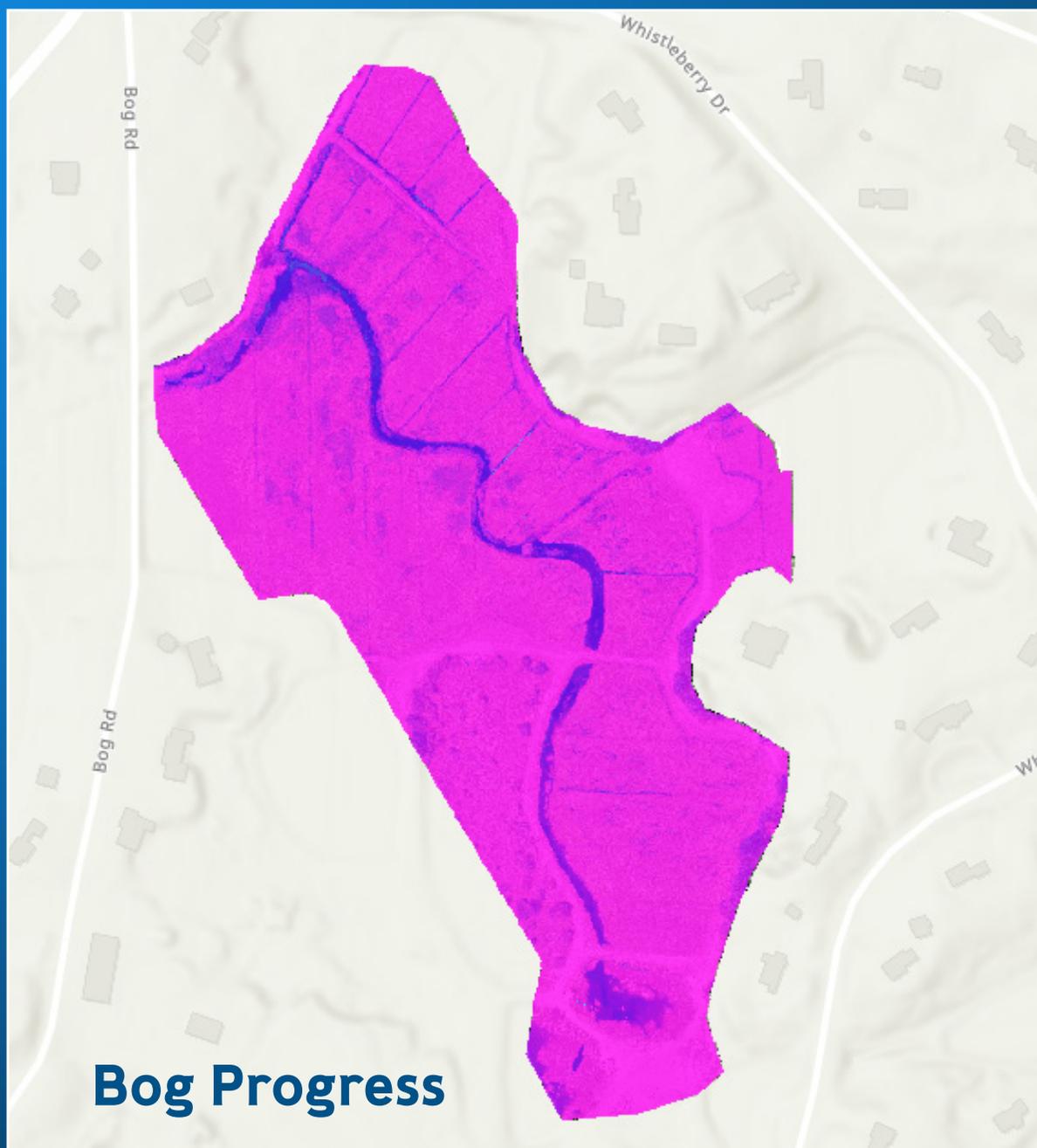




COALITION Quarterly

Science On The Move



Bog Progress

A Note from The Helm

This double issue is about the progress we are finally making to restore, and save, our Cape Cod waters.

This spring and summer, under the leadership of our new Deputy Director, Casey Chatelain, we applied for a new U.S. Environmental Protection Agency (EPA) grant to help us with our project that will return a portion of the region's iconic cranberry bogs to their original wetland conditions. This pilot watershed grant is part of the EPA's Southeast New England Program (SNEP), and we couldn't be more excited about being one of the first recipients!

BCWC began looking at the bogs in Marstons Mills after studying the hydrology of the Three Bays watershed to understand the nature of the nutrient pollution, which is causing algae blooms in our bays, rivers, and ponds. It turned out that the headwaters (beginning) of the Marstons Mills River were located in these bogs. For decades, the thousands of homes in the upper reaches of the Three Bays watershed have been loading the groundwater with nitrogen from their wastewater. The groundwater naturally flowed and collected in the former wetlands that are now cranberry bogs. Scientists estimate that approximately 40% of the excess nitrogen load in the entire Three Bays estuary transits the bogs and travels downriver reaching North, West and Cotuit Bays in a matter of hours.

Our "ah-ha" moment came when we spoke with one of the bog owners, Erik Hamblin, who relayed that for years the bogs have required less fertilizer, which contains nitrogen. Furthermore, he mentioned that the plant growth in the river that flows through the bogs had become more robust and the quality of the water itself (particularly color) had changed over the years. These changes coincide with increased housing development, including horse farms. Recall that one horse contributes the nitrogen equivalent of between 20 and 40 people!

BCWC has been working closely with the farmers for many years with the goal of developing a restoration plan that incorporates their long term needs and goals, as well as our plan for an environmentally sustainable program to reduce nitrogen loads. This will likely involve both land acquisition and conservation easements even as active cranberry farming continues.



The town of Barnstable has called this effort "the beginning of building a natural wastewater treatment system" that in many ways mirrors the town's municipal wastewater treatment plant. We couldn't be happier with this characterization since the goals of our effort for cleaning up our waters have been built on using "nature based" solutions.

We have many years of work ahead of us on this bog project. We need your help for the next phase of our bog work: planning, permitting, land acquisition, and construction which will cost millions of dollars. We can't rely on grants alone so please give generously!

In 2021, our efforts also included raising 120,000 oysters in our Hyannis upweller, which were placed in Cotuit Bay to mature and continue improving water quality. Recall that oysters feed on the algae in our nutrient rich bays with each oyster filtering up to 50 gallons of water each day! Checkout updates on BCWC's other projects on pages six and seven.

In our Fall newsletter (enclosed) we will discuss our work to install, prove and permit next generation advanced septic system technology that can address our wastewater problem at the source: all of us!

The cover image shows thermal imagery of the Marstons Mills bogs, with pink indicating warm temperatures and blue indicating cooler temperatures. It's no coincidence that the river and some of the bog ditches are blue, as these are areas where cool groundwater is rising to the surface.

BCWC Receives New Grant and Welcomes New Staff

NEWS

BCWC lands \$750,000 EPA pilot grant for bog restoration

\$150,000 a year for five years to help restore 56 acres of cranberry bogs, clean up Three Bays

The Barnstable Patriot

Published 4:11 p.m. ET Oct. 14, 2021



OSTERVILLE — Barnstable Clean Water Coalition (BCWC) was awarded a five-year, \$750,000 Southeast New England Program (SNEP) Pilot Watershed grant from the Environmental Protection Agency.

As one of four recipients for this new grant program, BCWC will receive \$150,000 a year toward restoring 56 acres of cranberry bogs at the headwaters of the Marstons Mills River to a natural wetlands system.

Excess nitrogen is the major contributor to Cape Cod's ongoing coastal water quality problems. An estimated 40% of the excess nitrogen load for Three Bays Estuary transits these cranberry bogs.

This grant award will fund design, permitting, and a portion of the implementation of the cranberry bog restoration, which will be designed to maximize the system's ability to reduce nitrogen pollution and transport downriver to the Three Bays estuary.



Casey Chatelain

We are pleased to announce that Casey has agreed to accept the position of Deputy Director at BCWC.

Thanks to Casey's leadership we were awarded the SNEP grant noted to the left. Casey has a Master of Oceanography degree from the University of Rhode Island and a boundless passion for our work!

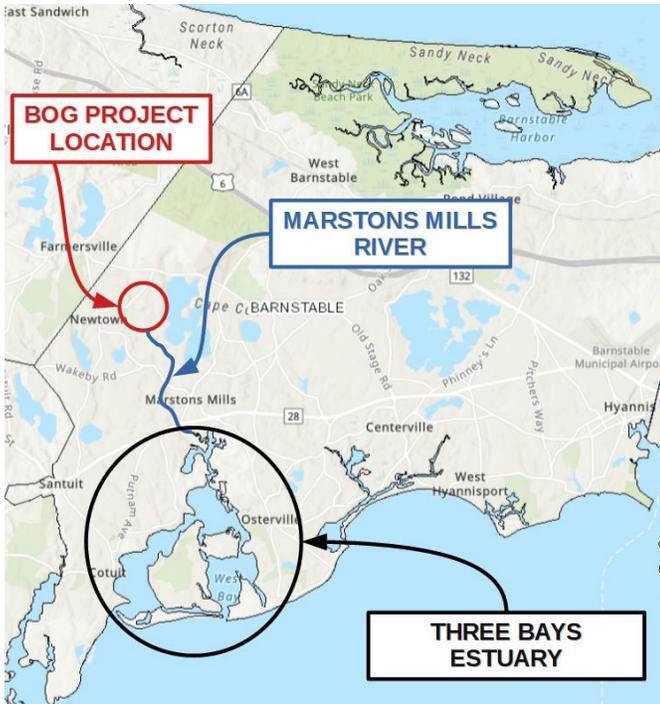
Introducing Ian Walsh

Born and raised in Minneapolis, Minnesota, Ian spent his summers in Bourne at a small cottage built in 1907 by his great-great-grandfather. An Eagle Scout with a passion for the great outdoors, he graduated with a bachelor's degree in environmental science from Iowa State in 2018. Ian served with the Minnesota Conservation Corps and spent the summer of 2020 as an invasive species specialist working in the Black Hills of South Dakota for the National Park Service. In the fall of 2020, he attended the National Park Service's 14-week Law Enforcement Ranger Academy and became certified to work as a Law Enforcement officer in both Minnesota and the National Parks.

Ian moved to Cape Cod in May to join BCWC as the Seasonal Island Manager on Dead Neck Sampson's Island, where he spent the summer leading our island team as they educated and interacted with the public. As the new Field Operations Manager, Ian is looking forward to working with BCWC's partners, volunteers, and interns on various projects. If you see him driving our truck, wading in the ponds, or boating around the bays, please don't hesitate to introduce yourself.



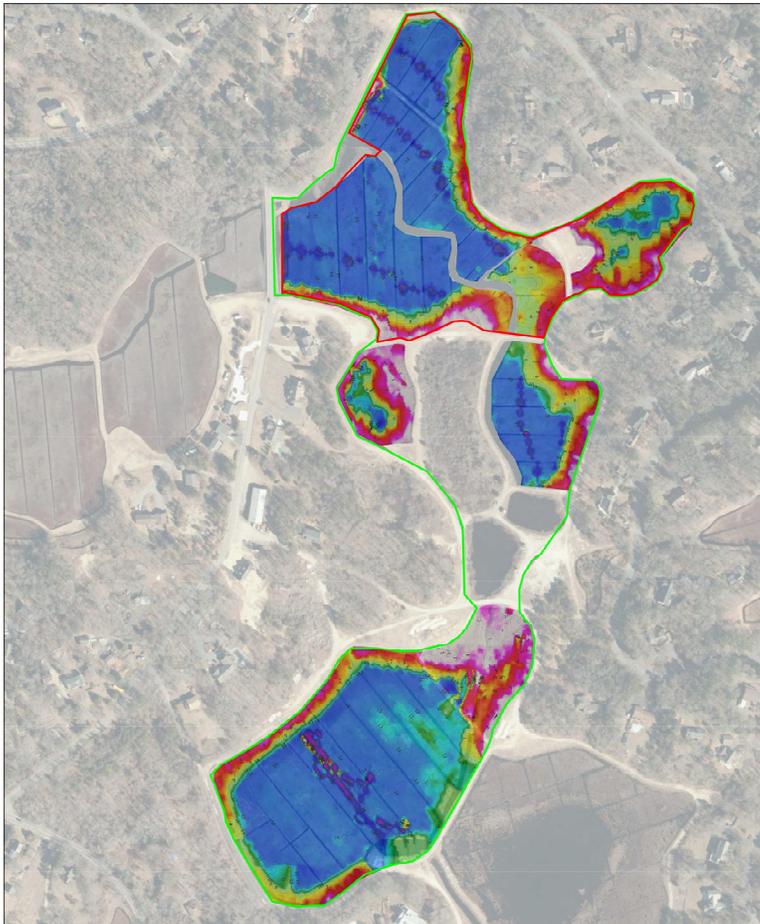
Marstons Mills Cranberry Bog Project: Where We've Been and Where We're Going



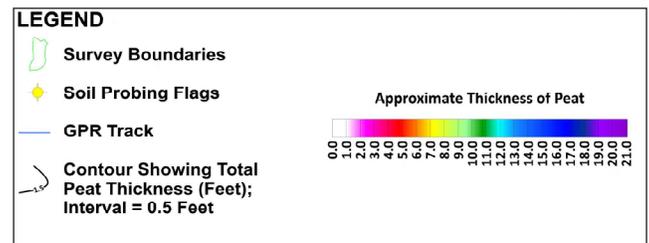
DER Team Photo (right): Jess Cohn and Alex Hackman from the Massachusetts Division of Ecological Restoration find peat beneath the bog's sand layer. Peat is an accumulation of partially decayed wetlands vegetation. Locating peat means there was once a wetlands habitat where they are standing.

Restoration Timeline (below): A lot of work must be done before any shovels can go into the ground for the restoration. This timeline lays out the steps for this project over the next few years. Stay tuned for more updates.





GPR Peat Map (left): This map shows some of the results of the Ground Penetrating Radar Study. The peat is over twelve feet thick in most locations of these cranberry bogs. This data helps to confirm that this area was once a thriving wetlands habitat.



GPR Photo (left): The team from Radar Solutions International, Inc. (RSI, Inc.) pulls the sled with the ground penetrating radar. By pulsing radio waves into the ground and analyzing the timing and strength of the returning waves, RSI Inc. was able to determine the depth of the farming-related sand layer, as well as the thickness of the underlying historical wetlands peat.

My How Our Gardens Grew!

Scan to view video on our gardens



In September 2020, the two spaces in front of BCWC's office along Main Street in Osterville began a transformation from traditional lawns bordered by ornamental shrubs and flowers into green spaces with a purpose. These new landscapes will educate people on the benefits and beauty of using native plants for clean water. The two demonstration gardens were designed by landscape architect and BCWC Board Director Jack Ahern. The gardens feature plants native to New England that are adapted to Cape Cod's climate and sandy soils, along with alternative lawn choices, including low mow turf and decorative native grasses.



This project was funded with a generous grant from the Horizon Foundation.



Early Spring



Mid-Summer



Mid-Summer

Americorps Spotlight: Brandon Badal

We'd like to welcome Brandon Badal, our 2021-2022 Americorps Individual Placement member. Brandon grew up on Long Island in New York and graduated from the University of New Haven in Connecticut with a degree in Marine Biology. Most recently, he spent a year as an intern at the Long Island Aquarium, where he learned the ins and outs of fish, bird, and reptile husbandry. Brandon is excited to be living on the Cape for the first time and is looking forward to getting his feet wet (quite literally) while assisting Ian with the weekly streamflow monitoring and water sampling program along the Marstons Mills River.



BCWC's Summer Team at Work



Above: Water Quality Monitoring Assistant Liv Graham could be found daily in ponds, cranberry bogs or the Marstons Mills River collecting samples and water quality data.



Above and Below: Aquaculture interns Mackenzie Welch and Nathaniel Horta cared for and raised approximately 120,000 oysters in our Hyannis upweller at Gateway Marina. The tiny seed oysters grew from 2mm to over 25mm in only two months!



Below Left: (L to R): Island Rangers Robert Skubal and Alex Ledwitch, Island Manager Ian Walsh, and Island Ranger Jonathan Rice. Below Center: Island Steward David Carter. Below Right: Island Intern Lucy Pesek. The Dead Neck Sampson's Island team was busy this summer patrolling the island and educating visitors about barrier island ecology, marine wildlife, and Endangered shorebirds.





P.O. Box 215
Osterville, MA 02655
508-420-0780
BCleanWater.org

Non-Profit Org.
U.S. Postage
PAID
Permit No. 58
Hyannis, MA

Mission Statement

Barnstable Clean Water Coalition works to restore and preserve clean water in Barnstable. BCWC utilizes science as its foundation to educate, monitor, mitigate and advocate for clean water.

Board of Directors

Michael Egan, *President*
John G. Kassakian, *Vice President*
Laureen Pfizenmaier, *Treasurer*
Mark C. Curley, *Clerk*

Jack Ahern
Bridget Burger
Edward M. Crosby, Jr.
Travis Cundiff
John T. Fallon, Jr.
N. David Samra
Dan Schwinn

Staff

Zenas Crocker
Executive Director
Heather Rockwell
Director of Operations
Casey D. Chatelain
Deputy Director
Christy Laidlaw
Development Consultant
Jennifer Loughran
Project Manager - Innovative Solutions
Ian Walsh
Field Operations Manager

Susie Perry, *Graphic Designer*

Photo Credits: BCWC Staff

Printed on 30% recycled paper. 

Goodbye, Good Luck & Thanks!



After six years with BCWC, we bid a fond farewell to Meg Materne at the end of August. Meg is spending the next year pursuing a master's degree in Aquatic Conservation, Ecology and Restoration at the University College London in England. Although sad to see her go, we are excited for Meg and know she will excel in her studies and new adventures across the big pond (no pun intended) in the U.K.



**Donate online at:
BCleanWater.org**



Donate by mail:

**BCWC
P.O. Box 215
Osterville, MA 02655**