty research.
- Maine Public's Series Climate Driven: A deep dive into Maine's response, one county at a time: In April 2023, Maine Public reporter, Murray Carpenter, visited the Conservation Area to learn more about the long-term monitoring and how the undeveloped system is responding to sea level rise. The story highlighted the power of conservation and emphasized the value of places like Morse Mountain in increasing our understanding of system responses to climate change impacts.
- Summer 2022 Fellowship: Three student positions were funded through the Small Point community, grant funding received for research-related activities

and voluntary use fees collected from visitors to Morse Mountain. Levi Mindlin, Alysse Cleasby, and Sam Gamber lived at the Shortridge Coastal Center from June through mid-August and staffed the Conservation Area two days per week while also participating in ongoing monitoring and research projects within Phippsburg.



Photo 1: Alysse Cleasby, '23 helps build scallop spat bags; Photo 2: Levi Mindlin, '24 works with Basin Oyster Project oysters; Photo 3: Sam Gamber, '25 hikes Monhegan on a day off from BMMCA; Photo 4: Pete Dunbar, '23, monitors the green crab population Photo credit: Bates students

Director's Professional Activities

Student supervision

- Carter, Eliza, graduate student at Duke University
 Collating intertidal community and temperature data collected by Northeastern Coastal Stations Alliance members (Environmental Data Initiative Fellowship, co-advised with Laurie Baker)
- Cleasby, Alysse, Bates College Class of 2023 Integrating management, commercial fisher and scientific perspectives to select monitoring sites for Atlantic sea scallop larvae (Environmental Studies thesis)
- Dunbar, Peter, Bates College Class of 2023 Determining site characteristics to support pilot oyster reef development in Maine (Geology thesis, co-advised with Andrew Wulff)
- Jenkins, Jake, Bates College Class of 2022 Understanding the social, economic and ecological contributions of aquaculture at the community level (Independent study)
- Vernick, Maya, Bates College class of 2023 Who's say matters? Understanding stakeholder perspectives and dominant narratives in the North Atlantic right whale
 – lobster fishery debate (Independent study)

Presentations

- Research and Conservation at Bates-Morse Mountain Conservation Area. Presented to the Fulbright Association Maine Chapter at the Shortridge Coastal Center, October 2022.
- From the bottom-up: Community approaches to building oyster reefs in Maine. Presented at the Popham Library, July 2022.

Community engagement

- Scallop Advisory Council, Maine Department of Marine Resources, *Scientist*
- Maine Aquaculture Co-op Board, Secretary

Grant funding received

- Davis Conservation Foundation, \$20,000 Basin Oyster Project: Monitoring oyster reef development (Collaborators: Phippsburg Conservation Commission, Maine Oyster Company, Manomet; funding administered through Bates College)
- Maine Sea Grant Program Development, \$5,000

 Basin Oyster Project: Monitoring oyster reef development (Collaborators: Phippsburg Conservation Commission, Maine Oyster Company, Manomet; funding administered through the Town of Phippsburg)
- Maine Sea Grant Program Development, \$5,000

 Northeastern Coastal Stations Alliance (NeCSA) synthesis of standardized data collection efforts (Collaborators: Hurricane Island Center for Science & Leadership, Shoals Marine Lab, Schoodic Institute; funding administered through the Hurricane Island Center for Science & Leadership)
- Maine Community Foundation, \$180,371 Expanding Capacity for Salt Marsh Restoration and Carbon Sequestration in Maine (Collaborators: Bev Johnson, Earth & Climate Sciences Department at Bates College, Salt Marsh Adaptation & Resilience Team – David Burdick, University of New Hampshire; Susan Adamowicz, Rachel Carson National Wildlife Refuge; Geoff Wilson, Northeast Wetland Restoration)

The Nature Conservancy SOAR Shellfish Growers Resiliency Fund, \$20,000 - The Basin Oyster Project (BOP): A community-based project for coastal restoration (Collaborators: Phippsburg Conservation Commission, Maine Oyster Company, Manomet; funding administered by the Maine Oyster Company)

Atlantic States Marine Fisheries Commission, \$99,029 - Toward resolving wild sea scallop (P. magellanicus) larval spatial and temporal distribution along the Maine coast in support of developing scallop aquaculture (Collaborators: scallop fishermen & farmers, Maine Center for Coastal Fisheries, Hurricane Island Center for Science & Leadership; funding administered through MCCF)



Students in BMMCA short-term course process scallop bags on a very rainy day in Phippsburg. Photo credit: Caitlin Cleaver

Research and Monitoring

Salt marshes: In August of 2022, monitoring of the Sediment Elevation Tables and the salt marsh vegetation surveys in the Sprague continued. Time series data for the salt marsh vegetation transects are archived on Google Drive. Johnson holds the time series data from the SETs. In 2022, researchers from UMass Amerst concluded a study on seasonal sedimentation rates on the Sprague. They studied sediment deposition along transects at three locations in the Sprague Marsh. Each transect consisted of a sediment trap approximately 3 m, 10 m and 40 m from the closest major channel. In general, sediment delivery was highest near the channel, declining with distance from the channel. Greatest delivery occurred in the spring which corresponded with peak discharge from the Kennebec River.

The University of Maine Rominger Lab, funded by the Maine eDNA program and a University of Maine MARINE seed grant, collected core samples from the low and high marsh habitat in the late fall of 2022 for both genetic and physicochemical analysis. Samples for genetic analysis will provide data on the bacterial and fungal species present along a 250 meter stretch above and below the Morse Mountain Rd and physicochemical analysis will provide information on trace metals, nutrient and carbon content of the marsh sediment. This is part of a larger pilot study involving 7 different marshes around the state in an effort to better understand how marsh creek restrictions influence the biogeochemistry of marsh habitats. (Summary provided by Heather Richard, UMO graduate student)

Beaches: Students in the The Ecology of Place: Field Methods for Coastal Research at Bates-Morse Mountain short-term course collected beach profile data on Seawall Beach in May 2023. The data have been compiled with the goal of developing a permanent archive for the extensive beach profile dataset from Seawall Beach and the pocket beaches on Cape Small collected by retired professor, Mike Retelle and his students.



Photo credit: Caitlin Cleaver

- Coastal Forests: Brett Huggett, a professor in the Bates Biology Department continued his research related to fungal endophytes in Pitch Pines at BMMCA, which he started in June 2019. Students in The Ecology of Place: Field Methods for Coastal Research at Bates-Morse Mountain short-term course taught by Cleaver revisited the hemlock stand infested with the invasive Hemlock Woolly Adelgid in May 2022 and 2023 to assess what has changed since Isobel Curtis completed her thesis research on the stand in 2017. The students will make recommendations regarding future management of the stand in their final presentations for the short-term course.
- NeCSA (Northeastern Coastal Stations Alliance): Eliza Carter, a master's student at Duke University was the NeCSA Environmental Data Initiative Fellow in

Bates-Morse Mountain Conservation Area

the summer of 2022 and with funding from the Maine Sea Grant Program Development program, has continued to work with NeCSA for the remainder of 2022 into 2023. She is helping the network synthesize temperature and intertidal biological data collected to date with the goal of submitting results for publication.

Basin Oyster Project (BOP): The collaborative team, involving the Maine Oyster Company, Manomet, the Phippsburg Conservation and Shellfish Commissions, and Bates College secured additional grant funding from the Davis Conservation Foundation and Maine Sea Grant Program Development Funds to support another season of fieldwork as well as exploring regulatory models for oyster reef building and restoration in other states. The overall goal of the project is to build a pilot-scale oyster reef and understand the local ecological effects of doing so. This summer, efforts will shift to partnering with oyster farmers on the New Meadows River to purchase adult oysters as the base of the reef structure and monitor for oyster spawning in the Basin which would imply an oyster reef could potentially be selfsustaining if successfully built.



Students in BMMCA short-term course conduct green crab surveys at the Basin. Photo credit: Caitlin Cleaver



Students search a quadrat for green crabs. Photo credit: Caitlin Cleaver

Conservation and Wildlife

Migratory Shorebirds on Seawall Beach

Seawall Beach provides critical habitat to migratory shorebirds, many of which are protected under federal and state legislation. All data reported below has been compiled by Maine Audubon in the 2022 Maine Coastal Birds Project Report.

Least Terns:

Statewide: During a coordinated walking nest census on June 6 and 7, a minimum of 277 pairs were recorded in Maine with a minimum of 40 fledglings. Despite the high number of nesting pairs, 2022 was the year with the seco nd lowest productivity since monitoring began at an estimated 0.14 fledglings per pair. Fledgling estimates are likely low given the challenge of getting accurate counts.

Seawall: In 2022, two chicks fledged. The flock estimate was approximately 60 pairs with a high count for nests of 27 on June 13. Due to predation pressure from foxes, the terns had to re-nest often and nests were consumed before they could hatch. In 2021, at least 39 chicks fledged from approximately 60 nesting pairs. In 2020, of seven nests, at least 1 chick fledged and in 2016, a single nest was observed. Prior to that, terns had not attempted to nest on Seawall since 2005 when a 17-nest colony succumbed to fox and coyote predation. No predator control is implemented on Seawall Beach.

Piping Plovers:

• Statewide: In 2022, 140 pairs of Piping Plovers nested on 24 Maine beaches and 252 chicks fledged topping a 2021 record number of fledglings since monitoring began in 1981. On average, plover pairs produced 1.8 chicks/ pair with a 60% chick survivorship rate. The number of nesting pairs in 2022 represents a 12% increase from 2021. For the last eight years, at least 60 nesting pairs have been identified in Maine and for the last four, 89 or more nesting pairs have been seen, demonstrating that the population has stabilized and is growing with conservation efforts. Seawall Beach: Thirty-four Piping Plover chicks fledged from Seawall. Seawall hosted 15 nesting pairs that attempted to nest 27 times. Just over half were unsuccessful due to predation or overwash from tides.



Photo credit: From L. Sewall's files. Piping plover on beach.

Management Activities

- Southern Pine Beetle monitoring: In partnership with The Nature Conservancy and the Maine Forest Service, BMMCA staff (Don Bruce) started 2022 monitoring for the Southern Pine Beetle (SPB) in early May. Results from 2022 data showed no signs of SPB at BMMCA. SPB is a pest for pines throughout the southern US and is expected to expand its range north as temperatures warm.
- Beach cleanup: On April 27, a small group including BMMCA staff and a board member removed approximately 30 traps from Seawall taking care not to disturb the newly arrived Piping Plovers.
- Portable toilet rental: We rented a portable toilet for the season and it was delivered in April. It will remain in the parking lot until the end of October 2023. So far, it was been received with enthusiasm. We were fortunate to find a local company in Phippsburg to deliver and service it on a weekly basis. Thank you, Dirigo Septic Services!
- The parking lot website was rolled out in 2020 to inform visitors about when the parking lot has filled for the day. We continue to utilize the parking lot as a management tool and so when the lot fills, we turn away additional vehicles until parking spots open up. We update the website with the status of the parking lot to help visitors plan their trips (bmmparking.com).



Robert Long, Jeff Sturgis, and Jim Joseph remove lobster traps from Seawall Beach in April. Photo credit: Caitlin Cleaver



SMARTeams, Bev Johnson and Barbara Vickery explore the Sprague marsh looking for impairments to natural hydrology. Photo credit: Caitlin Cleaver

Education & Public Visitation

Educational Activities

BMMCA continues to be an accessible destination for elementary schools through college and university groups as well as for non-school groups. A wide variety of activities take place including team building, leadership development, studying field research methods or specific habitat types found within the Conservation Area, and scientific research. We do not know the full extent of group activities taking place, because group visits are only recorded when the parking lot is staffed by our stewards. From April through December 2022, 35 visits by 32 different groups with approximately 688 participants were recorded.

GROUP VISITS TO BMMCA

- **College groups included** Bates Outing Club, Bates First Year Seminar, 3 Bates Short-term courses, Bowdoin Nordic Ski Team, Bowdoin Orientation Trip, Bowdoin Outing Club, Bowdoin Women's Golf Team, Colby College Outing Club, University of Kiev Geology Course
- Elementary, middle and high school groups included Breakwater School, Durham-Freeport High School, Edward Little High School Girls' Soccer, Great Salt Bay School, Hyde School Cross Country, Maine Coast Waldorff School, Lincoln Academy, Windham High School Outing Club
- Other groups included Apogee Adventures, Breakwater Summer Camp, Camp Nashoba, Chewonki Foundation, Cumberland Boy Scouts, Fulbright Association Maine Chapter, Globetrotters Hiking Club, LL Bean Employees, LDS Boys' Camp, Lewiston-Auburn Senior Hiking Club, New Life Church Biddeford, Small Point Summer School, Teen Treks

Bates course visits to BMMCA included:

- This land is whose land? First Year Seminar course: Joe Hall, professor of history, brought students to BMMCA in the fall of 2022. This course highlighted the work being done in Maine by Wabanakis to regain rights to their homeland by working in partnership with local land trusts.
- Biological Skills: Field Botany and Dendrochronology short-term course: Brett Huggett, professor of Biology, brought students to BMMCA to collect tree cores from approximately 20 fir, oaks, and pine to analyze in the lab. The course was designed to prepare students for internships and careers in the biological sciences by teaching them skills in field botany and dendrochronology.
- Biological Skills: Invasive Green Crab Inventory & Monitoring short-term course: Jesse Minor, professor of Biology, brought students to BMMCA to trap green crabs in the Sprague River. The class partnered with Manomet, a conservation organization that developed a protocol to monitor green crab population dynamics in the rocky intertidal environment. Students implemented the protocol at various sites; however, green crabs are also prevalent in marsh systems, but their presence in the Sprague has not yet been quantified. We are curious to see how many crabs the class catches from setting one trap for a 24-hour soak!
- The Ecology of Place: Field Methods for Coastal Research at Bates-Morse Mountain short-term course: Caitlin Cleaver, BMMCA Director, taught a

short-term course in May 2023 focused on coastal field research methods. Fifteen students spent the first two weeks of short-term in Phippsburg with one 3-night stay at the Shortridge Coastal Center. Students learned protocols for determining green crab abundance and distribution, monitoring beach profiles, assessing the severity of Woolly Adelgid infestations in hemlock and counting scallop juveniles as part of a research project in partnership with scallop fishermen and farmers and the Maine Center for Coastal Fisheries and the Hurricane Island Center for Science and Leadership. In the third week, the students traveled to Schoodic Institute as part of the collaborative scallop spat monitoring project.



Photo credit: Caitlin Cleaver, Students in the short-term class based at BMMCA gather at the top of Morse Mountain.

Public Visitation:

For 2022, visitor data was collected over 180 gatekeeping days from February through December. Overall, 20,243 people visited Bates-Morse Mountain in 2022 with approximately 22% coming for the first time. The parking lot filled on 41 days out of 180 gatekeeping days or 23% of the days that the parking lot was staffed. The parking lot filled on fewer days in 2022 than in 2021 or 2020 when the parking lot filled on 75 days out of 194 gatekeeping days or 39% of days the parking lot was staffed in 2021, 68% of the days the lot was staffed in 2020 and 37% in 2019. The pattern of visitation, in terms of the number of days when the parking lot filled, was more similar to years prior to the pandemic.

ANNUAL TOTALS							
Year	Visits	Gatekeeping Days	Per Day Average				
2017	22,507	173	130				
2018	20,657	166	124				
2019	21,321	174	123				
2020	22,898	179	128				
2021	23,550	194	121				
2022	20,243	180	112				

Looking Forward Bates-Morse Mountain Conservation Area

Maine Audubon teams have already started monitoring this year's Piping Plover and Least Tern activity on the beaches and the season is shaping up to be an active one. This summer, Bates alum will return to BMMCA for the annual guided hike and research related to the Basin Oyster Project and Sprague Marsh restoration will ramp up. A number of transitions are taking place with the departure of Don Bruce and the arrival of Robert Long and Amanda Ives in the steward role at BMMCA. I am confident that BMMCA will continue to be a destination for people hoping to enjoy the quiet solitude and natural beauty of Maine's beloved coast.



Casey Shultis processes scallop bags in Milbridge as part of the BMMCA short-term course. Photo credit: Caitlin Cleaver.



Alysse Cleasby and Dot Kelly sort oysters as part of the Basin Oyster Project. Photo credit: Caitlin Cleaver.

Appendix A: Report to the Town of Phippsburg, 2022-2023

2022 Report to the Town of Phippsburg



Photo credit: Caitlin Cleaver

A Note from the Director

During the summer of 2022, we had three Bates students help staff our parking lot and conduct research related to the Basin Oyster Project, a collaborative scallop larvae monitoring project in partnership with the Maine Center for Coastal Fisheries, the Hurricane Island Center for Science & Leadership, and scallop fishermen and farmers, and salt marsh monitoring. Alysse Cleasby (Bates '23), Levi Mindlin (Bates '24) and Sam Gamber (Bates '25) did an excellent job welcoming the public and sharing information about the types of research and conservation efforts underway. They were supported by our long-time steward, Don Bruce and our new steward, Leah Crommie. We are grateful to the Small Point community for their generous support of the student positions. In April 2023, we gave Don Bruce an emotional farewell. Don worked at BMMCA for 18 years and welcomed all visitors with kindness, caring for the Conservation Area like it was his own. He will

be greatly missed, but we are excited for Don to start a new chapter! Three new stewards are currently being onboarded – Robert Long started working weekends in April and will be joined by Amanda Ives and Brandon Laliberti in May. As always, we are grateful to the Phippsburg Police, Fire Department and Emergency Response personnel for their continued support and timely assistance with issues that arise any time, day or night. Please plan to check our website for the full annual report, which will be posted mid-June 2023. See you this summer!

- Caitlin Cleaver, Director of Bates-Morse Mountain

2022–2023 BMMCA Annual Report

Visitation & Educational Activities:

For 2022, visitor data was collected over 180 gatekeeping days from February through December. Overall, 20,243 people visited Bates-Morse Mountain in 2022 with approximately 22% coming for the first time. The parking lot filled on 41 days out of 180 gatekeeping days or 23% of the days that the parking lot was staffed. The parking lot filled on fewer days in 2022 than in 2021 or 2020 when the parking lot filled on 75 days out of 194 gatekeeping days or 39% of days the parking lot was staffed in 2021, 68% of the days the lot was staffed in 2020 and 37% in 2019. The pattern of visitation, in terms of the number of days when the parking lot filled, was more similar to years prior to the pandemic. From April through December 2022, 35 visits by 32 different groups with approximately 688 participants were recorded.

Annual Totals:	2017	2018	2019	2020*	2021	2022
Total visitors	22,507	20,657	21,321	22,331	23,550	20,243
Total gate- keeping days	173	166	173	179	194	180
Avg. visitors/day	130	124	123	128	121	113

Table 1. Visitor totals for March through November in 2017, 2018, and 2019; for January through December in 2020*; January through November in 2021; and for February through December in 2022 (*the area was closed to the public in April and May 2020).



April 2023 Beach Cleanup: Robert Long, BMMCA steward, Jeff Sturgis, Bates alum and BMMCA board member, and Jim Joseph, Shortridge caretaker.



Don Bruce & Caitlin Cleaver

News, Events, and Noteworthy

- Bates Alum Service Day: In April 2022, 13 Bates alumni joined BMMCA staff to do service work which included repairing dune fencing, picking up trash from the beach, and cleaning signs. The effort was greatly appreciated and help us prepare for the busy summer season!
- **Bates Reunion Walk:** In June 2022, approximately 60 Bates alumni participated in the Annual BMMCA Reunion Hike led by Caitlin Cleaver and student workers: Samantha Gamber, '25, Levi Mindlin, '24, and Alysse Cleasby, '22. The group learned more about the value of the Conservation Area and the long-term research underway.
- **Fulbright Maine Chapter:** In October 2022, approximately 15 members of the Fulbright Association Maine Chapter visited the Shortridge Coastal Center and the Bates-Morse Mountain Conservation Area where they learned about how the Conservation Area operates, the community collaborations and student and faculty research.
- Maine Public's Series Climate Driven: A deep dive into Maine's response, one county at a time: In April 2023, Maine Public reporter, Murray Carpenter, visited the Conservation Area to learn more about the longterm monitoring and how the undeveloped system is responding to sea level rise. The story highlighted the power of conservation and emphasized the value of places like Morse Mountain in increasing our understanding of system responses to climate change impacts.

Research & Monitoring

Maine Audubon conducted weekly plover surveys throughout the summer and Seawall hosted a robust plover population. Two Bates students conducted research in the area in the summer and fall as part of their thesis projects. Bates students and the BMMCA director continue to work in partnership with the Phippsburg Conservation Commission, Manomet and the Maine Oyster Company on the Basin Oyster Project where we're testing the effect of oyster reef-building efforts on a small-scale.



Photo 1: Alysse Cleasby, '23 helps build scallop bags on Hurricane Island for our collaborative project.; Photo 2: Levi Mindlin, '24 works with Basin oysters; Photo 3: Sam Gamber, '25 hikes Monhegan on a day off from BMMCA; Photo 4: Pete Dunbar, '23, monitors the green crab populationin the Basin Photo credit: Bates students

Bates-Morse Mountain Conservation Area

7 Andrews Lane Lewiston, Maine 04240



Photo credit: Caitlin Cleaver