



CHATHAM CONSERVATION FOUNDATION, Inc.

BULLETIN

Fall
2021

The Chatham Conservation Foundation preserves land for the benefit of the people, plants, animals and ecosystems of Chatham.

Land Protection is Habitat Protection

by Kristin Andres
Honorary Trustee

After a morning rain, it's a perfect time to walk a trail while the light is low, and the air is cool. Today, I started on the Frost Fish Creek trail and immediately beelined for a glimpse of the creek. There was a lone cormorant fishing in the still water. The water is still because its journey into Ryders Cove under Route 28 is restricted by a culvert, too small for the volume of water that wants to exit. Perhaps the cormorant was fishing for tommy cod, also called frost fish, from which the creek gets its name. Tommy cods are small fish that resemble Atlantic cod but are only one fifth the size. They are anadromous like river herring in that their adult life is in the saltwater, and they migrate into freshwater to spawn. Unlike herring that spawn in the spring, tommy cod spawn in the fall. There may be some tommy cod that remain in Frost Fish Creek; however, their overall populations have dropped due to the loss of natural tidal connections to spawning areas.

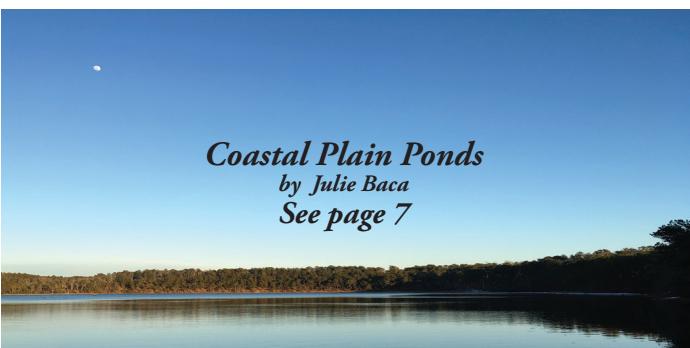
Further up the trail at "the flume", a concrete structure built to control the freshwater outflow for the historic

continued on page 5

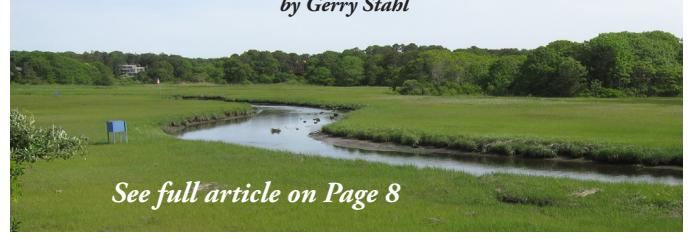


River otters are found in the Cape's coastal and freshwater waterways and make their dens in banks in abandoned burrows that have entrances underwater.

Photo courtesy of USFWS



Coastal Plain Ponds
by Julie Baca
See page 7



The Wonders of Chatham's Salt Marshes
by Gerry Stahl

See full article on Page 8



Cathy Weston leads info sessions about the native plants in the Mini Meadow at the Mayo House.

Photo by Tina Delaney

Chatham's land trust since 1962

President's Message



by Bob Lear
President of the Board of Trustees

Sitting on our deck on a gorgeous late September afternoon, I am reminded of the 1960's when we did not have to go back to school until this time. At that time I missed the return of a wildlife presence to the east end of Main Street.

Now Kristin's article (p.5) led me to think about the backgrounds of the unusual names for groups for our local fauna. Reasonably enough, coyotes come in "packs", and there are plenty that howl near here. However, why do crows gather in a "murder", and ravens in an "unkindness", or turkeys in a "gang", or squirrels in a "scurry", foxes in a "skulk", hawks in a "boil" or skunks in a "surfeit". We did have an otter in our yard a few months ago, which appeared to be alone, but may have been part of a "ramp".

To bring you up to date on CCF activities, we are planning to revise our Strategic Plan, which is due to renew by its own three year term. This is appropriate also because we have changed our priorities in the past few years to focus on clearing invasive plants from some of our most visible properties and replacing them with native species. This Plan process will require some time, and we will keep you advised of, and ask input to, that scheme.

Related to that shift in priorities, I want to alert the members that our land steward group is interested in obtaining a truck for CCF. The work to improve our undeveloped properties means we are clearing and need to haul away large quantities of nasty invasives. Piling the brush in the street and hiring someone to put it in a truck and take it to the transfer station is inefficient and expensive. In accordance with my mantra that "it is not what you know, but who", please reach out with suggestions as to who has a reliable full or extended bed pickup that might be interested in a tax deductible arrangement.

Please check out the salt marshes that Gerry writes about (p.8) and the ponds Julie describes (p.7) and get out and enjoy the beautiful weather this time of year, especially on our trails.

Executive Director's Report

by Dorothy Bassett
Executive Director



The air is crisp, the sunsets are progressively earlier, and fall colors are speckling the trees. We've enjoyed a wonderful summer and some incredible walks and events with you, our members and supporters. Now as we put our gardens to bed, and the plants along the trails turn brilliant hues, I'd like to reflect on the past year and what's coming up on the horizon.

Our walks have been a wonderful success, with 166 participants exploring six different conservation sites. Our lesson plans are coming together to teach local children about ecological principles in land management. Our four Volunteer Interns have brought youthful energy to our restoration sites and team, and two are continuing with us into the winter. A highlight of the year is always our Annual Meeting for members, where we toast to conservation successes, vote on the slate of officers, and enjoy a featured speaker. This year's speaker was Dr. Douglas Tallamy, who Zoomed in from California to describe his research on the connection between our native plants and trees to the insects and greater food web. Tallamy also described the important role that land trusts play in preserving bird populations and biodiversity.

Throughout this Bulletin you'll notice our focus on protecting the native plants on the lands that we preserve. Native plants are the key to retaining the natural charm of Chatham and Cape Cod: the wildflowers you remember from your childhood, the annual migration of monarchs, the beautiful natural vistas, and the birdsong that allows us to catch our breath and unwind. We look forward to continuously offering enriching events and information on our native plants and wildlife in our conservation lands and in your own backyard. Thank you, our members and supporters, for all that you do to celebrate our corner of the world and keep Cape Cod protected and feeling like home.

Land Steward's Report

by Julie Baca
Land Steward



It has been a growing season of volunteer projects at CCF! You may have noticed new activity on the corner of Old Harbor Road and Shore Road. With the help of a mini-excavator, large invasive plants were cleared from about one quarter of the property and we have implemented two different strategies to control regrowth. The black fabric prevents photosynthesis, smothering the resprouts and weakening the root systems. Water can pass through the fabric for the trees that remain. The

fabric will be removed this coming fall or spring. The rest of the cleared area is seeded with native grasses. We hope the grass will compete with undesired non-native plants and we can help with hand weeding and mowing. All of this is in preparation for replanting with native vegetation, adding to the cedars, bayberry, sweet-fern, chokeberries, viburnum and witch hazel we planted this past spring.

Why go through this effort? Although it is counterintuitive, land covered in invasive plants can actually be a dead zone for our wildlife that didn't evolve with these plants. Native plants are the backbone of a healthy food chain.

continued next page

Fall Events

by Dorothy Bassett
Executive Director

This year we started the 2021 events season strong with a marsh and water-inspired stained glass Art in the Park piece, and by opening our beautifully restored historic headquarters in the Mayo House for tours during Mondays on Main. Our members and supporters also enjoyed learning about a wide variety of nature topics and exploring a number of new trails.

With Cathy Weston's Mini Meadow info sessions in July and August the plants were highlighted as they entered peak bloom. A few examples include fiery orange butterfly weed, purple spotted bee balm, and the



Peter Trull leader of nature and birding walks for CCF and HCT

exceptionally fragrant clethra. Visitors were fascinated by the Mini Meadow's variety and colors of plants native to our very own Cape Cod. These plants thrive in dry sandy soils and support our local pollinators, insects, and wildlife. Each participant was given a pamphlet on growing native plants at home, which you can find and print from our website (ccfinc.org) under the About Us section labeled Mini Meadow.

Throughout the summer and fall the Foundation also hosted walks in Frost Fish Creek, Barclay Pond, the Training Field Triangle,



Wesley Price, center, with a group from the mushroom identification walk.

the Forest Beach Overlook, and a whopping five trips to Strong Island. We have been so fortunate with speakers, including Isaiah Lee's photography walk, Bob Zaremba's botany walk, Kate Witte's storybook walk, Peter Trull's nature and birding walks, Wesley Price's mushroom identification walks, and Mark Faherty's bird migration walk. We are also so grateful for the Cashman Family's generosity with shuttling our groups to the island for the tours.

This year we partnered with the Harwich Conservation

Trust to offer birding walks with Peter Trull along our shared town border of Monomoy River/Muddy Creek. Our Land Steward Julie Baca teamed up with Harwich's new Land Steward Connor O'Brien to offer free autumn walks in Frost Fish Creek and at the Robert F. Smith Cold Brook Preserve in Harwich. The Stewards discussed plant identification, freshwater waterways, and environmental restorations.

It's been a wonderful season, but don't put your binoculars away just yet! The poetry walk at the Valley Farm Trail will be maintained through November, and we plan to continue our events into the fall and winter. For example, an Owl Prowl evening walk with Peter Trull will teach people the basics of where to go to see owls, when to look, how to look, how to listen, and how to identify the various owl calls. Sign up for our newsletter for the latest walk announcements, and we hope to see you at the next event!

Restoring environments preserves biodiversity, which is at the heart of our nonprofit's land saving mission.

Perhaps you have also glimpsed some change in your travels along Old Queen Anne Road near the intersection with Skyline Drive. Last winter, four AmeriCorps Cape Cod members cut down about $\frac{1}{4}$ acre tangle of invasive bittersweet and porcelain berry at the heart of this property and this spring, after some mechanical root removal, volunteers and I seeded the area with a mix of tall native grasses and flowers. Black-eyed susans put on quite a display as the grasses worked to establish their roots and volunteers and I spent hours weeding. Unfortunately, restorations aren't overnight transformations and we'll be supporting the transition to native plants for years to come. If there are any fellow hand-weeding enthusiasts out there, please reach out (landsteward@ccfinc.org), we have some wonderful opportunities for you!

Thanks to all the volunteers who joined me maintaining trails and advancing CCF's restorations!



Old Queen Anne Road property cleared of invasives with the help of volunteers and AmeriCorps members.

Local Business Sponsors Wildlife Camera

by Dorothy Bassett
Executive Director



Andrew Wade of My Generation Energy

Andrew Wade shares how supporting CCF through this partnership is so important:

Q: What's your connection to Chatham?

A: Three generations of my family have called Chatham home. I personally moved to Chatham full time in 2010 after growing up in Eastham. As a kid I fished the waters of Chatham with my grandfather and learned to play



Photo taken with the wildlife camera of two river otters in North Chatham.

New Trustees

We welcome the three new trustees who were elected to the Board at the Annual Meeting. Each one brings a unique set of skills and experiences to help CCF carry out its mission.



Peter (Pete) Connick

Pete Connick, born in New Bedford, is a long time Cape Codder since his school days. He served over 40 years on the Chatham Fire Dept. when he retired as Chief in 2020. During this time he was also an Adjunct Faculty at the Cape Cod Community College teaching EMT and Paramedic programs and he continues teaching with Emergency Medical Teaching Services, Inc. Along with other volunteer work for CCF, Pete has worked with Julie Baca and volunteer Scott Tappan on burning projects on CCF properties. During his tenure as Chief he developed brush fire response plans for Strong Island and the Frost Fish Creek areas. Pete lives with his wife, Kathy, on property abutting Frost Fish Creek.



Craig Schneeberger

Craig Schneeberger is no stranger to the foundation; he served as one of CCF's first land stewards. He studied Parks and Planning in college and there realized his passion for the preservation of trees and the natural environment. Craig is a professional arborist currently working with Bartlett Tree Experts. He serves on CCF's Land Management Stewardship Committee (LMSC) and assists on restoration of CCF properties. Craig lives in Chatham with his wife, Leslie, and their two daughters.



Elizabeth (Beth) Taylor

Beth Taylor is an award winning educator who had a career in Middle School science teaching. After attaining two degrees in zoology, she spent two years in the Peace Corps in Guatemala before beginning her teaching career in Connecticut. She and her husband Seth live in Chatham. Beth is a member of the Chatham Garden Club, Chatham Music Club and the Friends of the Eldredge Public Library. She has been working with CCF's education committee with its involvement in the Chatham schools.

Land Protection is Habitat Protection *continued from page 1*

cranberry bog, there are discernable animal trails leading down to the water. The trails are formed by ritual use, and very likely by river otters. River otters enjoy a rich buffet of food from the Cape's coastal and freshwater waterways, eating crustaceans, frogs, turtles, and fish. The otters secretly travel across the upland at night, pond to pond to shore and back. They den in banks in abandoned burrows that have entrances underwater.

A belted kingfisher's rattling scream breaks the air. Kingfishers are cavity nesting birds. They seek out vertical banks along streams and estuaries to dig burrows that are three to six feet deep where the female will lay 5-8 eggs. Recent surveys by Audubon indicate declines in kingfisher populations are due to loss of nesting sites and disturbance during breeding season. While very different creatures, the kingfisher and the otter depend on the banks of watery habitats like Frost Fish Creek. With so much of our shorelines altered by development, Frost Fish Creek provides some protection against human disturbance.

I headed over to Barclay Pond trail. Like the Frost Fish Creek property, the protected land is upland around wetlands. The transition zone between the upland and the water ecosystem is extremely valuable as it supports a high diversity of flora and fauna. Typical of the Cape's oak-pitch pine forest, beneath the trees one finds blueberry and huckleberry. In spring, the spring azure, a small vividly blue butterfly, can be seen flitting about laying eggs in the buds of these woody plants. The caterpillars feast on the leaves where ants tend them for their "honeydew" excrement. In turn, the ants protect the caterpillars against parasitism by wasps and flies. When the caterpillar has matured, it forms a chrysalis in which it will overwinter on the ground in the leaf duff. The following spring, it will emerge as a butterfly and the life cycle will begin again.

The forest is home to the state-protected Eastern box turtle, easily identified by its patterned shell of gold or orange. Box turtles are land turtles but take advantage of the cool temperatures of mud around the ponds on hot summer days. They overwinter under overturned trees or



Eastern box turtle

Photo by Kristin Andres



Left: Spring azure butterfly

Right: Dragonfly

Below: Screech owl in its nest in a tree hollow is perfectly camouflaged



Photos by Gerald Beetham



Photo by Cynthia Rand

the burrows of other animals. Dragonflies dart above the pond from which they emerged. As an egg and then nymph, the pond was their water world until crawling above the water's surface on vegetation and shedding the outer skin to become a winged Odonata. Cape Cod ponds are home to 59 species of dragonflies and damselflies.

The standing dead trees, called snags, are of special value to wildlife, such as flying squirrels, brown bats, and over 15 species of cavity nesting birds. You may know one by its unmistakable ghostly night call, the screech owl. It is a small owl that takes up residence in cavity nests built by others. Its feathered markings provide remarkable camouflage, so if you have the good fortune to see one, lucky you!

What will you see on the trails?

Volunteer Interns

Special thanks to our summer and fall Volunteer Interns! From weeding restoration sites and trimming trails to guiding visitors at the Mayo House, we are so grateful for all of your help Jake, Mireille, Taylor, and Matt! Thank you for sharing your time with us this summer, and your experiences with our members:



Jake Hewins
UNH '21
BS in Business Administration
This fall he begins a Masters in Higher Education Administration at Georgetown Univ.



Matt Hamilton
Chatham resident with a degree in Environmental Geography and Sustainability from UMass Amherst

CCF has given me valuable knowledge and experience of the inner workings of a non-profit. During my time as an intern this summer, I was able to help the foundation coordinate events such as nature tours and the annual meeting. I also gave tours of the CCF's historic headquarters, known as the Mayo House, which allowed me to gain deeper insight into the history of Chatham. It has been such a rewarding experience to help out my local community by protecting Chatham's beautiful ecosystem and biodiversity.

Over the course of the summer, I had the pleasure of working with the Chatham Conservation Foundation. During this time, I helped the foundation with a variety of different projects, including setting up a volunteer hour tracking system, creating a pruning guide for volunteers, and helping clear various trails and CCF properties. I really enjoyed the work I did because it gave me the chance to learn more about nonprofit work and land stewardship. I also enjoyed the people I worked with, whether that be CCF staff members, trustees, fellow volunteer interns, and volunteers, as they were all very kind and supportive of one another. While I am sad to leave, I am glad I took part in such an amazing internship!

I liked working with the CCF because it gave me insight into all of the work that goes into keeping nature paths and roadsides neat. I also enjoyed learning names for all of the plants and weeds that I see daily, whether invasive or native. Being a volunteer gave me hands-on experience and the opportunity to grow my knowledge on the nature in Chatham and further.

Being an intern at the CCF for a second summer has been a fulfilling, educational experience. During my time giving tours of the Mayo house during Mondays on Main, I was able to learn and explain interesting history about Chatham, Josiah Mayo, his home, and his family. As a history buff, I found this to be an enriching experience. In addition, creating a second video for CCF and the APCC about Cockle Cove salt marshes was one of the highlights of my summer. I look forward to the video's release this fall.



Taylor Ford
Chatham resident and recent graduate of Boston University with a BS in Biology



Mireille Adamo
Parttime Chatham resident from Westwood, NJ. currently a 10th grade student at the Dominican Academy

Local Business Sponsors Wildlife Camera *continued from page 4*

Q: What would you say to other business owners considering becoming sponsors?

A: You will be supporting the community, a local non-profit, conservation efforts and education all at the same time. Is there more of a win/win than that?

Much to the delight of our members and supporters, the silly, shy, sweet, and adorable photos from our Wildlife Camera are shared on our website and Facebook page. If you are a business interesting in sponsoring CCF, we are seeking

sponsors for a printed brochure on identifying invasive plants and differentiating them from their native look-alikes. This brochure is for training our Land Steward Volunteers and as a resource for the public. Email Dorothy at ExecutiveDirector@ccfinc.org to learn more about sponsorship opportunities, and thank you again to Andrew Wade and My Generation Energy for their continued support!

Coastal Plain Ponds

by Julie Baca
Land Steward

Despite being born and raised on Cape Cod, I hadn't, to the best of my memory, heard the term coastal plain pond until working for CCF. It turns out these ponds are Cape Cod treasures (in New England, coastal plain ponds are primarily concentrated in southeastern MA, and Rhode Island) ringed by the unique coastal plain pondshore ecosystem that supports multiple regionally and globally rare plants and animals. If you are a pond visitor here, it is likely you'll encounter this vulnerable habitat. They are treasures but shouldn't necessarily be secrets if we want to collectively care for them.

Coastal plain ponds were formed in outwash till, typically have no inlet or outlet, connect to groundwater, and have a gentle slope to the shore. Pond water levels fluctuate annually and from year to year with the water table and the habitat tends to be nutrient poor and acidic. These harsh characteristics are actually a driver of this natural community. Plants of the coastal plain pondshore grow in the area periodically exposed when waters are low. They can withstand water inundation. Some may start growing while submerged and continue to thrive as the water levels typically recede through the summer. Others only sprout once exposed. And some years, when water levels remain high, the plants may not flower or germinate. These conditions keep competition low, preventing the growth of plants that can't tolerate too much or too little water. Similarly, the nutrient poor and acidic conditions keep out plants that require more fertility and a higher pH.



Chatham's Goose Pond is a coastal plain pond.

Photo by Julie Baca

So, who are some of the stars of the coastal plain pond show? In the driest zone of some pondshores, one may find two state endangered plants- the New England boneset and the Maryland meadow beauty. These may share space with carnivorous sundew. The main zone includes the two coastal plain pond plants I can identify, both globally rare and with pink flowers: Plymouth gentian and rose coreopsis. Then, there are plants that like to be partially submerged including the terete arrowhead and bladderworts. These are just a few highlights that may be accompanied by other rare plants as well as more common rushes, sedges, and forbs. Over 45 species of dragonflies and damselflies use this habitat, including the pine barrens bluet, which is endemic to this region and seems to be restricted to coastal plain ponds. Coastal plain ponds are important habitat for turtles and waterfowl, as well.

I think my first awareness of coastal plain ponds was in relation to Goose Pond. Personally, I find this to be one of the most breathtaking places in Chatham. By GIS calculations, based on tax assessors data, over 65% of the shoreline is preserved as conservation land (over 47% because of sales from the Atwood family to CCF and the town). Most recently, the Town purchased 4 acres on the north side of the Pond and CCF was granted a Conservation Restriction (CR) on that premises, protecting it from development in perpetuity. Like the various other CRs we hold on town and private properties, I will be visiting that land annually to make sure the terms of the CR are followed.

The Massachusetts Natural Heritage and Endangered Species Program identifies coastal plain pond communities as vulnerable. Coastal plain pond plants are easily trampled by foot traffic, vehicles, and use of the shore as a beach. Nutrient runoff from septic systems and lawns can increase competition for coastal plain pond plants which have adapted to nutrient poor settings. Further, since our drinking wells are connected to the same groundwater feeding these ponds, they are vulnerable to excessive draw down.

In the case of Goose Pond, it is fortunate there is such a complex of conservation land surrounding the pond, limiting development and nutrient loading. As individuals, the most immediate thing you can do to protect this ecosystem is to avoid trampling or picking the vegetation. Public access to Goose Pond is limited to the Fisherman's Landing on town property off of Old Queen Anne Road for this reason. I hope you'll keep your eyes out for this special natural community; it is a privilege to experience it and an honor to take care of it.

References:

Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Natural Community Fact Sheet: Coastal Plain Pondshore Community, 1990.

Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Classification of the Natural Communities of Massachusetts, 2020.

Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Pine Barrens Bluet *Engallagma recurvatum*, 2015.

The Wonder of Chatham's Salt Marshes

by Gerry Stahl
Chair of CCF Salt Marsh Task Force

Gifts from salt marshes

Salt marshes are the lifeblood of Chatham. Much as your arteries bring salty blood to your body parts and flush away toxins, the salt marshes of Chatham allow vital services to flow in and out with the tides:

- Filtering pollutants and sediments from the watershed before they reach the ocean.
- Absorbing carbon dioxide and other greenhouse gases that fuel climate change.
- Protecting coastal homes from storm impacts by dissipating surging wave action.
- Providing habitat for many species of fish, shellfish, migratory birds.
- Responding to sea level rise by building marsh elevation and migrating upland.

Preserving the land of the salt marsh

Chatham's marshes were frequented by the Wampanoag natives who enjoyed the plentiful fish and shellfish there. Later, European settlers adapted the marshes for boating and agriculture. Eventually, roads and housing cut off tidal flow and many marshes were filled in for farming. Most of Chatham's major salt marshes were converted to cranberry bogs in the 1800s.

Since 1962, CCF has been acquiring properties in Chatham and protecting them from development and preserving their natural beauty. Many of the land donations are in and around salt marsh.

CCF has successfully protected and preserved important and beautiful marshes in Chatham. However, in the face of tidal restrictions, invasive weeds and climate change, a more active approach is called for. So CCF formed a Salt Marsh Task Force and has begun to work with the Association to Preserve Cape Cod (APCC) and other non-profit and governmental agencies to monitor and restore salt marsh health, initially targeting Frost Fish Creek and Cockle Cove/Bucks Creek.

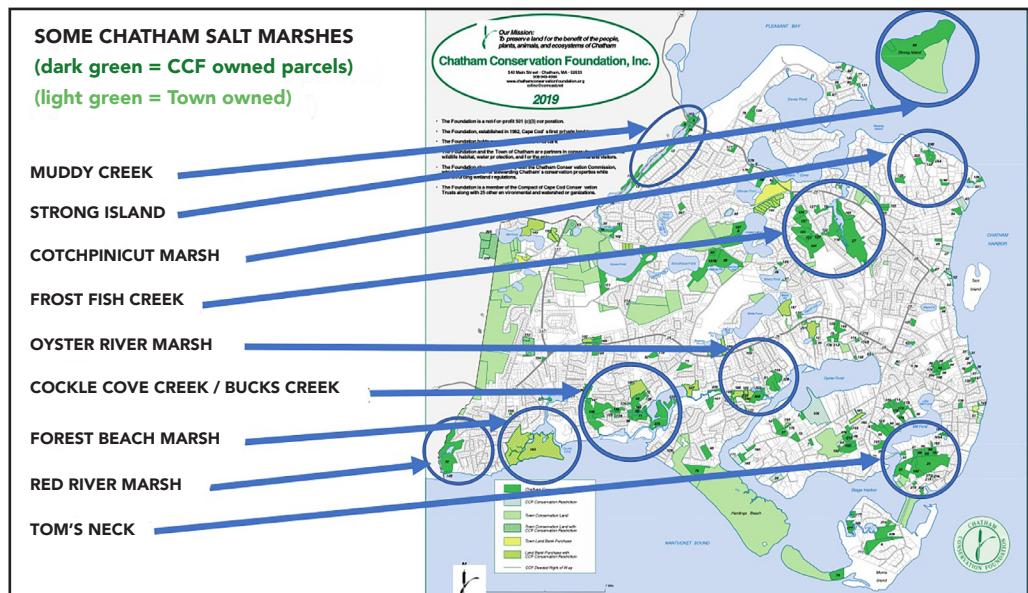
The flow of tides through the salt marsh

Tides roll into salt marshes every 13 hours. Their depth and penetration vary depending on the relative positions of the moon and sun, as well as weather and marsh conditions. They flush nutrients and small creatures into the marsh and then out to sea. This creates an active basis for the chain of life, particularly important to the fishing industry of Chatham.

Monitoring the health of a marsh begins with identifying tidal restrictions, such as damaged culverts, which constrain the eco-system processes which support flora and fauna that are adapted to periodic salt-water flushing.

Salt tolerant grasses of the marsh

The most visible feature of a salt marsh is its vegetation. Flora in marshes is determined by the saltwater tides: only



specialized grasses and reeds can thrive in daily flooding and high salinity. Where marshes are well flushed by the tides, saltmarsh grass (*Spartina alterniflora*) dominates, creating flowing waves of green. Toward the higher ground around the edges, salt meadow grass (*Spartina patens*) grows somewhat higher.

Where the tides are restricted or the salinity is reduced by mixing with fresh water from creeks, springs or runoff from roads and lawns, a non-native common reed (*Phragmites australis*) can establish an invasive presence, which can out-compete native plants and be hard to control.

Plants observed in healthy local marsh areas include: spike grass (*Distichlis spicata*), black grass (*Juncus gerardii*) and cattails (*Typha angustifolia*). Areas with more



Researchers from CCF and APCC cataloging plant coverage in the marsh.

brackish water have more diverse flora, including bordering shrubs that are not specialized for marshes.

Inhabitants of the salt marshes

Many birds frequent the marshes, some during migrations. Over 150 have been documented around Frost Fish Creek. At Cockle Cove marsh one can often see ducks, great blue heron, egrets or osprey soaring across the sky. Hidden in the brush, one can also find saltmarsh sparrows—an important reassurance of healthy salt marsh.

Tides pump nutrients in and out between the ocean and the marsh. This is the beginning of the food chain for shellfish, fish, birds and mammals. Micro-organisms nourish the smallest life forms, which in turn feed larger and larger creatures. Many fish, shellfish and other animals spend important stages of their lives in the marsh. The abundance of fish in the oceans is dependent upon the foundation of the food chain in the marshes along the shores.

Salt marsh eco-system evolution

The first step in actively preserving and restoring healthy marsh is to research the current functioning of the marsh as an ecosystem involving: (1) flowing water (mixing tidal salt water



A view of Cockle Cove marsh from Cockle Cove Road.

and fresh groundwater), (2) vegetation (marsh grasses, native and invasive reeds, bushes) (3) animal life (birds, fish, shellfish, small mammals) (4) soil (sedimentation, carbon capture, water filtering).

These complex and interrelated factors determine the quality of the marsh and of the services it provides to the environment and to people. A disturbance in one factor may influence others and it may take years for the multiple factors to co-evolve to a stable state, making restoration of marsh health a complex, slow and costly process.

Discoveries in Cockle Cove

Fiddler crabs are popular salt marsh inhabitants—for instance around Ridgevale Beach. However, our marsh research project just discovered a rare relative, somewhat larger, with red markings on their joints and favoring lower salinity waters:

brackish water or red-joined fiddler crab (*Minuca minax*). They live further upstream on Cockle Cove Creek and Bucks Creek. Although previously observed along Buzzards Bay, this is the first documented sighting on this part of the Cape.

The *Minuca minax* crab has been discovered upstream in Cockle Cove.

Another exciting discovery in Cockle Cove marsh is the presence of a relatively rare native strain of phragmites. This is a non-invasive version, known as “American reed” (*Phragmites americanus*). It does not out-compete other native plants. It is rare outside of Massachusetts and is in danger of extinction.

Chatham's future and its salt marshes

The Cockle Cove area is projected to undergo significant environmental change in the next decades, with sea-level rise and surge from increasingly harsh storms flooding the marshes, beaches and many roads and homes, unless the marshes can grow and migrate in response to the changes. We want to ensure there are areas for marsh to migrate landward as sea level continues to rise; and therefore, we try to acquire and protect adjacent property.

As stewards of the land, we need to track the marsh ecosystems over time. We want to monitor the presence of native plants, fish, birds and animals, so that we know if they are continuing to thrive. We also want to optimize the growth of salt marsh grasses that sequester carbon.

Preserving healthy marshes is the most effective way to lower the carbon footprint of Chatham. Healthy salt marshes are key to Chatham's future economy, climate change resilience and natural beauty.



Native phragmites in Cockle Cove marsh.



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OPEN SPACE PROTECTED TO DATE

Parcels	Classification	Acres
231	Gifts	368.35
40	Purchases	234.41
40	Easements & Restrictions	237.75
311	TOTALS	840.51

Tax Smart Giving from your IRA

You pay no federal income tax on your IRA withdrawal if you make a gift directly to CCF:

- You must be 70½ at the time of your gift.
- Your gift must go directly from IRA to CCF.
- Spouses must use their own IRA for gift.
- Gifts may not exceed \$100,000. per taxpayer.
- Gifts must be completed by Dec. 31, 2021.

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