



2024 ANNUAL REPORT

The mission of the Casco Bay Estuary Partnership is to help conserve the ecological integrity of Casco Bay and its watershed through science, public stewardship and effective management.

East Elm Street Dam, Yarmouth



Bridge Street Dam in Yarmouth, focus of a recent study for fish passage restoration into the Royal River

SCIENCE-BASED | NON-REGULATORY | LOCALLY-LED | COLLABORATIVE | WATERSHED-FOCUSED

Casco Bay Estuary Partnership
University of Southern Maine



Photos (unless otherwise noted):
Jerry Monkman, ecophotography.com

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Letter from the DIRECTOR & CHAIR

With deep gratitude to our Management Committee partners and staff, we are excited to announce the completion of our Casco Bay Plan 2024.

The Casco Bay Plan was updated to reflect the significant impacts of regional growth and climate change, while reflecting our commitment to engaging all voices for a healthy, resilient Casco Bay.

Our first Plan was adopted in 1996 and updated in 2006, marking a decade of progress in tackling the challenges facing Casco Bay. In 2016, the Plan was rewritten to respond to new conditions along Maine's coast. The 2024 Plan builds on that foundation, incorporating forward-looking strategies to address emerging issues.

The context in which we operate is ever evolving. Maine's increasing focus on climate change has reshaped our work, influencing agency priorities, fostering new coalitions, and presenting fresh opportunities. The Plan also responds to a growing understanding of how Casco Bay and our rivers, stream and lakes are changing.

Given the scale of these shifts, the updated Plan emphasizes the need for proactive planning and strategic implementation to protect both the Bay and what our communities value and depend on most - whether it is our rivers, roads, parks or piers. Recent increases in federal funding for resilience and restoration has also unlocked possibilities for large-scale projects that were previously unattainable.

The updated Casco Bay Plan identifies shared priorities, developed with input from partners and communities. Let's get to work.



Curtis C. Bohlen
Curtis C. Bohlen
Director



Charlene Poulin
Charlene Poulin
Management Committee Chair

CBEP EXPANDED ITS STAFF IN 2024!



Staff Scientist, Janelle Goeke, Ph.D.

Janelle comes to us from Florida, where she worked with Florida International University and the South Florida Water Management District, studying the role of fish and aquatic plants in supporting restoration efforts in the Florida Everglades. Prior to that, she earned her PhD in Ecology and Evolutionary Biology from Texas A&M University, where she researched how food webs in Gulf of Mexico salt marshes are being affected by climate change.

Originally from New York State, Janelle first developed her passion for aquatic ecosystems while studying harmful algal blooms in a local lake. At CBEP, she will coordinate monitoring efforts and data collection in the Casco Bay watershed, collaborating with regional partners on eelgrass restoration and other research initiatives.

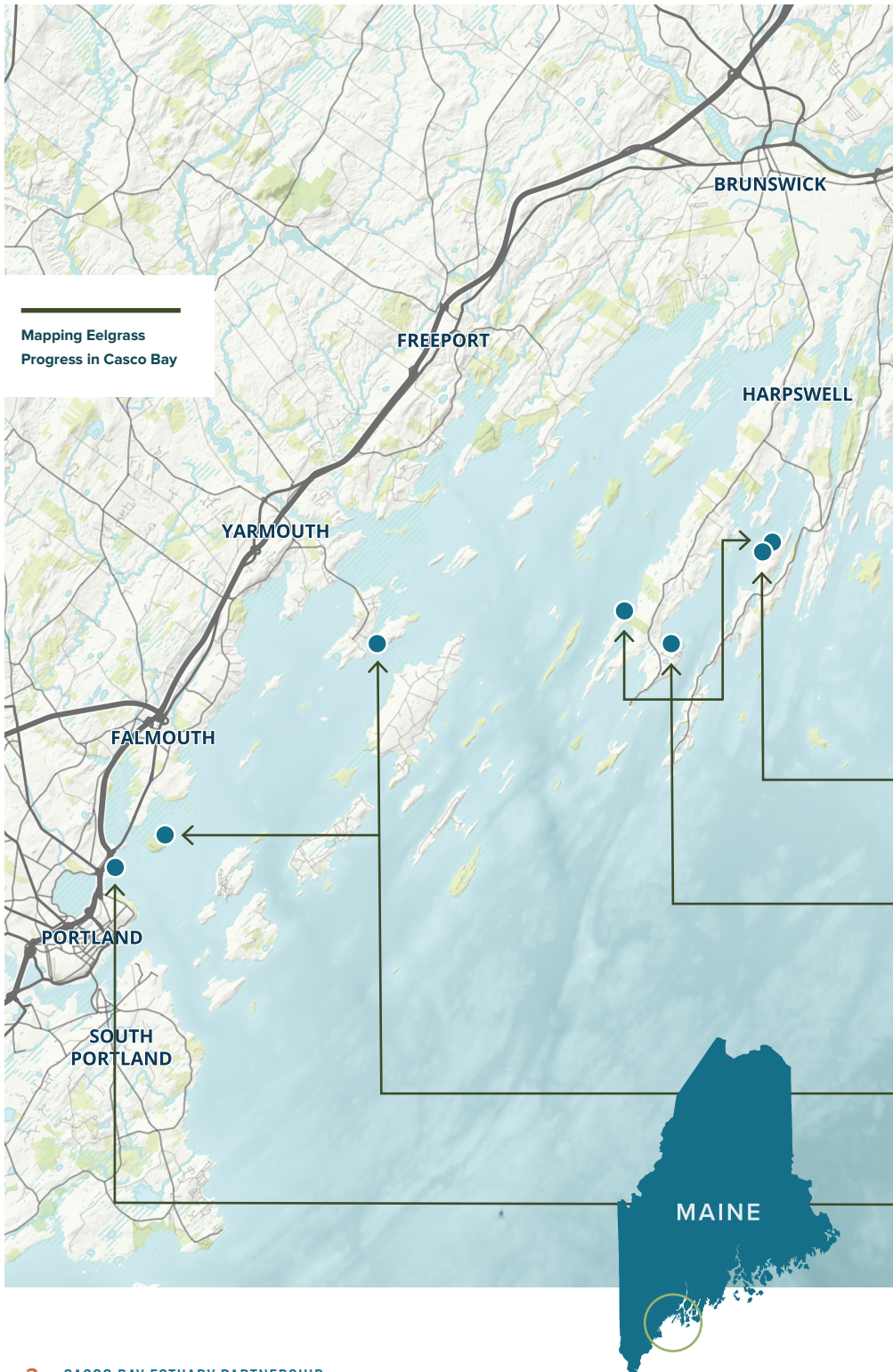


Program Coordinator, Natalie Bingham

Natalie moved to Maine from Vermont, where she earned a bachelor's degree in environmental science from the University of Vermont. She spent her summers working on invasive species management in the Mad River Valley, helping the community tackle Japanese knotweed and restore natural resources. She most recently held a position as a biologist for the US Army Corps of Engineers, where she evaluated environmental permit applications.

As Program Coordinator, Natalie will lead key tasks such as subcontracting, budget management, and procurement. She will also provide essential organizational support, collaborating with staff on a range of projects from preparing reports for funders to participating in fieldwork. Additionally, she will coordinate with CBEP's many partners, ensuring strong, ongoing relationships.

CBEP is funded by the US Environmental Protection Agency under Cooperative Agreements #CE-00A00844-0, #CE-00A00682-0, and #CE-00A00673-0 with the University of Southern Maine.



A patch of eelgrass near the entrance to Back Cove, Portland. Photo: Sara Freshley, Friends of Casco Bay

MAPPING EELGRASS PROGRESS IN CASCO BAY

The Schiller Coastal Studies Center at Bowdoin College, located on Orr’s Island in Harpswell, hosts students conducting eelgrass research and has made their wet lab available for eelgrass seed processing.

The Town of Harpswell is studying the effectiveness of conservation moorings in eelgrass habitats. Conservation moorings minimize dragging on the ocean floor, reducing damage to underwater vegetation like eelgrass. The town installed the moorings in Curtis Cove, Dipper Cove, and Stover’s Cove this past summer and will monitor them for the next five years to track eelgrass recovery.

Mackworth and Littlejohn Islands are the locations of a collaborative two-year study being carried out by CBEP and partners to understand what may be causing the decline of eelgrass beds and to pilot restoration techniques.

Friends of Casco Bay enlisted thirty-nine volunteer Water Reporters to participate in the “Seagrass Snapshot.” This was a community effort to track eelgrass beds during three extreme low tides in September. They found a new bed at the Maine Yacht Center near the entrance to Back Cove.

HABITAT

Protection & Restoration



Edes Falls Dam before removal.
Photo: Lakes Environmental Association



The Crooked River flows freely through the old dam site.
Photo: Trout Unlimited

DAM REMOVAL RESTORES CROOKED RIVER

After years of careful planning and permitting, the Edes Falls Dam in Naples was removed, restoring the natural flow of the Crooked River and reopening more than 25 miles of critical spawning and nursery habitats for Sebago's landlocked salmon.

Repetitive flooding events had damaged the structure and posed a safety risk. An emergency declaration was used to authorize the demolition of the dam.

Now landlocked salmon and brook trout can freely access essential spawning grounds upstream. Maine remains a crucial refuge for brook trout and is the only state in the U.S. where Atlantic salmon still exist. The Crooked River is home to its own unique sub-species of landlocked salmon, *Salmo salar sebago*.

This project is a collaboration of many partners including the Town of Naples, Sebago Chapter of Trout Unlimited, Lakes Environmental Association, Maine Council of Trout Unlimited, Maine Department of Inland Fisheries and Wildlife, Natural Resources Conservation Service, Sebago Clean Waters, Sebago Lake Anglers, Sebago Rotary, The Nature Conservancy, U.S. Fish and Wildlife Service, and Casco Bay Estuary Partnership.



Rolfe Hill. Photo: Loon Echo Land Trust

HABITAT PROTECTION FUND

Casco Bay Estuary Partnership provides funding for projects that support the permanent protection of priority habitats in the Casco Bay watershed. Four land protection projects funded in part by CBEP closed since our last annual report.

Loon Echo Land Trust

Rolfe Hill, a 439-acre property in Casco that is home to nearly 60 acres of wetlands and an additional 380 acres of undeveloped upland forest. The property has long been used by community members for recreation. With significant frontage on a town road, the property would likely have been sold for residential property development if not conserved.

Royal River Conservation Trust

River Elf, a 150-acre parcel in New Gloucester. This conservation easement will protect nearly a mile of the Royal River and benefit the wood turtle, a Species of Greatest Conservation Need. The project will also allow for RRCT to create and manage a public trail corridor.

Scarborough Land Trust

Silver Brook Preserve, a 17-acre parcel in a rapidly developing part of the watershed that had a high threat of development, situated along a tributary to the Stroudwater River.

Presumpscot Regional Land Trust

Black Brook Preserve Expansion, a 30-acre property that includes over 1,300 feet of shoreline along Black Brook, and that is part of a larger sanctuary of significant size in Greater Portland.

Protecting WATER QUALITY



Constructed wetland in Long Creek Watershed. Photo: LCWMD

LONG CREEK CONSTRUCTED WETLAND IMPACTED BY PFAS

Long Creek, a freshwater stream in southern coastal Maine, flows into Clarks Pond before draining into the Fore River and Casco Bay. Its watershed includes the Maine Mall area and parts of the Portland Jetport. Fifteen years ago, CBEP helped found the Long Creek Watershed Management District (LCWMD), which oversees water quality and stormwater pollution for 95 public and private landowners. CBEP Director Curtis Bohlen has served on LCWMD's Board and as Treasurer since its inception.

Recently, LCWMD completed a constructed wetland to treat stormwater runoff from 40 acres of impervious surfaces, including parking lots and roads. However, a tractor-trailer fire at the Maine Mall required firefighting foam, releasing PFAS chemicals into the wetland and likely into Long Creek's South Branch. Exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals.



Back Cove Neighborhood Rain Garden. Photo: CBEP

UPDATING CHAPTER 500: NEW RULES FOR STORMWATER

Maine DEP is updating Chapter 500, the regulation for approving stormwater management plans for development. The proposed changes, still in draft, would shift Maine's approach to stormwater management. CBEP Director Curtis Bohlen and members of CBEP's Management Committee serve on DEP's Chapter 500 Steering Committee and a related technical committee.

The revisions aim to address hydrologic impacts of development and encourage low-impact development (LID) practices, which minimize impervious surfaces and use natural or engineered systems to filter and recharge stormwater. In impaired, sensitive, or threatened watersheds, the rules would require targeted controls for pollutants like nitrogen, phosphorus, or sediment.



Suburban development in Casco Bay Watershed

Engaging RESILIENT COMMUNITIES



University of Maine students and staff showing off their morning trash haul. Photo: Quahog Bay Conservancy

2024 COMMUNITY GRANT AWARDS

Volunteer Stewards Help Clean Up January Storm Damage

Two January 2024 storms resulted in great devastation on the coast of Maine, including Casco Bay. The back-to-back storms hammered coastal communities with heavy rain, flooding, ocean swells, high tides and wind gusts of up to 60 mph, leaving many communities with significant repair, rebuild and resilience work.

CBEP awarded grants to two organizations to enlist volunteers in storm damage stewardship and cleanup on sites. The **Quahog Bay Conservancy** (QBC), with staff leadership and help from the local community, removed thousands of pounds of marine debris from Quahog Bay while gathering environmental data and promoting awareness.

Maine Island Trail Association (MITA) engaged volunteers in storm damage stewardship and cleanup efforts on several island sites. CBEP was pleased to be one of several supporters contributing to this extensive cleanup involving corporations, youth groups and the public.

Fellows from the Greater Portland Council of Governments' Resilience Corps assist MITA staff in moving and repurposing a large wooden staircase that washed ashore on Little Chebeague Island during January's coastal storms. Photo: MITA



Climate Resilience Journaling. Photo: Harpswell Heritage Land Trust

OTHER COMMUNITY GRANT AWARDS

Cape Elizabeth Land Trust (CELT) purchased three high quality microscopes and provided a hands-on educational experience on the topic of water quality monitoring for 6th grade students.

Cumberland County Soil & Water Conservation District purchased Coastal Watershed Model, Stream Erosion and Deposition, and Shoreline Erosion lesson kits, and used them in classrooms and community outreach events.

Downeast Institute worked with clambers and local resource managers in Phippsburg and other sites to collect and share data on commercial shellfish recruitment through the Maine Shellfish Recruitment Monitoring Network.

Friends of Presumpscot River increased the number of experiential educational programs offered to school and community partners, and expanded programming to Gorham and Windham school districts.

Harpswell Heritage Land Trust organized a climate resilience series, including an outdoor family event, an arts-based event, and a community gathering.

Kennebec Estuary Land Trust ran an educational series called "SALTY" (Sea Animal Life for Tomorrow's Youth) to Phippsburg students to enrich their understanding of marine life.

Presumpscot Regional Land Trust is developing a video and one-page guide on alewife and their migration and will share this resource with communities via schools, public libraries, and other venues.

Town of Yarmouth is producing outreach material encouraging residents to adopt sustainable landscaping practices to protect water quality of the Royal River watershed.

Our Partners AT WORK



A selfie of COBALT/Team Zostera divers Glenn Page and Lucy Dutton prior to a dive between Haskell Island and Great Mark Island in Casco Bay. Photo: Glenn Page

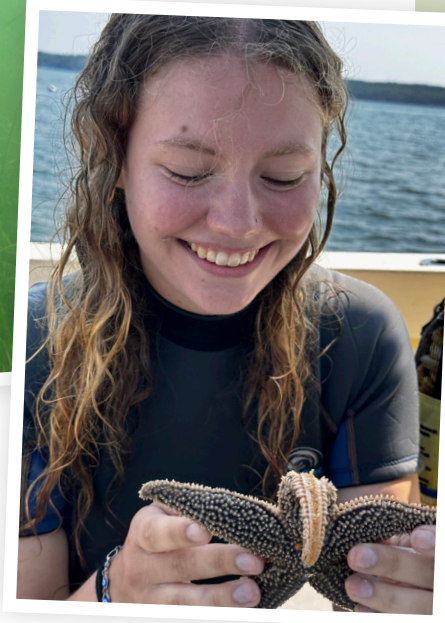


Underwater shot of a reproductive shoot on the southern end of Fort Gorges. Photo: Glenn Page



Maine Department of Environmental Protection conducting eelgrass monitoring. Photo: Maine DEP

Phil Colarusso of EPA Region 1 (wearing a Friends of Casco Bay hat) after wrapping up a day of collecting sediment cores from eelgrass beds with Maine DEP. Photo: CBEP



CBEP summer intern Olivia Tabor inspects a sea star during field work with COBALT/Team Zostera. Photo: Glenn Page

A COLLABORATIVE ROAD TO EELGRASS RECOVERY

The Casco Bay Eelgrass Recovery Collaborative had a successful 2024 field season, gathering extensive data on eelgrass in Casco Bay and the factors contributing to its decline. This effort was a partnership between CBEP, COBALT/Team Zostera, Friends of Casco Bay, Manomet Conservation Sciences, and Maine DEP. The collaboration aims to use this information to better protect eelgrass beds and pilot restoration efforts in Casco Bay.

COBALT (Collaborative for Bioregional Action Learning and Transformation), through its Team Zostera, monitored the flowering and seeding of eelgrass and tested methods for seed collection and processing for use in future restoration projects. They also promoted awareness of eelgrass in local classrooms, art exhibitions, and even on the local news.

Friends of Casco Bay collected data on water quality in areas with eelgrass beds, including temperature, nutrient levels, and the amount of light that reaches eelgrass. High temperatures, excessive nutrients, and low levels of light can harm eelgrass, making this data crucial for understanding the challenges facing these beds.

Manomet Conservation Sciences monitored the impact of invasive green crabs on eelgrass by deploying crab traps and underwater cameras to track crab numbers in different areas. They found high crab populations in some eelgrass beds.

Maine DEP focused on eelgrass itself, collecting data on shoot density, height, patchiness, and biomass, which will be correlated with data from other partners.

CBEP coordinated work across partners and assisted partners with data analysis and field work. CBEP also collected data on the sediment at each field work site to see how it might impact eelgrass growth.

REGIONAL AND STATE COLLABORATIONS

CBEP staff participate in many collaborative groups and networks, including the ones below. Other collaborative efforts include Cousins River Collaborative, Sebago Clean Waters, Casco Bay Shellfish Working Group, Maine Stream Connectivity Working Group, and CoastWise Steering Committee.



The **Maine Tidal Marsh Restoration Network** was formed in 2023-2024 by representatives of CBEP, US Fish and Wildlife Service, Wells National Estuarine Research Reserve, Maine Coast Heritage Trust (MCHT), and The Nature Conservancy in Maine (TNC). Currently coordinated by MCHT and TNC staff, the Network serves as an umbrella for coordinating and communicating numerous tidal marsh resilience initiatives.



Photo: Angie Brewer, Maine DEP

The **Maine Seagrass Consortium** serves as a gathering place for organizations working on seagrass to share information and develop action plans for how to research, protect, and restore seagrass in the state of Maine. CBEP staff helps lead this collaboration.



The **Maine Blue Carbon Network** provides a forum to exchange information about advances in Blue Carbon science and coastal carbon inventory methodologies to inform Maine's inventory development and move forward coastal carbon research in the state. CBEP staff participates in this network.



Photo: Portland Water District

The **Maine Climate Council** is an assembly of scientists, industry leaders, bipartisan local and state officials, and engaged citizens that developed a four-year plan to address the impacts of climate change on Maine. That plan was recently updated. Director Curtis Bohlen sat on the Council's Coastal and Marine Working Group, which evaluated and recommended short- and long-term mitigation and adaptation strategies for the coastal and marine sectors.