

The First Shad Fishery©

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**Native American Brush Traps – *South Cove, Old Saybrook, Connecticut
And Neighboring Coastal Towns*©**

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Abstract –

Early spring along Connecticut's shoreline generated activities that coincided with the return of anadromous fish, especially the herring – particularly shad. The first shad fishery in Connecticut was conducted by Native Americans, although evidence of these early shad fisheries has been obscured by time and nature. It is still possible to reconstruct a fisheries history – by examining records, books and oral histories whenever possible. In many instances, Colonial fisheries merely replaced Native American ones. The constant factors were habitat, fish behavior and seasons.

This research attempts with multiple references to reconstruct a fishing method that predates modern fishing gear types -- the brush trap or weir. Available materials were fastened to create effective fishing method combined fish behavior and fisheries habitat long before European settlers arrived in Connecticut. Some of today's fishing and fish utilization practices such as the "Shad Bake" remind us of the first people to catch them. This paper attempts to re-establish part of that past here in Connecticut

Acknowledgements –

The foundations of this research began as a cooperative effort between the Town of Old Saybrook's Health Department and my graduate research while attending the University of Rhode Island. Mr. Jack Milkofsky supervised my research work in the field for the University of Rhode Island. During this time, I was introduced to Mr. Clark through Mr. Milkofsky, who provided the boat and equipment to survey South Cove near the mouth of the Connecticut River. That was over 20 years ago, and thus began my learning about the rich fishing history of the Old Saybrook area – especially its shad fisheries.

Fisheries history and the environment of fisheries habitat have recently become nationally significant and my interest in coastal fisheries and gear technology combined to present this information. Several recent reports reference the importance of "habitat fisheries history" in resource management restoration programs. I hope it is of interest to students and those interested in preserving fish populations and fishing traditions.

Much appreciation is given to Alex Disla, Sue Weber and Trish Russell for their help in editing, proofreading and text. Special thanks for layout and diagrams that were prepared by Alicia Cook. Without their help, this work could not have been completed. I would like to thank Nathan Walston of Guilford, Mr. Jeff Wilcox of Stonington and information obtained from Mr. Emil Miller about Hammonasset early fisheries. Mr.

George Bernard of Wallingford gave me the incentive to pull all the information together when he gave me a publication that described native American Nova Scotia brush weirs in a publication titled: "The Woven Weirs of Minas" by Joleen Gordon. Mr. Paul Butterfield of Pawcatuck recently provided an insight to the locations of similar brush weirs along Connecticut's coastline.

The First Shad Fishery

About 25 years ago, I had the opportunity to meet with Mr. Howard Clark, owner/operator of a fish/bait market on what today is called *Saybrook Point*. His family had been involved in the local shad fishery and still held a "King's Grant" to place a fish trap at the mouth of South Cove. This was actually a grant from England, a royal patent giving the Colonial grantee certain rights usually reserved for the "Crown" or assigns, and were treated as "perpetual franchises" to be handed down much as inheritance is today. What had been told to him is that such grants for fish trapping often replaced what Native Americans had long since discovered, the great places to trap fish, especially shad, and this was the case for South Cove. He continued with his knowledge of South Cove and its early shad fishery. He recalled that South Cove (pre-causeway) had a deep channel, which according to Mr. Clark, had oysters and clams much the original focus of our conversation. The northern shore of South Cove had a much different history. The location of large, stone/brush Native American fish trap. According to Mr. Clark, the Cove was much deeper than it was in 1980. When we met during a graduate school project in shellfish management, he stated that much of the Cove had a pebble/sand bottom and that it had a defined channel. Larger vessels were kept in the Cove as protection from the tides and lack of natural anchorages in the area – most likely smacks or small sloops. He said that stone remnants of the Colonial piers could still be seen. The Cove had "much fish," smelt, flounder eel and frostfish, a member of the cod family. It did have a huge run of shad, something Mr. Clark described as a place to hide during the day. He also felt that the causeway had caused much damage to the cove, changing the way the tide entered and left the cove. The oyster beds once in the channel were "buried in mud." Boats would keep the channel clear by dragging a "dredge", a sled like device to clear leaves and brush in and out with the tide. After the causeway, this practice stopped as the depth decreased. According to Mr. Clark, the "Cove is now nearly filled." People stopped setting poles to mark the channel "because there was no channel." 1981 and 1982 shellfish surveys yielded no oysters and what would be described as the channel, held soft dark mud except near the causeway culverts, when the bottom deepened and hard sand was found.¹ Similar

¹ Shellfish surveys conducted for the Town of Old Saybrook. Mr. Jack Milkofsky, the Old Saybrook Sanitarian provided the vessel for all Shellfish Management survey work. See Shellfish Management Plan for The Town of Old Saybrook, URI Masters Thesis, 1985.

South Cove, Old Saybrook, Connecticut

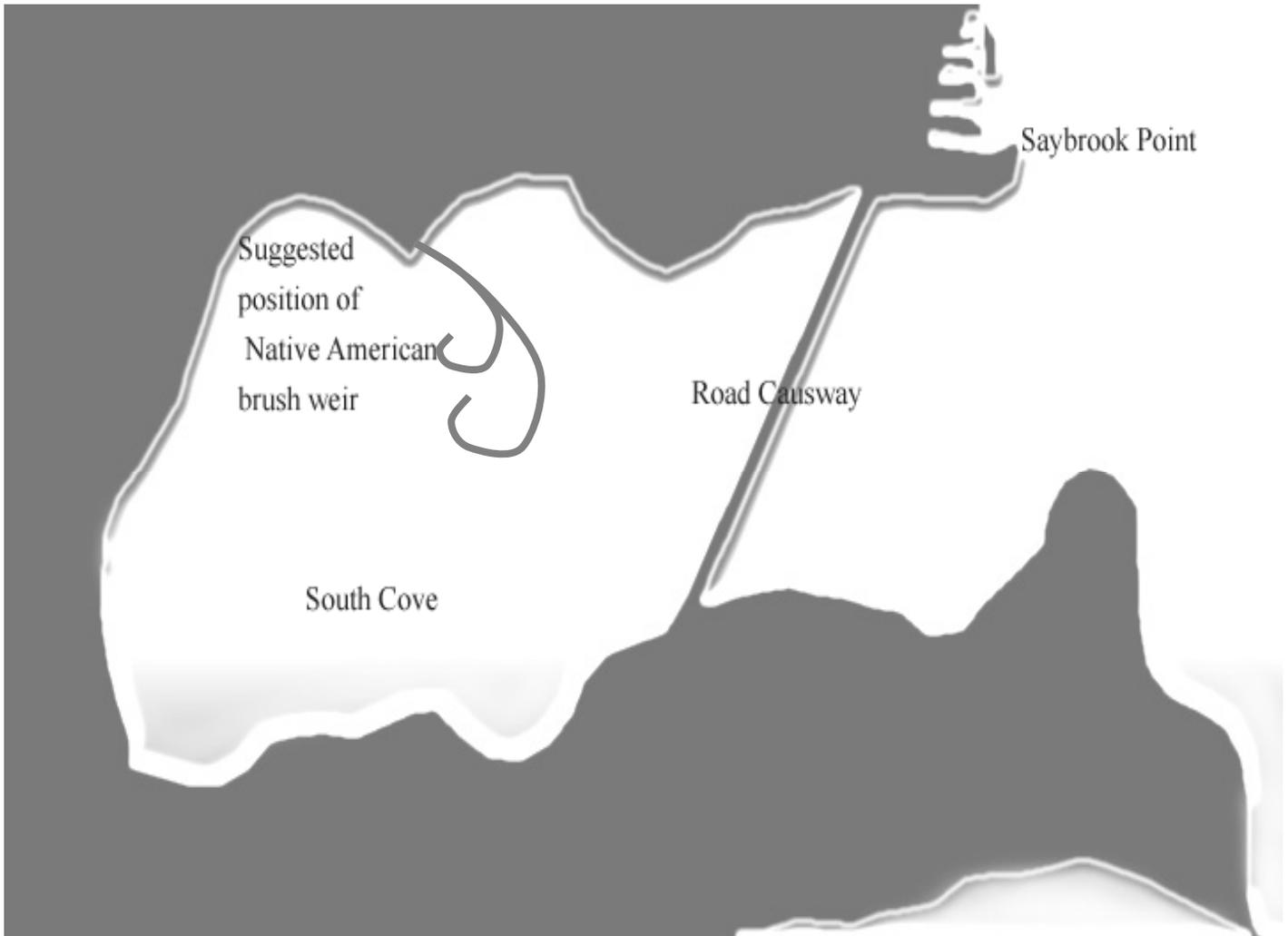


Illustration generated through Photoshop filters by Alicia Cook from image found
@<http://clear.uconn.edu/data.html>

causeways in eastern Connecticut have impacted other coves, as similar declines in historical fishing productivity were recorded. Fish traps on the northern edge were removed and stones used again to build several fish piers for the long haul seine fishing of the 1880's. Mr. Clark described them as Indian brush traps. The remains of the once extensive stone works could be found if one "knew where to look." ²

Additional information from Colonial records indicates the presence of highly organized and skillfully built Native American fish Traps. One of the largest and best documented was found in Boston.³ They required vast amounts of stone, net webbing and brush to be cut and transformed into the trap. Fish traps were labor intensive and thus the catch was divided as they had several different processes and it was impossible even for a small group to undertake. The ones in South Cove (and Mr. Clark felt there was at least two) were a combination of stone and brush, certainly the stonewalls could and did remain in tidal areas, but the brush would be long gone. Insights into the design can be found in the Colonial records, but much of this history is now lost and buried in the earliest Colonial records. One such entry, in East Guilford (now Madison), mentions a dispute in the "herring" fishery between the Hammonasset Indians and the Quinnipiac over the right to place brush in the upper East River called "Kuttawoo".⁴ Frustrations could be found in the records as native Americans did not recognize deed or franchises and rights of passage or right to fish were apart from the right of ownership (living) and rights could be traded or transferred apart from ownership. Thus, early Colonial records indicate buying the same land several times from several tribes. From what we know from the records can be described the following native Americans were keen observers, knew where and when the fish would congregate, used natural features, such as size and depth and tides to capture fish. The basic principles remain largely the same as today, design "traps" in which fish can swim into but cannot escape, or at least easily.

Fish traps weirs were an organized effort, it wasn't a single person venture, and they required much labor and planning. They also required knowledge of tides and fish behaviors. Traps were planned to catch on the incoming tides, as the cove would be in the empty state and a circulation pattern would be established. Fish could be directed into a smaller enclosure based on this movement. Low profile traps such as brush/stone weirs would take advantage of these conditions as the tide receded and stones in tidal areas formed a natural trap – passage at high water – "impeded" at low water. Capture would occur at low water as schools of shad were "trapped" as the tide receded.⁵ The

² TC Visel/H Clark – Personal communications over a two-year period – Mr. Clark thought the chances of restoring oysters and clams to South Cove would be difficult if not impossible. "The Cove," he claimed, "was now filled with muck – hard bottoms that once supported shellfish were changed – mentioned that fishing was once good in the whole cove especially for flounder and smelt, was now limited to the bridge, where currents still kept the bottom clean.

³ American Line Tread Company. Net construction & Design Manual, 1938. The earliest pound nets were found in coastal coves, requiring hundreds/thousands of posts set in a wall to guide fish into the pound . Refer pages: 28&29.Courtesy Mr. Jeffrey Wilcox, Wilcox Marine Supply, Stonington, CT.

⁴ Pg. 32 – History of Guilford and Madison: Steiner, 1897. Discussion of Uncas to set deare (traps) or wares (weirs) in the rivers to catch fish, although members of the Quinnipiac tribe contested this right (1641). Several tribes had distinct different rights which clouded deeds for years. The Fisheries & Fishery Industries of the United States, Section V, George Brown Goode.

⁵ Ibid. The shore weir is usually built very near the landing which answers as one side. It has a long leader running obliquely out from the shore, which diverts the fish to the entrance of the bowl or pocket." Ref: Brush weirs, pg 501

shallow water could be then walked to drive fish into the brush and coarse netting used to capture the shad or close their escape. These half tide traps were the ones that Mr. Clark described.⁶

South Cove Today

A road causeway, with two tidal culverts, today divides South Cove. It is very shallow west of the causeway and deepest to post adjacent to the Connecticut River. *See Map: US Coastal Geodetic Survey.* Certainly, if remains of these traps could be found, they would resemble circular stonewalls into the cove. A similar trap, although much smaller coves should be seen at Tom's Creek on the western edge of Hammonasset State Park. Similar fish traps were also set in Clinton Harbor. The Tom's Creek trap consists of a stonewall jutting into the creek and across it. In small creeks, the traps resembled a basket into which fish were directed. They were constructed from dried reeds or smooth brush. It is a modern fishing gear type that survives to present day -- the collapsible fyke net. The modern fyke resembles these Native American basket types.⁷ It is in small tidal creeks in which these traps would work best. The Indian River in Clinton once had dozens of these types of traps and most likely, the use of these traps for smelt and flounder is linked to its name, "the Indian River." The basket traps sought to divert a portion of the flow into the trap. These smaller brush traps were thought to capture other species such as smelt and flounder.⁸ One large brush trap in the lower Mystic River almost changed the course of early Colonial history.

Paul Butterfield's family dates back to the early settlers. He is familiar with the two trading posts in Connecticut (Dutch), one in upper Connecticut River and the one in Pawcatuck River in the early 1600's.

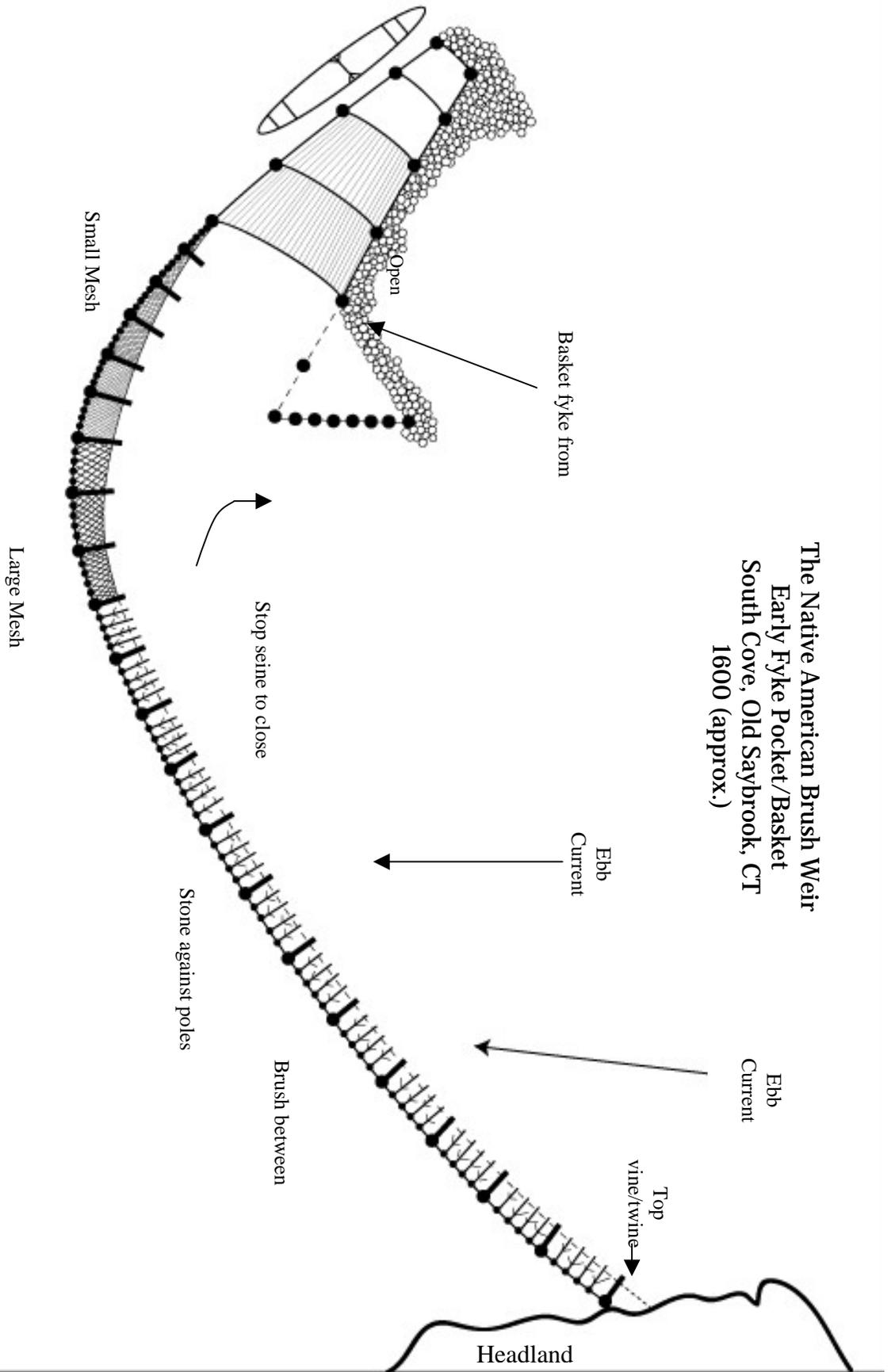
He has read one of the diaries (about the Pequot War) from one of the soldiers who came from RI with the Narragansett's, the westerly area – passed that night after the British withdrew and saw Pequots emptying fish from a large brush weir in the Mystic River. (They were in boats crossing the river at night preparing to attack the Pequot fort.) From what Paul remembered, they were roasting fish – celebrating that

⁶ Several references to a small cove at the Connecticut River Mouth – Old Saybrook side: "The fishermen think that the shad come in toward the shore at flood tide to feed and in proof of this, say that the fifty years or more ago there was a trap here called a "weir" which was formed by stone-walls running out from the shore on the flats and that just before the tide fell, a net was stretched across the entrance, and the shad were enclosed and taken out at low tide." (Was this the location Mr. Clarke mentioned in 1982?) Page 320. The Fisheries and Fishing Industry, Section II, GBG.

⁷ Of early fisheries, almost every region mentions Native American fisheries for shad – The Susquehanna River - "Together with the fact that the early settlers saw the Indians catching shad in a seine made of bushes (called a bush-net) – that shad on the North Branch were taken in quantities by the Indians." Pg 646. Section V GBG

⁸ "The weirs used for smelt are generally "half tide weirs. They are built sometimes in a narrow cove, at high water the smelt pause freely...but on the ebb-tide intercepted by the spreading wings of the pounds." Pg.690. Section V GBG.

The Native American Brush Weir
 Early Fyke Pocket/Basket
 South Cove, Old Saybrook, CT
 1600 (approx.)



Illustrated by Alicia
 Cook2006

the British had withdrawn their ships from the Connecticut River and were in the process of emptying the fish from the brush weir. Apparently it was nighttime, not much light and the soldiers ran into the weir at night. They had to cut their way out of the brush weir.⁹

Other Fisheries

Although it is most likely unrelated, but some evidence does exist that perhaps that porpoise or seal fishing was also a part of the Native American fisheries.¹⁰ This is evidenced by a large number of quartz arrowhead points constantly being washed up along Hammonasset Beach. These small points appear to be designed to pass through with a slightly tapered point. No firm evidence exists that these fisheries existed, however colonial records state that an adult porpoise yielded 6 gallons of high quality oil and skins made excellent leather and were captured between Old Saybrook and Madison. It is likely that seals and porpoises would enter brush fish weirs or passes close enough to shore to be captured. Several references in Massachusetts and Rhode Island mention Native Americans using a seine or tangle net to drag large striped bass close to shore where they were shot with fish arrows.¹¹

Shad Early Fisheries – Colonial Records

Native Americans would wait for spring as a source of fresh fish, as all agree New England winters were harsh times in which to gather food. No doubt the return of the alewife, smelt and shad would mean fresh fish and plentiful food, relief from dried and perhaps smoked foods. The primary cooking method was steaming shellfish and roasting fish in large open pits. Excavations at Hammonasset State Park in the 1940's indicated a series of stone "fire pits" as described by Emil Miller. One such fire pit was destroyed while building the first maintenance/storage building near the entrance of the present day William Miller campground. Mr. Miller (William Miller's brother) described a huge fire pit surrounded by smaller ones, with layers of shell, fish bones and scallop shells. It was mixed with several feet of charcoal ash and dirt. They were surprised by the find as no visible signs of the earlier use by Native Americans could be seen. It was only after excavations had begun did the extent of the dug fire pits become evident and according to Mr. Miller slowed construction for several days as thousands of stones were removed. He concluded from the size and amount of clam, oyster and scallop shells, this was the place for clambakes. The process of heating rocks and placing layers of fish/shellfish and seaweed practiced by Native Americans of New England. It

⁹ Personal communication with Paul Butterfield, February 9th, 2006.

¹⁰ "A full grown porpoise would yield 6 gallons of clear oil, fitted for illuminating or other purposes for which whale oil is ordinarily employed." Pg 198, History of Guilford and Madison, Steiner, 1897 reprint 1975.

¹¹ George Goode. Several references from Hull, Mass. And Rhode Island mention Native Americans capturing large striped bass in net webbing. Made from fibrous plants. Once surrounded the wings of the seine brought ashore the bass were killed with arrows. Perhaps the source of the narrow quartz points that continues to be found the entire length of Hammonasset Beach. Page 736, Section II.

was during this process, that he found hundreds of artifacts – clay, pottery, fragments, paints, arrowheads and the like.¹²

Colonial records about shad indicate both a roasting of fish by the fire, vertical grilling represented in planking shad today and smoking as a preservative. Unfortunately, most records indicate Native Americans used shad primarily as a source of fertilizer. But, when you estimate the size of the fishery and a relatively small population with a short season, it would be virtually impossible to consume all caught shad as food. They did make excellent animal food, rich in oil and great soil nourishment. Some evidence exists that Native Americans rendered shad as a source of oil, referred to as “oil cake fish,” and as an ingredient in succotash, a mixture of green corn and beans. A reference also can be found that the shad roe was considered a special delicacy as it was boiled with acorns.¹³

Shad were also dried by placing on stakes and slowly cooked to evaporate all moisture, leaving a dried fish that could be dried further as a preservative. This process could take several days. Records also indicate the construction of primitive racks of wood (flakes) could be used to dry fish. No matter how the shad were utilized, they no doubt were a welcome sight and precursor to the springtime, much as people regard the arrival of shad today and its shad bakes.

About Brush Weirs –

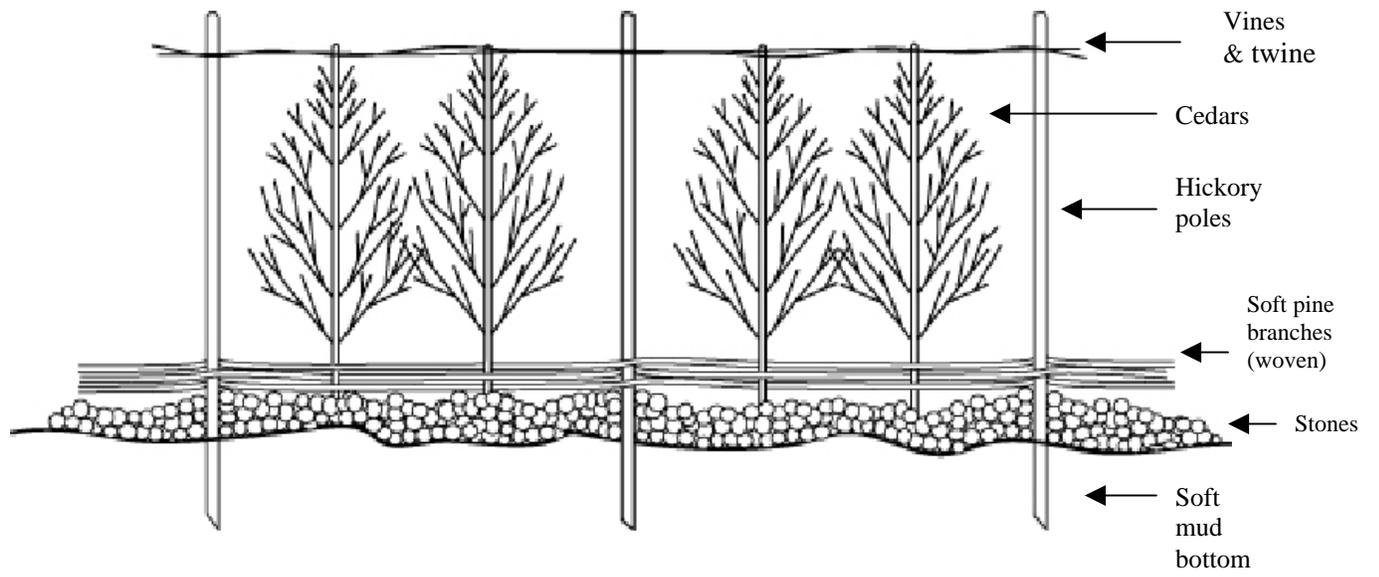
Not much remains of these early Native American weirs. They often were removed as hazards to navigation or taken over by the early Colonists. No doubt that the Brush weirs in South Cove and others in the Pequonnock and Mystic Rivers in Groton were productive.

The Brush weirs were represented here is a composite made by memory and other written sources I have located along Connecticut’s shoreline. These Brush weirs did impress the early colonists as they did record their presence, but as to the particular size and shape few other details exist. What is known is that the Brush weirs in Connecticut consisted of two types – those were dry at low tide and these were “half tide traps.” Records also indicate early fyke nets at the end of half tide traps. These were designed to capture fish guided by the “brush/stone leader.”¹⁴

¹² Personal communications, Mr. Emil Miller, 1967 to 1974, approximately. The Miller family owned part of the area created to form Hammonasset State Park. Mr. Miller was employed by the state and worked at Hammonasset State Park.

¹³ Indian use of shad roe – History of Massachusetts Fisheries, June 10th, 1621 – “our guide Tisquantum resolving that night to rest at Namasket, Indians came about three in the afternoon giving us a kind of bread collected by them. Mazium and the spawn of shads, which then they got in abundance, insomuch as they gave us spoons to eat them, with these (roe) they boiled musty acorns, but of the shads (roe) we eat heartily.” Pg 718. Section II, GBG.

¹⁴ History of brush weirs in Nova Scotia. “The Woven Weirs of Minas,” by Joleen Gordon, Pg.6. “The Micmac came to the seashore where they fished in the shallows with brush weirs and nets. They were also known to have laid stones across a stream in the form of a ‘V’ to catch eels. Remains of the stone eel weirs can be seen today, in some rivers and streams in southwestern Nova Scotia.”



The principal for collection was to create a wave or water “wave” signaling, an obstruction to guide fish into the trap. Once in the trap, it was difficult to release fish in the receding tide and escape, much like the same technique of utilizing pole traps and net pounds of the 18th and 19th century.

One of the longest Native American Fish weirs was detailed by drawings that marveled the extent of the size and complexity as those found in New England. One such brush weir was found when excavating for the foundation of the Boston Public Library in the filled section of Back Bay. While preparing the foundation workers discovered vertical wooden poles, remnants of a Native American Brush weir. It was a huge trap with an extensive leader. Estimates count the number of stakes in the thousands!¹⁵

In Connecticut, records indicate the presence of fish weirs usually constructed of brush or stone or a mixture of both. Almost every tidal river had some sort of brush weir, usually in coves or protected bays. The use of brush weirs persisted in Nova Scotia until present and provides both design and construction information. In the 1993 publication titled the “Woven Weirs of Minas” by Jolene Gordon of the Fisheries Museum of the Atlantic Halifax, Nova Scotia, Canada, the history of brush weirs is reviewed. Much thanks goes to Mr. George Bernard of Wallingford, Connecticut for providing this manuscript. It has enabled the continuation of my research of Native American fishing methods here in Connecticut.

One of the common characteristics is the use of the tide, fish entered the weir at high tide and low tide provided access to repair the weir and empty the catch.

In the history of brush weirs of Nova Scotia, it mentions that the Micmac Indians, native to the area, showed settlers how to catch fish with weirs. Similar to reports in creeks in Connecticut, Micmac Indians were known to place stones to form a “V” to catch eels and remains of stone eel weirs can still be found today, very similar to what Mr. Clark said about South Cove – Old Saybrook or what Mr. Miller said about stone traps in creeks at Hammonasset. The brush traps in the upper part of the Bay of Fundy caught shad as recorded in 1791. The fish brush weirs were described as woven and incorporated stones into the design to obstruct passage and help hold the brush in place. These traps were semi-circular frames extending cut from the shoreline – a weir described 12 Volume V. The fisheries and fishing industries of the United States (1887) George Brown Goode describes a shad weir in the Kennebec River, Maine during the 1880’s. Both types had a brush leader to guide fish into a retention basin or cage.¹⁶

Indian Brush weirs frequently mentioned the use of basket type woven of soft wood, fir or spruce followed by laced hardwood of ash. These are the first true “fyke nets” that were fished for shad into the 1960’s. The weirs described in the colonial literature all

¹⁵ American Linen Thread Company, 1938. Page 28-31. 200 Hudson St., NY. 208 pages.

¹⁶ The fisheries and fishing industries of the United States, Section (1 pg. 584, Wood, writing in 163, states that a little below the fall in Charles River, the inhabitants (Native Americans) of Watertown had built a ware (weir) to catch fish, wherein they took great store of shoals and alewives.” Also, page 685: Stonewalls were built down the stream ‘til they came in contact at an angle of forty-five degrees. At this angle, a cage was placed, composed of hoops with twigs fastened to them.”

mention three major components, vertical stakes or poles, brush and stones. No doubt weirs were built in early spring, late March to early April, and probably fished until June. I doubt that traps made it to fall, damage from the marine wood-boring worm would make the brush weak and thus, weaken the entire assembly. Stories continue in the colonial literature of large stone wall weirs built by the Native Americans, but construction details are sketchy to say the least. Poles (stakes) and pine (soft) brush could have been easily cut and dragged to the site. Stones were plentiful as anyone who ever put a shovel into New England soil can testify.

Brush Weirs and Pocket Traps

It is most likely that brush, stakes (hickory) cross poles of birch and stones were bound together by twine and net mesh. The addition of twine could add strength and most importantly stability to the weir. It was probably a rough or crude twine, as its use was limited to a few months. Evidence in early Colonial records point to the existence of pole/brush stockades, some of which were found at Hammonasset in Clinton Harbor at Meigs Point. Certainly Native Americans were excellent basket weavers so that the concept of a large basket woven with brush is within known skills. Leading and guiding the fish into the trap was something that could be accomplished with materials easily available in the shore area.¹⁷

Building the Weir

Poles could be cut and dragged to the site in early spring. Pine branches could be the woven longitudinals, while trees 3 to 5 inches in diameter could establish the frame, and thinner birch poles could be lashed to the frame poles. A top runner of vines or twine could provide increased strength and stability. Highly branched brush could then be placed between the base and poles to create the sensation of obstruction. What is less apparent is how the fish once in the brush weir were harvested. One possible solution is the use of primitive seines to net or even tangle the fish once in the “pocket.” Mesh examples from this period has been found providing the skills to make net webbing and therefore “nets”. Dip nets framed in wood would have been quite effective once fish were concentrated. A form of seine net or wall of webbing could concentrate the fish again or hauled into a canoe or dragged to the shore.

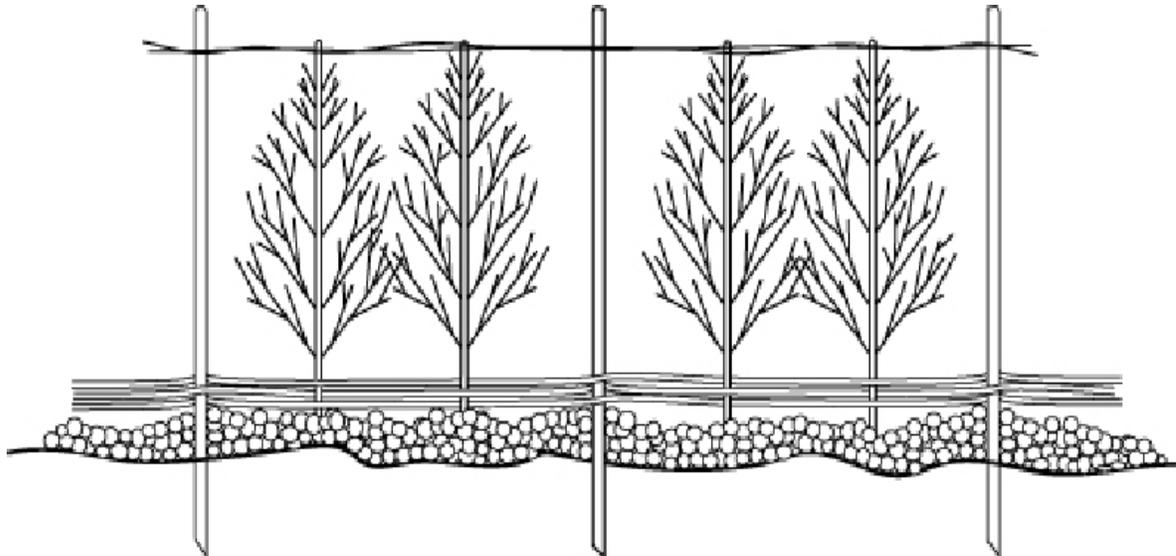
Design

From historical records from Connecticut and Massachusetts, the early fish brush weirs were circular end in a conical enclosure or pocket.¹⁸

¹⁷ See the fyke trap net fisheries of Hamburg Cove; reference the Connecticut River Museum Collection of Connecticut River Shad Fisheries. – Essex, Connecticut.

¹⁸ Mr. Clarke provided details of a hook like shape consistent with brush weirs.

The outer enclosure or wall acted to lead or guide the pockets mesh and poles could close the pocket and fish could be concentrated by going in the rear of the trap not unlike some of the deer runs built by the Algonquin tribes in New York and Canada. Once in the pocket they could be seined with tangle nets or speared.¹⁹



Some literature references speak of carrying fish from weirs on staves or stakes and sharp hickory stakes could be strong enough to hold 20 to 30 fish and carried by two people.

Summary –

All historical literature that details early Colonial life mentions the first inhabitants of coastal Connecticut and provides glimpses of daily life and living patterns. Shellfish and finfish resources were important to Native Americans as witnessed by accumulations of cast off shells and bones of fish. Fall was the best time to gather shellfish; by late August the mosquitoes were at a low point and fish plentiful. In late fall, Native Americans would retreat inland where rock outcroppings provided some protection from New England's harsh winters. The early Colonial settlers often came to the same conclusion, fall was better especially when it came to gathering oysters, and summer was a nice time to visit the shore.

Very few records detail the shad fisheries although Mr. William Lynde of Old Saybrook claimed that the Mohegan's had forfeited their right to fish in a certain area (South Cove) in 1819.²⁰ In the Hammonasset River Meadow section of River Road, below the Amtrak railroad bridge, an Indian seine net fishing for shad existed into the 1840's.²¹ However, Colonial fisheries often directly followed the ones conducted by the first

¹⁹ Multiple reports of similar fishing methods for striped bass.

²⁰ American Indians in Connecticut, Past to Present, Connecticut Indian Affairs Council, 1979. Page M23

²¹ Personal Communication with Mr. Emil Miller – fish Companies of Hammonasset, Early Native American Fisheries. Common lands reserved for fishing in Hammonasset River.

fisheries developed by Connecticut's coastal tribes. The early fyke, trap and pot fishing was often conducted in the same areas as Native Americans. The fishing habitat it appears was relatively stable until industrial development and watershed changes (primarily dams) altered the habitat upon which the fisheries were dependent.

Springtime continues to bring people together and they wait for the first news that shad have arrived in the Connecticut River. Long considered a delicacy and sought after for its flavorful flesh and roe, shad is still marketed locally by fishing families and local seafood markets. Its arrival at local restaurants is a sure sign of summer and it's celebrated at very popular shad bakes and festival in Essex and Old Saybrook. They provide a brief, yet wonderful opportunity to glimpse the past of the first shad fishery and Connecticut's state fish.

For more information about the Connecticut River Shad Fishery, contact the Connecticut River Museum in Essex, Connecticut. For the video, "A Passion For Shad – Keeping The Tradition Alive," call 860-767-8269.

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Chart – U.S. Geological Survey, Map Photo, inspected 1976.
Old Lyme, CT - Quadrangle – South Cove, Old Saybrook