

# The Salter



**The Newsletter of the Sea Run  
Brook Trout Coalition**

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## **Seasons Greetings!**

Welcome to *The Salter* Fall 2014 Edition! It's been a while since our last issue, but as you can see from the contents of this issue we have quite a lot to report from Long Island to Maine. We welcome a new member of the Board of Directors, Dwayne Shaw, of Maine. Noted outdoor writer Nelson Sigelman shares some thoughts on dams in his insightful article from the *Martha's Vineyard Times*. Our own Warren Winders weighs in with the first in a series of deep history about sea-run brookies. Joe McGurrin, Resource Director from the national office of Trout Unlimited updates us on TU's first ever Salter Brook Trout Assessment. Doug Watts reflects back, 10 years later, on the legacy of the Edwards Dam removal on the Kennebec River in Maine.

And finally, just as Fall is ending and Winter is about to begin, all of us here at SRBTC would also like to wish you a happy and healthy holiday season!

**It's almost 2015 so please renew your membership to the Sea Run Brook Trout Coalition!** You can renew your membership via our website at <http://www.searunbrookie.net> Also, please consider donating to help support our efforts to protect, restore, and study sea-run brook trout. Your donations are critical to supporting SRBTC and since we are a 501(c)(3) non-profit they are tax deductible!

## **SRBTC Welcomes Our New Board of Directors Member, Dwayne Shaw** by Michael Hopper, SRBTC

We are very pleased to announce that Dwayne Shaw, Executive Director of the Downeast Salmon Federation (DSF), has joined the board of directors of SRBTC. DSF, under Dwayne's vision and leadership has grown into a multi-pronged approach at saving the remnant populations of wild Atlantic salmon in Washington County, Maine. Starting with the removal of the East Machias River Dam, DSF went on to create the East Machias Aquatic Research Center (EMARC), which released over 140,000 juvenile Atlantic salmon, called fall parr, in November 2014 throughout the East Machias River watershed. DSF and its partners also launched The Downeast Rivers Land Trust (DRLT), a program of the Downeast Salmon Federation, which is committed to ensuring responsible public access and protecting important river, scenic, recreational, and ecological resources in Washington County. With the addition of Dwayne to our board, SRBTC intends on taking a more proactive role in the state of Maine.

## **Gone Fishin': Success on the Large Scale Takes Action on a Small Scale** by Nelson Sigelman

*(Reprinted from the Sept. 3, 2014 edition of the Martha's Vineyard Times by permission of Nelson Sigelman)*



*Mill Pond, West Tisbury MA*

A glimpse of Mill Pond in West Tisbury as I drove up-Island caused me to think about the effort by a determined group of residents to restore the historic waterway to a free-flowing stream. Their progress has been slow, but not nearly as difficult as that of the herring that continue to struggle to return to their natal waters each spring up and down our coast.

The offspring of those that survived the journey have by now begun their return to the sea. It is a natural cycle that man has interrupted along our coast to the detriment of a variety of species that include striped bass.

Fisheries management cannot succeed on the large scale if we do not think about the small scale, and do what we can to protect waterways — from the smallest brook to the largest river — from degradation.

Herring and white perch spawn in the lower reaches of Mill Brook, and native brook trout cling to life in the upper reaches of the stream that begins in Chilmark, passes through several artificial impoundments in West Tisbury, such as Mill Pond, and streams into Tisbury Great Pond. There is also evidence that American eels still manage to use the stream.

Last May, with assistance from the state Division of Marine Fisheries and a group of volunteers, West Tisbury erected a fish ladder at the dam. How successful it is in allowing fish to navigate this obstacle remains to be determined. However, fish ladders are not a solution. They are a compromise intended to mitigate the harmful effects of a dam.

For example, in the northwest where dams help provide valuable hydroelectric power, fish ladders are used to help maintain passageways for salmon — not so successfully judging by the continued decline in salmon numbers. As a result, there is a concerted effort by conservation groups to remove as many dams as possible. Removal of the Elwha Dam in Olympic National Park, billed as the largest dam removal project in the world, has led to the return of salmon for the first time in a century in that river.

The U.S. Fisheries and Wildlife Service acknowledges the detrimental effects of dams, which “can block or impede migration and have created deep pools of water that in some cases have inundated important spawning habitat or blocked access to it. Dams also change the character of rivers, creating slow-moving, warm water pools that are ideal for predators of salmon.”

The Mill Pond, which warmed to more than 80 degrees this summer, is a case in point. We have no salmon, but we certainly have brook trout. That they survive is a testament to their resilience.

At one time in our nation’s history, progress was measured by how much we could extract from the environment. We erected dams on rivers and streams to pull power from the water with little thought about the consequences, which seemed minor compared to the benefits. In the last century that equation and our understanding of it began to change.

Today, the removal of unused dams attracts positive attention. In June, state and local officials celebrated the successful removal of the 84-foot long Bartlett Pond dam on Wekepeke Brook, a tributary of the North Nashua River, restoring upstream fish passage to approximately 18 miles of high-quality coldwater habitat. “With the dam’s removal, there has been an immediate return of native brook trout to the restored stretch of the river,” state Fish and Game Commissioner Mary Griffin said.

“Removing dams helps restore healthy rivers to provide clean water, reduce risks, enhance recreation opportunities, and preserve wildlife habitat,” said Wayne Klockner, State Director of the Nature Conservancy in Massachusetts, which has an office on Martha’s Vineyard and is in a position to comment on at least one Mill Brook impoundment.

Earlier last spring, the state’s office of Energy and Environmental Affairs (EEA) designated eight new river and wetland restoration projects across the state as Priority Projects, which qualified them for grants and contracted technical services funded by the Division of Ecological Restoration (DER). The goal in almost every case included restoring habitat connectivity and flow to benefit fish species.

“River and wetland restoration projects improve habitat for many species of fish, such as brook trout, blueback herring, alewives, and rainbow smelt, that support recreational and commercial fisheries,” Ms. Griffin said of the designations.

The list included a partnership with the Sheriff’s Meadow Foundation to restore connectivity to the headwaters of Mill Brook by removing an earthen dam on the Roth Woodlands Property in Chilmark. It is the type of small-scale project that could prove meaningful in the future.

“We wish to be the best possible stewards of the section of Mill Brook that we own,” Sheriff’s Meadow executive director Adam Moore said. “In the case of Roth Woodlands, the Mill Brook flows beneath Old Farm Road through two culverts which are too small and too high. These culverts impede fish passage and create an artificial pond in which the temperatures are too high for fish to survive. We hope to restore the stream channel by putting in a proper culvert, and we believe that this will benefit native brook trout and the brook lamprey. We are very grateful to the Commonwealth for its financial and technical assistance.”

The September/October issue of American Angler magazine included an article by Morgan Lyle about the mounting effort to oppose a \$5.19 billion hydroelectric project proposed by the government of Alaska. “An Alaskan proposal to dam the mighty Susitna River bucks the dam-demolishing trend in full swing from Maine to South America,” Mr. Lyle wrote.

The article described dam removal efforts in Maine and noted that the “freed Kennebec River now has the largest runs of alewives and blueback herring on the East Coast.”

Amy Kober of American Rivers, a nonprofit advocacy group, is quoted in the article. “When you take a dam down and let a river flow freely, the signs of life come back quickly, from insects to fish to osprey,” she said. “More than 1,100 dams have been removed in our country. On the Kennebec and Penobscot, on rivers across the country, the web of life is being repaired. And that’s good for anglers, it’s good for communities, it’s good for all of us who benefit from clean water and healthy rivers.”

I have to think it would also be good for West Tisbury.

## **Sea Run Brook Trout Assessment**

by Joe McGurrin, Trout Unlimited (National Office)

Brook trout (*Salvelinus fontinalis*) in New England coastal streams can exhibit partial anadromy. In partnership with state fishery agencies, the US Fish and Wildlife Service, and the Sea Run Brook Trout Coalition, Trout Unlimited used mail and phone surveys of fisheries professionals and conservationists to conduct an assessment of coastal and anadromous brook trout from Maine to Long Island, New York. Following up on earlier Eastern Brook Trout Joint Venture (EBTJV) subwatershed assessments, our survey provides information on the 185 EBTJV subwatersheds (scale 12,000 ha) and 457 individual streams within those subwatersheds. The assessment of the 457 streams provides a finer scale of information for future sea-run brook trout conservation efforts.

The status of coastal brook trout, and the presence of anadromous behavior, is highly variable and uncertain across the 457 streams we assessed in New England. Brook trout are thought to be extirpated from 57 streams. Their current status in 201 other streams is unknown.

The occurrence of sea-run brook trout within these coastal streams is even more uncertain. Within existing coastal populations, the occurrence of anadromy is mostly unknown. However, we were able to identify 39 anadromous brook trout streams with a moderate to high level of certainty.

On a state level, the status of Massachusetts coastal streams was most certain with the best information on anadromous populations. The most coastal brook trout streams were identified in Maine (317 streams) and the fewest were in Rhode Island (7 streams).

The most prevalent habitat concern for individual streams was fish passage – fish passage was also identified as the top habitat concern across the broader 185 EBTJV subwatersheds.

The existing coastal brook trout streams serve as the basic framework for considering a broader regional recovery of the anadromous life history form of coastal brook trout populations. Assessment results on a subwatershed basis were presented at 2013 AFS National Meeting, Northeastern Fish and Wildlife Conference, and the Maine Atlantic Salmon Forum. Individual stream results will be presented at the Wild Trout Conference and in TROUT magazine. This assessment is just an initial step in reducing the uncertainty surrounding the status of coastal and anadromous brook trout across its historic range in New England. Potential next steps to increase our certainty and understanding of these sea-run fish on a range-wide basis include:

- 1) Fill in assessment gaps on 201 coastal streams with increased data collection
- 2) Monitor recreational fisheries more closely on all coastal streams
- 3) Expand tagging programs and strategies that identify anadromy
- 4) Support research on coastal brook trout with emphasis on factors influencing anadromy
- 5) Continue researching utility of stable isotope/elemental analysis to identify anadromy
- 6) Develop a volunteer angler survey program that focuses on sea-run brook trout

## **Salters: A History**

by Warren Winders, SRBTC

*“The idea of shifting baselines is this: Every generation has its own, specific expectations of what is “normal” for nature, a baseline. One generation has one baseline for abundance while the next has a reduced version and the next reduced even more, and so on and so on until expectations of abundance are pathetically low.”* Paul Greenburg’s explanation of David Pauly’s concept of “shifting baselines” as it applies to fish abundance. The quote is taken from Greenburg’s “Four Fish.”

I caught my first brook trout at the tender age of 8 from a small, ice cold brook flowing through my great uncle’s wood lot not far from the rustic fishing village of West Point, Prince Edward Island, Canada. I mention this because my childhood experience of brook trout fishing in P.E. I. has helped to inform my view of the fishery for salter brook trout that once thrived along our coast in New England

and Long Island, New York. Brook trout swim in every stream of the tiny island province because the porous sandstone that the island is formed of oozes the cold freshwater from its aquifer out into hundreds of rivers and streams that flow into tidal bays and estuaries all around the island. And just as they once did on Cape Cod and Long Island, tens of thousands of brook trout migrate out to the bays during winter and early spring to fatten on the plentiful shrimp and forage fish that they find in vast beds of eel grass. The people of the island call the trout that they catch in the bays “sea-trout”, just as the people of Long Island and Massachusetts once did. And, just as the people of Long Island and Massachusetts once did, the people of P.E.I. take their brook trout for granted, a mistake that is allowing history to repeat itself. Agribusiness, in the form of potatoes grown to supply the fast food french fry market, is poisoning the trout streams of P.E.I., and people allow it because they cannot imagine that a day will come when the island has no sea-trout. Yet, to see that future, they need only to look to the south where the people of Cape Cod and Long Island watched passively as cranberries and dams killed their sea-trout. On Cape Cod and Long Island the ubiquitous fish that was once taken for granted is now largely forgotten.



*Above are pictured two spring fed streams born of very similar hydrological situations. The stream on the left is Red Brook in the town of Plymouth, Massachusetts. The stream on the right is the Morrell River of PEI, Canada. Both streams, though about 800 miles apart, are excellent brook trout habitat.*

The story of the sport fishery for sea-run, or salter brook trout is often bracketed by the environmental changes wrought by the European people who settled along America’s north Atlantic shores. But, to better understand what these changes are and their impacts on our waterways, it seems sensible to start at a beginning lost in the fog of a time before human memory. The true story of the salter brook trout begins long before Paleolithic people arrived to hunt mammoths on the freezing steppes of Stellwagon and Georges Bank within sight of a sea vastly shrunk by its recruitment into mile high glaciers. By starting at the very beginning we may by-pass the sliding baseline with its reduced expectations for a longer view of what is happening, not just to brook trout, but also to ourselves.

### **Ice and chars**

In many ways *Salvelinus fontinalis* (brook trout) and *Homo sapiens* (you and me) are both products of repeated climate change. We’ve evolved on a tumultuous planet that warms and cools in intervals

that range from seasons to multi-millennial epochs. Because of the need to adapt to climate changes and the attendant disruptions of ecosystems and habitat that ensue, both brook trout and humans have evolved as ecologically plastic creatures that can tolerate a wide range of conditions. However, unlike brook trout, we humans have figured out how to alter our environment for our own immediate benefit, resulting in some potentially harmful long term consequences for many species, ours included.

Thirty five thousand years ago New England sat under a 5,000 foot high dome of grinding ice, Georges Bank was part of a wide mammoth steppe that flanked that ice, and *Homo sapiens* was just beginning to make its way into the northern hemisphere in Europe and Asia. Archeologists tell us that at this point salmoniformes had existed for 100 million years, and hominids for about 6 million years. In terms of evolutionary and planetary time, thirty five thousand years back is a blink of the eye from our present. And due to the relative brevity of this period, humans and brook trout have changed very little physically between then and now. Yet brook trout and humans have managed to survive this time of rapid global climate change – changes that caused the extinctions of numerous other species – because by 35,000 years BP, the ecological plasticity of *Homo sapiens* and *Salvelinus fontinalis* was already fully developed.

Between 12,000 and 10,000 years ago, brook trout along with other cold water species, began to follow a receding ice cap northward. Thanks to their capacity for osmoregulation, the ability to reverse osmosis and excrete salts, coastal brook trout populations, along with other anadromous species, were able to travel along the Atlantic coast and colonize streams and rivers as the glaciers retreated. Other brook trout followed inland freshwater routes north and were able to colonize ponds and lakes with no direct connection to the sea. When the first Europeans arrived in the “New World” of America’s northeast they found a place that had been shaped by ice and that possessed an amazing wealth of rivers, streams, lakes and ponds, with many of those waters harboring brook trout. In fact, most of the coastal streams from Long Island to Hudson Bay held populations of brook trout that were the descendents of the trout that had migrated along the coast jumping from stream to stream as they followed the melting ice. The settlers quickly discovered that two coastal locations, Long Island and Cape Cod harbored numerous clear, cold streams where exceptionally dense populations of trout thrived. Not surprisingly, the Europeans also found trout in the bays, estuaries and the inshore ocean. These were the fish that they would classify as sea-trout.

The science of ichthyology was slow to develop in America, with the result that the naming of trout species can only be described as chaotic. Brook trout (as the common name indicates), in particular, were often named for where they were caught. As recently as the early part of the 20<sup>th</sup> Century, brook trout were described as sea-trout, marsh trout, or native trout by members of the Lyman family as they fished Red Brook in Wareham, Massachusetts. The sea-trout were the silvered trout that entered the estuary in large schools during the early spring, while the marsh trout were somewhat darker trout that were found where the brook flowed through the brackish cattail marsh upstream of the estuary. The native trout were found in the brook itself and were the smaller fish that they would catch up in the woods.

Brook trout (*Salvelinus fontinalis*) belong to the family of chars and thus were first misnamed when the early English settlers to New England found them in the surrounding streams and declared them to be trout. Because in Europe, the Arctic char (*Salvelinus alpinus*) lives in the colder waters (with a few exceptions) of the far north, the English were unfamiliar with chars and assumed that these obviously salmonid fish were close enough to the brown trout (*Salmo trutta*) of English streams to be given the same name (trout). In fact, there are five species of char inhabiting the waters of North

America while the only relative of the brown trout (*Salmo trutta*) native to North American waters is the Atlantic salmon (*Salmo salar*). For most of us, *Salvelinus fontinalis* will remain brook trout, no matter where it is that we happen to find them

### **The Islands Full of Trout**

Given the abundance of cold water streams and rivers that the English and Dutch immigrants of the 17<sup>th</sup> Century found in New England and New York (New Amsterdam), it's not surprising that trout fishing quickly became a popular form of recreation. In his now iconic tome, "Brook Trout", the late Nick Karas used old maps of Manhattan Island to illustrate the many brook trout waters that once flowed from the ample springs of that island to the tidewaters of the lower Hudson and East Rivers. During the 18<sup>th</sup> Century, New York's trout fishing gradually expanded to the relative "wilds" of Long Island, and by the early 19<sup>th</sup> Century Long Island became the focus of the trout fishery, in part, because the streams of Manhattan were being lost to urbanization.



*The picture on the left is of a pair of sea-run brown trout (Salmo trutta) taken from Town Brook where it runs through Plymouth, not far from Plymouth Rock. The picture on the right is of our native char, Salvelinus fontinalis, a "salter brook trout" caught in tidewater at Red Brook.*

The best fishing on Long Island was found on the Carmans River and the Connetquot River, but to quote from the late Dr. Robert Behnke's book, "About Trout" (America's First Brown Trout), "Long Island acts like a sponge with numerous cold springs and rivers providing ideal habitat for the brook trout ancestor arriving after the glacier's retreat. Many Long Island rivers have long estuarine areas where trout can become "salters" (sea-run brook trout)." Behnke goes on to tell us that 19<sup>th</sup> Century fishing leases on Long Island went for as much as \$2,500 a year, a fortune given the dollar's value at the time.

Behnke's mention of the significance of Long Island's geology for brook trout is important for us to take note of as we study the history of the salter brook trout fishery, and as we consider the future of salter brook trout in the United States. The geology of both Long Island and Cape Cod is the product of glaciations, a phenomenon that geologists call terminal moraine. Cape Cod and Long Island are formed by glacial till and outwash in places where a massive lobe of ice halted and then retreated. The result is a sandy and highly absorbent substrate. When we add the sea level rise that has been taking place since the ice retreated, we find that the freshwater lens underlying these soils has been pushed very close to the surface of the soil by the heavier, encroaching saltwater, generating numerous streams that flow into estuaries and bays. Before they were altered by dams, agriculture and development, these streams of Cape Cod and Long Island provided an ideal supply of cold water

for brook trout.

And, not surprisingly, at the same time that America's first sport fishery was evolving on Long Island, it was also taking place on and near Cape Cod, and by the 1800s we find the names of many of the same anglers associated with both fisheries. And as with the Long Island fishery, the beginnings of the Cape Cod salter fishery can be traced back to Colonial times.

### **The Diary of John Rowe**

One of the most detailed Colonial records of trout fishing in Massachusetts comes to us through the diary of a Boston merchant named John Rowe. Anyone familiar with Boston has heard of, or visited Rowe's Wharf. You've also probably heard of the Boston Tea Party, when a shipment of tea was looted from a ship named Beaver, and tossed into Boston Harbor. Both the Beaver and the wharf bearing his name were owned by John Rowe. The irony of the Tea Party incident is that Rowe was a good friend and fishing buddy of John Adams who would later become the second President of the United States.

John Rowe caught numerous trout from many locations along the coast south of Boston that included some 60 trout days in the town of Pembroke while fishing along the Indian Head River, a major tributary of the North River. But the trout fishing that impressed him the most was a day spent fishing a tidal stream named the Monument River at the north end of Buzzards Bay. On that day Rowe caught twelve "good trout" with several of them attaining a length of 18 inches. Rowe also experienced good trout fishing in the Mashpee River and several other Cape streams.

When we read Rowe's mid 18<sup>th</sup> Century account today we're impressed by, not only the numbers of trout that he creeled ( he often counted them by the dozens, as in "6 dozen trout were taken at Duxbury Mill"), but the number of locations along the coast where he caught trout. However, despite the seeming abundance of the brook trout that Rowe fished for, it is reasonable to assume that brook trout had already begun to disappear from many of the Massachusetts streams that Rowe knew. By 1770 most of the forest cover of eastern Massachusetts had been cleared for lumber, fire wood and farms. Meanwhile, mill dams were being built on almost every stream in the more settled areas extending out from Boston and Plymouth. At first the mills were small, seasonal operations that were used to grind corn and wheat for flour, but in time, sawmills began operating to saw lumber for houses and ships. The mill dams not only blocked the passage of diadromous fish species to and from saltwater, by impounding water and turning streams into a succession of ponds, they were also rapidly changing the ecology of the region.

### **Jerome V. C. Smith and The Fishes of Massachusetts**

*"Alas! that the manufacturing interest should clash with the success of the fisheries! It is not that we complain of these obstructions as preventing the fish from going down to the sea; we should be content to find them still where nature placed them. But now, they are dispersed and degenerated in quality, the waters are poisoned, and the legitimate current of the rivers, like the present course of politics, is forced into new and untried channels..."*

*"Proceeding with the order in which we arranged the three principal varieties of trout peculiar to this state and its vicinity, we come now to the last, and by far the most esteemed, viz : — the sea-trout. They are found, as may be inferred from the name, in the salt and brackish waters of tide rivers, creeks and inland bays, in various parts of this and the adjoining states. But with the exception of "Fire-Place" on Long Island, we are not aware of their being known in the same plenty and*

*perfection as in " Waquoit Bay" upon Cape Cod; a place of well known resort, and to which our remarks will more particularly apply."* The Fishes of Massachusetts

Dr. Jerome V. C. Smith was a well connected physician who supervised Long Island Hospital in Boston Harbor during the 1800s. He fancied himself as an ichthyologist, and he was an avid participant in the Cape Cod salter fishery. Smith's book, "The Fishes of Massachusetts" (1833), is perhaps the most commonly used reference for people writing about the Cape sea-trout fishery today. The value of the good doctor's book comes not from its intended scientific merit, which was abysmal even for his time, but for the description of fishing for salters on Cape Cod that he devoted the last pages of his book to. Smith has left us with a vivid description of the fishing for "sea-trout" on the south side of Cape Cod in Waquoit and Popponesset Bays. Both bays are brackish water tidal estuaries that have multiple cold water streams entering into them. Waquoit Bay is fed by the Quashnet River and the Childs River, while Popponesset Bay collects the waters of the legendary Mashpee River (often spelled Marshpee by Smith and others) and the smaller Santuit River.

Smith and his companions preferred to fish the bays of the south Cape during the early spring, from late March into April. There were specific locations in the bays where one could expect to take trout during certain times of the tide. These were places where forage species were concentrated by currents sweeping past points or over sand bars. It was not unlike the way that we might fly fish for striped bass today, except that Smith and his cohorts were catching trout... as many as 80 on a tide. They filled bushel baskets with trout at a spot in Popponesset Bay called "Pokket Point." Later in April they would catch striped bass mixed in with the trout. Smith wrote that most of the trout caught weighed about half of a pound and weren't much bigger than herring, but occasionally trout of three pounds would be caught. The biggest trout that Smith had heard of weighed five pounds, and it came from the Mashpee River which was famous for its big trout. Smith advocated for releasing small trout and even discussed the issue of cruelty in the form of inflicting pain in fish, a subject that we would not expect from a 19<sup>th</sup> Century angler. Smith also recorded a visit to Martha's Vineyard during November where he was amazed to see Mill Brook crowded from bank to bank with the writhing bodies of spawning salter brook trout.

The greater significance of Jerome Smith's account lies in the nature of what he unintentionally tells us about the trout of the south Cape streams – that the trout probably gathered in the bays during the colder seasons as meta-populations derived from a number nearby of streams. In all likelihood this "schooling" was taking place, as well, in other estuarial systems where multiple streams entered (Rowe's 60 trout days on the North River took place in early April). Tidal rivers like the North River of Marshfield and Scituate, the Wareham and Weweantic river complex and the Westport River (all southeastern Mass. streams), were and still are, fed by multiple cold water brook trout tributaries and at one time would have supported these meta-populations of trout that insured genetic resilience in the overall population. In the end, although Smith laments the destruction that dams and mills were wreaking on trout, he informs us that, as of 1832, brook trout were still abundant in the coastal streams of Massachusetts from Cape Cod up to Marshfield.

### **Daniel Webster**

We can't have a discussion of salter brook trout without mentioning Daniel Webster who lived much of his life in Marshfield, Massachusetts. Webster was an immensely popular lawyer and career politician blessed with a gift for delivering inspiring oratory. He was also a fanatical angler who fished most of the better coastal streams in Massachusetts and Long Island. By most accounts, his favorite trout stream was the Mashpee River on Cape Cod, but he also must have had a special

fondness for the Fireplace Tavern on the banks of the Carmans River, because he will forever be linked to the Fireplace by the 14½ pound trout that legend says that he caught there in 1827. Whether this trout ever existed, or was caught by Webster, is still being debated. While Nick Karas in “Brook Trout” presents the story as being true, Robert Behnke in one of his articles went to considerable lengths to debunk the tale. Behnke maintained that the largest size attained by brook trout on Long Island was about 4½ pounds and he used newspaper reports of large trout (apparently, unusual catches were routinely reported in the New York papers of the time) as evidence that Webster never caught such a trout. If he had, it certainly would have been big news in the New York press of the day. As a footnote to this debate, it should be mentioned that the New York press did recently run a story on an 8 pound brook trout that was caught in saltwater on Long Island. Another report from Maine tells of an 8 pound brook trout that was captured while trying to ascend a dam on the lower Penobscot River. It may be that outsized salters are possible.

### **An account from the Quashnet River**

The numbers of trout produced by Cape Cod and Long Island streams was often commented on by trout anglers of the 19<sup>th</sup> Century who were fortunate enough to fish them before their decline. When we read these accounts today, we are struck by the fact that our notions of abundance, as we apply them to our “restored” streams, reflect the “sliding baselines” that we’ve inherited. What we consider to be “restored” and “abundant” are hardly that when we look far enough back in time. While some might consider the Quashnet River and its trout population to be “restored”, old accounts of the Quashnet River tell us otherwise. The following is from an 1843 article that appeared in “The Spirit of the Times: “... we took a look at a river said to be full of brook trout, known as the Quashnet River. Most of the entire length may be forded but the track is through a tangled thicket and difficult to make rapid headway. At every sandy place we could see hundreds of trout, some apparently of large size darting back and forth and appearing to be as plentiful as herrings. We fished for an hour or two, and caught upwards of a hundred of them, just for the sport, and then departed.”[Taken from the History of the Quashnet River Valley].

When this account was written, a dam at head of tide was already taking a toll of the Quashnet’s salters. By the beginning of the 20<sup>th</sup> Century, much of the Quashnet River had been reduced to being a sand choked irrigation ditch for the purpose of growing cranberries. The “tangled thicket” that gave shade and cover to the trout had been plowed back to make flat, mono-cultured bogs. After over thirty five years of restoration work done by T.U. volunteers, the Quashnet, today, seems like a great brook trout stream. But history is telling us that much more needs to be done before the Quashnet can be considered to be fully restored.

### **Theodore Lyman the Red Brook Journal and the hatchery solution**

In 1867 a wealthy young, Harvard educated, Civil War veteran named Theodore Lyman III was appointed to the first Massachusetts Fisheries Commission. The Fisheries Commission was formed because of an alarming decline in anadromous fish, including anadromous brook trout. In his capacity as Commissioner, one of Lyman’s first acts was to travel by rail from his mansion in Brookline to the Buzzards Bay-side town of Wareham to visit with an eccentric industrialist named Samuel Tisdale. Tisdale was an avid sportsman, and Lyman believed that he could rely on Tisdale for information about the local fisheries. Coincidentally, Tisdale had successfully introduced black bass (smallmouth bass) into kettle ponds near his home, and so had earned himself the nickname, “Mr. Bass.”

Lyman could easily see that the region’s salter brook trout populations were being rapidly decimated

by a proliferation of mill dams, and by the numerous cranberry bogs that were being built along streams. The best that Theodore Lyman could hope for was that the enforcement of a new law that ordered fish ladders be installed on dams that didn't already have them would stem the loss of herring and shad runs. Brook trout, meanwhile, faced a greater challenge from the dams than just obstructed passage. The flooded reaches behind the dams smothered spawning habitat, as sediments settled in the reduced flows of the impoundments. The relatively shallow waters of the impoundments were also prone to heating up well beyond temperatures that brook trout could endure. Meanwhile, the methods used to grow cranberries were every bit as destructive of trout as were the mill dams. Run of river cranberry bogs required multiple water control devices for the purpose of flooding and draining the bogs as needed. The streams themselves were straightened and acres of the riparian zone were scraped flat and stripped of any organic material. The material from what had been the stream's banks was used to make berms to contain water when the bogs were flooded, and numerous ditches were dug into the flattened bog surface to facilitate drainage. A layer of sand was applied to the bog periodically to keep the cranberry roots well aerated and free of fungus. Cranberry growing was tantamount to strip mining along the region's trout streams, and there was very little Lyman could do to keep it from happening.



*Red Brook where it flows through cranberry bogs*

It may be that, even before Theodore Lyman arrived in Wareham, he had come to the conclusion that hatcheries were the last hope for brook trout. To that end he enlisted the help of Samuel Tisdale in building a trout hatchery on Tisdale's property at a stream named Maple Springs. To provide trout for the hatchery, Tisdale took Lyman to a small stream that flowed into Buttermilk Bay that still had a good run of "sea trout." The name of the stream was Red Brook, and in the course of acquiring the trout for his hatchery, Lyman fell in love with Red Brook and its setting on Buttermilk Bay.

Lyman's belief that trout hatcheries were a way to counter the loss of wild stream habitat, and the wild trout that such habitat supported, was part of a growing movement toward a technological fix for an increasingly serious environmental problem caused by the growing abuse of rivers and streams.

The hatchery movement was born in 1853 when a fellow with the odd name of Theodatus Garlick discovered a means of propagating brook trout in a rude hatchery that he had built at a small spring located near Cleveland, Ohio. Before too long, his experiment was being replicated elsewhere, and by the end of the Civil War, fish culture had arrived at the Connetquot River on Long Island and had traveled as far away as New Zealand.

The Maple Springs hatchery that Lyman and Tisdale had built and stocked with Red Brook trout was short lived, coming to an end soon after the death of Samuel Tisdale.

Shortly after the end of the Maple Springs experiment, Lyman purchased a house and some land that abutted Red Brook and Buttermilk Bay from the family of Israel Nickerson, who had a small farm across the road. Over time Theodore Lyman would buy up more land along Red Brook, land that included the cranberry bogs placed along Red Brook by the Packard family, and by so doing, he managed to save Red Brook's trout from probable extinction. In the mean time he continued to try to build a trout hatchery at his property at Red Brook with little success, because the trout kept escaping back into the nearby stream during high tides. He also experimented with stocking a variety of salmonids into Red Brook taken from other sources, species that included landlocked salmon, and brown trout. None of these imports survived for long at Red Brook.

### **The Red Brook Journal**

Throughout his service under General Mead during the Civil War, Theodore Lyman had kept a journal of the historic and often tragic events that he took part in. With the war now behind him, he began what he hoped would be a more light-hearted account of his travels to Wareham as Fisheries Commissioner. This account would later morph into a diary of his life as a property owner beside Red Brook. The journal would, in time, grow into a document that spanned over 100 years and three generations. Known as The Red Brook Journal, it covered visits to, and life at Red Brook, and was carried on by Theodore Lyman's descendants after his death in 1897. Included in the journal were the numbers of trout creel during fishing trips at Red Brook during a time span that ran from 1870 into the 1990s. The Lyman Red Brook Journal has proven to be an invaluable tool in our attempt to understand what, over time, happened to the coastal brook trout that once thrived along the rivers and bays of southeastern Massachusetts. The Journal tracks a steady decline that we are only now beginning to reverse.

During their one hundred plus years tenure at Red Brook, the Lyman men and their hired help would labor valiantly to "improve" trout habitat in the brook. Deflectors, weirs and dams were installed, and a pond was even created, but the gradual decline of Red Brook's trout, although much slower than in surrounding streams, continued unabated, reflecting the decline in trout taking place in all of the region's rivers and streams. This region wide loss of trout would, in time, lead some experts to incorrectly conclude that the extinction of the Cape's salters is inevitable.



*The Lyman House at Red Brook*

## **Elegy for a fishery: Robert Barnwell Roosevelt, Frank W. Benson and John Phillips**

In his 1991 article for Trout magazine, “Hatcheries to Habitat? Look Again?” Robert Behnke recounts an address that Theodore Roosevelt’s uncle, Robert Barnwell Roosevelt, made before the American Fish Culturist Association in 1876. After briefly lamenting the deterioration of the Nation’s wild fisheries, Roosevelt went on to inveigh the assembly with a rousing endorsement of hatcheries and the benefits that they were certain to provide. “...*a new science was being born into the world... but the clear light is visible at last... There need be no fear for the future, and in much less than 100 years, the waters of America will teem with food for the poor and hungry, which all may come and take.*”

Robert Barnwell Roosevelt was, like his more famous nephew, an avid outdoorsman, a wealthy New Yorker who loved to hunt and fish. Roosevelt’s idea of a good fishing excursion was to take a month long journey by wagon from New York City to Cape Cod, stopping to fish the trout streams along his route. His destination was the Mashpee River on Cape Cod, but the trout streams that he found along the way kept him entertained with 100 trout days. He often caught many more trout than he and his companions could eat. These he would pack on ice for shipment back to his estate in New York.

Like Jerome Smith and Daniel Webster before him, Roosevelt believed that the Mashpee River was the best of the salter streams. In an article that he wrote for one of the outdoor publications of the time, Roosevelt described the Mashpee as being so overgrown with brush and tree limbs that one had to crouch if one wanted to fish in the stream. For Roosevelt, the reward for struggling to fish beneath the Mashpee’s canopy of vegetation was the biggest brook trout of his life, a three pound beauty.

One has to wonder what Robert Barnwell Roosevelt might have been thinking when he learned in 1877 – just a year after his speech to the American Fish Culturist Association – that the United States Fisheries Commission had begun raising carp imported from Europe, and soon began to put them into every water body that they could reach. To quote again from Behnke’s article: “In much less than 100 years, the carp became the dominant species in the freshwaters of America – that is, there are more tons and megatons of carp than any other single freshwater species – but even the poor and hungry don’t want to come and take them.”

Meanwhile, along the coast of southeastern Massachusetts, and on Cape Cod, trout hatcheries were springing up along many of the salter streams that had been fished by John Rowe and Jerome Smith. Trout propagation was becoming a cottage industry, a Mom and Pop business that many who owned streamside property were willing to try their hand at. The Town of Plymouth probably had the most privately owned trout hatcheries in Massachusetts, but there were several others in the nearby towns of Duxbury and Wareham along with several on the Cape. Eventually, the state of Massachusetts Division of Fisheries and Wildlife would begin to raise trout to stock in streams and lakes that had public access. The first of these state run hatcheries was the Sandwich Hatchery, which is still producing catchable trout for anglers today.

At about the turn of the century (1900) on Long Island, the South Bay Fishing Club was busy converting its property along the Connetquot River into a fishing park that featured an almost completely human manipulated Connetquot, choked with hatchery produced salmonids that included rainbows, and browns as well as brook trout. The river’s wild brook trout, the salters that originally drew anglers from New York City, were now overwhelmed by the sheer mass of non-native trout being dumped on them.

As trout propagation became regarded as the answer to keeping anglers happy, the worsening conditions for salter brook trout and their streams escalated due to a lack of concern about habitat.

### **Elegy for the Agawam: Warblers, Arbutus and Trout Now and Then**

In his book, “A Sportsman’s Scrapbook” (circa 1928), John Phillips, a Harvard educated “Boston Brahmin” and a noted philanthropist, physician and naturalist, movingly described a season’s trout fishing in the Agawam River, once a major salter stream that flows from Halfway Pond in Plymouth to the tidal complex of the Wareham River in the town of that name (Lyman mentions the Agawam in his journal). In the story titled “Warblers, Arbutus and a Trout Now and Then” Phillips tells of fishing his beloved river near his camp at Eagle Hill. The story is a loving elegy for the Agawam and its salters. At the time of his writing of the story, the Agawam’s salters had been extirpated by the expansion of Glen Charlie Pond for the purpose of irrigating cranberry bogs. Before the dam at Glen Charlie was enlarged, salters somehow had managed to migrate in spring time over fish ladders and through the ponds in the lower river near tidewater to reach the cold, spring fed flows of the river upstream near Phillips’ camp.

Those of us who have been fortunate enough to fish Red Brook, or the Quashnet River and the Mashpee River during the spring season, can readily appreciate the detailed imagery of Phillips’ story. Phillips describes a succession of flowers from arbutus to lady slippers, and the passage of migrating birds as the days grow warmer, all coupled with soft tendrils of moss clinging to the pitch pines and the tangy scent of the ocean when the wind is from the east. To us, today, this seems like a very unique setting in which to fish for brook trout, but for Phillips, and those who came before him, this was where brook trout lived. The fishing began each year by catching the “native” trout that had not ventured down to the bays. Then the salters would begin to arrive in the stream; longer and lighter colored than the resident trout, they were easily differentiated from the “natives”. Each fall the salters would spawn on a stretch of river bottom gravel below the camp at Eagle Hill, and then they would descend back down to the bays to spend the winter. After the expansion of Glen Charlie Pond flooded their spawning site, the salters disappeared.

Not too long after the events of John Phillip’s story, cranberry bogs were placed along the Agawam enveloping the stream through the length of river that Phillips had fished. Today only a short reach of the Agawam, running down from Halfway Pond, remains unaltered, and this, because of the warm water issuing from the pond, historically would have been the poorest trout habitat in the stream.

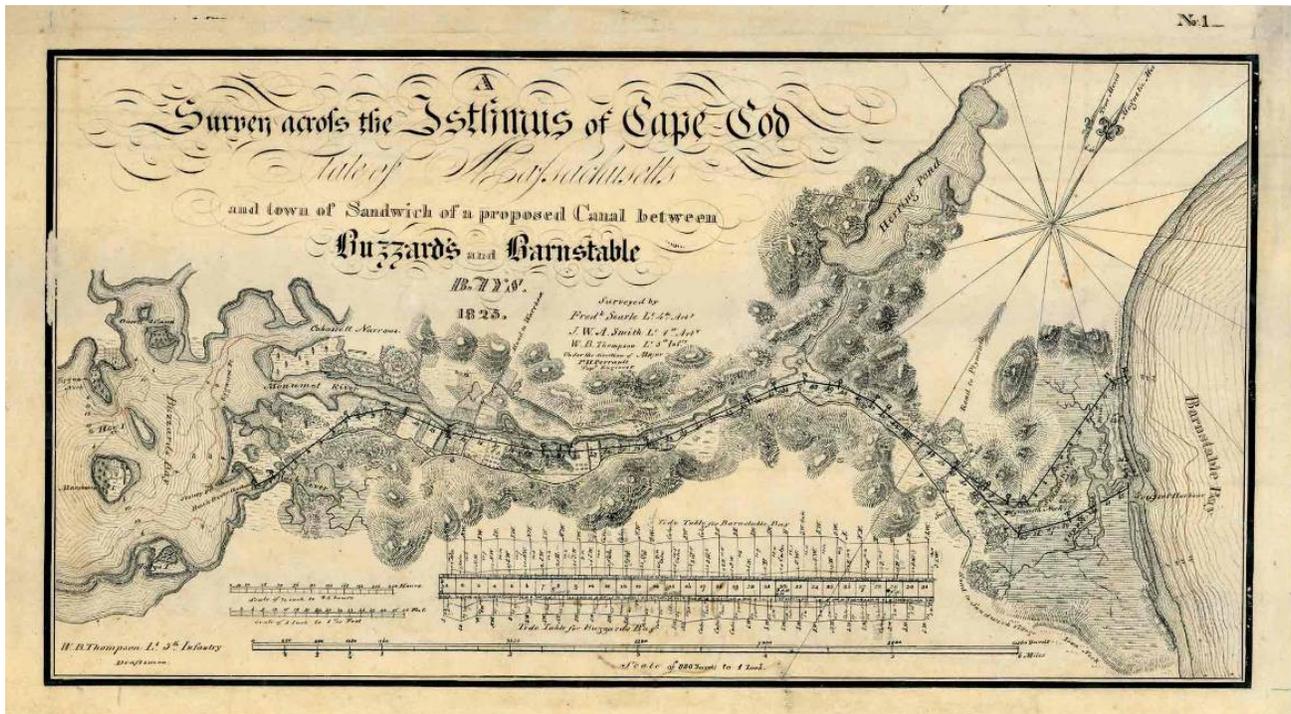
Yet, in 1979, when I canoed down the Agawam from Halfway Pond, I found brook trout feeding on insects in the shadow of the culvert that funneled the stream into the first set of bogs on the river. I often wonder if they are still eking out a living in the small length of the Agawam that remains to them.

### **The Fate of the Monument River**

Almost as an after thought to his elegy for the Agawam, Phillips wrote about catching what he believed to be the last salter taken from the Monument River; a three pound brook trout caught from under a dredge that was digging the Cape Cod Canal.

Plans for digging a canal across the Cape had been proposed as early as the 1600s, because the shoals off of the outer Cape Cod are some of the most treacherous waters along the Atlantic Coast. William Bradford in writing “Of Plymouth Plantation,” gives the fearsome shoals and currents of the outer Cape as the reason that the Pilgrims turned back from sailing further south toward Virginia. In

his book, “Cape Cod,” Henry David Thoreau described a thriving salvage industry that subsisted on a steady supply ships that foundered on shifting bars and washed ashore on Cape Cod’s storm lashed beaches. It was not until 1914 that a privately financed Cape Cod Canal was completed, only to put its builders into bankruptcy because it was too shallow and dangerous to invite much traffic.



Cape Cod Canal - Proposed Route in 1825 "A Survey Across the Isthmus of Cape Cod, State of Massachusetts" US Army Corps of Engineers Major R.H. Perault National Archives Reprint: www.old-maps.com Original size: 12" x 20"

While it is hard for us to imagine a 3 pound brook trout, like the one that Phillips caught, surviving in such an altered environment, it is not surprising when we fully consider what salters had endured to that point in time.

The Cape Cod Canal that we know today was completed in the early 1930s as a depression era work project that forever altered the estuarial ecosystem of Buzzards Bay, and probably the entire north Atlantic. At about the time that the Cape Cod Canal was completed, the once abundant eel grass disappeared, not just from Buzzards Bay, but along the entire Atlantic coast. The loss of the eel grass put Charles and Henry Lyman’s uncle, Samuel Cabot, out of business. Cabot manufactured and sold a house insulation product called Cabot Quilt that was made using eel grass wrapped in paper – a fore runner of fiberglass insulation. And perhaps not so coincidentally, the Lyman Journal marks the early thirties as the end of the sea-trout fishery as the Lymans had known it at Red Brook from the time of Theodore Lyman III. The schools of bright trout that had appeared in the early morning April tides at the mouth of Red Brook abruptly disappeared. The Lyman Journal blamed the death of Red Brook’s sea-trout fishery on the mysterious loss of the eel grass.

In time the eel grass returned, but the bright schools of spring salters never did. And the Monument River that had supplied John Rowe with fat 18” salters faded from memory.

**How to Kill a Trout Stream**

*“All drove to Fresh Brook, South Wellfleet to try for Trout. Tied the horse and fished downstream of*

*the Railroad [bridge]. In the pool above the track F. W. B. [Frank Benson] caught a half pounder, then another half pounder then a one pounder. The others arrived and we caught from the pool 13 more fine Trout... the 15 fish weighed 17 pounds after they were brought home and washed.”*  
Farmhouse Log, April 2, 1893 – Frank W. Benson – *The Sporting Art of Frank Benson*

According to Massachusetts Division of Fisheries and Wildlife records, Fresh Brook, located in the Outer Cape Cod town of Wellfleet, was still providing good fishing for salters in 1955. When I visited Fresh Brook in 2008 with Michael Hopper and MDFW fisheries biologist, Steve Hurley, we found a silt filled impoundment where the stream had once flowed. Over time, the old rail bed had been converted to a bicycle trail, the bridge of Benson’s story had been replaced by a culvert, and the little trout stream that the famed artist Frank Benson knew, had been intentionally converted into a pond. This senseless flooding of a popular trout stream took place for unknown reasons. No one today seems to know who made the decision to dam the stream. The pond was created by a lipped culvert that directs the stream under the bicycle trail. With that one action, the salter brook trout of Fresh Brook were wiped out... erased from the face of the earth forever.

The fate of Benson’s Fresh Brook serves as a searing example of the utterly thoughtless abuse of all of our streams that has taken place over the past few centuries. It is abuse that has long been abetted by a false sense of complacency engendered by a now deeply entrenched hatchery system. The memory of the bountiful cold water resource that Jerome Smith wrote of, and that once existed along the Atlantic coast from Long Island to Cape Cod and north up through Plymouth and Marshfield, just south of Boston has been erased. The thousands of people, who routinely pass over these streams, as they go about their business barely see them let alone know that they once harbored a native char, misnamed brook trout, by the first English settlers. Many people today, including some of our state biologists, seem to believe that trout come exclusively from hatcheries.

At present the most popular recreational fishery in Massachusetts, and the rest of the country, is the largemouth bass, an outsized member of the sunfish family that thrives in warm water. Remember Theodore Lyman’s friend, Samuel Tisdale? Tisdale’s imported smallmouth bass did well in the cooler kettle ponds that dot the glacial outwash plains of Plymouth, Wareham and Cape Cod, but even they could not survive in the warmwater impoundments that are the sorry legacy of mills and cranberries. It was the introduction of largemouth bass – a distinctly southern member of the sun fish family – that today gives the impoundments that punctuate and disrupt our streams a recreational value.

### **Letting Go of a Dream**

In an editorial for a 2013 issue of Massachusetts Wildlife titled, “Letting Go of a Dream,” the Director of the Massachusetts Division of Fisheries and Wildlife, Wayne MacCallum, wrote of the ending (after 46 years) of the Atlantic Salmon Restoration Program on the Connecticut and Merrimack Rivers. While MacCallum cites low survival at sea as a reason for low returns of Atlantic salmon throughout their North American range, the fact of the matter is that both the Connecticut and the Merrimack have been so altered by dams that they can no longer support runs of Atlantic salmon. While this significant ecological detail should have been apparent to state and federal biologists back when the effort to return salmon was begun, the impact of the dams was overlooked in favor of an unfounded belief in hatchery technology.

Without the removal of dams, the restoration of Atlantic salmon to our rivers is precisely what M.D.F.W. Director Wayne MacCallum labeled it... a dream. Just as it is with the mill ponds and cranberry reservoirs of southeastern Massachusetts, largemouth bass is the most popular game fish of

the lower reaches of the Connecticut and the Merrimack Rivers.

### **Trout and habitat**

There is ample evidence at Red Brook showing that, unlike the architects of the Connecticut River salmon restoration, Theodore Lyman and his grandsons, Charles P. Lyman and Henry Lyman, understood that stream habitat had a lot to do with trout survival. Old deflectors and weirs are common sights as we wade the stream. The Lymans also believed that the dams on Red Brook could be used to manipulate flows for the benefit of trout. Scour holes below the dams provided deep water and cover, while the impoundments above the dams would also create deep water habitat. What actually occurred over time was the further destruction of brook trout habitat. The impoundments behind the dams filled with sand and sediment causing the shallow, slow moving waters behind the dams to heat up under the summer sun. The slowing of the brook's flow also negated any benefit that the deflectors might have accomplished. The only cover remaining for trout in the lower reach of Red Brook was the scour holes below the dams, and these dams, at times, amounted to traps that hindered trout movement and concentrated the trout in a few pools where they were easy prey for poachers, otters and birds. As recently as... well, today, the concept that the best trout habitat is a natural process, and not an anthropogenic contrivance, is hard for many people to accept.

### **A Persistent and Hardy Little Char**

In 1900, the artist Frank W. Benson would join the Tihonet Club, a fishing refuge for rich Boston businessmen, that was located near brook trout streams on the property owned by cranberry grower A.D. Makepeace in the towns of Wareham and Plymouth, Massachusetts. One of the streams included in the club's leased waters is Maple Springs, the site of Theodore Lyman's and Samuel Tisdale's attempt at a trout hatchery using Red Brook salters as brood stock.

By 1900, the streams of the Tihonet fishing lease had long been cut off from tidewaters by a complex series of dams and reservoirs first designed to accommodate barges carrying bog iron to the Tihonet Mills steel processing factory, located where the A.D. Makepeace Company's headquarters sit today. After the Tihonet bog iron operations ended, the canals and streams were re-engineered to supply water to the cranberry bogs that were planted in the old iron mining sites.

During the early years of the Tihonet Club, the brook trout fishing was fairly productive, despite the horrific alterations made to the streams. The daily creel limit for club members was 30 trout per day weighing no more than 10 pounds in total. But by 1941, when Frank Benson passed from this world to fish for the ghost salters of his youth, the fishing at the Tihonet Club's waters had become dependent on stockings of catchable hatchery reared trout that were, more often than



*Wild brook trout spawning waters above Frogfoot Reservoir,  
Tihonet Club, Wareham MA*

not, oversized browns and rainbows.

A few years ago, I was invited to accompany Michael Hopper and Geof Day on a fishing trip on the Tihonet Club's waters. Hopper had successfully bid for the trip that was offered by club member Reed Austin at a fundraiser for the Atlantic Salmon Federation. The trip took place in October, and the trees around Frogfoot Reservoir were ablaze with red and yellow leaves as Reed Austin guided us out onto the pond in canoes while telling us stories about the history of his club. As it so often happens with these types of trips, the timing was off. The reservoir had been drawn down and the only fish caught was a pumpkinseed sunfish landed by Michael. At some point, we decided to abandon the fishing and poke around. As we paddled the canoes up the eastern tributary stream that flows into Frogfoot, we started seeing brook trout in their brilliant autumn colors. The trout ignored the flies that we cast at them, and after we'd paddled further up into the stream we could see that the bottom of the stream was dotted with spawning brook trout making their redds.

For the three of us, seeing the brook trout spawning in those clear headwaters that were feeding into the cranberry reservoir, on what had been Frogfoot stream, was far better than catching trout. The sight of those orange and red hued brook trout reaffirmed our faith in the tenacity of our native char, and further strengthened our resolve to work at winning back their streams.

### **The Stirrings of Change**

To commemorate Trout Unlimited's first Red Brook fundraiser held at Red Brook in September of 1993 then Governor William F. Weld, sent a letter of congratulations in recognition of the donation of much of Red Brook to Trout Unlimited by the Lyman family. It reads as follows:

*Dear Friends of Trout Unlimited:*

*On behalf of the Weld-Cellucci Administration, I applaud your steadfast commitment to brook trout, brown trout, rainbow trout, and lake trout –an undertaking gravitatis.*

*As such, it is most fitting that the Lyman family has entrusted Red Brook to Trout Unlimited. Forested Wetlands, vegetated wetlands, upland forests, estuaries, with fresh and salt marshes, and above all, a glorious five mile long trout stream form nature's sanctuary at Red Brook. As newly appointed guardians of this treasure, you are charged with the protection and preservation of the spawning grounds for *Salvelinus fontinalis*, *Salmo trutta*, *Salmo gairdineri*, and *Salvelinus namaycush*. To that end I pledge my undying fealty.*

*The donation of Red Brook, after 130 years of family care and enjoyment, is a noble gesture by exemplary citizens. The Lyman family has ensured the preservation of Red Brook for generations to come.*

*Sincerely,*

*Bill Weld*

It is interesting, even humorous, to note from the vantage point of today, Governor Weld's enthusiasm for protecting spawning gravel for salmonid species that don't belong in Red Brook. At the time, however, it was not exactly clear what was in Red Brook. At least one brown trout had been captured when Francis Smith and members of the MA/RI Council of TU had shocked the brook a couple of years before.

When Henry Lyman first wrote to Trout Unlimited, about taking Red Brook off his family's hands in 1987, Trout Unlimited's response was less than enthusiastic. Lyman had to write to then TU President, Robert Herbst, a second time with his proposal to get an acknowledgment. Ultimately, it would take considerable pressure from the Massachusetts/Rhode Island Council of TU's Chair, Francis Smith, to convince TU to enter into an agreement with Henry Lyman and the Red Brook Trust.

At the time, Fran Smith had the clout to put pressure on Bob Herbst and Trout Unlimited's Board. Smith had orchestrated what was one of TU's best success stories.

### **The Quashnet Revelation**

The Massachusetts Division of Fisheries and Wildlife had been able to acquire a considerable amount of land along the Quashnet River after a series of hurricanes in the 1950s had devastated the cranberry bogs that the stream supported. The acquisition of the property sparked a renewed interest in salters by the M.D.F.W. You'll recall that the Quashnet fishery had been ruined when much of the stream had been reduced to an irrigation ditch for cranberries. Other nearby streams, like the Coonamessett River and the Childs River, had suffered a similar fate.

In an attempt to restart the Cape salter fishery, the Mass. Division of Fisheries and Wildlife dumped thousands of Sandwich Hatchery brook trout into the south Cape streams. The theory was that salter brook trout moved out into saltwater because the streams were over crowded. The Sandwich trout did move out to the bays, and then back into the streams, but their movements were random and reflected what they actually were – lost hatchery trout. Before too long they disappeared.

It wasn't until 1975, when then district fisheries biologist, Joseph Bergin, contacted local members of TU to enlist them in a plan to restore the Quashnet, that anyone began to address the actual cause of the salter fishery's decline. But in the beginning, the intended goal was to create a new trout fishery – one that consisted of sea-run brown trout.

### **Francis Smith and Cape Cod TU**

The volunteer work on the Quashnet was led by a young TU member, a Vietnam war veteran and plumber named Francis Smith. Smith's extraordinary leadership and organizational skills quickly became apparent as he formed volunteers, recruited from the streets of Falmouth and other nearby towns, into effective work parties that met at the Quashnet once or twice a month. After quickly becoming versed in what little stream improvement information was available, Smith began the slow process of rebuilding the Quashnet River. His crews built many of the skyhooks that were cantilevered lumber devices meant to narrow a channel and create scour while providing overhead cover for trout. They raised money, accumulated piles of rock and cedar trees, and yard by yard they narrowed the Quashnet, placed rock and log weirs in the river to make pools and created what they called "Lunker Bunkers" by placing the skyhooks along the streams margins. The goal was to restore trout habitat while making the Quashnet look as natural as possible when the work was completed.

Meanwhile, the Mass. Div. of Fisheries and Wildlife had imported a sea-run strain of brown trout to raise at the Sandwich Hatchery. The plan was to start a wild fishery by stocking the sea-run browns into the Cape streams. It was hoped that the habitat improvements to the Quashnet would supply some spawning habitat for the browns, and that the browns would return to the Cape streams in large schools the way that they did in Europe, and in the way that the salter brook trout formerly had.

It is clear that by 1975, any thoughts of restoring salters that the Division may have had were abandoned. It was believed that brown trout were hardier than brook trout, because they could tolerate warmer water for short periods of time.

But by 1987, when Henry Lyman first contacted Trout Unlimited about gifting them Red Brook, the Quashnet's brook trout were proving that the Division's obituary for them was premature. Luckily for all concerned, the success of the Quashnet restoration combined with Fran Smith's recent ascension to the Chair of the Mass/Rhode Island Council of TU, created the unique situation that would force TU into an arrangement – one that they were not at all comfortable with. The same tenacity that Smith had applied to the Quashnet now came to bear on TU National. Fran Smith made it very clear that he wanted Red Brook, and within a few years a deal was struck between TU and the Lyman Red Brook Trust – a deal that would leave TU National with 680 acres of land, a salter stream thought by many to be beyond salvation, and many nagging doubts.

It is very likely that Lyman had brown trout in mind when he set out to enlist TU for Red Brook. Henry and Charles Lyman had experienced some success with a brown trout fishery that they had started at Red Brook in the 1960s. While, even during the best years, Red Brook never yielded brook trout bigger than three pounds, and these 2¾ pound brook trout had always been scarce, the Lymans had caught several browns in the 4 to 6 pound range at Red Brook. The problem was that the browns had little success spawning at Red Brook, and that was proving to be true in the Cape Cod “sea-run” streams as well.

When the first TU fundraiser for Red Brook was held in 1993, brook trout were once again thriving in the Quashnet River. There may not have been hundreds of trout streaking about in the shallows as there once had been, but the years of work done by Fran Smith and Cape Cod TU had begun to pay off, not in silver runs of big sea-run browns as some had hoped; instead, something better happened - a return of what had always been there.

### **COMING NEXT: FINDING THE WAY BACK**

#### **“Establishing a Beach Head for Salters”**

## **The Edwards Dam Removal: 15 Years Later** by Doug Watts

In spring 2014 I stood nervous and shaking in the ancient oaken chambers of the Kennebec County Superior Court in Augusta, Maine. Justice Donald Marden stared at me from his bench and said, "Mr. Watts, do you ever do anything besides fish on this river?" I answered, "No, your Honor. I'm kind of a river rat."

I lied, of course. I only go catching fish on the Kennebec a few times a year, mostly to accompany my young nephew Danny. Instead I spend my time leafing through thousands of pages of new and old government reports about the Kennebec River. It's funny how a passion born from fishing on a river makes it so you never spend much time on it. I don't regret it.

I was in the Kennebec County Court House this spring to present oral argument on a lawsuit which I filed against the State of Maine in 2013. I wanted to force the State of Maine to initiate a state fishway proceeding against the owner of a tiny stone dam on Cobbosseecontee Stream in Gardiner which has blocked sea-run fish for almost 200 years. The State of Maine Attorney General opposed

my action and won. There were no 'high-fives' on Cobbossee Stream in Gardiner that day, as a 100,000 native alewives hopelessly tried to pass the dam in question. It was business as usual on Cobbossee, where the native fish have been told 'no' since 1760.

The defeat at Cobbossee in 2014 received no newspaper headlines. Nobody even knows it happened. In 2015 another 100,000 alewives will bash their tender faces against the dam and nobody will know or care. This condition will continue as it did when I first walked down the stream in 1995, when I was 20 years younger.

In the fire-hazard of a room my wife Lori politely calls, 'Doug's office,' are stacks of yellowed and coffee-stained copies of every federal and state restoration plan for the Merrymeeting Bay watershed since the 1970s. Reading them reminds me of James Taylor's line from 'Fire and Rain' – 'sweet dreams and flying machines in pieces on the ground.' As an historian of river restoration efforts in Maine going back to the 1700s, the goals stated by the Maine DMR in 1976 and 1986 and 1992 and 2002 are remarkably similar to those made in 1786, 1826 and 1876. The goals are the same, the fact of their failure is the same, and the cause of their failure is the same: some flying machines just don't want to fly.

On the Kennebec in 1810, a normal Atlantic salmon run was about 100,000 salmon at Augusta. A normal salmon was about 18 to 22 pounds. A large salmon was four feet long.

In the past 25 years, in many town halls and school auditoriums across Maine and Massachusetts, my brother Tim and I have been confronted with the claim that, 'You want everything to go back to the 1700s.' Actually, what we would like is to bring things back to around 1869, when the Maine Legislature required by law that every dam on a river which blocks salmon, alewives and shad must be equipped with a fishway that works. That would be fine with us.



*Making the impossible inevitable. Tim Watts at first breach of Edwards Dam, Kennebec River, July 1, 1999. Doug Watts photo.*

Our request is not any different than the debates over the U.S. Clean Water Act in the 1950s, when people simply requested that the waters in their nearby ponds and rivers be as unpolluted as they were in the mid 1800s. Historic records show the extreme industrial pollution that nearly killed the

Androscoggin and Kennebec Rivers by the 1960s was a short, anomalous perturbation which began in the very late 1800s. Seventy years is just a second in the 9,000 year human history of Merrymeeting Bay. Why should one 70-year mistake become the status quo?

Every year since 1999, when the Edwards Dam in Augusta was removed, my brother and I have taken a tribe of kids from southeastern Massachusetts on a late summer camping trip to Five Mile Island on the Kennebec in Augusta. For a week we all swim in the river from sun up to sun down and sleep in tents or under the stars. The water is clean and clear. But no kids or adults from the area will do it with us: they are still convinced by their grandparents the Kennebec is too polluted to swim in. It's not – but that's how strong cultural memory is.

The problem on the Kennebec in the 1970s was that you couldn't see the bottom in five feet of water due to the pollution. The problem now is that you can see right to the bottom – because the bottom is not blocked by millions of migrating fish. As Friends of Merrymeeting Bay successfully argued to the US EPA in 2013, the U.S. Clean Water Act does not stop with the river water being chemically pure enough to support its native fish and wildlife – the fish and wildlife must



*The last rod-caught Atlantic salmon from the Kennebec River, October 11, 1996. Doug Watts photo.*

actually be there. On the Kennebec and Androscoggin they are not – and the cause today, in 2014, is due to dams large and small, built from the 1780s to the 1930s.

Dams are not like acid rain or climate change. They are discrete physical objects sitting in the bed of a river. Each creates its own miniature soap opera and each must be dealt with one at a time. This creates a time-consuming challenge for conservationists, anglers, canoeists and lovers of rivers. To fix the large you must first fix the small. As a carpenter, I know when framing out a house that in some small way every nail I pound into a 2x6 is important. I would not hire a house-builder who didn't think the same. Without the details, there is no house, at least not one worth buying or living in. The same is true with rebuilding a river. Every detail counts – to a baby salmon.

*Editor's Note: Douglas Watts is a native of North Easton, Mass. and lives along the Kennebec River in Augusta, Maine. He is the author of **Alewife: A Documentary History of the Alewife in Maine and Massachusetts**. It is available at <http://www.lulu.com>*

## Update on Connecticut Stream Monitoring

by Michael Hopper, SRBTC

SRBTC and TU volunteers have been continuing to monitor temperature in two coastal streams; Anguilla Brook in North Stonington and Cops Brook in Stonington since 2013. In the spring of 2014, after consulting Steve Gephard, Supervising Fisheries Biologist, CT DEEP, it was decided to drop Cops brook from the monitoring program due to the lack of summertime habitat necessary sustain a population of brook trout. We have continued to monitor Anguilla Brook, learning that elevated summer temperatures are slightly above those that allow thriving wild brook trout populations. SRBTC will continue to monitor Anguilla for one more year to finish the baseline research.



*Looking upstream and downstream, Anguilla Brook, N Stonington CT*

*Perhaps some tree planting can help bring temperatures down?*

## Marshall Brook Culvert Replacement Project Completed

by Michael Hopper, SRBTC



*Before and After, Marshall Brook, Mount Desert Isle, Maine*

The culvert replacement project on both the east and west branches of Marshall Brook, Southwest Harbor on Mount Desert Island (MDI) is now completed. Stream connectivity has been restored in both the east and west branches by replacing three undersized box culverts.

Marshall Brook is a small coastal watershed which lies mostly within Acadia National Park (ANP). Marshall Brook supports a 100% native fish community composed of Eastern brook trout and American eel. Maine Department of Inland Fish and Wildlife (MDIFW) has found that small coastal stream systems are somewhat unique in that often, these are the only two species present. The sea-run brook trout, 'salters' of coastal Maine, have always been a popular and storied fishery, but recent coastal survey efforts seem to support local, anecdotal declines of coastal populations of wild brook trout. ANP and MDI continue to remain a stronghold for these popular recreational fisheries. Marshall Brook maintains a known population of anadromous brook trout although true sea-run fish had been relegated to the main stem reach below two known fish passage constraints due to poorly designed culvert crossings with the Seal Cove Road near the confluence of the East and West branches of Marshall Brook with the main stem.

Phase one started in the Fall of 2011, when work began on two undersized box culverts which were replaced on the East Branch through a partnership consisting of: The Eastern Brook Trout Joint Venture (EBTJV), MDIFW, Maine Fishery Resources Office (MFRO), and the Town of Southwest Harbor.

Phase Two of the project, started in 2013, consisted of replacing one box culvert on the West Branch. The Sea Run Brook Trout Coalition partnered with Trout Unlimited (TU) in identifying replacement of the West Branch culvert as a priority project on MDI. This was SRBTC's first involvement in stream restoration in the state of Maine. A TU/NOAA grant leveraged funding from the town of Southwest Harbor for the replacement of the West Branch Marshall Brook crossing on the Seal Cove Rd through purchase of a large embedded concrete box culvert and the associated construction costs related to its installation for fish passage. The existing West Branch crossing originally consisted of a grossly undersized granite and concrete block box culvert system. Although it was set at the correct stream grade, the extremely small opening was a chronic maintenance issue subject to debris blockages that contributed to significant upstream impoundment effects and chronic fish passage obstructions. Not far upstream of this site, the remainder of the headwater drainage is within ANP and is heavily forested. Natural large wood recruitment is a consistent and encouraged process however the undersized road crossing at the Seal Cove Rd acted as a chronic blockage or impasse for the natural movement of large wood further downstream. The replacement structure is designed to carry 100 year flow events and will meet or exceed 1.2x bank full width criteria and maintain natural stream substrates through the length of the crossing. In addition, in order to accommodate this much larger-sized structure, the road bed between the East and West Branch crossings was reconstructed and raised.

SRBTC is committed to forging strong partnerships with TU, MDIFW, USFWS and local communities in Maine that can benefit from restored streams and healthy populations of salters, maintaining an important component of local biodiversity and cultural heritage.

## SRBTC Receives Patagonia Environmental Grant for Third Herring Brook Restoration

by Warren Winders, SRBTC



*The Sluiceway at Tack Factory Pond Dam  
during Late Summer*

This summer, SRBTC began documenting the before and after process of the restoration of Third Herring Brook and the removal of Tack Factory Dam. This work is being supported through a \$4000 grant provided by Patagonia's Environmental Grants Department.

Third Herring Brook is a tributary of the North River, a large tidal river of the Massachusetts South Shore. The five mile length of Third Herring Brook forms the boundary between the towns of Norwell and Hanover. Tack Factory Dam is the first dam upstream from tidewater on Third Herring Brook. Its removal and the restoration of Third Herring Brook is a Priority Project of the Massachusetts Division of Ecological Restoration. The Tack Factory Dam, like most of the other 64 relic mill dams in the North and South Rivers Watershed, presently serves no purpose.

This past fall the Mill Pond Dam upstream of Tack Factory Pond Dam was opened up and a natural stream channel was created for Third Herring Brook. This was the first dam removal on the North and South Rivers watershed. Once Tack Factory Pond Dam is removed, ten miles of Third Herring's cold water tributaries and main stem will, once again, provide stream habitat for a wide array of diadromous fish.

Until it became obstructed by mill dams during the 18<sup>th</sup> and 19<sup>th</sup> Centuries, Third Herring Brook was a vital cold water stream that supported runs of river herring, smelts, American eel, lamprey eel and salter brook trout. With its previously mentioned 10 miles of combined main stem and spring fed tributaries, Third Herring had long been an important fisheries resource for Native Americans. One Native American site in the North River watershed is among the oldest discovered to date in the Northeast. While the North River's diverse and abundant fisheries gave rise to this long period of habitation by Native Peoples, by the 18<sup>th</sup> Century, colonial settlers were using Third Herring and the

North's other tributaries to power saw and gristmills; and with the resulting proliferation of small dams, the North River's, once abundant, fisheries entered a long period of steady decline.

Thanks to an extensive partnership, Tack Factory Pond Dam's owners, the Cardinal Cushing Center, will soon be able to remove their dam. By doing so, Cardinal Cushing Center will be rid of an aged and hazardous structure that is a huge liability for this school that serves children with disabilities; the full suite of North River fisheries will once again have access to Third Herring's waters for spawning and thermal refuge; Third Herring's natural fluvial functions will be restored – and a precedent will have been set that, hopefully, will lead to the removal of many more of the relic mill dams that are choking our waterways and isolating our native brook trout.

The list of Third Herring Brook Restoration Partners includes the following: the North and South River Watershed Association, Hanover YMCA, Cardinal Cushing Center, TU/NOAA, Greater Boston TU, SE MA TU, Sea Run Brook Trout Coalition, Mass. Div. of Ecological Restoration, American Rivers, U.S. Fish and Wildlife Service and Mass. Bays.

Collectively the Third Herring Partnership has raised hundreds of thousands of dollars that have gone into surveys, engineering, design, permitting and site work, but the bulk of the funding to accomplish the site work entailed in removing Tack Factory Pond Dam, about \$300,000, is yet to be secured.

Over the coming year the restoration partnership will focus on acquiring the permits and funds needed to remove Tack Factory Pond Dam, and thanks to the generosity of Patagonia, Sea Run Brook Trout Coalition will be on hand to document the restoration of this salter brook trout stream.



*Brook trout from Third Herring Brook*

## Short Local Project Updates

And now a few short notes on items you may find of interest:

- SRBTC representative Doug Swesty has been participating on a Suffolk County (NY) advisory panel regarding fish passage at the County-owned dam at Lower Yaphank Lake on the Carmans River on Long Island. At the most recent meeting in November, the panel decided to pursue a nature-like bypass around the dam to enable connectivity for diadromous fish including brook trout. The project engineers, GEI Consultants, Inc. presented a number of different options to the advisory panel. After considerable questioning and debate the panel agreed to pursue the strategy of a nature-like bypass since it had the highest likelihood of

being successful in achieving the goal of allowing fish passage.

- SRBTC is continuing to support a research partnership with Steve Hurley, Fisheries Manager, Southeast district, Mass. Division of Fish & Wildlife (MDFW) aimed at improving monitoring of brook trout movements in Red Brook. Last month SRBTC purchased two more powerful solar panels to be used to upgrade the old units powering two permanent Passive Integrated Transponder (PIT) antennas located on the brook. This upgrade in equipment translates into considerable time savings for MDFW staff, which until now had to swap out multiple 12 volt batteries each week for recharging. These solar powered antennas track time and direction, recording the movements of PIT tagged brook trout on a 24/7 basis. This data is important for greater understanding of how coastal brook trout utilize both the marine environment and the freshwater streams they inhabit.



*A new 150 watt solar panel, deployed at antenna # 1 on Red Brook*

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*All SRBTC projects are entirely funded through membership, donations, grants and gifts from family foundations, and corporate giving programs. If you wish to support our efforts, please think about giving to SRBTC. All gifts are fully deductible to the extent allowable by law.*

*And as always, thank you for your support!*

## Sea Run Brook Trout Coalition Contact Info

Want to find out more about SRBTC? Please feel free to contact President Michael Hopper at (860)-596-4055 (Home number) Also check us out on Facebook at <https://www.facebook.com/srbtc.org> or visit our website at <http://www.searunbrookie.org>



**Order a signed, limited edition (only 100!) James Prosek print of a salter brook trout. All proceeds benefit the SRBTC! Available, framed or unframed through the SRBTC website at <http://www.searunbrookie.org/james-prosek-print>**

## Join the Sea Run Brook Trout Coalition!

Please join us in our effort to protect and restore sea-run brook trout! We are a federally recognized 501(c)(3) charitable organization and your contributions are tax deductible to the maximum extent allowed by law. Your membership fee of \$35/year helps us to continue to carry out restoration projects, advocacy, public education and outreach, and scientific research on sea-run brook trout throughout the NE United States. You can join online through our web site at <http://www.searunbrookie.org> or, if you prefer, you may simply send us a check, made out to **Sea Run Brook Trout Coalition Corp.**, to our postal address:

**Sea Run Brook Trout Coalition Corp.**

**P.O. Box 1024**

**Newburyport MA 01950**

All of our members receive our free periodical newsletter, The Salter, which will keep you abreast of our doings and other matters relevant to sea-run brook trout.